INTRODUCTORY NOTE

This Handbook has been prepared to serve as a guide to those attending the Forty-Seventh 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 and/or references.

The abstracts are arranged in alphabetical order according to author, with handouts and/or references appearing in a separate section starting on page 143.

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
Center for Applied Linguistics
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THE FRENCH SUITE

THE ITALIAN SUITE

THE AUSTRIAN SUITE

Note: The Condor and Falcon Rooms, and the Phoenix Corridor are located on the floor above this diagram.
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<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>9:00</td>
<td><strong>Phonology: Specific Languages</strong></td>
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<td></td>
<td>Chairman: Winfred P. Lehmann</td>
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<td></td>
<td>9:00 John V. Hinds (U Tokyo) Topic and Focus in Japanese.</td>
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<tr>
<td>9:15</td>
<td>Henry M. Hoenigswald (U Pennsylvania) IE <em>p</em> in Celtic and the claims for Relative Chronologies.</td>
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<tr>
<td>10:00</td>
<td><strong>Break</strong></td>
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<tr>
<td>10:30</td>
<td>William H. Bennett (U Michigan) A Further Look at Verner’s Law.</td>
</tr>
<tr>
<td>11:00</td>
<td>Boyd Davis (U North Carolina, Charlotte) De Saussure’s Earlier Notions: Pre-CLG Formulations.</td>
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<tr>
<td>11:30</td>
<td>Marie-Lucie Tarpent (Simon Fraser U, Burnaby, B.C.) Abstract Phonology and the Germanic Sound Shifts.</td>
</tr>
<tr>
<td>10:00</td>
<td>Anjan Kumar Sinha (U Chicago) The Passive Construction in English and Hindi.</td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Break</strong></td>
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<tr>
<td>11:00</td>
<td>Ben Shapiro (Graduate School CUNY) The Underlying Structure of Indirect Objects.</td>
</tr>
<tr>
<td>11:30</td>
<td>Rachel Costa (U Michigan) Pseudoprefect Constructions like ‘have it finished by midnight’.</td>
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<tr>
<td>12:00</td>
<td><strong>Break</strong></td>
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<td>12:00-2:00</td>
<td>Special Interest Luncheons</td>
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**INDO-EUROPEAN: Syntax**

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<tr>
<td>9:00</td>
<td>Lancaster B &amp; C</td>
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<td>Chairman: D. Terence Langendoen</td>
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<tr>
<td>10:00</td>
<td>William Labov (U Pennsylvania) For an End to the Uncontrolled Use of Linguistic Intuitions.</td>
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<tr>
<td>11:30</td>
<td>Lynn Harding Waterhouse (U Pennsylvania) Paraphrase Behavior.</td>
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<tr>
<td>12:00-2:00</td>
<td>Special Interest Luncheons</td>
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**Phonology: Ordering**

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<tr>
<td>9:00</td>
<td>Essex</td>
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<td></td>
<td>Chairman: Morris Halle</td>
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<tr>
<td>9:00</td>
<td>James W. Harris (M.I.T.) Evidence from Portuguese for the &quot;Elsewhere Condition&quot; in Phonology.</td>
</tr>
<tr>
<td>9:30</td>
<td>Robin Barbara White (U Texas) A Monglobal Rule of the Alternation of Vowel Length in Klamath.</td>
</tr>
<tr>
<td>10:00</td>
<td>Daniel Dinnen and Robert King (Indiana U and U Texas) An Argument Against Global Rules in Phonology.</td>
</tr>
<tr>
<td>10:30</td>
<td>Larry G. Hutchisson (U Minnesota) Levels of Representation in Phono­logical Derivations.</td>
</tr>
<tr>
<td>11:00</td>
<td>L.J. Norman (U Minnesota) On the Question of Simultaneous Application.</td>
</tr>
<tr>
<td>11:30</td>
<td>Thomas A. Perry (Indiana U) Absolute Neutralization and Unordered Rules.</td>
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**Phonology**

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>2:30</td>
<td>Robert K. Szabo (U Texas) The Proper Underlying Representation of Nasalized Vowels.</td>
</tr>
<tr>
<td>3:00</td>
<td>Kathleen Houldham (U Minnesota) Syllable Shaping in English and Finnish.</td>
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<tr>
<td>3:30</td>
<td><strong>Break</strong></td>
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<tr>
<td>4:00</td>
<td>Lawrence Schourup (Ohio State U) Where Binarity Fails.</td>
</tr>
<tr>
<td>4:30</td>
<td>Robert Krohn (U Hawaii) The Simultaneity and Noncompatibility Conditions in Phonology.</td>
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<tr>
<td>5:00</td>
<td>James M. Dunn (U.S. Military Academy) ‘Mirror-Image’ Diph­thongs.</td>
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**Sociolinguistics**

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<tbody>
<tr>
<td>2:30</td>
<td>Lancaster D</td>
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<td></td>
<td>Chairman: Edith A. Moravcsik</td>
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<tr>
<td>2:30</td>
<td>Bruce Fraser (Boston U) &quot;Take Me to Your Performative&quot;</td>
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<tr>
<td>3:00</td>
<td>Glenn Frankenfield (U of Maine) Semantic Fields of Adjectives at the Discourse Level.</td>
</tr>
<tr>
<td>3:30</td>
<td>Lynette Hirschman (U Pennsylvania) A: Specific, Non-Specific and Generic.</td>
</tr>
<tr>
<td>4:00</td>
<td>Daniel Ronnie Cohen (Columbia U) One Form and Its One Meaning -- The Hebrew Preposition bpe.</td>
</tr>
<tr>
<td>4:30</td>
<td>Susan Steele (U California, San Diego) Past and Irrealis: Some Thoughts from Uto-Aztecan.</td>
</tr>
<tr>
<td>5:00</td>
<td>Maria-Luisa Rivero (U Ottawa) Antecedents of Contemporary Linguis­tic Analyses in Scholastic Logic.</td>
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</table>
**WEDNESDAY EVENING - December 27, 1972**

**MOBILE MIND OF MAN**

**FALCON ROOM**

8 - 10

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<thead>
<tr>
<th>LANGUAGE ACQUISITION</th>
<th>PHONOLOGY: SPECIFIC LANGUAGES</th>
<th>SYNTAX: THEORY</th>
<th>EXPERIMENTAL PHONETICS AND NATURAL PHONOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essex</td>
<td>Lancaster A</td>
<td>Lancaster B &amp; C</td>
<td>Lancaster A</td>
</tr>
<tr>
<td>Charles A. Ferguson</td>
<td>Carroll K. Reed</td>
<td>Ilse Lehiste</td>
<td>Eric P. Hamp</td>
</tr>
<tr>
<td>7:30 Arlene I. Moskowitz (UCLA)</td>
<td>John J. Attinasi (Columbia U)</td>
<td>Chairman: Stuart R. Copyright</td>
<td>Richard A.</td>
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<tr>
<td>8:00 Amy Sheldon (U Minnesota) The Role of Parallel Function in the Acquisition of Relative Clauses.</td>
<td>8:30 Paul Kote (U Florida) Downstepping the 'Downstep' -tone in the GA Verb Revisited.</td>
<td>9:00 David R. Leidner (U Connecticut)</td>
<td>An Electromyographic Study of the American English Liped.</td>
</tr>
<tr>
<td>William C. Ritchie (Syracuse U) Constraints on Adult-Acquired Syntax.</td>
<td>8:30 Irwin Howard (U Hawaii) Menomini Vowel Lengthening Reconsidered.</td>
<td>9:30 Dale Terbeek (U Chicago)</td>
<td>An Experiment in Vowel Perception: Some Implications for Phonology.</td>
</tr>
<tr>
<td>9:00 Robert A. Terrebonne (Wright State U) The Imperative Singular of the Old English Verb.</td>
<td>9:00 Lloyd B. Anderson (Ohio State U)</td>
<td>10:00 Kyle Perkins (U Michigan)</td>
<td>Nez Perc Vowel Harmony and the Natural Evaluation Metric.</td>
</tr>
<tr>
<td>James E. DeRocher (Syracuse U) Research Corp.) Differential Language Aptitude and Creativity.</td>
<td>11:00 Paul Kiparsky (M.I.T.)</td>
<td>11:30 William J. Sullivan (U Florida)</td>
<td>Naturalness, Phonology, and the Fleeing Vowel in Russian.</td>
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</table>

**THURSDAY MORNING - December 28, 1972**

**INDO-EUROPEAN: PHONOLOGY 1**

<table>
<thead>
<tr>
<th>Essex</th>
<th>Chairman: Harry A. Whittaker</th>
</tr>
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<tbody>
<tr>
<td>9:00</td>
<td>Susan Currie, Victoria Fromkin &amp; Stephen Krashen (UCLA) The Syntactic Development of Genie.</td>
</tr>
<tr>
<td>10:00</td>
<td>V.A. Fromkin and D. Van Lanker (UCLA) The Perception of Tone and Phonological Theory.</td>
</tr>
<tr>
<td>10:30</td>
<td>George Papcun, Stephen Krashen (UCLA) and Dale Terbeek (U Chicago) What is Peculiar About Language?: Evidence from Studies of Lateralization.</td>
</tr>
<tr>
<td>11:00</td>
<td>Carol Rinnert (SUNY-Buffalo) Semantic Structure and Processing: Evidence from Aphasia.</td>
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<tr>
<td>11:30</td>
<td>Hugh Buckingham and Andrew Kertesz (U Rochester and St. Joseph's Hospital) Alliteration and Assonance in Neologistic Jargon Aphasia.</td>
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**NEUROLINGUISTICS**

<table>
<thead>
<tr>
<th>Essex</th>
<th>Lancaster A</th>
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<tbody>
<tr>
<td>9:00</td>
<td>Jaan Puurve (UCLA) On Labiovelars in Hittite.</td>
</tr>
<tr>
<td>9:30</td>
<td>Margie O'Bryan (U Illinois) Younger Avestan Acquiescent Singulars in -tw/-am.</td>
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<tr>
<td>10:00</td>
<td>B R E A K</td>
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<tr>
<td>10:30</td>
<td>Robert J. Jeffers (Ohio State U) On Historical Italic Phonology and the Nature of the IE Aspirates.</td>
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<tr>
<td>11:00</td>
<td>Lloyd B. Anderson and Robert J. Jeffers (Ohio State U) The Perception of Tone and the Nature of the IE Aspirates.</td>
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**EXPERIMENTAL PHONETICS AND NATURAL PHONOLOGY**

<table>
<thead>
<tr>
<th>Lancaster B &amp; C</th>
<th>Chairman: John J. Ohala</th>
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<tbody>
<tr>
<td>9:00</td>
<td>Mercedes Boldt (SUNY at Buffalo) In Defense of Raising.</td>
</tr>
<tr>
<td>10:00</td>
<td>Georgi M. Green (U Illinois) The Derivation of a Relative Infinitive Construction.</td>
</tr>
<tr>
<td>10:30</td>
<td>Edward L. Keenan and Bernard Comrie (King's College and Cambridge U) Noun Phrase Accessibility and Universal Grammar.</td>
</tr>
<tr>
<td>11:00</td>
<td>Arnold J. Zwicky (Ohio State U) Why is there Grammar?</td>
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12:00-2:00 - Presidential luncheon - YORK & STUART
THURSDAY AFTERNOON - December 28, 1972

LANGUAGE AND THE BRAIN
LANCASTER D, B & C

2:00 Introduction: William Orr Dingell, Ph.D. (Director, Linguistic Program U Maryland)
2:30 Neuropsychology: Eric H. Lenneberg, Ph.D. (Prof. Psych & Neurobiology, Cornell)
3:00 DISCUSSION
4:05 DISCUSSION
5:10 DISCUSSION
5:30 Overview of Proceedings: Paul Fedio, Ph.D. (Surgical Neurology Branch, National Institute Neurological Diseases and Stroke, NIH)

FRIDAY MORNING - December 29, 1972

ENGLISH PROSODY 2

2:00 Robert F. Port (U Connecticut) Intelligent Inference and Swahili Verb Suffixes.
2:30 Harvey Rosenbaum (Southwest Reg. Lab.) Language Types and Universal Grammar.
3:00 Ronald E. Buckalew (Pennsylvania State U) The Shift of Nominal -er from Man to Machine.
3:30 Barbara Bergmann Davis (U Wisconsin) Cross-Sentential Pronominalization in English.
4:00 David Michaels (U Connecticut) Phrase Structure and the Phonological Word.
4:30 Donald H. Albury (U Florida) In-Extraposition and the Verb-Initial Hypothesis.
5:00 Marilyn Merritt (U Pennsylvania) Punctuating Devices in Discourse -- Preliminary Notes.

8:00 Business Meeting, LANCASTER A,B,C & D
9:30 - MIDNIGHT - LSA PRIVATE BAR - YORK & STUART
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<tbody>
<tr>
<td>2:00</td>
<td>Mushira Eid (U Minnesota) Disjunctions and Alternative Questions in Arabic.</td>
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<tr>
<td>2:30</td>
<td>Tim Shopen (Indiana U) Context-Sensitive Constraints and Grammatical Indeterminacy.</td>
</tr>
<tr>
<td>3:00</td>
<td>Edith A. Moravcsik (UCLA) Emphatic Reflexive and Verb Complement Reflexive Pronouns: Are they Related or Not?</td>
</tr>
<tr>
<td>3:30</td>
<td>Bruce L. Pearson (U South Carolina) The Lexicon as a Filtering Device.</td>
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<tr>
<td>4:00</td>
<td>Krystyna Anna Wachowicz (U Texas, Austin) Who What When said?</td>
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<tr>
<td>4:30</td>
<td>Bruce L. Pearson (U South Carolina) The Lexicon as a Filtering Device.</td>
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<tr>
<td>2:00</td>
<td>Marianne Cooley (U California, Davis) Surface Phonetic Constraints in English Historical Phonology.</td>
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<tr>
<td>2:30</td>
<td>Paul W. Brosman, Jr. (Tulane U) The Use of Germanic Evidence by Romance Linguists.</td>
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<tr>
<td>3:00</td>
<td>Sylvia Freese (U Texas) A History of Relativization in English.</td>
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<td>4:00</td>
<td>Curtis D. McFarland (Yale U) The Dialects of Bikol.</td>
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<tr>
<td>2:00</td>
<td>Terrance M. Nearey (U Connecticut) Perceptual Aspects of Horizontal Vowel Harmony.</td>
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<tr>
<td>3:00</td>
<td>Hsin-I Hsieh (U Hawaii) On Listing Phonological Surface Forms in the Lexicon.</td>
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<tr>
<td>3:30</td>
<td>Break</td>
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<tr>
<td>4:00</td>
<td>Manjari Ohala (U California) The Abstractness Controversy: Experimental Input from Hindi.</td>
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<tr>
<td>2:00</td>
<td>Masayoshi Shibatani (U California, Berkeley) Lakoff and Ross on the Anaphoric Island Constraint.</td>
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<tr>
<td>3:00</td>
<td>Francis Jhusz (Columbia U) Some Constructions with Overt Occurrence of 'to be' in Hungarian.</td>
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<tr>
<td>3:30</td>
<td>Lyle Jenkins (Harvard and M.I.T.) On the English Existential THERE.</td>
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<tr>
<td>4:00</td>
<td>Richard M. Smaby (U Pennsylvania) Context and Reference Devices in English.</td>
</tr>
<tr>
<td>4:30</td>
<td>James H. Rose (Purdue U) Deleted and Semi-Deleted Verbs.</td>
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It-Extraposition and the Verb-Initial Hypothesis

The rule formulated by Rosenbaum under the name Extraposition, and now commonly called it-Extraposition, seems to be as well established as any in Transformational Grammar. However, consideration of Derived Nominals reveals a problem. In general, there are no Derived Nominals corresponding to sentences which have undergone certain optional rules in their derivations, while sentences which have not undergone any of this set of rules in their derivations do have corresponding Derived Nominals. Thus, sentences which have undergone tough-Movement in their derivations, such as John is easy to please, do not have corresponding Derived Nominals (*John's easiness to please is not acceptable), while the related sentences which have not undergone tough-Movement, such as It is easy to please John, do have corresponding Derived Nominals, e.g. The easiness of pleasing John.

The case of it-Extraposition is different, however, in that sentences which have undergone it-Extraposition, such as It is easy to please John, have corresponding Derived Nominals, while the related sentences which met the structural description of it-Extraposition during their derivations, but which did not undergo the rule, such as To please John is easy, do not have corresponding Derived Nominals (*To please John's easiness is not acceptable). It is not just the case, however, that only sentences which have undergone it-Extraposition have corresponding Derived Nominals, for sentences which never underwent the rule because they never met its structural description, such as John is eager to please, do have corresponding Derived Nominals, e.g. John's eagerness to please. This problem disappears if we consider Extraposed sentences in light of McCawley's hypothesis that English has underlying verb-initial order. By this hypothesis, the underlying order of the elements in the string which yields It is easy to please John would be [[(is) easy]V[[please John]S]N]S. The verb-NP Inversion rule which is needed in the verb-initial hypothesis to yield the normal surface order of SVO in English would derive To please John is easy from the above underlying string. In the standard formulation, it-Extraposition would then apply to the intermediate string underlying To please John is easy, restoring the deep underlying order of verb-NP. This switch of verb-NP order to NP-verb and back again seems redundant. It can be eliminated if the verb-NP Inversion rule is instead formulated to apply optionally to underlying strings with only one NP which is an S. The it which appears in Extraposed sentences could then be inserted in subject position by the same rule which provides a subject it for meteorological
verbs. The problem of the occurrence of sentences with corresponding Derived Nominals disappears, in that Extrapos ed sentences, which have corresponding Derived Nominals, have not had optional verb-NP Inversion apply in their derivations, parallel to the cases with other optional rules. Thus, the adoption of the verb-initial hypothesis leads to the abandonment of **it-Extraposition**, and the regularization of the occurrence of Derived Nominals.

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LLOYD B. ANDERSON, University of North Carolina

**Consonant and Vowel Gradation in Indo-European Syllables: Some Confirmations of Reconstructive Reasoning**

1. Indo-European had a phonetic syllable-gradation involving both consonants and vowels. The most direct evidence for this can be found in some unleveled paradigms of Hittite, but even without that, careful reasoning in reconstruction would lead to the same conclusion.

2. In several Hittite paradigms showing both consonantal and vocalic alternation, the two are correlated and we can reconstruct stress. Stops are voiced immediately preceding stress, and stressed /e/ is opposed to unstressed /e, i/ (Table 1).

3. Indo-European vowel gradation was caused by stress. The opposition of stressed /e, e, ø/ to unstressed /e = ø/ led to merger of /ø/ into the most open /a/ in some languages.

Later stress shifts (esp. Greek) produced more stressed /ø/, preventing loss of some shows. This division of strong and weak vowels is plausible on universal grounds (on /ø/ = /e/ compare modern Russian). Reconstructed stress now makes more sense syntactically. (Vowel color is still affected by harmony, consonants, and analogy, as with other approaches.)

4. Several oddities in the manner of articulation of IE stops are explained as relics of stress placement (Table 2).

5. Szemerényi has argued recently for phonetically plausible reconstructions and against esthetic preferences in formal patterns (Table 3). But his own reconstructions should be modified further on this basis, as follows:

6. There is no phonetic justification for "syllabic sonants" (short or long) at any stage of common IE. The syncope of neighboring vowels is adequate (Table 4). In weakening of simple /Vn, Vx/ the coefficient may be directly lost. There is functional parallelism with /ey ~ i/ but not formal parallelism.

7. There were both monosyllabic and diasyllabic roots, including both /CVC-/, /CVCC-/, and /CVRcC-/. When not neutralized, evidence is available on root shape and even vowel quality. Without evidence, neither shorter nor longer forms are preferable in reconstruction. The weakest claim is made by /CVC(0)-/, /CVR(0)C-/. Wyatt's arguments for Indo-Iranian /a/ = original /a, e, o/ can be greatly strengthened. The correlation of weak /a/ with labials, /a > i/ with dentals, is universal (Table 5).

8. Szemerényi's [h] is instead [x], with all expected reflexes (Table 6).

9. Maps of IE dialect areas show a high correlation of the phenomena considered.
The PIE root *sek* has been traditionally subdivided by Indo-Europeanists into two roots: (I) *sek* - 'to follow, accompany' (cf. Lat. sequor, Gk. ἰπομαί, Skt. śec-, OIr. sechur 'I follow'; also Toch. sē-, Lith. sėkti, Av. haćitē, O.Cze. sečgr 'follow') and (II) *sek* - 'to see, say, show' (cf. Hitt., saku(w)a 'eye', was 'to see' and that 'to follow' is derived from 'to follow, accompany' (cf. Lat. sequor, Gk. ἰπομαί, Lith. sėkti, Av. haćitē, O.Cze. sečgr 'follow').

Based on the following evidence, this paper proposes that the semantic development of *sek* was 'to see' and that 'to follow' is derived from 'to see'.

a) Hittite, the oldest known Indo-European language, shows the meaning 'see' in šak(a)(w)a. (I)

b) Reflexes of *sek* are often found in the Medi-Passive Voice in the historical languages. Though there is no definite rule for Medi-Passive in the IE languages, it is often found with verbs which signify cognitive or mental processes (cf. Lat. alucinor 'dream', loquor 'speak'; Gk. ἰπομαί 'wish', epīstamai 'know'; Skt. mud- 'be pleased'). While 'to see' is a verb commonly found in the Medi-Passive (cf. Lat. conspicor, Gk. ἰπομαί), there appears to be no semantic motivation for a verb 'to follow' to have been an original Medi-Passive in PIE. At least it does not fit into any of the categories commonly assumed for the Medi-Passive in PIE.

In place of the derivation 'to follow (with the eyes)' → 'to see', this paper proposes that the semantic development of *sek* was, based on the evidence cited above, 'to see, get sight of' → 'to keep in sight' → 'to follow'. This analysis is further supported by the colloquial English use of 'see' in the sense 'escort, accompany', as in 'May I see you home from the dance, Ms. Jones?'.

WILLIAM H. BENNETT, University of Michigan

A Further Look at Verner's Law

The Most Recent Interpretation (1972). The parent Indo-European accent, which was based chiefly on pitch, was movable. The primary accent occurred in some words on the root syllable, in others on an affix or ending, and in still others it alternated from form to form, as still in Gk. nom. patēr 'father' beside voc. pater, acc. patēra, gen. patrōs, and dat. (historically loc.) patērī. Contrast the fixed primary stress in early OE fēder 'father' (all cases).

Primary accent, whether based chiefly on pitch or chiefly on stress, demands an increased expenditure of effort, as lesser degrees of accent require less effect. In Indo-European, /p t k/ were strongly articulated (FORTIS) when preceded by primary accent, as in *klēpō, *aðfer-, *dēwq-. Conversely, they were more gently articulated (LENIS) when following a reduced accent, as in *lojpē, *mātēr, *pējknēs, and when occurring in phrase-bound forms preceding the primary accent (namely in proclitics), e.g. *kom- in *kom-mōjnis.

At the beginning of the Proto-Germanic period, a new primary stress became fixed on word-initial syllables, so that word-initial /p t k/ were always fortis, regardless of how they had been articulated in Indo-European: g- in IE *pējknēs > f- in Go. fulgins 'hidden, secret', *lojpa > *lojpē 'I steal', *dēwq- > *dēwq- 'lead, draw'. At the same time, the lenis allophones of /p t k/ shifted respectively to lenis-voiceless [p t k]: *klēpō > *klojpa 'lave, remnant', *mātēr > *mājēr 'mother', *kom- > *kom-mōjnis > *kom-mōjnis 'common'.

In itself, this shifting produced no phonemic change, for the shifted allophones were all voiceless. Before the end of the Proto-Germanic period, however, voiceless [p t k] merged respectively with the phonemes /b d g/, which were voiced and had shifted from IE /bʰ dʰ gʰ/. As a result, the former co-allophones [p t k] and [b d g], all originally voiceless, now contrasted as voiceless /p t k/ versus voiced /b d g/.

An Earlier Interpretation (1968). In a prior study it has been assumed that /p/ shifted directly to voiceless /f/ versus voiced /b/, that /t/ shifted directly to /θ/ versus /ð/, and so on. But although such a development is conceivable on purely theoretical grounds, the merger of [p t k] with /b d g/ provides a far better explanation, especially in view of the fact that this merger is fully confirmed.
The Conventional Formulation (1875-). It can be shown that the usual treatment of Verner’s Law is purely formulaic, fails to explain certain facts, and requires that certain other facts be ignored or denied, but no attempt to discuss such details will be made in this abstract.

WILL BENWARE, University of California at Davis  
Jacob Grimm’s Vowel Triad: A Brake on Nineteenth-Century Indo-European Research

For almost a century now Indo-Europeanists have agreed that the short vowels a and o belonged to the parent of the Indo-European languages. This conclusion was reached toward the end of the 1870’s, following decades in which it was assumed that Proto-Indo-European had only the short vowels, a, i and u. This paper shows that the origins of the idea of an original Proto-Indo-European vowel triad are to be traced to Jacob Grimm’s a priori notions about language, which were not specifically related to considerations regarding Proto-Indo-European.

These a priori notions resulted subsequently in setting up the a-i-u triad for Proto-Indo-European, included the following:

1. The conception of a three-step development in the history of every language as part of a three-step evolution of poetry from myth to epic to conscious artistic creation.

2. The conception of the increasing abstractness of language through these three stages, creating the need for more forms and sounds. Hence, earlier stages of a language have fewer sounds than later.

3. The conception of ‘basic’ vowels. Grimm utilized the ideas of 18th-century ‘universal’ grammarians that certain vowels were ‘basic’, and applied it to his three-step scheme. Out of the ‘basic’ vowels grew all the rest.

4. The conception that original languages were more euphonious than languages in their later stages.

In his study of Germanic, Grimm found that Gothic, the oldest-attested Germanic language, had only a, i and u in its short vowel inventory. He concluded on the basis of his a priori notions that this triad reflected an earlier (the mythical) stage of the language, which had only these three basic vowels, all the long vowels and diphthongs being subsequent combinations of these three.

Shortly after Grimm’s conclusions concerning Germanic he noted that the Sanskrit short vowel system likewise consisted of a, i and u only. The result of this coincidence simply confirmed Grimm’s belief in the originality of a, i and u, and this assertion passed into Indo-European studies as dogma until the efforts of scholars in the 1860’s and 1870’s produced the necessary evidence to disprove it.

BOBBER BERDAN, Southwest Regional Laboratory  
Have-Got in the Speech of Anglo and Black Children

The use of have-got and its alternatives was investigated in the speech of Anglo and Black grade school children from lower and middle income neighborhoods.

Six different surface realizations can occur:
1. He has got a book.
2. He’s got a book.
3. He has a book.
4. He have a book.
5. He got a book.
6. He gots a book.

Techniques were devised to elicit multiple occurrences of both main verb and modal in a range of diagnostic environments, including questions and negatives.

Most of the children systematically use only one of the alternate surface forms, a few use two. These differences are correlated with other social dialect differences evidenced by the children. Some of the differences are found to be developmental. Systematic differences appear in the grammars of the children, particularly in the marking of subject-verb agreement and in the tense/aspect system.

Grammatical theories which treat have as an auxiliary, as a main verb present in the deep structure, and as transformationally inserted, are discussed in relation to each of the different dialects represented by the children. No single treatment can be considered the most desirable for all of the grammars.
Greek -sai : Hittite -asha-

The Greek aorist active infinitive suffix -sai has long been recognized as being in origin a case form of a verbal noun. It is cognate with the Latin active infinitives in -se and -re and passive infinitives in -se and the Vedic dative infinitives in -ase. The Latin infinitives represent the locative and the dative respectively. The vocalism of Greek -sai has resisted satisfactory explanation. The expected ending of the dative would be *-ei.

The Hittite suffix -asha- forms nouns naming actions, states, or qualities from verbs and occasionally from nouns and adjectives. It is far less frequent than the suffix -atar (oblique stem -ann-) which has a similar function. The Hittite suffix -asha- is cognate with the aforementioned Greek, Latin, and Sanskrit infinitives. All contain reflexes of an Indo-European *-sH2- suffix which formed verbal nouns. The first -a- of the Hittite suffix is the thematic vowel inserted before Hittite deverbal suffixes. The suffix -asha- has become an a-stem because Hittite has no inherited root nouns in +grave consonants. Comparison with this Hittite suffix reveals that the Greek infinitive is a dative with the expected *-ei ending colored by the laryngeal.

The Use of Germanic Evidence by Romance Linguists

Romance linguists have, to a startling degree, misinterpreted Germanic evidence. Two major unsettled questions cited in support of this contention are those of the source of Germanic loanwords in French and the conjugation of borrowed Germanic verbs throughout Romance. Apparently the principal reason that Romance scholars cannot agree as to whether French borrowed extensively from Old High German is that those who have considered the matter have taken East Franconian, the one dialect in contact with no variety of Romance, as representative of Old High German. Uncertainty also exists as to whether rules may be stated concerning the Romance conjugations into which verbs of the various major Germanic types were taken. Here it appears that the principal impediment to progress has been that only one scholar has considered that Germanic verbs are often conjugated differently in different dialects and that none has taken note of differences based on stem-formation or chronological developments. Because of the scope of these problems and the elementary nature of the Germanic facts with which unfamiliarity has been displayed, a not implausible conclusion is that most previous work on Germanic borrowing by Romance must be redone.

The Shift of Nominal -er from Man to Machine

Technology is a recognized influence on the development of the vocabulary of current English, both in the formation of new words and in the new use of old ones. One unrecognized effect of this influence, however, is the ongoing shift in function of the highly productive -er noun affix from forming animate agent nouns to forming inanimate instrumental ones. With the advent of farm machines, such as thresher, which performed tasks previously restricted only to human beings and were therefore named metaphorically, more and more machines and tools, from computers to erasers, have been given names formed with this suffix.

These nouns fall into three groups: those which still refer to animate beings exclusively, such as lover, eater, hearer, and thinker (these are often formed on verbs which require animate subjects); those which refer to machines or tools exclusively, such as eraser, cleanser, and typewriter; and those which have either reference depending on the situation of use, such as dishwasher (animate in a help-wanted advertisement but inanimate in a for-sale one), digger (laborer or earthmoving machine), walker (one who doesn't drive or ride or an ambulatory device), and speaker (animate on the platform and inanimate on the wall). Many of these already have chiefly an instrumental connotation because they are more often used with reference to inanimate objects, such as (lawn)mower, (pencil)sharpeners, and (can)openers. The tension resulting from potential ambiguity where either of two referents may be understood is certain to continue the decline of the agent use of this affix and to encourage its replacement by other formations, such as those in -ist (machinist, motorist, and typist).

Examples of the use of these -er nouns in specific contexts will document the course of this shift and its implications for processes of linguistic change.
A Linguistic Analysis of Alliteration and Assonance in Neologistic Jargon Aphasia

Lesions in the posterior portion of the first temporal convolution in the dominant cerebral hemisphere can cause a sensory aphasia which disturbs proper perception of linguistic stimuli and which results in speech output that exhibits normal phonological constraints and supra-segmental patterns. However, a large percentage of the utterances are unrecognizable, and as a result are without much semantic value. Many of the "jargon" episodes produced by these patients are marked with the repetition or perseveration of phonological units, both vocalic and consonantal.

The purpose of the present paper will be to examine data from two patients suffering from this syndrome. We will discuss the location of the phonological perseverations, their stereotypic patterns, and their relationships to those stretches of speech which are neologistic and void of meaning. The evidence to date leads us to believe that the syllable is the best unit to treat these phenomena.

The following are examples of the type of data with which we will be dealing:

(1) ...as I said as we /késtimir měskástir márkámir/ just last week.
(2) ...I can sit on the /šámpis/ and my /skíc/ in came....
(3) ...it's a pon /šéyp/ of /šéwts/ that /šép/.
(4) .../sédırlz/ for /šéwbadiy/.../sédý seţ sémz sédý/...going for /šéděr/.
(5) ...and she could do /stfé řdíérz/ /sdy šalirz/ /skíř řdíérz/ /skétší řdíérz/ everyone of them.

The consequences of this type of data will be discussed in terms of general phonological theory and models for speech production.

The Passive Construction: Chinese and English

The passive construction in Mandarin Chinese is viewed as consisting of (a) a higher copulative sentence with an unspecified subject and a predicate nominal (the latter of which is to be realized as the NP following the passive marker běi), (b) an embedded sentence with a subject identical to the predicate nominal of the higher sentence, and (c) a complement sentence. One of the important conditions for the passive transformation to operate is that the embedded sentence must have a deep agentive subject—a condition that seems to be prevalent in languages. This hypothesis does not only account for the significant restrictions on the passive sentence in Mandarin Chinese but also explains the fact that an English negative passive sentence with a "colorless" intonation is not translatable as a passive (i.e. with a běi-phrase) but as a negative copulative sentence in Mandarin. Thus, the English sentence

(1) The window was not broken by the boy

corresponds to the following:

(2) Chwänge běi bōge hědī dài bē de.

even though its affirmative counterpart may very well be translated as a passive sentence in Chinese.

This formulation seems to look very much like the one proposed by Kinsuke Hasegawa (Language 44:230-43) for the English passive construction. My contention is, however, that, though the English passive sentence with "be -EN" originates from a higher sentence in the deep structure, the higher sentence should not contain a subject identical to the surface subject. It rather has the following deep-structure configuration:

11
The Saussurian concept of a linguistic sign comprising a one-form/one-meaning unit is given very little consideration in most American schools of linguistics. This is especially true in the domain of functors, such as prepositions, where linguists have by and large contented themselves with ascertaining the various uses of these prepositions. I refer not only to traditional grammarians who simply listed these uses, and not only to structural linguists, who substituted the terms construction and function for use, but also to the transformational grammarians. (Recall, for example, George Lakoff’s “On Instrumental Adverbs and the Concept of Deep Structure,” and the painstakingly isolated instrumental use of the preposition “with”.)

There is reason to believe that all of language -- including the prepositions -- can be understood in terms of the Saussurian concept of linguistic form-and-meaning bearing signs. That means that virtually every preposition is one sign with one meaning. I shall illustrate with a preposition in Modern Israeli Hebrew -- ba, whose meaning is circumstance (shorthand for: the object of the preposition ba constitutes part or all of the scene [environment, surrounding, setting] of the element being modified by the prepositional phrase, where ‘scene’ is open to physical, temporal, and metaphorical interpretations). For example, the sentence (translated into English save for the prepositions)

He cuts the bread ba-the morning ba-knife.

has both ‘the morning’ and ‘knife’ as circumstances of the bread-cutting, i.e. they make up the scene of the activity.

Generally, ba has the following uses in Hebrew: time/place at which; inside (spatial and temporal); duration; instrumental; manner; qualitative; specification. There are also sets of verbs (‘look at’, ‘begin’, ‘believe in’...) which govern ba. I shall demonstrate that these (and other) uses of ba follow from the meaning circumstance, and that any interpretations that a hearer makes regarding instrument, manner, duration, etc., are merely inferences from the general meaning circumstance in association with the meanings of the lexical items in the immediate environment. In the above example, it is our cultural understanding of knives, bread-cutting, and periods of the day which leads us to infer that ‘knife’ is the instrument, and ‘the morning’ is the time at which the event takes place.

The consequences of the validation of this claim appear to be quite

serious for transformational grammar, calling into question as it does the basic transformational assumptions regarding sentential meaning (and therefore sentential synonymy and paraphrase), and the entire rationale behind transformations.

In this paper I present evidence that analogy has played a significant role in the generalization of a syntactic constraint. The existence of analogical processes in syntax has considerable theoretical import. Analogy explains how semantically motivated syntactic regularities may become generalized, and hence lose their semantic motivation. Although analogy is often difficult to falsify on language internal grounds, I show that when analogy has the effect of extending a semantically based process, it is possible to make predictions regarding other languages which have the same or similar semantically based property, but lack independent motivation for analogy. In such cases it would be expected that the property in question would not be generalized. This methodology allows the formulation of empirically falsifiable hypotheses dealing with analogy in syntax.

The constraint which I examine in some detail is the ban against backward pronounization with indefinite antecedents. Many, though apparently not all, languages possess such a constraint. The semantic motivation for the constraint appears to be that speakers understand personal pronouns in isolation to be inherently definite. Thus when the pronoun precedes its antecedent, a presupposition that there is a definite referent exists. However, when a pronoun follows its antecedent, no such presupposition is occasioned. The pronoun agrees with its antecedent in definiteness.

Some languages having this constraint are Mandarin, South Min, Yoruba, Hebrew and Korean. (For a sample of this data, see 1 in Handout.) An identical constraint also exists for many speakers of English, who find (1a) and (2a) grammatical and (1b) and (2b) ungrammatical.

(1) a. Each boy goes to school when he gets up.
b. *When he gets up, each boy goes to school.
(2) a. Who is surprised by the claim that he is a fraud?
b. *Who does the claim that he is a fraud surprise?
However, in addition to (1b) and (2b), (3b) is ungrammatical for many speakers of English.

(3) a. This is the man who was surprised by the fact that he had cancer.
   b. *This is the man who the fact that he had cancer
Since the wh nominals in relative clauses can be shown to be semantically and syntactically definite, a constraint against backward pronominalization with indefinite antecedents would fail to block (3b). The fact that relativized nominals should fail to allow backward pronominalization requires an explanation.

Some facts noted by Arthur Schwartz suggest why this should be so. On the basis of a comparison of relativization and wh question formation in a number of languages, Schwartz (1971) proposes that many of the properties of relative clauses in languages having wh nominals in relative clauses are imitative of wh questions. Extending Schwartz’s hypothesis to (3b), the ungrammaticality of (3b) is explained as a case of analogy in syntax. That is, the morphological similarity between wh forms in questions and relative clauses causes the speaker to consider all wh forms to form a natural class. Thus the constraint against backward pronominalization with indefinites is extended to wh forms in relative clauses.

Although the analogical hypothesis cannot be tested on the basis of evidence internal to English, this hypothesis makes certain cross linguistic predictions which are subject to falsification. If (3b) is ungrammatical in English because the processes of relativization and wh question formation are related, it would be expected that sentences equivalent to (3b) would be grammatical in languages in which there is no evidence of a close relationship between wh question formation and relativization. Evidence from all the languages I have examined so far confirms this prediction. Thus the equivalent of (3b) is grammatical in Mandarin, South Min, Yoruba, Hebrew and Korean. (See II in Handout.) Thus, I conclude, barring an independent explanation of the ungrammaticality of (3b), the evidence I present in this paper strongly suggests that (3b) is ungrammatical on the basis of analogy.

In this paper experimental confirmation is presented of the hypothesis (House, Journal of the Acoustical Society of America, 1961) that (1) the longer duration of [i] with respect to [I] in American English is attributable to the linguistic competence of the native speaker, but that (2) the longer duration of [m] and [o] with respect to [I] is attributable to the mechanical constraints of the vocal apparatus. Our experimental results also cast doubt on the analysis (Chomsky and Halle, The Sound Pattern of English, 1968) that (3) holds lax [I], and both tense [m] and lax [m] all to derive from underlying lax vowels.

Using a new technique, developed for the purpose of testing our hypotheses, experimental subjects were required to make productive use of their linguistic knowledge without using any part of the vocal apparatus. This was achieved by giving each subject direct manual control of the relevant variable, vocalic duration, in the production of whole words /sis, sir, sam, sae/, orthographically ‘cease, sis, sass, sauce,’ using a computer-controlled speech synthesizer.

If (1) is true, we expect the experimentally obtained values of [i] and [I] to be significantly different, the value of [I] being smaller than the value of [I]. This result was obtained.

If (2) is true, we expect the values of [i], [m] and [o] to show no significant differences. This result was also obtained.

If (3) is true, we expect the values of lax /I/ [i] and lax /m/ [m] to be the same, this value being smaller than the value of tense /I/ [I]. This result was not obtained.

Statistical treatment of the data using analysis of variance shows the above results to be highly significant under all test conditions for all experimental groups tested. In fact, the difference between [i] and [I], although relatively small in real speech, is increased in manual-synthetic production. The difference between [I] and [m] remains significant. Conversely, the differences between [i] and [m] or [o], which are relatively large in real speech, are completely lost in manual-synthetic production.
These results might be viewed as having some implications for historical change, e.g. they could be taken as supporting the position that the English Great Vowel Shift may have originated with change in the high vowels.

MARIANNE COOLEY, University of California, Davis  [FRI AFT:3]
Surface Phonetic Constraints in English Historical Phonology

Shibatani (1971) has suggested that surface phonetic constraints (SPC's) are relevant to general phonological theory, and in particular to phonological change. I apply this idea to Early Modern English data and attempt to show that SPC's may provide a more satisfactory motivation for a number of changes which have previously been considered independent. These changes include the loss of initial /k/ and /g/ before /n/ and the loss of /y/ in certain clusters before /uw/. This analysis also suggests that under certain circumstances SPC's may briefly be violated and that syllable boundaries as well as word boundaries may be available in a phonetic representation.

Two basic constraints on prevocalic clusters are assumed to have existed since OE times on both the morpheme structure and surface phonetic levels: (A) A cluster consists maximally of three segments in the following order:

1. fricatives
2. oral stops
3. nasals, liquids, glides.

(B) In a given cluster, only one member of any class may occur. Although additional constraints existed, only these two are relevant SPC's for the changes under consideration.

During the latter sixteenth and early seventeenth centuries, some vowel changes occurred, creating the sequence /yuw/ from /iu/, /iw/, /ew/, /u/. By the late seventeenth century, several consonant deletions had also occurred though the two changes have not traditionally been related. The following table outlines these changes.

<table>
<thead>
<tr>
<th>Rule</th>
<th>/rulw/</th>
<th>/ryuw/</th>
<th>/ruwl/</th>
</tr>
</thead>
<tbody>
<tr>
<td>/gluw/</td>
<td>/glew/</td>
<td>/gleyw/</td>
<td></td>
</tr>
<tr>
<td>/nuw/</td>
<td>/niew/</td>
<td>/niew/</td>
<td></td>
</tr>
<tr>
<td>/struw/</td>
<td>/struw/</td>
<td>/struw/</td>
<td></td>
</tr>
<tr>
<td>/nyuw/</td>
<td>/nyuw/</td>
<td>/nyuw/</td>
<td></td>
</tr>
</tbody>
</table>

Although SPC's prohibit the underlined clusters, they are recorded; however, all but one of the prohibited clusters later change, while the permitted sequences remain or merely develop variants. I propose that these changes constitute adjustments to "correct" the imbalance between existing SPC's and occurring phonetic sequences. They involve both the addition of phonological rules deleting /y/, /w/, /g/ in specific environments and the generalization of the SPC which specifies the membership of the second positional class to include nasal as well as oral stops. I assume this constraint is a SPC because the stop must be assumed to be present in the morpheme to account for surface alternations like know/acknowledge.

These developments in the history of English phonology tend to support the thesis that SPC's do play a role in phonology and that they suggest a fruitful area for historical research. They may provide some explanation for why a change occurs when it does (as a corrective means for conforming to SPC's) and why one language rather than another may undergo a particular change (as a result of a new SPC in only one language, cf. German Knie and English Knee).

RACHEL COSTA, University of Michigan  [WED MORN:3]
Pseudoperfect Constructions Like "have it finished by midnight"

"Pseudoperfect" constructions like (1):

1) Gran had the dress finished by midnight.
bear a superficial resemblance to resultative perfects (in which the object follows instead of precedes the past participle) but differ from them in several ways. In particular:

i) Pseudoperfects are not used with stative or involuntary verbs because such verbs are incompatible with the notion of effort and accomplishment associated with pseudoperfects;

ii) Pseudoperfects are not used with verbs which do not allow the inference, either logically or because the context invites it, of an enduring visible result, as shown in (2):

2) I don't think Sid has anything *written *hit *looked at yet.

iii) Instead of the past participle, an adjective, progressive -ing or adverbial phrase may occur, e.g. (3):

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2) I don't think Sid has anything *written *hit *looked at yet.

iii) Instead of the past participle, an adjective, progressive -ing or adverbial phrase may occur, e.g. (3):
3) The shepherd certainly has those sheep

iv) The have of pseudoperfects is an active verb that can be used as an imperative or in the complement of try.

In fact, pseudoperfects are semantically much closer to causative get-constructions, which also behave as in (i) - (iv), though have here differs from get in always occurring with a time expression indicating some moment from the point of view of which some state is viewed as completed, cf. (4):

4) Yesterday I actually a) got b) had c) had gotten the beds made! *(by midnight) *(by midnight) *(by midnight)

Note that have behaves in (4) like the (plu)perfect of get, and my claim is that pseudoperfects are not perfects of the verb appearing in surface structure as the past participle, but rather the "preterite presents" of causative get, i.e. resultative perfects in which the assertion of some state's having come into being allows the inference that the state is (i.e. without inchoative), just as UK. I have got = I have.

Finally, I argue that the have of pseudoperfects is get minus inchoative, following the generally accepted view of the relation between have and get, but dominated by a causative, and that it is related to the perfect auxiliary have somewhat as a root modal is to its epistemic form, with the difference that while the surface subject of root modals is a logical indirect object, that of root have remains its logical subject.

SUSAN CURTISS, University of California, Los Angeles
VICTORIA FROMSKIN, University of California, Los Angeles
STEPHEN KRASHEN, University of California, Los Angeles
Cross-Sentential Pronominalization in English

"Genie" is a 15-year-old girl who lived for close to 11 years under conditions of extreme psycho-physical-social isolation and deprivation. She was discovered at the age of 13 and at that time had no linguistic performance and little, if any, linguistic competence. In other words she was a child without language. This was revealed by a series of comprehension tests administered weekly; these tests also show a continuing growth in comprehension of syntactic structures. The purpose of this paper is to describe Genie's syntactic development to date and to note areas of difference between Genie's syntax and the early stages of syntactic development as reported in the literature.

Genie's speech began with single words. These one-word utterances included nouns, verbs, and adjectives. Several months after she had begun to use individual words, Genie began to construct two-word strings. These strings included possessives, modifier + noun, noun + verb, verb + noun, and neg + 5 constructions. All of these constructions still exist in Genie's speech in addition to less frequently occurring longer strings of up to 4 morphemes. Mod + N and genitive constructions occasionally serve as NP's in some of her longer utterances. But although Genie has produced sentences of 4 morphemes, her speech still consists mainly of one and two-word strings.

In many ways Genie's syntactic development resembles the early linguistic development of normal children. But there are striking differences; e.g., differences in rate of syntactic development, differences in the kinds of lexical items utilized in speech, differences in language use. Such differences may be reflecting larger, more significant differences between Genie and normal young children. There is the strong possibility that unlike normal language-users, Genie may be using her right hemisphere for language (see Stephen Krashen's abstract, page 64).

Thus Genie's linguistic development, in addition to pointing up clearly the distinction between comprehension and production and competence and performance, may well indicate just what the brain can or cannot do when attempting first language acquisition past the critical period, past the stage at which lateralization normally is complete, possibly past the stage at which the brain can do more than the most primitive and earliest forms of syntax.

BARBARA BERGMANN DAVIS, University of Wisconsin, Madison

Pronominalization across sentence boundaries can be accounted for by three conditions. These conditions are stated in terms of the semantic, morphological and discourse properties of the concepts which underlie the pronoun, its antecedent and any noun phrases which intervene between them. Since the conditions contrast sharply with the kinds of rules recently proposed by transformational grammarians, the conditions are offered as evidence for a level of linguistic analysis above the sentence.
The conditions are applicable only when the concept to be pronominalized has been mentioned in the previous discourse. They are applied sequentially until either one intervening concept would prevent pronominalization or all would allow it. The conditions are ordered and apply only if the preceding one(s) will not allow pronominalization.

Condition I involves the semantic properties of concepts; if the intervening concept could not occur (make sense) in the mentioned concept environment, pronominalization may take place. Otherwise Condition II is considered. The properties which determine whether a concept can occur in a given environment often can be expressed in terms of selectional restrictions (Chomsky 1965), but the unacceptability of *conduct time, *assimilate from good, and *heart is a yearning suggests that more complex, semantic properties are relevant.

Condition II involves the morphological properties of concepts; if the intervening concept does not have the same pronoun form as the mentioned concept, pronominalization may take place. Otherwise Condition III is considered. Determining the pronoun forms of the two concepts can be accomplished by means of an ordered consideration of the features [human], [speaker], [hearer], [plural], and [feminine].

Condition III involves the discourse properties of concepts; if the intervening concept does not have the same prominence as the mentioned concept, pronominalization may take place. Otherwise it is blocked. Prominence is defined in terms of theme, focus and identified (Halliday 1967).

BOYD H. DAVIS, University of North Carolina, Charlotte

De Saussure's Earlier Notions: Pre-CLG Formulations

Scholars rightly ascribe seminal importance to Ferdinand de Saussure's (posthumous) Cours de linguistique générale for twentieth-century linguistic theory. And, he is traditionally credited with developing the method of internal reconstruction through his Mémoire sur le système primitif des voyelles indo-européennes. However, in three of his earliest, undeservedly neglected articles written between 1876-1878, we may see the germ of several notions which would be amplified in his later works; investigators of nineteenth and twentieth-century methodologies should not overlook these early articles.

In his earliest article, 'Le suffixe -t-', de Saussure initiated the development of the method which was to become known as internal reconstruction, and formulated the beginnings of his later distinction between synchrony and diachrony. In his 'Essai d'une distinction des différents a indo-européens,' although he later retracted his findings, de Saussure refined his concept of language as a system capable of being dealt with in the abstract. And in his 'Les origines indo-européennes ou les Aryas primitifs,' de Saussure clearly revealed a concern with the social aspect of language which, without minimizing Durkheim's later impact, was long before the sociologist, Emile Durkheim, could have influenced his thought.

JAMES E. DEROCHER, Syracuse University Research Corporation

Differential Language Aptitude and Creativity

This study analyzed the predictive power of certain measures of divergent semantic production ability as they related to the academic achievement of a selected sample of military students enrolled in intensive language training at the Defense Language Institute and it compared the efficiency of these measures with the language aptitude test then used as the military standard.

The techniques of multivariate analysis were used to assist in discovering, exploring, clarifying, and explaining relationships among selected variables of divergent production, convergent production, and language achievement. The elements of the analysis consisted of three criterion scores of achievement and nine predictor variables obtained from a sample of military personnel (N = 79) enrolled in intensive language courses (Russian, Chinese, Spanish, French) at the Defense Language Institute. The study received its theoretical impetus from the Structure-of-Intellect Model developed by Guilford.

The variables considered were age; educational level; scores from the Defense Language Aptitude Test (DLAT) and the Guilford Tests (Expressional Fluency, Possible Jobs, Associational Fluency, Alternate Uses, Plot Titles (Clever and Nonclever); and scores from end-of-course tests and teacher-given grades.

The results of this study confirmed that creativity, as measured by divergent production tests, was positively correlated with success in foreign language learning. Further, the results indicated that the students possessed both a general language aptitude and an aptitude which was
language specific. In all cases, the inclusion of both the DLAT scores and the divergent production scores in the multiple regression equation yielded results superior to those obtained when either was used alone. The most marked example of the predictive superiority of the divergent production tests over the DLAT was noted for the Chinese sample. In only the French sample did the DLAT achieve higher correlations. It was concluded that better predictions of success would be obtained from a combination of convergent and divergent variables, rather than from a sole reliance on either.

[REFERENCES: Page 245]

WILLIAM ORR DINGWALL, University of Maryland [WED MORN:2]
JOYCE L. HOUSE, U.S. Army Behavior and Systems Research Laboratory

From Utterance to Gist: Four Experimental Studies of What's in Between

It has been known for almost 100 years (Binet et Henri 1894) that very shortly after hearing an utterance little, if anything, of its syntactic form or lexical make-up is retained -- only a very general idea of its meaning, in a word, its gist. In this paper we focus on the processing that takes place in that brief interval between the hearing of an utterance and the extraction of its gist. We shall contend that, on the basis of experimental findings thus far available, there is far more evidence tending to support the psychological reality of such linguistic constructs as surface structure (SS), transformational rules (TRs) and deep structure (DS) in this initial stage of sentence perception than the alternative hypothesis of perceptual strategies which denies any role to the former two (Bever 1968). This being the case, we suggest that, rather than the over-hasty rejection of such linguistic constructs, what is needed is further experimental evidence bearing on their putative role in sentence processing. To this end, we have conducted the four extensive experimental studies outlined below.

Materials. The stimuli used in our experiments consist of a set of 135 English sentences which may be partitioned into nine subsets of 15 type-related sentences each. The breakdown of each subset for experimental purposes is as follows: 1 practice sentence, 8 basic sentences (6 of which are grammatical and 2 of which are anomalous), plus 6 supplementary sentences (used in the phoneme-monitoring experiments only), all of which are grammatical. A detailed syntactic analysis of each one of these nine sentence types is provided and a number of complexity measures based on this analysis are computed. These include inter alia, node-to-terminal-node ratio, maximum depth, mean depth, number of elementary transformations, etc.

Experiments. (I). Comprehensibility. This experiment uses a procedure developed and extensively explored by James Deese and his colleagues at Johns Hopkins. The S is asked to make a judgment as to whether a sentence just heard is comprehensible or incomprehensible and a rating of his degree of confidence in this judgment on a 7-point scale. Three seconds are allowed for both judgments before the next sentence is presented. This study was designed to test the hypothesis that the potentiality for interpretation is related to the introspective state of comprehension or understanding and therefore comprehensibility judgments measure SS complexity and that this measure is sensitive only to syntactic structure -- not semantic content.

(II). Savin-Perchonock. The well-known experimental technique developed by these two investigators (1965) was applied to our materials. It involves verbatim recall of a sentence plus free recall of the eight words following the sentence. On the basis of previous experimental results, it was hypothesized that this memorial technique would be sensitive to the transformational "tags" contained in 6 of our sentence types but would not consistently reflect other complexity relations.

(III). Phoneme-monitoring Latency. The task in this experiment involves listening for a word-initial phoneme which may be variously positioned in a sentence (or may not occur at all) and responding as rapidly as possible by pressing a button switch. The button switch stops a timer activated by a tone positioned on a separate channel of the tape opposite the phoneme. In addition, Ss are required to produce a paraphrase of each sentence. It is hypothesized that phoneme-monitoring latency increases as the syntactic complexity at or before the point of monitoring increases. Evidence from studies at the University of Texas support this hypothesis (Foss and Lynch 1969).

(IV). Subject-object Determination. In this task, S is presented a sentence auditorily immediately followed by a verb from the sentence for which he is to supply the logical (DS) subject and object. (Extensive practice in this task is provided.) Thus given the sentence: eeveryone knows that chorus girls are anxious to please during performances and the verb: please, he is to indicate that the chorus girls are the ones who do the pleasing and that those whom they please is not directly specified in the sentence. The reaction time from the presentation of the verb to the onset of the S's phonation is recorded as well as his response. It is hypothesized
that this task is sensitive to syntactic complexity, specifically derivational complexity.

Statistical analysis of the results of two of the above experiments is in large measure completed and basically supports the Miller-Chomsky (1963) model of sentence processing, incorporating SS and DS levels of representation and transformational operations linking the two.

Daniel Dinnisen, Indiana University

Robert King, University of Texas

An Argument Against Global Rules in Phonology

The topic of global rules in phonology has received much interest in current theoretical linguistics. Much of that interest has focused controversially on the necessity of global rules and the extent to which they increase descriptive power. But at no point has the correctness of the claims made by global rules been weighed against the correctness of widely held assumptions about the nature of natural language. In this paper, it is argued that the inclusion of global rules into phonological theory necessarily results in a contradiction to the non-controversial assumption that certain historical changes in natural language are instances of grammatical simplification. Familiar examples of simplification by rule reordering are offered from German in support of the position that global rules make the wrong claim. For example, reorderings from bleeding to counter-bleeding orders are typically to be characterized as changes in the direction of simplification. Within a global rule framework, however, the rules of the earlier stage are properly sequenced to stand in a bleeding relation by the universal minimization of opacity principle (unmarked). To achieve the equivalence of a counter-bleeding relation for the later stage, a language-specific global condition (marked) must be incorporated into one of the rules. The change, then, from stage I to stage II in all such cases will always be incorrectly characterized by a global rule approach as a change toward increased grammatical complexity.

Catherine Drachman, Ohio State University

Baby Talk in Greek

Baby-talk may be defined as that form of speech, different from normal adult speech, considered appropriate in talking to very young children, pets, or even one's lover, depending on the culture involved. But the term also necessarily includes hypocoristics, the names of characters in children's stories and the words of nursery rhymes and songs, as well as the terminology of children's games.

It has been noted that the shapes of many baby-talk words are quite conventionalized, some forms having indeed become widely diffused across language (and even Sprachbund) boundaries. On the other hand it might be held that, regardless of historical source, such forms could not be transmitted without the support of adult intuitions concerning the development of language in the child. Thus, this paper considers the synchronic explanation of the phonetic shapes of baby-talk words, as an independent problem within the framework of generative phonology.

This study is based on data gathered in the course of current research on the acquisition of Greek as a native language.

James M. Dunn, U.S. Military Academy

Mirror-Image Diphthongs

1. Purpose: Some languages have a complex set of diphthongs among which 'mirror-image' pairs occur (e.g. /æW/ vs. /WA/). The purpose of this paper is to show how these pairs can be treated uniquely as single phonemic units. The data used is Welsh.

2. The convention: The convention proposed in this paper extends the long-accepted specification of affricates with 'contradictory' features to diphthongs. Just as English /c/ and /s/ are [+ strident, -continuant] so the diphthongs /ai/, /aw/, /eu/ are [+low, + high] (see matrix below). These diphthongs, then, are not low vowels and high glides but, like affricates, are regarded as unitary forms whose 'contradictory' features are phonetically sequential. That is, tautosegmental features are realized sequentially if and only if their simultaneous realization is physically impossible. Thus, the convention assigns high and palatal to the glide and the rest of the features to the vowel. Vowels with schwa off-glides are merely [+ sequenced]. The feature
sequenced replaces delayed release and applies to diphthongs and affricates alike.

3. The problem: This convention is effective in dealing with diphthongs that pattern unidirectionally (such as /aɪ/ /aʊ/ /ɔɪ/) but difficulties arise when 'mirror-image' pairs occur.

In some dialects of Welsh /ɔɪ/ can occur as [o̯i̯] and even [œi̯].

Thus, coyt 'timber' can be [kœyt], [kœyt], or [kœyt]. Comparative examples are: French loi 'law' [lœi] developing historically from /œi/ < /ɔɪ/; English boy occurring as [bœi] in some dialects in the southern United States. As the matrix below shows, the relationship between the unidirectional diphthongs /œi/ and /ɔɪ/ can be generalized in terms of the features low and palatal. In accounting for the relationship between /œi/, /œi/, and /œi/, the danger of confusion with /œi/ becomes apparent. The question is how to formally account for all these diphthongs and retain the advantages of the single-unit convention.

4. Proposed solution: To make a generalization about diphthongs and at the same time to formally contrast 'mirror-images' I propose the use of the terms 'rising' and 'falling' within the distinctive feature framework. Rising diphthongs are glide-vowel sequences (the syllable nucleus rises to a peak); falling diphthongs are vowel-glide sequences (the syllable nucleus falls from a peak). The cost of this addition is offset by the greater descriptive power it brings. It formalizes in natural terms the process of reverse sequencing in diphthongs and captures the distinction between 'mirror-image' pairs.

FRED ECKMAN, Indiana University

On Subordinate Deletion

Most treatments of Equi NP Deletion have assumed this rule to be a process of subordinate deletion, whereby a sentence like (1) is derived by applying Equi NP Deletion to (2).

(1) John expects to win the race.
(2) NP V NP
    John expects NP

In addition to being a rule of subordinate deletion, it has usually been assumed, either implicitly or explicitly, that Equi NP Deletion also has the properties listed in (3).

(3) Equi NP Deletion:
    a. applies only to subjects of complement sentences.
    b. is superficially downward bounded in that it can delete the subject of a complement sentence which is identical to an NP in only the next higher clause.
    c. applies bidirectionally to delete the subject of a complement sentence which functions as either the subject or object of the matrix clause.

The thesis of this paper is that by viewing Equi NP Deletion as a rule which erases the second of two identical NP within the same simplex, the facts in (3) follow from independently motivated principles.

Thus, for example, if we reformulate Equi NP Deletion to delete the second of two identical NP within the same simplex, to account for a sentence like (1), we would first apply the rule, Subject Raising, to (2) to generate a structure like (4).

(4) NP V NP
    NP V NP
    John expects John

Given (4), our new formulation of Equi NP Deletion applies to derive (1).

What is interesting about Subject Raising in this context is that the constraints on this rule seem to parallel precisely those in (3a) and (3b). Specifically, Subject Raising applies only to complement subjects and is upward bounded in that it may raise an NP into the predicate of only the next higher sentence. Therefore, given our formulation of Equi NP Deletion, the facts in (3a) and (3b) follow from the constraints on Subject Raising.

Moreover, additional support for this analysis comes from the fact that this new version of Equi NP Deletion should be conflatable with the rule which relates the sentences in (5) and (6), assuming that the sentences in (6) are derived by a process of deletion from the structures underlying those in (5).

(5) a. John shaved himself.
    b. Bill washed himself.
(6) a. John shaved.
    b. Bill washed.
Disjunctions and Alternative Questions in Arabic

The purpose of the paper is to examine the relationship between disjunction, negation and interrogation and to show how this can determine the underlying structure of alternative and yes/no questions in Egyptian Arabic. This relationship is relevant not only to the grammar of Arabic but also to the hypothesis advocated in recent literature that alternative and yes/no questions are derived from the disjunction of two sentences which, in the case of the latter, consist of an affirmative statement and its negative.

Arabic has two types of disjunctions, ?aw and ~· both meaning "or." Semantically, the reading associated with ?aw is that of an inclusive disjunction whereas that associated with ~· is exclusive.

1. ilwalad ?aw ilbint hayiigu
    The boy or the girl (or both) will come.

2. ya lwalad ya lbint hayiigu
    The boy or the girl (but not both) will come.

It will be argued that only an exclusive disjunction can occur with alternative and yes/no questions. The facts of Arabic will support this argument and point to another aspect of this relationship between disjunctions and questions. There is a third disjunction walla "or" which is also exclusive but which occurs only with questions.

3. ?alla lwalad hayiigi walla lbint
    Is it that the boy will come or the girl?

4. ?alla lwalad hayiigi walla la
    Is it that the boy will come or not?

These questions can only have an exclusive disjunctive reading and the disjunction itself, walla "or," can be derived from conjunction and negation. These facts can, therefore, be accounted for by translating the definition of an exclusive disjunction given in propositional logic into grammatical structure and deriving the surface forms of both alternative and yes/no questions from that structure.
Subjects is possible in Japanese. This stands in contrast to languages such as English and Danish where bridges always depend on a verb. Since no verb precedes Sentential Subjects, extraction out of them in these languages will never be possible. Hence, J.R. Ross' Sentential Subject constraint need not be stated as a separate constraint within the here proposed theory, but follows from it.

EDWIN D. FLOYD, University of Pittsburgh  [THURS AFT:2]

Greek Third Plurals in *-r and -(e)san

In both Indo-Iranian and Greek, the usual secondary third plural ending reflects Indo-European *-nt, *-sent or *-ont. In Sanskrit and in some Greek dialects, there is also one other type of formation, viz., Sanskrit -ur and Greek -san or -an. Examples of this are the imperfects adadhur and (unaugmented) ethesan 'they placed'. The same correlation of -ur and -(e)san appears also in the imperfects of dae- and da- 'give' and bha- and pha- 'say', in the rare pluperfect, and in athematic aorists such as adhur and ethesan. In other instances, the two types do not correspond, partly because of a demonstrably late spread of -san in Attic-Ionic; however, the correlations just cited indicate that the same Indo-European ending (independently regularized away in Iranian and Doric Greek) lies behind both -ur and -(e)san. This ending was *-r, and it developed regularly to Sanskrit -ur and Greek *-ar. The latter development is pan-Hellenic, and significantly antedates the development of medial *-r- to -or- or -ro- in some Greek dialects.

Throughout its history, Greek has increasingly avoided word final -r-. For example, quasi-inflectional forms such as nuktor 'at night' very early became obsolete; later, the agentive suffix -tis became obsolescent; later, the agentive suffix -tis became obsolescent; later, the agentive suffix -tis became obsolete; later, the agentive suffix -tis became obsolete; later, the agentive suffix -tis became obsolete. Consequently, their ending -r- was in some Greek dialects replaced with -an or -san, according to whether the established type edeiksan was analyzed as coming from underlying ed-eik-s-an or e-deik-s-san.

E. D. FRANCIS, Yale University  [THURS AFT:2]

PIE *HRH-C in Greek

It is generally accepted that PIE strings of the type *CRH-C (where C = consonant; R = r, l, m, n; H = laryngeal) develop in Greek as CRV-C (where V = vowel). It can also be argued that the quality of V in such developments is phonologically determined by the definition of the underlying PIE laryngeal and, even from strings of the type *HRH-C and *HRH-C, does not result from grammatical change, as Kuryłowicz and others have supposed. Furthermore, contrary to current opinion, the definition of *-R- in this environment may be extended to include the PIE semi-vowels *y and *w, at least before *O- and *A-coloring laryngeals, respectively, thus accounting for forms such as Gk. zo(w)oi 'live', zo(w)os 'alive' and d(w)ąrōs 'long' by regular sound change.

PIE strings of the type *HRH-C -- with a laryngeal (*H) and not a consonant (*C) in root-initial position -- are usually held to develop in Greek as *(V)RV-C, with preconsonantal long vowel as in the outcome of *CRH-C types. On the other hand, analysis of the relevant root-allomorphs (approximately 25 in all, e.g. a(w)a-, ang-, ela-, emo-, ole-(ole)-, ome-, ono-, etc.) and especially root allomorphs such as a(w)e-in aetmōn to pneuma ([Hsch.] not only fails to offer unambiguous support for this development but may indeed favor an alternative sound-law according to which Greek strings of the type VRV-C, and not (V)RV-C, represent the direct phonological reflex of preconsonantal *HRH-. As a consequence of this hypothesis, full- and zero-grades of (State I) *HeRH-roots fall together by regular sound change with the zero-grade of (State II) *HeRH-roots, while VRV- and VRV-represent, respectively, the
normal reflexes of full- and zero-grades of (State II) *HReH*-roots. Conversely, according to the commonly accepted development, the full- and zero-grade reflexes of State II roots coincide with those of the zero-grade of State I roots and not with their full-grade.

GLENN FRANKENFIELD, University of Maine  

Semantic Fields of Adjectives at the Discourse Level

Such neurolinguistic investigators as E. Weigl, Luria and Vinogradova have pointed out the fallacy of believing that real semantic fields have the same boundaries as logical categories. In studies which used single vocabulary items to evoke or facilitate other vocabulary items, it was found that the boundaries of real semantic fields may be more (or less) inclusive than those of logical categories, may also involve psychological and social relations, and may differ between individuals. The purpose of this study is not only to show that semantic fields at the discourse level have these same properties, but that at a deeper level there is an underlying structural identity.

Separate lists were made of all adjectives occurring in characteristic passages from Jane Austen, Hemingway, and Hawthorne. The list for each author broke down very clearly into two sub-lists. In Jane Austen, the contrast was between words indicating the presence of a positive quality (handsome, good, useful, strong) and words indicating the absence of a positive quality (plain, poor, thin, lank), but not the presence of a negative quality. In Hemingway, content-rich words with physical reference (steel rimmed, dusty, pontoon, ankle deep) contrast with virtually vacuous words with qualitative reference (good, fine, silly, nice). And in Hawthorne, ponderous words (dark, gloomy, oaken, iron) alternate with more insubstantial, delicate ones (wild, delicate, fragile, sweet). This evidence makes obvious differences between individuals in structuring the selection of adjectives at the discourse level and the involvement of psychological and social relations beyond the boundaries of logical categories. (Compare, for example, Jane Austen's use of 'good' with Hemingway's.) Underlying these individual differences, however, there is a structural identity: varying surface pairs of antonymous lists imply the existence of universal deep plus-minus relationships which surface in idiosyncratic ways.

BRUCE FRASER, Boston University  

"Take Me To Your Performative"

Performative sentences are those whose utterance may count as the performance of the act denoted by the main verb. It is usually assumed that the form of these sentences is (simplifying): [[[I-[performative]-...-[verb]]-you-s]. We find, however, that many performative sentences permit some verbal element between the subject and performative; e.g. "I can promise you that...", "I should add that...", and "I would bet that..." can all count as performatives. Such verbal elements I will call leaders.

The facts about leaders pattern as follows:

1. Modals differing in tense sometimes differ in selection, e.g.
   I can promise... /*I could promise...  /* indicates the non-performative possibility. *I may add... /*I might add...
2. Modals differing with their paraphrastic versions, e.g.
   I can bet... /*I am able to bet...
   I must mention... /*I have to mention...
   I should judge... /*I ought to judge...
3. Modals selecting only certain performative verbs, e.g.
   I can promise/report... /*I can judge/order...
   I should warn/mention... /*I should promise/ask...
4. Some leaders taking embedded performative verbs, e.g.
   I regret to...[takes only a performative verb]
   I am honored/sorry/glad to inform you...
   I hasten to report...
5. Some performative verbs requiring a leader, e.g.
   I should mention... /*I mention...
   I can reveal... /*I reveal...
6. Ceremonial performatives (e.g. pronounce, veto, christen) not permitting a leader.

The purpose of my paper is to show that the facts illustrated in 1-3 above are not random or idiomatic but can be accounted for in terms of the meaning of the leaders and the analysis of performative verbs into semantic classes, independently motivated. For example, should may lead performative verbs of Suggesting (e.g. suggest, recommend, advise, urge) but not verbs of Requesting (e.g. request, order, command, demand); must has the opposite set of restrictions. Can may lead performative verbs of Committing (e.g. promise, assure, guarantee, swear) but not verbs of Evaluating (e.g. estimate, assess, judge, calculate); would has the opposite set of restrictions.
The main immediate significance of these results is to more clearly define what may count as a performative sentence. The ultimate result will be, I suspect, that we will find the notion of performative sentence joining the ranks of fuzzy linguistic concepts.

SYLVIA FREEZE, University of Texas [FRI AFT:3]
A History of Relativization in English

This paper traces the development of the rule of relativization from Early Middle English, in which the rule was a copying rule allowing a pronominal replacement of the shared noun phrase in the embedded clause, to Modern English, in which the rule is a chopping rule requiring obligatory deletion of the shared noun phrase.

In their paper "Speech Perception and Grammatical Structure" (in Linguistic Change and Generative Theory) dealing with the development of relative clauses from Old English to Contemporary English, Bever and Langendoen attempt to formulate rules and the changes in these rules to show the evolution of relativization in English. They account for the fact that relative pronoun formation became obligatory by "perceptual strategies" for processing NP and VP sequences. Historically the need for relative pronouns was brought about by the loss of nominal and verbal inflections in the language. The obligatory deletion of the shared nominal in the embedded sentence when there were no relative clause markers was due to the need to understand the sentence as a subordinate structure rather than a coordinate one.

Bever and Langendoen's examples involve finite indicative verb forms.

By looking at sentences involving non-indicatives and topicalization, one notes that it is possible to predict the distributions that they discuss in terms of sentential environments. Thus the following topicalized sentence can be expected to retain the shared nominal:

Hwose heleð out, he naue5 iseid nout. (Ancren Riwle 314)

Who hides anything, he has said nothing.

whereas a subjunctive sentence can be expected not to retain the shared nominal:

Hwo so hit haueo ooer of pe holi prumnesse, sigge pe wulle. (Ancren Riwle 26)

Who has it or some other (prayer) to the holy Trinity, let her say what she will.

What Bever and Langendoen account for by "perceptual strategies" and by the decline of declensions are perhaps actually syntactic phenomena.

PAUL FRIEDRICH, University of Chicago [WED AFT:1]
How Relevant is Homeric "Relevance?"

This statement criticizes an egregious example, involving Homeric Greek, of the widespread linguistic practice whereby grammar is inferred by correlating morphological forms with the glosses in a translation. A more adequate description can be inferred if one assumes that Homer generally produced le verbe juste and then showing how he exploited the resources of his language in order to do so.

In a recent article in Acta Linguistica Hafniensia (1969), W. Diver invoked the familiar position that there is a great deal of randomness (arbitrariness) in Homer's verbal usage, particularly of the traditional categories of aorist/imperfect and active/middle; the "wrong form" allegedly appears hundreds of times. Diver asserts that this usage is non-random and proposes "to explain the non-random character" in terms of a new category of "relevance": to what extent is a given lexical meaning relatively tangential or relatively central to the point of a particular message? To support his theory, Diver analyzes a large number of passages, and also presents quantitative validations. The article has stimulated widespread approbation among Indo-Europeanists and Classicists, and was appealed to as an authority in two of the papers presented at the last meetings of the LSA.

Diver's analysis is fallacious at all levels. As regards "randomness" and "relevance," a reanalysis of all the passages has shown that Homer's selections are entirely explicable in terms of (1) lexical facts about the individual verbs (e.g. the active voice of the verb for "to procreate" is used when reference is to the mother, whereas the middle is used for the father), (2) the formulaic exigencies of this particular oral epic tradition (e.g. the convenience of fit in a dactylic hexameter line), and above all (3) the semantics of the subcategories of aspect and voice (e.g. one middle voice form is said to be "less relevant" because it involves a "momentary interruption," whereas Homer's selection is clearly motivated by the purpose of describing an action in the interest of the subject-agent--who in this case happen to be drawing off the bodies of
their own dead). Not only is Diver's "relevance" irrelevant, but his use of the category is often contradictory and he pays almost no discernible heed to the sophisticated syntax of Chantraine, Schwyzzer, and other grammarians of Homeric Greek. At a deeper level, the analysis is based on confusions regarding code and message and the role of statistical frequencies in grammatical analysis. Non-randomness, "the essence of language" is best described, not through surface correlations, but in terms of an underlying system of symbolic processes.

VICTORIA FROMKIN, University of California, Los Angeles
D. VAN LANCKER, University of California, Los Angeles

The Perception of Tone and Phonological Theory

This paper discusses the distinctive features of tone and the physiological and perceptual correlates of such features.

The research reported on involves dichotic listening tests, in which subjects are presented with competing simultaneous sounds in the two ears. The results of earlier tests of this kind have shown a right ear superiority for linguistic stimuli, and a left ear advantage for certain music stimuli and environmental sounds, demonstrating a left hemisphere 'dominance' for language and a right hemisphere dominance for other acoustic stimuli, like pitch. Our experiments were conducted to determine whether speakers of tone languages process pitch like other linguistic features when the pitch represents contrasting tones. Three sets of stimuli were used: randomly paired combinations of five Thai words differing in tone only; paired lists of five Thai words contrasting only in initial segments; and the five Thai tones hummed to contrast only in pitch level and direction. Thai speakers were used as the subjects.

The preliminary results support the hypothesis that the physical signal is less important in the processing than is the linguistic function of the acoustic features. For Thai speakers a right ear superiority for pitch stimuli was demonstrated only when the contrasting pitches represented linguistic tones. Consonants and 'hums' were perceived as expected: a right ear preference for consonants; a left ear preference for non-linguistic pitch.

The distinction between physical phonetic phenomena and phonological phenomena is once again attested, in 'performance' as well as 'competence'.

The results of the tests conducted so far also suggest that direction of pitch movement is as important as relative pitch levels in distinguishing between contrasting tones. Some support is provided for the inclusion of contour features as well as level-tone features. The importance of 'pitch movements' in tone discrimination also suggests that performance factors play an important role in limiting the number of possible level-tone contrasts in languages of the world.

This experimental work on tone represents one attempt to find empirical evidence for linguistic hypotheses.

HENRY PHELPS GATES, JR., University of North Carolina

Paradigm Regularity and the Development of the Attic Vowel System

Early Attic Greek underwent a number of changes affecting low and front vowels; the historical order of these changes, as revealed by relic forms, differs from the order in which they apply to derived forms. Rule reordering has occurred, resulting in increased paradigmatic regularity.

Some of the changes which appear to have taken place in prehistoric Attic include the following:

(A) Proto-Greek a became in all environments; a new a develops from various sources (e.g. tás < tana);
(B) ea contracted to : genea > gene;
(C) y disappeared between vowels;
(D) a and y shortened to before a following vowel, with lengthening of the following vowel, if short: khreos > khreos;
(E) became after e: horom > hora;
(F) became after e and : blia > blia.

Various attempts have been made to determine the relative chronology of these changes, on the assumption that the historical chronology must directly account for all attested forms.

But no one ordering of the rules will account both for paradigmatic and relic forms. The chronology of several changes can be deduced from relic forms: thus (B) preceded (C), since contraction was prevented by an intervening y (enena < enena); in turn, (C) preceded (D), since an intervening y did not prevent (D) (himos > heos); again, (D) preceded (E), since param became parea. But a complication arises in forms where ea followed r, e.g. plera < pleres (accusative of pleres). In these forms, (E) must apply before (B); otherwise, *plera would result. These forms,
however, occur only in paradigms, in a small number of categories, and they were subject to influence from forms in these categories where ee was preceded by another consonant (e.g. eugenē < eugenéa, accusative of eugenēs). In effect, a rule reordering has occurred, increasing paradigm regularity.

On the other hand, (F), in spite of its similarity to (E), does not reorder: (B) continues to apply before (F) in forms like Periklēs < Periklem < Perikelwea (accusative of Perikles < Perikelwe: note that similar vowels contract regardless of intervening y). The contraction in the nominative and elsewhere gave these paradigms a different structure from eugenē, etc., and hence they escaped analogical influence: reordering here would not have increased paradigm regularity.

[REFERENCES: Page 245]

GEORGE M. GREEN, University of Illinois [THURS MORN:2]
The Derivation of a Relative Infinitive Construction

This paper examines the derivation of infinitive phrases such as (1).
1. John bought a toy to amuse himself with.

Although this construction is quite common in English (and other languages, though it may be more restricted), it has been little discussed in recent literature. The only discussions I am aware of are those of Ross (1967: Sec. 6.1.1.3) and Chomsky (1971). Ross discusses only the relative clause aspects, citing some of the derivational restrictions. Chomsky makes no analysis whatever. It is of interest to theoreticians because it involves deletion over a variable of a coreferentially bound subject NP into an island which has all the properties of a relative clause, as shown by the following examples.

2. John bought a toy that it was obvious it would be easy to amuse himself with.
3. John bought a toy that it would be easy to amuse oneself with.
4a. Joan bought a toy for Bill to amuse oneself with.
4b. *Joan bought a toy for Bill to amuse himself with a puzzle.
4c. *Joan bought a toy for Bill to amuse himself.

Although this deletion is probably (the evidence is not clear-cut) of the type which Ross (1967: Ch. 6) predicted would not be subject to the constraints on variables which he discussed, it is subject to all of the constraints except the Complex NP Constraint, which it characteristically violates. It is thus an anomaly, the explanation of which would seem to necessitate abandonment of either Ross' generalization or the analysis described above.

Furthermore, attempts to break down the derivation into such familiar phenomena as Equi/Super-Equi NP deletion and relative clause formation in such a manner as to save Ross' useful generalization meet with no success. Among several other differences, Super-Equi is optional while this deletion is obligatory. The relative-clause-like part of the construction has considerably more co-occurrence and derivational restrictions than ordinary relative clauses, yet it is not as restricted as a relative purpose clause (R. Lakoff 1968).

The description of the properties of this construction focusses on the theoretical constructs necessary for the most appropriately general formulation consistent with required conciseness of statement. What I mean is this: what do you need to assume to state exactly what is going on without saying that the exceptions have exceptions? Grinder's (1970) Intervention Constraint is not sufficient. Some sort of derivational or transderivational constraints seem to be necessary, but used without restraint, they miss as many generalizations as they make.

TIM GUILE, University of Chicago [THURS MORN:4]
The Role of Oral Release in Certain Assimilatory/Dissimilatory Phenomena

The purpose of this paper is to suggest a necessary condition which must be met before phonological rules can assimilate (or dissimilate) with respect to place of articulation features a non-continuant segment to an adjacent non-continuant segment.

Georgian is noted for its 'exotic' consonant clusters. But equally exotic is the fact that there are no general phonological rules assimilating non-continuant obstruents, one to the other, with respect to place of articulation features. The absence of such rules can, I think, be accounted for by considering another feature of Georgian. Except perhaps in the case of consonant harmony it is in general the case that non-continuant obstruents are released. I suggest that the 'release' of the first of two non-continuants in a cluster:

\[
\begin{align*}
C & + C \\
\text{(-cont.)} & \text{(-cont.)}
\end{align*}
\]

where 's' designates 'released';

In Georgian: [t'bilisI], 'Tbilisi'
acts as a kind of phonetic impediment which 'blocks' phonological rules assimilating (or dissimilating) place of articulation.

If we accept the non-release of a non-continuant before another non-continuant as being a necessary condition for place of articulation assimilation then we will not only be in a position to explain the absence of certain phonological rules in Georgian, but we will also be able to explain certain non-occurring pronunciations in other languages. Consider for instance in English the alternative pronunciations of 'output':

a. [a'lt+put] b. [a):!t-pUt]

where '+' and '-' designate 'released' and 'unreleased', respectively.

Notice pronunciation b. may serve as input to a rule which assimilates the [t-] to [p-] yielding:

c. [a~p:Ut]

If a. likewise underwent the same rule we would derive:

d. [a!!p+put]

which is an unacceptable pronunciation. Such pronunciations can however be excluded in principle by invoking the hypothesis which states that a phonological rule assimilating (or dissimilating) place of articulation features cannot apply to a cluster of non-continuants if the first is released (or alternatively, that a loss of release is the first stage in such an assimilation. If this first stage is not 'gone thru', the assimilation will be blocked).

Besides Georgian and English, examples will be drawn from German, Korean and Hindi.

Also I will show why the hypothesis must be limited to oral release (as opposed to nasal release) and place of articulation features (as opposed to manner of articulation features). In addition I will suggest a generalization of the hypothesis which could explain the relative infrequency of place of articulation assimilation (as opposed to the more frequent occurrence of manner of articulation assimilation in the languages of the world) of non-continuants when a vowel intervenes:

\[
\begin{align*}
&\text{(C -cont.)} \\
&\text{V} \\
&\text{(C -cont.)}
\end{align*}
\]

IE had lexemes for the semantic feature-bundles 'lie', 'sit', 'stand': *rei/-legh-, *es/-sed-, *steha-. Although these did not share identical morphologies (e.g. presents; but note the fixed guns of *e/-es- and *e/-es-) the daughter languages show remarkable divergent features of syntactic rule or morphology that bind the 3 together as a group. Within the 3, 'lie' and 'sit' are always closer than they are to 'stand'; in IE, 'stand' was alone a reduplicating present.

Apart from developed nasal presents in Slavic, the Russian imperfectives log-i+reflexive sad-i+reflexive make an interesting pair to the vocally odd OIr. (B II) laigid saidid; the latter two agree in making an anomalous perfect with de-en- (for ro), dellig dessid. The 3 share a special semantics with up(p)o (which forms a transition in idioms to verbs of going): f6(oi-n-g 'supports', f6(s)uidur 'I support' Welsh gwaudd Brec. gouhe(r) 'daughter-in-law' (: upa-sad-), f6-staiur 'I acknowledge' f6easam 'protection' Gaul. wassus Welsh gwas 'servant' (<by metath.) *u(p)ost- : upa-schana- 'attendance').

Note too that in English we can say lie/sit/stand (or for all 3, stay) + still.

But surely one of the most remarkable equations in all of IE syntax is the Pāpīnian (I.4.46) adhihāsān karma 'lie, stand, sit with adhi take acc. surface inflexion for locative semantics' (we may state this rule in IE dress: *loc. + acc./ (e)ndhi+steha- etc. + N ) beside the idiosyncratic OIr. structure B4G+possessive+verbal noun, which applies to lige/suid/sessam (instead of oc+v.n.); note that in Celtic iN (<*en) and ind (in OIr. terms) supplete one another and that with a v.n. the object + genitive by rule. Thus we may summarize the OIr. rule: AT + iN+Pronsubj-Gen./_siss-etc.-v.n. And in light of the last remark, the output of this is equivalent to iN+siss- etc.-v.n. + Pronsubj+acc., which may be reconstructed *en(dhi)+steha- etc.+nominal-ization + Nsubj-acc. It can also scarcely be accident that of the few verbs surviving in OIr. with *ni- two are steha- and sed-

This leads us to some unexpected Albanian etymologies (where fri means all 3!): pret. ndenja ~ mbeta; flë pret. fjeta 'sleep.'
Evidence from Portuguese for the "Elsewhere Condition" in Phonology

In The Sound Pattern of English, Chomsky and Halle propose a principle whereby abbreviability of rules by means of parentheses and angled brackets imposes disjunctive ordering. In "Elsewhere' in Phonology" (1971 Winter LSA meeting, to appear in the forthcoming Festschrift for Morris Halle), Kiparsky argues that this principle is neither necessary nor sufficient, and proposes an "Elsewhere Condition" that assigns disjunctive ordering independently of abbreviatory notations. I will present data from a conservative dialect of Brazilian Portuguese that support the "Elsewhere Condition" and two generalizations of it tentatively suggested by Kiparsky.

The descriptive problem is that of accounting for certain vowel alternations in stems of regular verbs, in particular in present indicative and present subjunctive paradigms. For example:


The vowel alternations that appear in phonetic representations may be summarized thus: In 1st plural indicative forms, among others, the underlying vowel appears in the stem; in 3rd singular indicative forms, among others, the stem vowel is always low; in 1st singular indicative and subjunctive forms, among others, the stem vowel harmonizes in height with the class marker, although the latter does not appear in surface forms.

The attempt to give a principled account of the alternations illustrated constitutes a classical problem in Portuguese morphophonology, one that has so far resisted insightful analysis in any theoretical framework, and which leads inexorably to a contradiction in the relevant derivations. If the (generalized) "elsewhere Condition" is invoked, however, the paradox is resolved, and all rules can be stated in the most general way possible.

The purpose of this paper is to describe the systems of pronoun usage most commonly found among speakers of Brazilian Portuguese and to analyze the social factors on which variation in selection is based. The data of this study are derived from a survey of language usages and attitudes now underway, to which more than two hundred Brazilians have provided information through interviews and/or answers to questionnaires.

Descriptions of the pronoun system which are found in Brazilian grammars are typically normative and do not represent contemporary usage. Linguistically oriented studies dealing with the pronouns of Portuguese have been restricted largely to treatments of the historical changes in the forms employed (such as the evolution of você), and the description of particular features of the contemporary language (such as the use as object pronouns of third person forms traditionally employed for the subject). The present study differs from earlier treatments in several respects: its perspective is essentially descriptive and contemporary, rather than normative or historical; the analysis is based on data obtained from sociolinguistic surveys; particular features of usage are analyzed in terms of their structural relations to the respective paradigm; and variation in selection is analyzed according to social factors.

Although the survey on which this study is based has not yet been completed, partial analysis of the data now available indicates the following:

1. The pronouns most widely used in contemporary Brazilian Portuguese constitute two separate paradigms, neither of which corresponds exactly to the one commonly described in the grammars, although both diverge in systematic ways from the paradigm traditionally presented; and variation in selection is analyzed according to social factors.

2. the selection of pronouns which refer to the second person varies in accordance with several social factors: this variation does not
appear to be readily describable in terms of a single parameter, such as "solidarity" or "power";

(3) although earlier sociolinguistic studies on the contemporary usages of second person pronouns in the Romance languages (not including Portuguese) have based their conclusions on analysis of the subject forms, there is much evidence that in Brazilian Portuguese the distinctions made in the subject pronouns are not fully paralleled in the object pronouns: in some instances the latter show less distinctions, while in others they show more.

JOHN V. HINDS, University of Tokyo [WED MORN:3] Topic and Focus in Japanese

The term topicalization has been used in linguistic literature to refer to two precisely opposite sets of phenomena. Ross in his dissertation (1967) uses the term to indicate the focused element of a sentence, while the term is generally used to indicate the non-focused element of a sentence when referring to Japanese. That is, subject noun phrases marked with *wa* are said to be topicalized while subject noun phrases marked with *ga* are said to be focused.

The terms topic and focus are investigated to determine the various devices used in Japanese to indicate both sets of phenomena. This investigation results in the following findings. The topic of a sentence may be indicated by (at least) *wa*, *nara*, *to ieba*, and *tte iu no wa*: the focus of a sentence may be indicated by (at least) *ga*, *tte iu no ga*, *wa*, and *nara*. When indicating the topic, *wa* is neutral; *nara* implies a contrast; *to ieba* indicates a coreferential focused topic; and *tte iu no wa* indicates either emphasis or that the speaker presupposes the hearer is unaware of the referent of the marked phrase. When indicating the focus, *ga* is neutral; *tte iu no ga* indicates emphasis; *wa* indicates a neutral contrast; and *nara* indicates an emphatic contrast.

LYNETTE HIRSCHMAN, University of Pennsylvania [WED AFT:4] A Specific, Non-Specific, and Generic

The English indefinite article has at least three distinct uses: specific, non-specific, and generic. The distinction between specific and non-specific has been discussed in the literature without however exploring the relation between the generic and the non-specific. This relation is established here by the use of a paraphrastic transformation and by the examination of the relative scopes of *a* and other operators.

The specific use of *a* names a particular object; the generic and non-specific uses define a class to which an object must belong to make the sentence true. This distinction can be made by using *a* and a singular noun and *the* for the specific, vs. plural noun and *one* for the generic and non-specific:

1a) Helen wants to read a (specific) book. (spec.)
   b) A book is such that Helen wants to read it.

2a) Helen wants to read *a*/*any* book. (non-spec.)
   b) Books are such that Helen wants to read *one*.

3a) Jane eats a vegetable every day. (generic)
   b) Vegetables are such that Jane eats *one* every day.

4a) An elephant has floppy ears. (generic)
   b) Elephants are such that they have floppy ears.

The relation between the uses of *a* can also be approached by considering it to be an operator, and examining the scope of a relative to other operators in the sentence. In the specific reading, the *a* can be represented as the left-most operator:

1c) (a book) (Helen wants to read it) (read as 1b)

In the non-specific and generic readings, the *a* falls inside the scope of a non-assertive or generic modality operator:

2c) (Helen wants) (Helen read a book) Helen wanted that Helen read a book.

3c) (every day) (Jane eats a vegetable) Every day is such that Jane eats a vegetable.

The or the definite pronoun (*he/she/it/they*) can be used referentially for a noun introduced by *a* only where the noun is not in the scope of a non-assertive or generic (or negative) operator. If it is in the scope of such an operator, then the referentials may be used only provided that they fall in the scope of the same operator or an operator also of a non-assertive (or generic) modality:
Helen is looking for a certain book. \{It\} is on the shelf.

Jane wants to catch a fish. \{It\} will taste good.

\{The fish\} tastes good.

JAMES E. HOARD, University of Oregon

CLARENCE SLOAT, University of Oregon

On Stressing English Compounds

In this paper it is shown that Sloat and Hoard's (1972) treatment of English word stress has consequences beyond the data discussed in their paper. In particular two rules they discuss will, with slight modification, provide correct stress placement and stress levels on a wide variety of English compounds. Sloat and Hoard establish a Suffix Stress Rule (SSR) which accounts for the stresses of words with internal suffixes and show that this rule is independent of the Root Stress Rule (RSR). They demonstrate that these rules must apply in the order SSR then RSR and show the necessity for a convention that determines stress levels: Within a word the first stress rule that applies places a primary stress; subsequent rule applications place secondary stresses.

Compounds like student-union and monogênesis have primary stress on the second element because that element is subject to SSR. In student-union, student receives its secondary by reaplication of SSR. The monogênesis receives its secondary by RSR (because RSR follows SSR and SSR has already applied). Noun compounds like pôlyglot have double application of RSR with the first application on the rightmost element. Contrasting with words like pôlyglot are adjectives and verbs like antitank and understand where the first application of RSR is on the rightmost element. Complex compounds such as light-housekeeper, 'one who does light housekeeping', and blackboard require recognition of their hierarchical structure to predict stress placement. RSR specifies first application on the rightmost element of a stem (the stems are given here in brackets). Subsequent applications of RSR give appropriate secondaries.

The above treatment accounts for compounds in a simple way and avoids the arbitrariness of the SPE treatment. Chomsky and Halle analyze compounds like monograph with a stem, graph, and an uncategorized piece, mono-.
As for the lack of apocope in the first singular -\(\mu\), note that there is well-established independent evidence for the fact that PC *\(\mu\) is an exception to apocope, if preceded by *\(\mu\). All that has to be assumed for the present hypothesis is that final *\(\mu\) did not undergo apocope if directly preceded by any vowel.

HENRY M. HOENIGSWALD, University of Pennsylvania

IE \(\mu\) in Celtic and the Claims for Relative Chronologies

Since Bolelli (Ricerche linguistiche 5 [1962] 101-4) it has sometimes been held that one and only one particular chronological ordering of change events can account for some of the Celtic reflexes of the IE voiceless labial. As is not infrequently the case with relative chronologies, this claim may be too strong. Herein lies the general interest. Specifically,

1. IE *\(\mu\) is said to split up (not counting other minor outcomes) into zero (in most environments) and \(\mu\) (>British \(\mu\); later Irish \(\varphi\)) (before a \(\mu\) > \(\mu\) later in the word).

2. Of these, *\(\mu\) (\(\mu\)) > zero is a true merger, while *\(\mu\) (\(\mu\)) > \(\mu\) is not, since the sequence \(\mu\)\(\mu\) occurred only in reduplicated sequences where it could be analogically recreated at any time, but not within morphemes (OIr. \(\text{c{	extipa{c}}} \mu\mu\) for \(\mu\)\(\mu\)).

3. It is possible to assume that the assimilation of *\(\mu\) occurred 'first'. In this case, \(\mu\) would have continued to exist for some time, though not before ...

4. It is equally possible to assume that the deletion of *\(\mu\) occurred 'first' while \(\mu\) continued to exist for some time.

5. If (3), the process COULD have been of 'Italo-Celtic' age. If (4), the assignment of *\(\mu\) to \(\mu\) - the only entity with which \(\mu\) is now in complementary distribution - reveals itself as a mere corollary of the deletion of *\(\mu\) and no longer as a separate event. This may be more pleasing, but it is not therefore necessarily closer to historical truth.

6. If the name of the Hercynian Forest does indeed contain the Celtic word corresponding to Lat. \(\text{c{	extipa{c}}}\mu\mu\) 'oak', *\(\mu\) is here not assimilated because \(\mu\) before *\(\mu\), where it fails to contrast with \(\mu\), also fails to assimilate a preceding *\(\mu\). (In the -stem quercus itself, *\(\mu\) is probably analogic for *\(\mu\).)

In The Sound Pattern of English Chomsky and Halle indicate that the phonological rules which derive systematic phonetic representations are exclusively segmental rules. A rule defined over the domain of the syllable is not a possible rule within their theory. The purpose of this paper is to show that there are language-specific aspects of language that cannot be defined on the segment, but rather must refer to the syllable. These syllable-level aspects of language are termed 'syllable shaping' phenomena and include energy distribution, timing, and syllabification. It is claimed that all grammars must include rules for syllable shaping.

Acoustic data based on spectrograms and oscillograms are used to show that English and Finnish differ systematically in syllable shaping properties. It is argued that since languages differ with respect to syllable-level properties, these properties are not accounted for by universal phonetic rules. Therefore, the present theory of phonology must be revised to include syllable shaping rules. An attempt is made to formalize these rules for English and Finnish and to define their function within the grammar. In addition, certain constraints on rules of syllable shaping are proposed.

It is also claimed that syllable shaping rules provide motivation for and explanation of more abstract segmental processes. The examples include vowel reduction and aspiration in English and syllabification and consonant gradation in Finnish.

IRMIN HOWARD, University of Hawaii

Menomini Vowel lengthening Reconsidered

This paper presents a reanalysis of the rules governing vowel length and certain related processes in Menomini. Bloomfield's original analysis in "Menomini Morphophonemics" rested upon an underlying distinction between long and short vowels and a division of the vocabulary into mobile words and glottal words. Mobile words undergo a number of rules affecting vowel quantity, including (1) a rule lengthening the second vowel of a word if the first is short, and (2) a rule lengthening (shortening) a vowel in a closed (open) syllable which is an even number of syllables from the immediately preceding long vowel. Glottal words,
which have glottal stops in their initial syllables, behave peculiarly in relation to vowel length, stress, and certain other rules.

The reanalysis proposed here is based upon a theory of rule application, justified elsewhere, in which rules are applied from left-to-right or right-to-left across a string. It diverges from earlier analyses in a number of interesting ways. The rule affecting even syllables is reinterpreted as a pair of rules, the first of which is an alternating length rule and the second of which is a more specialized shortening rule. This eliminates the need for categorical reference to open and closed syllables, as well as even and odd syllables. Of particular significance is the fact that the peculiarities of glottal words have straightforward explanations.

HSIN-I HSIEH, University of Hawaii  [FRI AFT:2]

On Listing Phonological Surface Forms in the Lexicon

In the standard theory of generative phonology, only the underlying form of a given morpheme is listed in the lexicon. The surface forms are derived by rules. Based on a psychological experiment, the author questions the plausibility of such a kind of lexicon and argues that the surface forms as well as the underlying forms of morphemes must be listed in the lexicon. In the proposed lexicon, the function of phonological rules is not so much to 'generate' as to 'relate' morpheme alternants.

The author's experiment involves tonal alternations in Taiwanese, in which lexical tones in their citation forms undergo morphophonemic changes called tone sandhi. There are two dialectal variations of the set of tone sandhi rules. In the '33-dialect', both base tone 55 and tone 35 become surface tone 33, whereas in the '21-dialect' both base tone 35 and tone 33 become surface tone 21. Apart from this, the two sets of rules are identical.

Three children (aged 5, 7, and 9) are tested for their ability to apply tone sandhi rules in both actual and fake noun compounds (cf. English blackboard and *blackwall). The subjects are tested for both forward and backward operations of rules.

The experimental results show that although the subjects are essentially speakers of the 33-dialect, they perform the backward operation as if they knew both rules of the 21-dialect and rules of the 33-dialect. Furthermore, they do not randomly respond to surface tone 33's with the rules of the 33-dialect. Rather, they are able to respond with the correct tone 55's or tone 35's. Surprisingly, they seem to know the intention of the tester in each case. Their behavior seems to be governed by the constraints on combinations of tones and segments. However, when they respond with the rules of the 21-dialect, they do not seem to be prohibited by such constraints and supply either a base 35 or a base 33 for a given surface 21.

The most plausible explanation of this phenomenon is to hypothesize that the subjects know both sets of sandhi rules but their lexicon is constrained only by the rules of the 33-dialect. Furthermore, all the alternants of each morpheme are listed in the lexicon. Such a lexicon serves as a filtering device to select only the listed base form from among the several possibilities produced by the rules. In the absence of such a lexicon, subjects using rules of the 21-dialect would fail to uniquely arrive at the original base form. By rules alone, one can at best arrive at the several alternatives. It is the lexicon that makes the final selection.

[REFERENCES: Page 246]

LARRY HUTCHINSON, University of Minnesota  [WED MORN:4]

Levels of Representation in Phonological Derivations

Halle's celebrated argument against the phoneme maintains that the level of phonemic representation cannot be incorporated into phonological derivations without rendering many phonological generalizations inexpres -sible, thereby prohibiting the achievement of descriptive adequacy. But as Chomsky (1967) and Schane (1971) point out, Halle's argument is only against phonemic representations, not the phoneme. It is quite possible that general principles could allow for the deduction of theoretical statements concerning phonemes from standard generative derivations, and hence it would not be necessary to give up descriptive adequacy in order to have the phoneme. In point of fact, however, Halle's argument not only fails to force the abandonment of the phoneme, it also fails to force the exclusion of phonemic representations from generative derivations. Having such representations does not, contrary to Halle's claim, lead to the complication of grammars and the loss of generalizations.

For Halle's argument to succeed, it would have to be the case that phonological derivations are sequential in the sense of Chomsky (1965), that is, that once a rule has been passed in constructing a derivation it
cannot be reapplied on that same cycle, and that all other constraints on
the application of rules are grammar specific. An inspection of Halle's
Russian example indicates that he in fact assumes both of these conditions
to hold, maintaining that since the obstruent voicing rule must be applied
at two different points in a derivation, it must be written at two different
points in a grammar, and that since the first occurrence of the rule
is not to apply to certain obstruents the rule must therefore be compi-
cated with an exception statement. If sequential derivations were not
assumed and the exception statement could be shown not to be needed, then
only one, maximally general obstruent voicing rule would be required for
Russian; and, at the same time, phonemic representations would be directly
generated.

It is now known that the requirement that derivations be sequential
is too severe (see Koutsoudas, Sanders, and Noll, 1971), and must be
dropped. Furthermore, exception statements of the very sort required by
Halle are demonstrably predictable from certain universal constraints on
rule application, these constraints first being proposed by Schane (1971),
although for a different purpose. Hence Halle's argument against phonemic
representations collapses.

RODERICK A. JACOBS, University of California, San Diego

Auxiliaries and Syntactic Change

Ross (1970) has argued for main verb status for auxiliaries within
a synchronic framework. A diachronic correlate to Ross's claim is
particularly interesting because of the surprisingly general nature of
the changes observed. In a number of languages, surface main verbs
denoting physical motion or location evolve into auxiliaries of mood,
aspect, or tense. In English and French, illuc verbs, go and aller, are
used for future time reference, while hac verbs--come, venir,
and devenir--mark inchoation and, less frequently, past time. The be/être
forms mark durative, passive/stative, and active meanings, together with
time reference.

Such developments are more thoroughgoing in verb-final languages
like the Cupan (Uto-Aztecan) group, since the old higher verbs are likely
to end up as stressless non-verblike suffixes. In Cupan, the same Proto-
Cupan main verb can be observed at different stages in different languages.

Three major stages may be noted.

At STAGE I the prospective auxiliary is a main verb of physical
motion or location. It may occur right after the nominalized verb of an
embedded sentence. STAGE II marks the verb usually incorporated into the
other verb but retaining its physical shape. The incorporation may be
incomplete—the two verbs may occur as separate words for some tenses or
a pronominal infix may separate them. The location verbs become durative,
passive/stative, or active markers. The motion verbs retain their physical
sense, but illuc verbs now mean "go and then V" or "go in order to V"
while hac verbs mean "come while V-ing" or "V while coming." STAGE III
marks more complete incorporation into the verb form as an unstressed,
sometimes shortened affix with only a minor resemblance to any cognate
Stage I form surviving. In word-final position, illuc forms lose their
physical meaning and become future tense suffixes, while hac suffixes
become inchoatives, or, infrequently, past tense markers. The old location
verbs may serve as suffixes for various tenses.

This similarity in development in language families as unrelated as
Uto-Aztecan and Indo-European must be considered in any general theory of
syntactic change. Furthermore, of the current synchronic models, seman-
tically based ones relating auxiliaries, tense, and aspect to underlying
higher predicates appear best suited for these Uto-Aztecan languages.
But this choice would make it difficult to choose differently for English
and French, which reveal similar properties, despite a greater tendency
to collapse complex semantic elements into single unanalyzable forms.

JAY JASANOFF, Harvard University

The Baltic Future

The suffix of the sigmatic future in East Baltic has three distinct
alternants:
1) -s- in the third person, e.g. Lith duos 'will give',
2) -si- in the first and second persons, e.g. Lith 1 pl. ddošime,
   2 pl. ddošite,
3) -sia- in the active participle, e.g. Lith nom. sg. femin. ddošianti.

Of these, the first reflects an IE athematic 3 sg. *du-s-t, and the third
is clearly related to the Indo-Iranian future in -dy- (cf. Skt dā’yant-
'about to give'). The present paper seeks to explain the historical
position of the forms in -**si**-, which are much more obscure.

It has been traditional to consider the relationship of the -**si**- and -**sia**- alternants as especially close. Chr. S. Stang has taken the view that the Baltic future originally had a "semi-thematic" paradigm in which -**si**- (athematic) and -**sia**- (thematic) were distributed according to the characteristic pattern set forth by Meillet, NL XXXII, 197 f. Apart from the very uncertain status of the semi-thematic type in IE, however, at least two considerations make this theory unattractive. First, an athematic type in -**a**- must in any case be assumed to have existed beside that is surely to be explained on the (thematic) were distributed according to (athematic) and (future attested in at least two considerations make this theory unattractive. First, an view that the can explain Lith. du**s**. as well as the isolated Old Prussian 2 sg. post**s**a**ei** (i.e. po-st**i**-a-sei). Second, the disproportionately high attestation of future participles in the Rigveda suggests that finite forms like 3 sg. d**hayati** have arisen, not by thematicization from older d**si**ti, as Stang supposes, but by simple back-formation from participles like d**hayan**t-. It is significant that the only -**si**-/o- future attested in Slavic is the substantivized participle b**ysh**a**tej** 'future' < *b**us**iont-.

I conclude that the confinement of -**sia**- to the participle is a notable archaism in Baltic, and that -**si**- must be explained as a morphological replacement of athematic -**g**-. A natural point of departure for the creation of a new allomorph -**si**- would have been the inherited 3 pl. *d**ge**pt**i**; this form would have yielded Common Baltic *du**os**in**t**i**, permitting the extraction of a future sign -**si**-. From here -**si**- could easily spread, at first to the other plural (and dual) persons, and ultimately to the 1 sg. and 2 sg. as well. As typological parallels we may compare the Germanic preterite endings 1 pl. -um, 2 pl. -up, created on the model of 3 pl. -um < *-pt**, or OPr 1 pl. w**aidi**mai 'we know', 2 pl. w**aidi**ti, with a connecting -i- that is surely to be explained on the basis of a lost 3 pl. *w**aidi**nt**i**.

ROBERT J. JEFFERS, Ohio State University [THURS MORN:1] On HistoricalItalic Phonology and the Nature of the IE Aspirates

It cannot be denied that the problem of the interrelationship of the IE aspirates, a development which has often been considered one of the strongest bases for the placement of an Italic sub-group. And, indeed, it must be admitted that the coalescence of *bh, *dh, and *gh as f, and the fact that gh > h in both dialects are interesting similarities. Yet, at least two serious difficulties exist for those who would use this development as evidence for Proto-Italic.

1) Because the development of the aspirates in medial position is so divergent in Latin and O-U, all attempts at a description of the Proto-Italic reflexes of the aspirates offer difficulties. The most common suggestion (*b, *d, *g, as in Palmer, 1968) asks us, for example, to accept for O-U developments of the type [+voice] \rightarrow [-voice] / [+voice] __ [+voice]
This is unlikely. If, instead, we consider the Italic reflexes in terms of direct development from PIE, there are two advantages.

i. We gain a clearer understanding of the relevant phonetics of the so-called 'aspirates' of PIE. (The usual description of these segments as voiced, aspirated stops contrasting in a three-way system with voiced and voiceless unaspirated stops is most unnatural.)

ii. The divergent reflexes of Latin and O-U are explained in each case by straightforward, but clearly different processes.

2) There is philological evidence in Umbrian which shows that one of the aspirates (*gh) spirantized separately in the two dialects (Lat. and O-U). It is most unlikely that so natural a class of sounds as the IE 'aspirates' would show a development [-cont] ~ [+cont] for *bh, *dh, and *g~h for Italic, while for some totally inexplicable reason the feature [cont] undergoes no change in the segment *gh.

It appears that there is no major phonological evidence in favor of an Italic sub-group.

LYLE JENKINS, Harvard University & Massachusetts Institute of Technology

[FRI APT:4]

On the English Existential "There"

First a Phrase Structure analysis is proposed for constructions containing the English existential there. Next we show that there is no transformational rule of there-insertion of the kind assumed explicitly or implicitly in much of the literature of transformational grammar. Finally, we consider the consequences of the Phrase Structure analysis of the there-construction for syntactic theory and for historical linguistics.

In this paper we consider constructions with existential there such as there are ghosts and there is someone in the garden. The analysis of such constructions has been the subject of considerable study and debate, both in traditional grammar and during the past decade and a half of transformational grammar. Syntactic analyses from a rich variety of viewpoints have been adopted during the history of the study of English syntax, as is witnessed from a small handful of the studies of existential there: Jespersen (1940); Poutsma (1916); Lyons (1967, 1968); Fillmore (1968); Emonds (1970); Allan (1971); Burt (1971); Kuno (1971), etc.

We will explore the hypothesis that the deep structure of there is someone in the garden is

[Diagram]

We will call this hypothesis the Phrase Structure hypothesis.

An alternative to our Phrase Structure hypothesis is the transformational hypothesis (see works cited above) in which a transformational rule of there-insertion is assumed. The transformational hypothesis posits the underlying form someone is in the garden and a transformational operation of there-insertion is applied to introduce the there morpheme to yield the correct surface form there is someone in the garden.

We demonstrate that the Phrase Structure hypothesis accounts for the distribution of surface forms containing the existential there in a natural way and furthermore accounts in a principled way for the absence of surface forms of there-constructions containing predicate nominals (*there are graduate students union members), the semi-modals be going to (*there is a demonstration going to be in the gym) and be to, etc. In fact, such gaps of occurrence provide crucial evidence for selecting the Phrase Structure hypothesis for there over the transformational hypothesis of there-insertion.

We consider, furthermore, the implications of the Phrase Structure analysis of there, which is motivated on purely synchronic grounds, for diachronic linguistics. We show that the available historical data supports the postulation of the Phrase Structure hypothesis for there at least as far back as Middle English. There is no data which offers empirical support for the postulation of a transformational rule of there-insertion. Apparent exceptions to the Phrase Structure hypothesis are accounted for by perceptual principles of the kind envisioned by Bever and Langendoen (1971).
FRANCIS JUHASZ, Columbia University  [FRI AFT:4]

Some Constructions with Overt Occurrence of 'to be' in Hungarian

It will be shown how certain peculiarities of 'to be' in Hungarian reflect general rules of wide application in the language. Assuming zero lexical content for 'to be', its appearance and disappearance parallel syntactic and semantic phenomena which can be observed in connection with the function of verbs in a sentence in general. In particular, this will be shown in the case of two different sets of word order and emphasis restrictions on sentences with 'to be' as a 'verb of existence' and in the case of a "comparative" construction where Hungarian has an overt copula.

Already well-established formal rules prohibit the occurrence of 'to be' as a copula when it is unmatched for tense, mood or person, i.e., 3rd person, present, indicative, but allow its occurrence in that form when it is a main verb, having no nominative predicate complement. Examples are: (1) Veromag van 'There is sowing-seed' ('Sowing-seeds are available'). These two examples, apparently representing open classes, show different emphasis and word order restrictions, so far unexplained in the literature. In fact, they are in line with the semantic and syntactic properties of foregrounding and focus in Hungarian as observed also in connection with regular, full-fledged verbs, and reminiscent of the topic-comment relationships observed in several languages.

Paralleling the normal, zero copula constructions, such as Ez a hal huszonöt kil6 'This fish is 25 kilograms', there is an apparently open class of sentences with overt copula, e.g., Ez a hal van huszonöt kil6 'This fish is (as much as) 25 kilograms'. In the literature it is usually noted that in such cases of "degree and comparison" the copula is always stressed. Again, the overt copula is the manifestation of a general rule in Hungarian, where the relative positions of the verb and its complement in the final string have different semantic values, e.g., Ez a hal ugrik egy métert 'This fish jumps (as much as) one meter' and Ez a hal egy métert ugrik 'This fish jumps one meter'.

The word order and emphasis phenomena in Hungarian are quite complex, and it is expected that the copula and related forms, through their absence of lexical content can provide an interesting test of the manifestations of intersecting grammatical functions.

THOMAS W. JUNITE, Michigan State University  [FRI MORN:3]

Old High German biginnan and Some Problems of Complementation

In recent studies of English syntax there has been considerable discussion of the proper analysis of the verb 'begin'. In this paper, I discuss the behavior of this verb in an older stage of a related language, the Old High German of Otfrid von Weissenburg (ca. 800-870 AD). The different structures suggest that an analysis other than that proposed for English by Lakoff, Kajita and others is appropriate for OHG. The major problems discussed include the type of complementation and some of the required transformations, the like-subject constraint, and rules for the subjective in embedded clauses.

OHG biginnan takes an infinitival complement analogous to the English construction: bigonda er gote thankon 'he began to thank God'. In addition it takes a genitive object so er thaz erisa bigunni 'when he began the journey', which is frequently represented by a pronoun and that-complement oba es iaman bigan, thaz er widar imo wan 'if anyone began to struggle against him'. In order to account for these sentences in a natural way, one must posit a genitive object complement. The hypothesis of subject complementation is not supported by OHG evidence, a fact which suggests that Robin Lakoff's proposal that subject or object complementation is universal for a particular verb is not correct.

Assuming genitive object complementation, all the sentences can be derived by using transformations similar to those posited for English, including complementizer placement, extraposition, Equi-NP deletion, pronoun deletion, and complementizer deletion. However, to account for the identity of subjects even when there is no deletion, it is necessary to employ Perlmutter's concept of deep structure constraints.

It is shown that the traditional analysis of this verb is inadequate (cf. Kelle 1881, Wunder 1965). It was assumed that biginnan required a thaa-subjective complement in the embedded clause, and that a sentence like this hiar thes beginnin, si himiliriche thengent 'those who here begin to strive for heaven' was not related to other constructions because it did not have an overt complementizer, the subjunctive mood, or an independent subject. This paper shows that except for mood such sentences follow automatically from rules required independently.

Finally, it is shown that the mood of an embedded clause can be determined not only by the verb of the matrix clause, but by a variety of factors which may ultimately reach up several levels of embedding. It is
Based on a study of over thirty languages we argue that there is a universally valid hierarchy of NP positions which determines their relative accessibility of such "focussing" transformations as REL-CL, WH-QUEST, and CLEFT. The Major Branch of the hierarchy is given in (1) where "\( \geq \)" means "greater than or equal to in accessibility".

(i) Subj. \( \geq \) Dir. Obj. \( \geq \) Ind. Obj. \( \geq \) Obj. of Prep. \( \geq \) Genitives \( \geq \) Obj. of Comparison

Thus for each point in (1) we have languages with REL-CL strategies that work naturally on that point and all points to the left of it but not on any points to the right of it.

Our characterization of focussing constraints is more general than others in the literature, e.g. Ross', since the hierarchy is valid regardless of whether focussing is done by movement transformations or not (e.g. most positions inaccessible to WH-QUEST in English are similarly inaccessible in Hindi and Persian where WH-QUEST is not a movement process).

We use the hierarchy to explain some otherwise disparate syntactic phenomena across languages including:

1. The multiple verb forms in Malayo-Polynesian (e.g. Malagasy, Kalagan, Javanese) and Bantu (Luganda, Shona) are shown to have a major function: they make inaccessible NP accessible. Thus in Malagasy, only subject NP are relativizable, but direct objects and oblique case NP can be relativized by first changing the verb voice so that they are subjects.

2. The distribution of personal pronouns in positions relativized into. We argue that languages which present such "resumptive" pronouns in surface (e.g. the girl that John hit her) present more of their logical structure in surface than languages like English which do not. So we predict that the logically more transparent strategy will tend to be used in the otherwise less accessible positions. Thus in pronoun retaining languages like Hebrew, Arabic, Welsh, Persian, and Batak, we find subject pronouns retained rarely, objects often, and oblique case NP obligatorily. Even languages which do not present resumptive pronouns in major positions may occasionally do so when relativization occurs quite far down the hierarchy, e.g. these are the students which no one is sure whether they will pass or not.

3. The absence of reflexive relative pronouns. This follows from the claim that if an NP has several coreferents in a sentence then REL-CL must operate on the one highest in the hierarchy.
Investigators of GN have postulated a 'downstep' in trying to explain the phonetic realization of the verb. Okunor (1967) and also Berry and Kotei (1969) all stressed the indispensability of the 'downstep' in their discussions of the verb. Trutenau (1972) underscored this 'need' when he noted "the state of affairs that can be satisfactorily dealt with by an insertion transformation inserting a 'downstep' symbol in the string." In my paper, I claim that though the mid tone (downstep) occurs elsewhere in GN, one can satisfactorily and successfully account for the surface structure tonal forms as well as the phonetic realization of the GN verb without introducing a 'downstep'.

Okunor and also Berry and Kotei observe that there are three tones in GN. Trutenau on the other hand feels that "rather than accepting the traditional treatment of GN as having two contrastive 'tones' we have here postulated three 'deep tones' and mapped them onto the two 'surface tones'." I argue that in both the surface structure and the underlying structure, GN has three tones, i.e. high, low and 'possibly derived mid'. In general, only high and low contrast, e.g. 14 'blood' and 18 'fire'. The 'possibly derived mid' never contrasts with a high tone although it may contrast with a low tone, e.g. dzwel 'grass' and dzwel 'is it grass?'.

My paper explains the motivation and justification for the phonological 'rules of adjacency' which yield the phonetic realization of both the so-called 'downstep in the verb' and other 'positively derived mid' tones in GN. My rules for predicting the 'downstep', unlike those suggested by Schachter and Fromkin (1968) and revised by Fromkin (1972) do not assign pitch values to tones.

My arguments (well illustrated with examples) against postulating a 'downstep' for the GN verb lead me to the conclusion that contrary to the claim of Fromkin (1972) that "all derived 'downsteps' emerge from underlying high tones", there is very clear evidence that in GN, all derived 'downsteps' emerge from low tones.

So far little work has been done on GN tone. My paper not only adds to the controversy over how best to describe tone in general (e.g. predicting derived downsteps through 'rules of adjacency' and not through pitch assignment rules) but it also critically examines some previous analyses of GN tone. The insight the paper offers may have an impact on future theoretical formulations on tone in general.

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PAUL KOTEI, University of Florida [WED EVE:3]
Downstepping the 'Downstep' - Tone in the GN Verb Revisited

All natural languages have common properties and a limited range of variation. It follows, therefore, that some but not all principles of grammar must be universal and that some but not all must be non-universal. This paper will be concerned with the empirical viability of alternative assumptions about the universality or non-universality of (1) underlying representations of sentences, (2) grammatical rules, and (3) constraints on the order of application or use of grammatical rules in determining the well-formedness of linguistic derivations.

The consequences of these alternative assumptions will be tested with respect to a reasonably well-known body of facts concerning the superficial orderings of subjects, verbs, objects, and interrogative phrases in natural languages. (These facts have been recently discussed by such linguists as E. Bach (1971), C.L. Baker (1970), J. Bresnan (1970), J. Greenberg (1963), and R. Ultan (1969).)

It will be demonstrated with respect to these facts that
(1) the assumption that all rules are universal is either false or non-falsifiable, and hence not tenable as an empirical hypothesis;
(2) the assumption that there are both non-universal ordering constraints and non-universal underlying structures is either false or non-falsifiable, and hence not tenable as an empirical hypothesis;
(3) the assumption that both ordering constraints and underlying structures are universal is the most general empirical hypothesis about universality that is fully consistent with the facts in question.

The results of this investigation will thus provide further support for the independently-motivated assumption that the order of application of all grammatical rules is determined by universal principles rather than language-specific extrinsic-ordering constraints. It will be shown that this assumption also leads directly to a principled explanation of the apparent mutual-exclusiveness of WH-interrogation and Topicalization in all languages. It will be further demonstrated that, though it is possible to assume a single set of underlying structures for all languages, it makes no difference whatever whether the verbs in such structures are assumed to be universally clause-initial or universally clause-final.

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ANDREAS KOUTSOUDAS, Indiana University [FRI MORN:3]
GERALD A. SANDERS, University of Minnesota
On the Universality of Rules and Rule-Ordering Constraints
A Neurolinguistic Investigation of Language Acquisition in the Case of an Isolated Child

An investigation of the neural capacity of the brain should provide insight into the "innate" language mechanism and the ability to acquire language. This paper deals with a neurolinguistic investigation of a unique case of language acquisition.

Verbal and non-verbal dichotic listening tests were administered to "Genie", a fifteen year old right-handed girl who endured approximately ten years of isolation from age three to thirteen. Genie had very little, if any, language at the time she was admitted to the hospital. Thus, she had the task of commencing, or re-commencing, first language learning at about the close of the "critical period" for language acquisition hypothesized by Lenneberg (1967). The laterality studies were conducted to see whether acquisition and language lateralization would go hand in hand, as hypothesized by Krashen and Harshman (1972).

Dichotic listening studies permit the investigation of cerebral dominance, or lateralization, by simple means. When right-handed subjects are presented with simultaneous competing verbal stimuli, the report of stimuli presented to the right ear is generally superior to the report of stimuli presented to the left ear. This is thought to be due to the greater strength of the crossed (contralateral) auditory pathways and the left hemisphere dominance for language supported by aphasia studies.

When non-verbal stimuli, such as musical chords and environmental sounds, are presented dichotically to right-handed subjects, the left ear is generally superior, indicating right hemisphere specialization.

Genie's non-verbal dichotic listening results are not unusual thus far; environmental sound perception appears to be normally lateralized to the right hemisphere (left ear advantage). Her verbal dichotic listening results are very unusual in both degree and direction; she shows a very large left ear superiority. Ear differences of this magnitude are found only in cases where the non-language hemisphere makes no contribution to language processing, that is, in right hemispherectomies and split-brain subjects.

The fact that Genie is right-handed and right-eyed suggests that she was "originally" left hemisphere dominant for language; it is very rare to find a right-handed person who is right-dominant for language (although it is often the case that left-handed people show left dominance). The finding that Genie's left hemisphere seems presently non-functional for language may be due to lack of linguistic input during the time language acquisition normally takes place, supporting the idea of a critical period for the left hemisphere during childhood. Careful comparison of Genie's linguistic progress with the normal course of language acquisition may thus indicate what the linguistic capacity of the mature right hemisphere is.

The Simultaneity and Noncompatibility Conditions in Phonology

The purpose of this paper is to demonstrate that the Simultaneity and Noncompatibility Conditions implicit in The Sound Pattern of English are invalid, and that linguistic analyses, to the extent they incorporate these conditions, are inadequate.

The Simultaneity Condition (SC), which requires that all features assigned to the same phonological segment be realized simultaneously, follows from the definition of a phoneme as a simultaneous bundle of distinctive features. A related principle, the Noncompatibility Condition (NCC) asserts that in the event a simultaneous realization of two features is physically impossible, these features cannot be assigned to the same phonological segment. This latter condition, which is basically the SC converted to a procedure, is reflected in the claim by Chomsky and Halle that "the phonetic characterization of [low] and [high] rules out sounds that are [+low, +high], for it is impossible to raise the body of the tongue above the neutral position and simultaneously lower it below that level (SPE:305)."

The SC and NCC have been violated by Chomsky, Halle, and others in the analyses of various consonants, e.g. affricates, such as /tʃ/, where the features [-continuant] and [+strident] have been assigned to the underlying segment. Since stridency requires airflow, but noncontinuality precludes it, a simultaneous realization of these features is impossible. I would therefore like to suggest that violations of the SC and NCC indicate that as metatheoretical principles these conditions are invalid, and that the underlying assumption that a restriction upon the body is paralleled by a corresponding restriction upon the mind is unwarranted.

If it is true that the SC and NCC are invalid, then Chomsky and
Halle's restriction against assigning the features [+low] and [+high] to the same segment (cited above) is without proper theoretical justification. An alternative approach to the question of a possible assignment of features such as [+low] and [+high] to the same segment is simply to determine whether there are any single-segment phonemes whose physical realization includes a movement of the tongue from a lower to a higher position. Actually such phonemes are not difficult to find. English, for example, has the true diphthongs /aɪ ʊ/.

An analysis of English vowels will be presented, and it will be shown that Chomsky and Halle's analysis of English vowels is inadequate because of their reliance on the SC and NCC.

RICHARD KUSSMAN, University of Michigan

Metaclasses in Morphology

A morphological rule which applies to a majority of elements in some domain, and hence, a major rule, may apply to a minority of elements in a phonologically-defined subset of that domain. Conversely, a minor rule for a particular domain may apply to a majority of elements in a phonologically-defined subset of that domain. By setting up metaclasses that redistribute elements among the applicable rules, the lexicon can be greatly simplified.

In Old English, the strong verbs and the weak I verbs can be combined into the same class since the phonological shape of the underlying stem form of a strong verb is in near complementary distribution with the underlying form of a weak I verb. (I take the underlying form of a weak I verb to be unlauted since all forms of a regular weak I verb contain the unlaut.) The great majority of verbs in this "super-class" containing both the weak I verbs and the strong verbs are weak. Hence, the weak I verb rule is a major rule. But in certain phonologically-defined subsets of this class, for example, verbs with -I- or -INC in their underlying stems, the strong verbs predominate. Nevertheless, weak I verbs in -I- and -INC do occur. We can maximize the efficiency of the lexicon by setting up two metaclasses -- a major metaclass containing all regular weak I verbs except those with underlying stems in -I-, -INC, and -elC and all strong verbs in -I-, -INC, and -elC, and a minor metaclass containing all strong verbs except those in -I-, -INC, and -elC and all weak I verbs in -I-, -INC, and -elC. Another minor metaclass will contain the weak II verbs. We mark each verb only if it belongs to a minor metaclass. Thus, weak I verbs in -I-, such as wifian, to whiten, and in -INC, such as bringan, to ring, must now be marked for the first minor metaclass, but the more numerous strong verbs such as ridan, to ride, and climban, to climb, are now unmarked. If all verbs were directly marked for their respective classes, the reverse would be true: the relatively few weak verbs in -I-, -INC and elC would be unmarked, while the far more numerous strong verbs of that description would have to be marked. By setting up metaclasses, far fewer verbs need be marked, and the lexicon is simplified.

WILLIAM LABOV, University of Pennsylvania

For an End to the Uncontrolled Use of Linguistic Intuitions

Current practice in generative grammar relies upon intuitive judgments as sufficient data to support linguistic argument. Differences in self-report are accepted as evidence for the existence of idiosyncratic syntactic dialects. This precludes the development of a theory based on the normal canons of intersubjective agreement, since the evidence of one speaker cannot disconfirm the evidence of another.

Nine investigations were carried out of the "NEG-Q" and "NEG-V" dialects originally isolated by Carden from responses to such sentences as All the boys didn't leave. In addition to questions on the acceptability and meaning of sentences, subjects reacted to diagrams which permitted true or false interpretations of such sentences as All the circles don't have dots in them. The great majority of subjects were consistently shifted from NEG-Q to NEG-V by changes in experimental conditions. Other observations indicated that their self-reports did not correspond to the grammars they used in every-day communication. These results throw doubt on the existence of structural differences in the rules of negative attraction involved.

These findings also add to previous evidence that speakers do not have direct access to their intuitions. It appears that reactions to isolated sentences are determined in part by the subjects' unconscious construction of contexts. The linguists' judgments are further determined by the unconscious influence of their theoretical positions. These factors may prevent succeeding generations of linguists from evaluating and
utilizing current syntactic studies. A positive program is proposed for the control of intuitive data by correlations with observation and experiment.

BEATRIZ R. LAVANDERA, University of Pennsylvania [WED AFT:2]

A Syntactic Variable: If-Clauses in Buenos Aires Spanish

Many speakers of Buenos Aires Spanish are stigmatized either by the tenses they use in if-clauses or by using other forms instead of if-clauses when talking about hypothetical situations.

We will claim that what is involved is a difference in linguistic attitudes when referring to the probability of something happening. Either distinctions can be overtly stated in the morphology or they can be left largely ambiguous.

We have observed that non-standard speakers have different forms to refer to contrary-to-fact conditions

(imperfect subjunctive) Si yo fuera usted, me iría ahora mismo.

to lessened probability

(conditional) Si sería posible, querría verlo mañana.

to necessary condition

(gerund) Teniendo un poco más de plata, no pediría más.

Standard speakers use the imperfect subjunctive for both contrary to fact

Si yo fuera usted, me iría ahora mismo.

and lessened probability

Si fuera posible, querría verlo mañana.

The system with more morphological distinctions is stigmatized because it is the one used by the lower socio-economic group.

The analysis is carried out with the kind of sociolinguistic techniques proposed by Labov for his studies of American English-speaking communities.

This is a study based on ninety interviews carried out in the largest and most complex urban community in the Spanish-speaking world, and it explores within a quantitative approach syntactic variables, which have received far less attention than phonological variables.

ILSE LEHISTE, Ohio State University [WED MORN:2]

Phonetic Disambiguation of Grammatically Ambiguous Sentences

The purpose of the study was to investigate how speakers disambiguate grammatically ambiguous sentences. It has been frequently claimed that the meaning of certain ambiguous sentences can be made explicit by phonetic means such as intonation. This study attempts to find out whether such disambiguation is possible, and if so, what are the strategies employed by speakers to accomplish this aim.

Fifteen sentences were included in the study, most of which had been used by various authors as examples of syntactic ambiguity. The sentences were recorded by four speakers (two linguists, two non-linguists). The ambiguities were then pointed out, and the speakers were asked which of the possible meanings they had had in mind. The sentences were then re-recorded twice, the speaker making a conscious effort to convey one or the other meaning. A randomized listening test, containing three productions of each sentence by each speaker, was administered to 30 listeners (15 linguists, 15 non-linguists), whose task was to identify the meaning intended by the speakers.

The results of the listening test indicate that in 10 out of 15 cases, the listeners performed at better than chance level. The highest scores were obtained with the sentences "The old men and women stayed at home" and "Steve or Sam and Bob will come". Sentences that could not be disambiguated included "Visiting relatives can be a nuisance" and "The shooting of the hunters was terrible". There were five instances in which the original production received a random score, but the subsequent production, in which the speaker strove to make the meaning explicit, was correctly identified by the listeners. An acoustic analysis of these sentences makes it possible to identify successful disambiguation strategies. Timing differences were mainly involved in disambiguating "He rolled over the carpet" and "Steve or Sam and Bob will come"; both timing and intonation were employed in disambiguating "German teachers visit Greensboro" and "I know more beautiful women than Mary".

There were also instances in which listeners identified the meanings intended by certain of the speakers and failed to identify the productions of the same sentence by other speakers. This leads to some general questions concerning ambiguity. Is ambiguity a property of the sentence or the production? If the speaker intended to make the distinction, but failed to communicate it, is the failure in production or perception? An attempt will be made to offer tentative solutions to such problems.
Explanations for Some Syntactic Phenomena of PIE

The view that PIE developed a middle by suffixing an -e/o marker has recently been restated with greater assurance than in the past (Watkins, IG III/1.112, etc., Lindeman, NTS 26.69). But the statement has been made purely on a morphological basis, with no suggested syntactic motivation. The paper proposes an explanation for this development, and for other syntactic characteristics of PIE.

OV languages indicate sentence qualifier markers by means of post-verbal suffixes (Lehmann, 1971 LSA paper). Among such qualifiers is the reflexive. This is a characteristic meaning of the PIE middle (Delbrück, Gdr. 4.427-30). We may propose then that the suffixed forms were developed in accordance with the OV structure of PIE, in this way providing a syntactic support for the often mentioned view.

Few explanations in support of hypotheses provided for syntactic characteristics in language have been attempted, in contrast with their widespread use for phonological characteristics, e.g. the loss of weakly stressed vowels after the introduction of a strong initial stress. Recent typological investigation has given us insights into syntactic structures so that we can now support hypotheses for syntactic developments. Since these are relatively new, the paper will discuss some of them and their implications for PIE syntax. Reflexivization, for example, is characteristically indicated by pronouns in SVO languages, e.g. German sich. It is well-known that such pronouns cannot be reconstructed for PIE. We may now relate their absence in PIE with its OV structure. Another problem in the Indo-European languages which has simply been observed with no attempt at explanation is the loss of the middle. We find it maintained only in Indo-Iranian and in early Greek, languages which manifest an OV structure; the dialects with VO structure lose it, as does Greek around the beginning of our era.

The paper will point out other syntactic developments in the early Indo-European languages which can be accounted for by noting the shift in most of the early dialects from an OV to a VO structure; but to ensure understanding of the theoretical viewpoint, it will concentrate on the middle and expressions for the reflexive.

An Electromyographic Study of the American English Liquids

The liquids /l/ and /r/ seem to have rounding properties in many languages. In some cases, one or the other may become [u] or [w], as in the development of Serbo-Croatian dug 'long' from dlj. In other cases, the sounds have a rounding effect on adjacent vowels: cf. Co. air 'earth' with OE eort. In addition, children's speech often shows a [w] for /l/ or /r/: 'sweep' for 'sleep' and 'wabbit' for 'rabbit'. The present study aims at discovering those phonetic environments most conducive to these phenomena. It will be shown that the distinctive features necessary to the systematic phonemic classification of the liquids must include acoustic as well as articulatory aspects of their production: in other words, it will be argued that the liquids provide the limiting case for Lieberman's (1970) Unified Phonetic Theory. Furthermore, it will be shown that the Target Theory of Speech Production (e.g. MacNeilage, 1970) fails on the same grounds as do the distinctive feature proposals in The Sound Pattern of English.

In the experiments, bipolar wire electrodes were inserted into the following muscles of two subjects: orbicularis oris superior, genioglossus (anterior and posterior), styloglossus, anterior belly of the digastric, and internal pterygoid. The subjects uttered randomized lists of the liquids in three basic environments: (1) intervocalic, (2) word-final, (3) before word-final labials. The muscle activity was averaged by computer to get a general picture of (1) the timing of one muscle gesture relative to the others, and (2) the strength of a muscle gesture as a function of phonetic environment.

Preliminary results suggest that, for American English liquids at least, articulatory configurations for /l/ and /r/ approximate those of a non-low back vowel when the liquids are either in word-final position or before a labial. Furthermore, they suggest that the articulation of these liquids cannot be attributed to one muscle; rather, the synergistic and antagonistic activity of the various muscles studied points to a trade-off between a particular acoustic effect and various contextually-determined articulatory configurations.
A Controversial Rule in Greek

ANGELIKI MALIKOUTI-DRACHMAN, Ohio State University

The well-known raising and tensing of the short mid-vowels in Attic-Ionic, the Northwestern dialects, and part of the Doric dialects has, though not unanimously, been considered a context-free process. However, it is here claimed that this process is in fact context-sensitive, and is provoked by a following nasal or derived /h/. It appears, moreover, that we have to do with not one, but two processes, despite the identity of the outcome for the two environments.

The proposed solution enables us to re-examine profitably certain dialectal data so far held to be problematic. Thus, (1) we can reconcile certain conflicting spellings for long mid-vowels derived through so-called compensatory lengthenings and contractions attested in Locrian, Cretan, and East Doric; and (2) we can regularize the derivations of isolated forms such as οὖν, οὔν, as between dialects.

The raising of mid-vowels by following nasals is well attested as a phonological process: /h/, on the other hand, seems normally to provoke lowering in neighboring vowels. Parallels are thus sought to support the plausibility of a process by which /h/ has the alternative raising effect.

The Rhythmic Structure of Speech

JAMES G. MARTIN, University of Maryland

A formal descriptive rule (algorithm) has been proposed elsewhere for the timing of sequences of elements in a natural temporal pattern ('natural' means, among other things, constrained by the dynamics of human movement). Of particular relevance here is that the rule states the temporal relationships holding between stressed syllables in connected speech, that is, it introduces relative timing, as opposed to sequencing (concatenating), into the description of speech.

The rule is simple but can be most easily communicated graphically, by means of binary tree diagrams and musical notation presented by slide projector. Some characteristics of the rule can be mentioned. Briefly, it states the relation between relative timing (temporal locus) and relative stress level for each syllable in the sequence of syllables making up a breath group (or "tone group," "pause group," etc.). Thus relative stress as used here includes emphatic stress, contrastive stress, sentence stress, etc., and vowel reduction. In short, the rule states the temporal distribution of stress and vowel reduction to be expected in natural speech. As will be seen, the sequences of speech and rhythm patterns described by the rule have a hierarchical structure.

One consequence of the rule is that the syllable sequences described generally will follow the "stress-timing" principle, which is here assumed to be a language universal. Thus vowel onsets in John saw Bill are equidistant when pronounced with normal stress pattern 231, whereas Henry saw Bill requires temporal interval subdivision to accommodate the second syllable of Henry. And so on. Another consequence of the rule is that when stress varies due to context, emphasis, contrast, regional dialect, "foreign accent," mispronunciation, etc., the rhythmic pattern varies also, in a systematic, rule-governed way. To cite just one example, emphatic stress on saw of John saw Bill (with vowel onsets equidistant) gives stress pattern 213 by the rule, but emphatic stress on John gives 132 by the rule. These consequences can be shown to be general across a wide variety of utterances and are relatively independent of syntax.

This point of view thus brings relative timing into grammars and psychological models of speech and other real-time behavior. Some supporting data from perceptual experiments will be presented, and implications for speech perception, speech production, automatic speech synthesis, and automatic speech recognition will be mentioned as time permits.

A Statistical Approach to Reconstruction

GERALD B. MATHIAS, Indiana University

It may be supposed that (1) given the rules, whatever they may be, that restrict the phonological form of lexical items in a language and given the frequencies of occurrence of the language's phonological elements, the probability that any particular phonological form will occur as a lexical item can be accurately calculated. If (1) is true, then it follows that (2) a discrepancy between the calculated probabilities of occurrence and the actual frequencies of occurrence reflects phonology-affecting rules that have not been taken into account.

Empirical evidence that (2) is true and can be a useful tool in the reconstruction of previous linguistic events is provided by the results of one experiment in utilizing it: The phonology of 2000 Old Japanese lexical items—predominantly roots—was subjected by computer to a
multifaceted statistical analysis. Pertinent to the present topic, the results can be divided into these four types: (1) Confirmation of assumed data previously used as basis for reconstruction, the case in point being the "echo-vowel" hypothesis re Japanese noun formation. (2) Support for hypothetical reconstructions based entirely upon independent, non-statistical evidence; reference here is to accounts of the distribution of the so-called "ko-rui" and "otsu-rui" vowels. (3) Distributional irregularities which nevertheless fall into an obvious pattern, e.g. a certain kind of vowel being more or less likely to occur before or after a certain kind of consonant, suggesting previously un-evidenced assimilation processes. (4) Apparently patternless irregularities, which reveal either the lack of imagination of the researcher or the limitations of the approach.

NORIKO AKATSUKA McCOWLEY, University of Chicago [FRI MORN:3]

English Emotive Adjectives as Inherently Intransitive

This paper treats a class of English adjectives of emotion such as pleased, happy, amused, sad, worried, etc. (henceforth Ae). It is argued that they are actually intransitive in the deep structure and their surface objects have been derived by a transformation called Causal-Object-Formation. Ae behaves quite differently from ordinary transitive predicates in a number of significant ways. Among other things, compare (1) and (2):

(1) a. Monica was \{pleased\} that she did not have cancer.
    b. That she did not have cancer \{pleased Monica. made Monica happy.\}
    c. Because she did not have cancer, Monica was \{pleased, happy.\}

(2) a. Monica was \{certain\} that she did not have cancer.
    b. *That she did not have cancer \{Convinced Monica. made Monica certain.\}
    c. *Because she did not have cancer, Monica was \{convinced, certain.\}

Note that the surface complement of Ae in (1a) is the surface subject of (1b), which is of the causative construction. Moreover, it is identical with the clause introduced by because in (1c). Also, it is in complementary distribution in (1a) and (1c). (1d) is ungrammatical:

\[ S_1 \]
\[ \text{NP} \]
\[ \text{V} \]
\[ \text{CAUSE} \]
\[ S_2 \]
\[ \text{Monica did not have cancer} \]
\[ \text{CAUSE} \]
\[ S_3 \]
\[ \text{Monica was \{pleased, happy.\}} \]

Finally, the two best known existing analyses of Ae, Lakoff's Flip and Chomsky's causative analysis, are discussed and it is shown how they are wrong.

CURTIS D. McFARLAND, Yale University [FRI AFT:3]

The Dialects of Bikol

The dialects of Bikol are the northernmost members of the Visayan L-complex in the central Philippines. In the south, transitional dialects link the Bikol of Legaspi with Waray, Cebuano, and Ilonggo. In the north, a clear boundary separates Bikol from Tagalog. Within the Bikol region proper, it is possible to define at least twelve distinct dialect areas (based on differences of ten percent or more in the basic vocabulary). No one Bikol dialect is mutually intelligible with all the others.
This paper summarizes the differences among the Bikol dialects (including the transitional dialects of Masbate and Sorsogon) and examines several alternatives for classifying or sub-grouping them. These alternatives are based on similarities and shared innovations in (1) phonology, (2) basic vocabulary, and (3) morphology-syntax. The examples following give an indication of the degree of dialectal diversity; the dialect abbreviations are for twelve Bikol communities as follows:

LEG - Legaspi, Albay
NAG - Naga, Camarines Sur
VIR - Virac, Catanduanes
PAN - Pandan, Catanduanes
OAS - Osas, Albay

IRI - Iriga, Camarines Sur
LIB - Libon, Albay
BUH - Bulil, Camarines Sur
SOR - Sorsogon, Sorsogon
GUB - Guab, Sorsogon
MAS - Masbate, Masbate

(\(/\) = voiced, dorsal-alveolar lateral (strong /y/ coloring)).

Phonology. 'floor': NAG, LEG, GUB, MAS saIg; VIR saIg; DAR, IRI saIg; LIB saIg; BUH savyg; PAN saIg.

'heavy': NAG, LEG, VIR magabh; DAR magub\#f/mabu\#f; OAS, BUH mabu\#f; LIB magub\#f; IRI magub\#f; PAN magub\#f;
SOR, GUB magub\#f; MAS mabu\#f.

Basic Vocabulary. 'sweat': NAG gant\#dt; LEG, VIR, DAR, IRI gant\#dt; PAN gant\#t;

'fl oor': NAG, LEG, VIR, DAR, IRI mabu\#dt; PAN mabu\#t;
SOR, GUB mabu\#t; MAS mabu\#t.

Morphology-Syntax. Progressive aspect verb, object focus: 'is being sung': NAG, LEG, LIB, IRI pigked\#t; VIR, DAR pigked\#t;
PAN pulyak\#t/yakan\#t; OAS pinak\#t; BUH pik\#t; SOR, GUB, MAS gink\#k\#t.

Nominal case markers. 'the woman said ... (TAGALOG sindi ng babdy ... )': NAG, LEG, VIR (sindi) kan babdy; PAN pinya
babdy; DAR, OAS, LIB nu babdy; IRI ku babdy; BUH nyu
babdy; SOR, GUB, MAS san babdy.

This paper, and the more extensive studies of which it is a part, should contribute to our steadily increasing knowledge of Philippine languages. It should also provide an important case study for some of the questions which have been asked about dialects and will be asked in the future. For example: (1) How are 'language' and 'dialect' to be defined? (2) What is the relationship between synchronic dialectal arrangement and linguistic change? (3) What does dialectal divergence indicate about the internal structure of a single dialect or idiolect? This paper does not attempt to answer these questions. It does provide the picture of the arrangement and divergence within one set of dialects.
The Status of [m:] in Attic Greek

Recent studies of the well known sound change by which Common Greek [a:] became [ɛ:] in Attic and Ionic Greek imply a transitional stage [m:], the status and duration of which are variously assessed. This paper argues for the emergence of [m:] in Attic-Ionic about 900 B.C. and its retention in Attic until about 400 B.C.

The counter-argument, that a five-level scheme for the Attic long vowels is unlikely "on general phonological grounds" (W.S. Allen), is not convincing: as Bartoněk noted, [m:] and [a:] can occupy the same level of a four-level system; furthermore the basic three-way contrast of [a], [m] and [ɛ] is familiar in other languages including English. The specific long-vowel contrasts assumed for Attic can be found in one analysis of modern Danish.

A weightier counter-argument (Threatte), that there is no epigraphic evidence for [m:] in Attic inscriptions, merely means that there is no separate grapheme for this vowel sound, yet a similar situation is by no means unusual even in modern languages. In English, for example, the grapheme ə represents both the sound of [a] in father and that of [m] in man; a Hungarian grapheme ę in some texts can represent both [m] and [ɛ]. Attic would not have needed a separate grapheme for [m:] during the period when there was no contrast between [m:] and [a:], i.e. when every [a:] had been fronted to [ɛ]; the grapheme ə would have sufficed. This presumes that Szemerényi is correct in his claim that fronting occurred even when original [a:] followed the sounds represented by E, I, P.

About 800 B.C. a new [a:] appeared in the system through the loss of a nasal and subsequent lengthening (pansa, tans to pása, táš). Szemerényi argues that the more open allophones of [m:], i.e. in the environment after E, I, P, moved toward [a:] and merged with it (so-called "Rückverwandlung"). If he is right, it is reasonable to assume a trend toward limiting use of the grapheme ə to cover the new [a:], and of the grapheme ɨ to cover both [m:] from [a:] and inherited [ɛ:] until both these sounds eventually merged in the latter. This would be entirely consistent with the allophonic status of [m:], first with reference to [a:] and later to [ɛ:].

Nevertheless, the existence of [m:] in the 5th century cannot be proved or disproved by epigraphic evidence, for the Old Attic alphabet simply could not render this distinction. Of the other evidence for [m:] in the 5th century, the neatest is Tucker's argument from the Attic stage: Attic playwrights put Doric /slick into their choral odes only where it corresponded to their native [m:].

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DAVID MICHAELS, University of Connecticut

Phrase Structure and the Phonological Word

In linguistic studies it is the test of a hypothetical construct's generality that it serve to account for phenomena other than those which led to its inception. The phonological word is a construct set up to define a level in the application of the cyclic rules of the phonology where the noncyclic rules of the word level phonology apply (Chomsky and Halle, The Sound Pattern of English, 1968:366-70). This construct, in addition, correctly defines the environments within which phonological reduction of prepositions, particles, determiners, auxiliaries, and the copula, and contraction of certain of the auxiliaries and the copula are permitted as in the underlined words in (1).

1. a. I don't know what place John went to after he left the office.
   b. He put out the cat and went to bed.
   c. He'd eat his dinner, but he's not hungry.

More significantly, perhaps, the construct of the phonological word makes it possible to define those cases where such reduction and contraction are blocked within the framework of a local context restriction on the reduction rule and without reference to a global rule even though the conditions for blocking the reduction rules are the result of the application of syntactic transformations at a point quite distant in the derivation from the phonological rule of reduction. Examples of such blocking of reduction are given in (2) where the underlined words do not reduce or contract.

2. a. I don't know what place John went to after he left the office.
   b. He put the cat out and went to bed.
   c. Eat his dinner! Maybe he would (*he'd), if hungry is what he is (*he's).

The 'reality' of the construct of the phonological word is also attested to by the results of ignoring the limiting of reduction and contraction to its domain. When these rules apply freely, not only do ungrammatical sentences result, but syntactic functions within the resulting sentences are often masked or made easily misconstruable. Thus
(3a) seems parallel in every way to (3b) with respect to the part beginning with Harry's.

3. a. I'm surprised that Harry's under the piano.
   b. *I'm surprised how happy Harry's under the circumstances.

In linguistic studies it is also the test of a hypothetical construct's generality that it suggest or make possible simplifications in other parts of the grammar. The construct of the phonological word itself is defined quite naturally on [[specifier of X]. X] type categories (i.e. syntactic categories of the type suggested in Chomsky's "Remarks on Nominalization" (1970)), yielding a simplification in the base component and in the conventions which assign and interpret word boundaries.

GARY MILSARK, Massachusetts Institute of Technology [FRI AFT:4]

Finnish Existentials and the Structure Preserving Hypothesis

Generative grammar has suffered in recent years from a failure to confront proposed constraints on the form of linguistic theory with data from a wider variety of languages than the one or two (typically English) which were studied to arrive at the claimed universal in the first place. This paper presents a case from the grammar of Finnish where the adoption of one such constraint, the Structure Preserving Hypothesis of Emonds, leads to a natural explanation of a restriction on the formation of existential sentences.

Outline of the argument:
1. Syntactic characteristics of existential sentences in Finnish
   a. The unmarked surface word order has the subject in post-verbal position, in contrast to the normal SVO word order of Finnish.
   b. Case selection in the subject is that which is appropriate to the object of a non-existential sentence.
   c. Subject-verb agreement fails.
   d. A government rule embodying special restrictions on the case of direct objects in the presence of negation or progressive aspect applies to the subjects of existential sentences.

2. The above facts find a natural explanation if at some level of derivation the subject of an existential sentence assumes object constituency.

3. For reasons of adequacy in the statement of selectional restrictions and grammatical relations, it must be assumed that the subject is generated in subject position and moved by a transformational rule into object constituency.

4. This transformation finds a natural formulation under a theory constrained by the Structure Preserving Hypothesis: the subject NP is moved into an empty NP generated in the position of the object NP in the phrase structure expansion of the verb phrase.

5. So formulating the rule leads to an explanation for the fact that no transitive existential sentences are possible in Finnish, since under the Structure Preserving Hypothesis the movement rule is blocked if object position in the sentence is already filled by a NP introduced in deep structure by lexical insertion. That the absence of transitive existential sentences is a fact requiring a structural explanation, and not a general, language-independent fact resulting from the semantics of existentiality, can be seen by noting that such sentences do exist in languages with a VP structure which will accommodate them. In English, for instance, one finds sentences such as There will be a pig roasted before your eyes, which for semantic reasons probably must be derived from a simplex passive sentence.

ROCKY V. MIRANDA, University of Minnesota [WED AFT:1]

On the Evolution of an Anomalous Gender System in Indo-European

Karl Brugmann in several of his works tried to dispel the popular notion that the ancient Indo-Europeans personified inanimate objects as masculine or feminine, or as neuter when their imagination failed them, and thus developed the Indo-European gender system. He proposed that this anomalous gender system had nothing to do with sex originally. In particular he argued that the feminine suffix -ā originally marked only collective and abstract nouns and it is only due to semantic change in a noun like gvena from 'child bearing' to 'woman' that -ā established a connection with femininity. Later research has supported Brugmann's claim that the connection of the Indo-European gender system with sex is not original and has, also, firmly established the link between -ā 'feminine' and -a 'collective' which developed into the neuter plural. The phonological investigation of the Laryngealists has shown that the suffix involved is really the 'laryngeal' -h which is found not only in nouns ending in -eh(> -a) but also in those ending in -th and -uh.
In this paper I would like to examine Brugmann's explanation as to how the feminine gender arose from the collective. The semantic change he proposed from 'child bearing' to 'woman' is of a common type; cf. English 'youth', 'beauty', 'justice', etc. But can a single lexical item or a couple of items change the meaning of the suffix and, more importantly, bring about major syntactic changes? Some linguists are skeptical about it. Jespersen, who does not accept Brugmann's theory, says in his book *Language* "The weakest points in his arguments are, of course, that there are so few old naturally feminine words in -a and -e to take as starting points for such a thoroughgoing modification of the grammatical system...." Brugmann points out the development of the derogatory sense of the German suffix '-isch' (English '-ish') which was originally a neutral suffix but later acquired a derogatory sense because of the bad company it kept. However, no actual example was available to Brugmann which followed this principle and also brought about major modification of the grammatical system. The German 'Mädchen' demands the neuter 'es' as anaphoric pronoun but does not play further havoc with German syntax.

In this paper I will present evidence from Konkani, an Indo-Aryan language, in support of Brugmann's hypothesis. In Konkani, semantic change in a single neuter noun *če~u* from 'child' to 'girl' has led to the development of neuter gender into a sort of second feminine gender, and has brought about extensive syntactic modifications. Some feminine nouns denoting a girl have changed to neuter. Some others have become optionally neuter. Even those that remain feminine agree only with adjectives. The pronouns and verbs which must also be in concord can take feminine or neuter agreement. At an earlier stage Konkani pronouns *ti, tī, tē* corresponded to German *er, sie, es*; but to the modern Konkani speaker *tē* in isolation is 'she' and evokes the image of a young female in his mind. Yet, *tē* retains its original sense in some contexts, e.g. *tē kīt* 'what is it'.

What we have here is an incomplete semantic shift, which can bring about irregularities. When a gender system is affected by an incomplete semantic shift it can become anomalous. I would also like to argue that the potential of the lexical item(s) involved for bringing about such extensive syntactic changes is dependent on the "pronominal range" of the item(s).
In order to formally express that the two pronoun types are grammatically related, it is suggested that they should be described by similar rule mechanisms.

Arlene I. Moskowitz, University of California, Los Angeles

Idiomatic Phonology and Phonological Change

The speech of children includes not only regularly formed utterances which manifest the phonological structure which has been acquired, but also idiomatic utterances which deviate in interesting ways from that structure. Among the idioms are those which are progressive (which superficially exhibit phonetic dexterity far greater than that of the child’s regular speech, but which simultaneously are more primitive phonologically) and those which are regressive (which are both phonologically and phonetically more primitive than regular speech). Evidence collected so far indicates the existence of three types of progressive idioms: onomatopoeic idioms (the use of imitations of environmental sounds as words), phonetic idioms (single occurrences of sophisticated pronunciations, immediately replaced by productions of dramatically greater simplicity), and unit idioms (phonetically elaborate pronunciations which persist for weeks or months in flagrant violation of the constraints of the child’s phonological system). Progressive idioms have important implications for the structure of a theory of phonology acquisition, and dramatically emphasize the distinction between the acquisition processes relevant to phonology and those of phonetics.

Regressive idioms are lexical items which have been exempt from phonological changes affecting the remainder of the system. Idioms of this type -- both idiolectal and dialectal -- occur in adult speech also. Perhaps the most elaborate dialectal idiom systems of adult speech are the ideophones of African languages. A categorization of the kinds of phonological changes which occur during the acquisition period leads to some parallels between the mechanisms of change in children and adults and lends support to the lexical diffusion theory of diachronic change which has been proposed by Wang. Evidence relating to the different neurophysiological encoding of regular vs. idiomatic speech suggests some possible causes of the differential vulnerability of distinct lexical items to phonological change.

Terrance M. Nearey, University of Connecticut

Perceptual Aspects of Horizontal Vowel Harmony

Typically, simple horizontal vowel harmony systems include so-called neutral vowels which may co-occur freely with either of two classes of non-neutral vowels (which are mutually exclusive in the harmonic domain). The question arises whether there is some constraint on the information processing system which would “encourage” the development and/or preservation of certain kinds of vowel harmony systems on the basis of communicative efficiency. A classic case of horizontal harmony is that of Finnish in which class N vowels (i, e) may occur with either class S vowels (y, ő, a) or with class G (u, o, a). Vowels from class S never co-occur with those from class G. Preliminary experiments were conducted with Finnish subjects and with speakers of other languages with vowel systems largely compatible with Finnish. VtV pseudo-words were presented in triads in a short term memory experiment. The material consisted of a list of all 64 possibilities including Vs t Vg and Vv t Vs which do not occur in Finnish and are hereafter called violators. These were presented in pseudo-random order and the lists were rotated so that each pseudo-word occurred once in each position within a triad. Results indicated that the occurrence of a violator within a triad results in poorer performance either in the violators themselves or in other members of the triad which include type S or type G vowels. The results were valid both for Finnish subjects and for the majority of other subjects whose native languages do not possess vowel harmony systems. Further analysis of the data obtained and further related experiments are planned.

L.J. Norman, University of Minnesota

On the Question of Simultaneous Application

The question of simultaneous application of rules in a generative grammar has recently been raised again in linguistic theory by a hypothesis of rule ordering proposed by Moutsoudas, Sanders and Noll (1971) in which the order of application of rules is determined solely by universal principles. Within this theory, simultaneous application follows from the definition of ‘obligatory rule’ as a rule which applies whenever its structural description is met (cf. Ringen, 1972). It will be claimed in this paper that the classical argument against simultaneous application
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of rules (cf. Postal, 1968) deals only with cases in which the rules make empirically false statements and that a class of cases in which rules are empirically correct and may be applied simultaneously cannot be excluded by any such argument. The historical implications of simultaneous application will be examined, and it will be claimed that the assumption of simultaneous application taken in conjunction with the hypothesis that rules are added at the end of the phonological component limits the class of possible rules which may be added to a grammar.

The argument will proceed as follows:

1. The classical argument is that given a case in which rules $R_1$ and $R_2$ are required to apply simultaneously in which it is necessary to build the environment of $R_1$ into $R_2$ in order to do this, $R_2$ is empirically false, since its structural description contains more information than that which is necessary to describe the process represented by $R_2$. This argument only holds against simultaneous application if all cases where rules can be applied simultaneously make empirically false statements.

2. A case from a Canadian dialect of English will be examined in which the rules involved make the correct empirical claims and simultaneous application cannot be excluded by the argument in (1).

3. An argument from the theory of sound change against simultaneous application involving rule addition will be examined. It will be claimed that a theory which includes both (a) the hypothesis of simultaneous application and (b) the hypothesis that phonological rules added to a grammar can only make reference to the output of the application of the last phonological rule will limit the class of possible rules added to a grammar according to the following principle:

If the effect of the application of the last phonological rule $R_n$ is to delete a constituent, no rule $R_{n+1}$ may be subsequently added to the grammar such that $R_{n+1}$ must apply simultaneously with $R_n$ and must necessarily make reference to the constituent deleted by $R_n$.

Cases of rule addition will be cited which seem to conform to this principle, but it will be suggested that such a constraint may indeed be too narrow and in fact leads to seemingly contradictory statements about a speaker's internalized grammar.

4. It will be concluded that simultaneous application can only be eliminated from a theory of grammar on the basis of empirical evidence if (a) clear cases are presented where the rules are empirically correct and (i) a representation $R$ meets the structural description of both rules; (ii) there are no universal principles of applicational precedence which exclude simultaneous application; (iii) simultaneous application gives the wrong output; or if (b) clear cases of rule addition that violate the principle in (3) can be found, but only if it is necessary to maintain the hypothesis that phonological rule addition can only make reference to the output of the last phonological rule.

MARGIE O'BRYAN, University of Illinois

In Younger Avestan (Y.Av.) there are five noun types whose A. Sgs. end in $-im/-um$ — two of these occur with short $-im/-um$: root nouns in final palatais (e.g. $\text{vācim} < \text{vāk} - \text{'speech'}$); $-ya$-stems (e.g. $\text{po'rur}m < \text{po'rva} - \text{'front'}$), and three with long $-im/-um$: $-ya$-stems (e.g. $\text{ra'ō}m < \text{ra'ōya} - \text{'way'}$); $-i/-um$-stems (e.g. $\text{ga'ri}m < \text{ga'ri} - \text{'mountain'}$); $-\text{ā}^-\text{ū}$-stems (e.g. $\text{aśanm} < \text{aśanī} - \text{'righteous'}$). Although the occurrence of $i$ and $u$ in all of these endings can easily be accounted for (cf. below), the reason for the occurrence of long vowels in some of the endings is (except for $-\text{ā}^-\text{ū}$-stems where length is inherent in the stem) by no means transparent and (to my knowledge) has never been (satisfactorily) explained, a typical 'explanation' being simply that original $i$ and $u$ and $i$ arising from $-ya$- lengthen in Y.Av. before final nasals (see, for example, Jackson (1892), section 23). It is the purpose of this paper: (1) to determine that the final nasal ($-m$) of the A. Sg. originally had nothing directly to do with the lengthening of $i$ and $u$; (2) to present historical evidence to account for the particular vowel quantity of each of these endings.

The $i$ and $u$ of the A. Sg. of $-ya$- and $-va$-stems arises in the following way: There is a general process in Y.Av. which changes $a$ to $a$ before nasals. The $a$ is then further raised to $i$ and $u$ if preceded by a palatal or a labial segment respectively: e.g. $/r\text{a}'yam-m/$; $/p\text{o}'r\text{va}-m/ + /r\text{a}'byam/; /p\text{o}'r\text{vam}/ + /r\text{a}'byam/; /p\text{o}'r\text{vam}/. $y$ and $y$ then drop, yielding $\text{ra'ō}m(< \text{ra'ōm})$ and $\text{po'rum}$. There is reason to believe that at a pre-stage of Y.Av. the suffix $-ya$- was $-iya$- which, after vowel raising and $y$ deletion, became $-i\text{-}i$- (1). Postulation of an $-iya$- suffix is justified by the following facts:
(1) There is evidence in Indo-Iranian, as well as in other Indo-European languages, that there were original -iya- (as well as -ya-) suffixes (e.g. Y.Av. visya- : Skt. vīṣya- 'belonging to the tribe').

(2) -iya- also came about from a heavy syllable preceding the -ya- by a process of resonant doubling commonly referred to as Sievers-Edgerton's Law, e.g. Y.Av. friya- : Skt. priya- 'dear').

(a) Evidence that Sievers-Edgerton's Law indeed operated in Iranian is provided by the occurrence of ə before y in forms with heavy syllables (e.g. vāṭya-; nāptya-), for ə regularly changes to the continuant ō before consonants (cf. paṭī- 'lord, master', but paṭī ‘husband').

(3) The occurrence of -iya- in so many forms was then apparently sufficient to cause generalization of the ō in the rest of the -ya-stems (i.e. those with light syllables). (This generalization must, of course, have taken place after the change of ə to ō).

Thus, the A. Sg. of all -ya-stems was derived from /-iyam/+/-iyam/ +/-iyim/+/-im/ (=-im).

In -ya-stems, -im is found only after heavy syllables (e.g. xātim; drunk), indicating that ō was not generalized in these stems as ō was in -ya-stems. The reason for this lack of generalization is no doubt due to two factors: -ya-stems are a very small and non-productive class; there were no independent -uva- suffixes.

In -i/-u-stems, there is no phonetic development which could have lengthened the vowels in the A. Sg. The long vowel in these endings, however, can be plausibly accounted for analogically: There is a significant similarity between the N. and A. Sgs. of -i/-u-stems and -i/-u-stems (since final long vowels are shortened in Y.Av.)

- (i-stems) N. Sg. -i (aśaoni): A. Sg. -im (aśaonīm)

- (i-stems) N. Sg. -i (ga'riś): A. Sg. -im > -im (ga'rim)

The plausibility of such an explanation is strengthened by the fact that the A. Sg. of root nouns in final palatals occurs with short ō (vāčim). Since the N. Sg. of these noun types does not have an ō (vāna), the only other place where the vowel ō occurred in both the N. and A. Sg. was in -i/-u-stems, thus providing motivation for the original similarity to be extended into identity.

Phonologists profess interest in the mental processes underlying speakers' command of the sound patterns of their language, but how are these processes to be discovered? Certainly not by the sterile formalism and unchecked speculation that has characterized most of generative phonology and its offshoots to date. Speculation must be guided by empirical findings. After the phonologist discovers a regularity in the sound system of a language, there are two steps to take before the mental basis for it can begin to be discovered:

(1) as Zimmer (Lg. 45:309-321 (1969)) has pointed out—and demonstrated—one must establish whether or not the pattern is productive, and if it is, (2) an effort must be made to discover, at least approximately, the formulation of the rule used by the native speaker. It cannot be assumed that the speaker uses the formulation preferred by the phonologist.

This paper is concerned primarily with the design of tests for step (2).

In an experiment inspired by that of Espir (Lg. Monographs 1 (1925)), five groups of subjects were required to learn the names of 16 objects during several trials, each object having one of four possible colors. The names were structured so that group 1 could simplify their task by learning eight morphemes which referred to the four colors; group 2 could not simplify their task—they had to learn 16 completely different names; groups 3, 4, and 5 could simplify their learning task if, like group 1, they learned 8 basic morphemes, and in addition learned a phonological rule which altered the phonetic form of some of the morphemes as follows:

- Group 3: /k,g/ + /i,a/ (i.e., /v/ (back)
- Group 4: /k,g/ + /i,a/ (i.e., /v/ (back)
- Group 5: /k,g/ + /i,a/ (i.e., /v/ (back)

It follows that if speakers formulate such rules using features rather than phonemes, then the performance (P) of groups 3 and 4 > P(5); if speakers prefer unmarked over marked phonological processes, then P(3) > P(4,5). The outcome P(3) = P(4) = P(5) would support the negative of
these two hypotheses. Preliminary results with 5 subjects in each group reveal P(1,3,4,5) > P(2), but no significant difference between P(1,3,4,5), however the small number of subjects probably renders the test less sensitive than it could be. Criticisms and possibly improvements of the test will be discussed.

[HANDOUT: Page 208]

MANJARI OHALA, Berkeley, California [FRI AFT:2]
The Abstractness Controversy: Experimental Input from Hindi

Participants in the abstractness controversy have for the most part offered purely structural arguments as to why underlying phonological forms should or should not be abstract. However if there is some psychologically correct underlying form for morphemes, then it can only be discovered via psychological means, including psycholinguistic tests. In this paper I will attempt to provide experimental evidence for the psychological reality of segments which would probably be considered abstract.

In Hindi there are a large number of related morphemes such as \[\text{pakaf} \] "catch" (imperative) and \[\text{pakfa} \] "caught", i.e. one form with a medial cluster and the other with that cluster broken up by a \[\text{a} \]. Alternations of this sort are fully productive; the above forms, for example, are part of a common verbal inflection. For such morphemes it is reasonable to posit a common underlying form such as \[\text{/pakaf} \] and derive the form with the medial cluster by a \[a\text{-deletion rule: } a \rightarrow \emptyset /VC\text{-CV. But certain suffixes such as the adjective-forming } -iya \text{ block the application of the } a\text{-deletion rule, thus } /kesariya/ \text{ "saffron+suffix" yields } \text{kesar+iya not *kesar+riya}. However there are a few morphemes with medial clusters for which there are no alternating forms without the clusters, e.g. \[\text{[g^8sala]} \] "nest." Should a \[\text{a} \] be posited in the underlying forms of these morphemes also?

To test this, 27 native speakers of Standard Hindi were asked to add -iya to 30 commonly used Hindi words, some of which were of the \[\text{[g^8sala]} \] type, yielding previously unattested but semantically reasonable forms. Since -iya blocks the application of the \[a\text{-deletion rule, if there is a } a\text{ in the underlying forms of these morphemes it should show up. (Addition of a suffix would cause the final vowel in } \text{[g^8sala]} \text{ to drop by the usual rules of Hindi phonology, thus speakers could either produce } \text{[g^8saliya]} \text{ or } \text{[g^8saliya]}.)

The results showed that for some subjects who consistently gave responses such as \[\text{[g^8saliya]} \], the positing of the underlying form \[\text{[g^8sala]} \] for the morpheme \[\text{[g^8sala]} \] is justified, but for others it is not. These results also suggest an interesting point, namely, that speakers who produced forms which are identical phonetically may still have quite different grammars, this difference only becoming apparent when they are asked to form new words.

ARTUR L. PALACAS, University of Toledo [FRI MORN:4]
Specificity and First Person

A new item of data on the interpretation of indefinite NP's tends to support the view that semantic structures are phrase markers, or at least that there are phrase markers deeper than Deep Structure related to Deep Structure by rule. The argument is based on the internal requirements of Jackendoff's interpretive model.

Recent accounts of referentiality make the general conclusion that for each additional "modal" verb or quantifier in a sentence, an indefinite NP gains an extra interpretation of "specific with respect to" the additional item. From the suggestion made by Jackendoff in "Modal structure in semantic representation" (1971) that this is due to the criterion of "identifiability" we conclude that an indefinite NP in a modal sentence with non-first person subject has not the two expected interpretations but three. 'a memorandum' in Max has to find a memorandum-- it could be any memorandum, or it could be a particular one purportedly identifiable by the speaker; additionally, it could be a memorandum purported by identifiable by only Max and not the speaker, as if the speaker had said, Max has some memorandum he's got to find.

To make this third meaning available in Jackendoff's theory requires the presence of a new verb in the syntactic structure of the sentence in question for the Modal Projection Rule to operate on. This would require a prior projection that projects the Deep Structure onto a deeper structure where the necessary verb is present, in this case the expected performative "impact the fact."

To preserve the generality concerning the dependence of extra meanings on additional modals, it is proposed that factives, of which the postulated performative must be one, are a type of modal; this conclusion
depends on an assumption first made by Karttunen in "What do referential indices refer to?" (1968), not discussed by Jackendoff, that "specific" is not equivalent to "referential", thus allowing non-specific NP's in factive clauses.

MARTIN D. PAM, Elmhurst, New York

The Verbal Pronoun in Hausa

It is an extremely common phenomenon in the world's languages to have a set of independent personal pronouns to indicate the subject of the verb, which itself may be marked for tense and/or aspect. In Hausa, however, it is customary to list eight paradigms of personal pronouns which must cooccur with the verb. Since the Hausa verb is not inflected for tense/aspect, it is the choice of pronominal paradigm which determines the tense/aspect of the sentence. Thus, the pronominal paradigms have the following designations:

I, II = perfective
III, IV = imperfective
V, VI = future
VII = subjunctive
VIII = habitual

The anomaly of the situation in Hausa can be explained by a componential analysis of the eight pronominal paradigms. Such an analysis reveals that the phonological shape of the person indicators is uniform throughout the paradigms. The differences in the pronouns are due to prefixes and suffixes, tone change, and several instances of contraction. From the viewpoint of transformational grammar, these facts suggest that in the deep structure of Hausa sentences there occurs only one pronominal form for the subject, and that the eight paradigms are transformationally derived. This means that tense and aspect must be treated as independent units in the derivation of Hausa sentences -- an approach which has become more or less accepted in current theory, which claims that (for English, at least) "tense" is the highest verb.

GEORGE PAPÇUN, University of California, Los Angeles
STEPHEN KRASHEN, University of California, Los Angeles
DALE TERBEEK, University of Chicago

What is Peculiar About Language?: Evidence from Studies of Lateralization

When subjects are presented with different bits of verbal material simultaneously in both ears, they are able to correctly report more of what they hear from the right ear than of what they hear from the left ear. This phenomenon is related to the left hemisphere lateralization of language by various other lines of research such as the study of aphasic subjects. Our research is concerned with the cause(s) of lateralization and their relation(s) to language and speech.

To investigate these issues, we presented Morse code signals to Morse code operators and to subjects who did not know Morse code. Experienced Morse code operators showed right ear superiority, indicating left hemisphere lateralization, for the perception of dichotically presented Morse code characters, their task being to type the letters they heard. This result shows that articulability is not a necessary property of stimuli lateralized to the left hemisphere. Naive subjects showed left hemisphere lateralization when presented with a set of dot-dash patterns which was restricted to pairs including seven or fewer elements (counting dots and dashes each as elements).

When presented with a list that included longer stimuli, naive subjects showed right hemisphere lateralization, the opposite of their result with the shorter stimuli. We hypothesize that pairs consisting of the Magical Number Seven or fewer elements are perceived with reference to the subparts of which they are composed, but that longer stimuli force naive subjects to adopt strategies involving the holistic qualities of the stimuli. Therefore we speculate that the left hemisphere is specialized for processing the subparts of which a stimulus is composed.

Consideration of our findings in the light of other literature on lateralization suggests that language is lateralized to the left hemisphere because of its dependence on segmental subparts, and that this dependence characterizes language perception as distinct from most other human perception.
The Lexicon as a Filtering Device

In the various syntax-oriented models of grammar that have been advanced, various devices have been proposed to filter out ungrammatical sentences and thereby guarantee the grammaticality of the output. In the semantic-oriented model proposed by Chafe (Meaning and the Structure of Language, 1970) grammaticality is viewed as determined in the semantic component. A surface structure is grammatical because only well-formed semantic structures are allowed by the rules of the semantic component. Thus a sentence like

(1) *Sincerity may admire the boy.

represents an impossible semantic structure for fairly obvious reasons.

In Chafe's model a well-formed semantic structure is acted upon by postsemantic rules, which correspond roughly to the transformational rules of the syntax-based models. Among the postsemantic rules are linearization rules, which arrange the original non-linear semantic elements in the linear order required by the surface structure of the language involved. These rules have the same effect as surface structure constraints. But they are not constraints on the output of transformations; they completely replace traditional transformations.

If there is any filter at all in the meaning-structure model, apart from the semantic rules themselves, its locus is the lexicon. Thus if an otherwise acceptable semantic structure contains elements which cannot be matched with forms stored in the lexicon, it is filtered out:

(2) He was enthusiastic.
(3) He enthused.
(4) He was joyous.
(5) *He joyed.

Similarly, in Delaware (an Algonkian language) first person imperatives (e.g. kenteka-tam 'let's dance') can be symbolized by forms stored in the lexicon, but first person prohibitives (i.e. negative imperatives, e.g. 'let's not dance') lack overt forms and accordingly are not available. A speaker must resort to circumlocution: n-kinki kenteka-n 'I don't want to dance'.

What Chafe has called a completable verb (cp. Fillmore's factitive case) may in some cases be available, alternatively, as an action verb:

(6) They sang a song.
(7) They sang.

Or, comparing two languages, it may be that a completable verb in one language is expressed by an unanalyzable action verb in another:

(8) She sang a woman's vision song. (English)
(9) /atehwmwi-w/ - [atehdmu] (Delaware)

In such cases it seems appropriate to claim that the lexicon serves as a filter—not in the sense that it filters out ungrammatical structures, but simply in the sense that it rules out one possible semantic structure and forces a circumlocution.

Nez Perce Vowel Harmony and the Natural Evaluation Metric

I propose to apply the natural evaluation metric, a recent development in phonology, to the problems in Nez Perce vowel harmony to show how this measure can result in a better analysis. Nessly (1971, 1972) holds that a natural rule is motivated solely by its environment, and he contends that we need to describe the environments and effects of processes in terms of the physiology and acoustics involved. Using Nessly as a stimulus, I propose a "natural evaluation metric" as follows: Given a phenomenon that is environmentally motivated, the description of it should be compatible with what we know of its physiological-acoustic conditioning.

The interesting character of Nez Perce vowel harmony has been investigated in Acki (1966, 1970), Jacobson (1968), Rigsby and Silverstein (1969), Chomsky and Halle (1968), and Kiparsky (1968). Nez Perce has a five-vowel system /i u o a/ divided into a dominant class /i o a/ and a recessive class /i u a/. Nez Perce words are composed of morpheme strings. If a word contains a morpheme with a dominant vowel, all vowels in the word are dominant.

Rigsby and Silverstein proposed an underlying six-vowel system /i u o a/ plus /e/ which merges with /i/. They claim that in Sahaptin, related to Nez Perce (both having evolved from Proto-Sahaptin), the vowels that condition the palatalization of /k/ and /k'/ correspond to the regressive Nez Perce vowels /e/ and /æ/. Rigsby and Silverstein distinguish between dominant /i/ and recessive /e/ on these grounds. /i/ doesn't condition palatalization. The natural evaluation metric would consider Rigsby and Silverstein's explanation quite costly, but not impossible. The natural evaluation metric would point out that /i/ is the usual palatalizing environment for the change k --------> č. If /e/ conditions
against some absolute neutralization rules, a principled basis for ex­now be developed. Returning to Kiparsky's original concern for
including some and admitting other cases of absolute neutralization must
Kiparsky in
Absolute Neutralization and
analysis that more correctly reflects actual articulatory phenomena and
analysis highly because we know that in many languages front vowels,
straining phonological representations to preserve recoverability, abso­
languages, lyingly distinct representations) do not occur in grammars of natural
neutralization rules (i.e. rules that unconditionally merge
from surface
front vowels /i/ and /æ/ that merges with /ɪ/. Jacobsen's recessive front
correspond to the vowels in Sahaptin which condition palatalization while the related dominant vowels /æ/ and /a/ do not condition palatalization. The natural evaluation metric would value this analysis highly because we know that in many languages front vowels, especially high front vowels, tend to condition palatalization whereas back vowels don't condition a fronting process.

Of the available analyses the natural evaluation metric selects the analysis that more correctly reflects actual articulatory phenomena and that analysis gets us closer to a solution of the vowel harmony problem in Nez Perce.


The strong form of the Alternation Condition proposed by Paul Kiparsky in "How Abstract is Phonology?" (1968) is intended to preserve the recoverability of distinct underlying phonological representations from surface forms. Kiparsky concludes that as a consequence of constraining phonological representations to preserve recoverability, absolute neutralization rules (i.e. rules that unconditionally merge under­lyingly distinct representations) do not occur in grammars of natural languages.

Subsequent studies have argued that the exclusion of all absolute neutralization rules is too strong. Given Kiparsky's original arguments against some absolute neutralization rules, a principled basis for excluding some and admitting other cases of absolute neutralization must now be developed. Returning to Kiparsky's original concern for

recoverability, consistent application of his implicitly assumed notion of recoverability shows the way toward a principled justification of a certain type of absolute neutralization. A first approximation of the solution is evident in an examination of the notion of opacity, where a rule is said to be opaque with respect to a given form if (i) the rule is contradicted on the surface in that form, or (ii) the structural configuration to which the rule is applicable is destroyed in the derivation of that form. Any absolute neutralization rule renders some other rule opaque in one or the other sense. Of the two types of opacity, type (ii) provides phonetic surface clues that preserve recoverability in the sense required, while type (i) does not. The solution to the problem, then, is to prohibit absolute neutralization that results in type (i) opacity.

A recently proposed theory of rule application (principally in Koutsoudas, Sanders, and Noll "On the Application of Phonological Rules") accepts the hypothesis that no language-specific constraints such as rule ordering statements or global conditions on rule application) are necessary for the empirically-correct formal characterization of natural language phenomena. It happens that as a consequence of this hypothesis, type (i) opacity never arises (except in the case of overt exceptions), while type (ii) is commonly found. Hence this theory is sufficiently formally constrained to insure that only absolute neutralization rules of the appropriate type are allowed. Theories that assume the power of rule ordering or global conditions are not similarly constrained, and hence cannot discriminate between the two types of absolute neutralization rules. Proposed absolute neutralization rules in Finnish, Nupe, and Yawelmani previously discussed in the literature provide the basis for much of the discussion.

SOLVEIG M.V. PFLUEGER, University of Texas at Austin  [WED AFT:1] Proto-Indo-European Syntax and a Universal Theory of Word Order

Recent studies have shown that there is a definite correlation be­tween the basic word order of a language and such phenomena as position of modifiers, form of comparatives, and direction of gapping. This paper suggests a syntactic model with a universal unordered base which can explain the syntactic structure of the various IE dialects. Linear order is introduced into the string by a set of ordering rules immediately following the base rules and preceding the more traditional transformational
component. The ordering rules might be said to be partially universal in that all languages with the same underlying word order, for example SVO, undergo one set of basic ordering rules. Thus two genealogically unrelated languages may share a number of structural features, while two closely related languages may have similar vocabularies and phonologies but may differ considerably in terms of their syntactic components.

Application of the suggested model to Indo-European gives some surprising results. It can be demonstrated that PIE had the structure S'v'd while the later dialects were s'Sv'd or s'Sv'.

On the basis of these changes in underlying structure it is possible to predict types of compounds, gapping and its direction, position of modifiers, the structure of relative clauses, obligatory or optional expressed subjects, and paratactic or hypotactic structure, as will be demonstrated in the paper.

KENNETH L. PIKE, University of Michigan

Agreement Types Classified Via a 'Nine-Cell' Tagmemic Array

Purpose: Varieties of agreement, concord, reference, or repetition of an item are shown to be instances of a more general relation (a) in which tagmemes are represented as complexes of a nine-cell intersection of elements of grammatical, situational, and phonological organization with elements of role, category, and instance, and (b) in which agreement is specified as a relation between an element from a particular cell of one tagmeme and the comparable cell of another tagmeme.

The Organizing Array:

<table>
<thead>
<tr>
<th>Role</th>
<th>Category</th>
<th>Instance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grammatical</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Situational (semantic)</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Phonological</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

Samples of Agreement, Keyed into the Array: Cell 1, grammatical role: Poetic repetition of the same grammatical structure (but with different words).

Cell 2, grammatical category: Singular: The boy surely sings well.

Cell 3, grammatical instance (with morpheme being treated as a member of a lexical subcomponent of the grammatical hierarchy): Morpheme repetition: John saw the tiger, but the tiger saw him first.

Cell 4, situational role (or, on clause level, 'case'): The boy sings, but as a singer he is a flop. (With agent retention)

Cell 5, situational category: Now is the time to join.

Cell 6, situational instance: John came home but he wouldn't eat.

Cell 7, phonological role: Who is the king? ... He is.

Cell 8, phonological category: Vowel harmony.

Cell 9, phonological instance: Rime.

Background: A four-celled tagmemic array was treated by A. Becker, for English subject tagmeme; a nine-cell treatment was used by Mary Ruth Wise, for the identification of participants in Nomatsiguenga discourse; Thomas Klammar applied the nine-cell approach to the study of English dialog in Shakespeare and Dickens.

Implications: Problems of reference, problems of vowel harmony, and problems of semantic collocational restriction have long been studied. Here, however, we hope to integrate these disparate phenomena into a single view of agreement of tagmemic components. Thus it becomes a small but important part of a generalized approach to language based upon a tagmemic view of the universals of human communication. Numerous studies now in progress applying the nine-cell approach to various levels of the hierarchy--from word to discourse--should find this of interest.

ROBERT F. PORT, University of Connecticut

Intelligent Inference and Swahili Verb Suffixes

Although it has been a cardinal tenet since Bloomfield that all regularities in grammatical data must be formalized, there remain strong reasons to assume that unformalizable intelligence is crucial to linguistic communication, e.g.:

1) People use common sense in every other aspect of their lives. Why not in the production and comprehension of language too?

2) Any formalization of linguistic meaning must stop somewhere--with categories that still fall short of the imagery in the hearer's mind. But if this richness if "filled in" by inference, the problem is not whether inference is used in comprehension but how much it is used.

3) If we assume that formal structure stops and inference begins
at a point much earlier than is usual, many generalizations may be captured insightfully that would otherwise have to be treated ad hoc.

We view linguistic behavior as governed by the needs of communication. Thus we assume:

a) Speakers, who use language to transmit messages, will only generate combinations of forms whose meanings make sense together.

b) Hearers will attempt to infer a coherent message from any string of forms.

Swahili has three highly productive verb suffixes: li, the "causative", li, the "prepositional", and lik, the "stative". In spite of great freedom of occurrence, we note that lik can never cooccur with either li or li. An analysis that derives these forms from a deep structure could not account for this distributional fact in an enlightening way.

We propose that both the distributions of these forms as well as the messages they transmit in particular contexts can be explained insightfully by the meanings of the forms themselves. The three forms constitute a system of signs that add or subtract roles to those implied by the lexical meaning of a verb:

<table>
<thead>
<tr>
<th>Roles Played</th>
<th>PLUS MORE EFFECTIVE Role</th>
<th>PLUS LESS EFFECTIVE Role</th>
<th>NO ACTOR Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTOR</td>
<td>li</td>
<td>li</td>
<td>lik</td>
</tr>
</tbody>
</table>

Thus, li means "the role of actor is played, plus a role that is more effective than the actor." Cf. wa "kill" and u-li "cause to kill." Li means "the actor plus a less effective role (not implied by the lexical verb) are played." Cf. u-lia "kill with" or "kill for." Lik means "the role of actor is not played." Thus unja "break" and unj-ika "be broken".

The messages communicated by any utterances containing these forms are accounted for by these meanings given intelligent inference by the hearer. The distributional facts are also accounted for by these meanings since it would be incoherent for a speaker to collocate forms with contradictory meanings such as lik and li.

SUSAN PRATHER, University of Texas at Austin [FRI MORN:4]
Relative Clause Formation in Swahili

The purpose of this paper is to test John R. Ross' contention that auxiliaries as elements of a universal base component are main verbs.
except when restored by analogy from preconsonantal context (e.g. kwenni 'kills' after 3 pl. kunanzi, regular wenzi 'rapes': Gk. chefoù 'amite'). Subsequently (Comp. Gr.²) Sturtevant abandoned the latter tack entirely, but boxed himself into such an extreme "Indo-Hittite" corner as left further discussion of IE labiovelars in Hittite largely meaningless. Yet the devalerlizing etymologies live on, e.g. in the narrow neogrammarian account of H. Kronasser (Vgl. Laut- und Formenlehre des Heth. 67), as potential Hittite evidences for IE *g" and *gh".

This paper attempts some measure of clearing the decks of such etymological debris and proposes partly new reflexes based on fresh etymologies. IE *k" as seen yielding initial ku(w)- (kuČu, kuwaT, kuwaT, etc.) and medial - (k)ku(w)- (nekut- /nek't/-: Skt. nakt-, Gk. nukt-). IE *gh" is found to result in regular initial ku(w)- (kuensì /g"enzi/, 3 pl. kunansi /g"ansì/) and medial -ku(w)- (šakun- /šag'i/- /šet'- /šakun- /šag'ni/ / 'fountain': Gk. adéxa 'clearly', sophòs 'insightful, wise'; e/aku- /eg'/ /'drink': Toch. yok-, perhaps Lat. ūbris 'drunk', iter. akkuš-/a(k)šak/). IE *g" appears to develop to -ku(w)- medially (nekumants-/neg'mant/- /'naked': Skt. nágnd-, Gk. gumnós), but initially the normal outcome involves delabialization (karap- /devour': Gk. brápteíν 'eat'; klút- 'be extinguished': Goth. quisjan 'ruin'; kalt- 'hunger': OHG quist 'destruction'; kariva- 'pause, rest' and karùs- 'be silent': Lith. gurutu 'subside', Goth. gafrīus 'gentle'). Thus curiously the treatment of the initial labiovelar media diverges from that of the tenuis and aspirate. The Hittite situation is the converse of the Gaelic Celtic one, where the media stays labial while the tenuis and aspirate are delabialized (Old Irish bén vs. cethib, gonaid).

[REFERENCES: Page 246]

CAROL J. RAMAN, University of Texas at Austin [WED AFT:1]

Hittite Relative Construction

The Hittite relative construction is predominantly of the type described by grammarians of Greek and Latin in the term attractio inversa (Löfstedt, 1933, 114; Schwyzer, 1950, II 641). In studies on IE syntax both attractio inversa as well as the occasional lack of a subordination marker in complex sentences have been explained as representing degrees of parataxis and, therefore, representing archaic constructions which reflect a parent language in which there were no subordinate clauses (Delbrück, 1900, III 412; 445ff.; Leumann-Hofmann-Szantyr, 1965, II 553; 568, for example) attractio inversa represents a more archaic form; the construction, however, is not parataxic but OV. As OV, the embedded sentence precedes its matrix verb (extraposition is to the left, not right) where the shared noun phrase is deleted. The occurrence of a relative pronoun, however, is a VO feature; the extraposition itself is a result of the transition process from OV to VO. The chronological development of the relative construction in Hittite, then, supports an historical explanation of attractio inversa, this type representing an original OV construction in the early stages of transition to VO.

Typological studies have shown that syntactic patterns in natural languages correlate with the classification of a language as OV or VO (Greenberg, 1963; Lehmann, 1971 with bibliography). Languages like Japanese, whose syntactic patterns are consistently OV, do not normally use relative pronouns in embedding. Hittite also has basically OV syntactic patterns: nominal modifiers precede the head noun, postpositions rather than prepositions occur, in the comparative construction the standard precedes the adjective, prefixing is not a productive process, and the appositional element follows the noun. Contradictory patterns, however, also occur: verbal qualifiers do not follow the verb, gapping is both backward and forward, and Hittite has a relative pronoun, although the relative construction itself is OV. I conclude that the embedding process which we find in Hittite relative constructions represents a structure which is in the process of historical change. In support of this conclusion we find that Old Hittite original texts have only this type occurring with the relative marker, while later texts occasionally attest the VO order and deletion pattern.

The Hittite construction differs from the relativization process usually described in that the noun phrase deletion is in the matrix, not the embedded sentence. In the embedded sentence the undeleted noun phrase has a ku-marker attached as modifier and extraposition to the left is obligatory. In Old Hittite pronominalization of the deleted noun phrase in the matrix is optional; in later texts it is usual, if the noun phrase itself is not left undeleted and further modified by an adjective or demonstrative pronoun. Some few examples in later texts attest deletion in the embedded sentence with extraposition to the right.

As IE syntacticians have long believed (Delbrück, 1900, III, 412ff.; 296ff.; Leumann-Hofmann-Szantyr, 1965, II 553; 568, for example) attractio inversa represents a more archaic form; the construction, however, is not parataxic but OV. As OV, the embedded sentence precedes its matrix verb (extraposition is to the left, not right) where the shared noun phrase is deleted. The occurrence of a relative pronoun, however, is a VO feature; the extraposition itself is a result of the transition process from OV to VO. The chronological development of the relative construction in Hittite, then, supports an historical explanation of attractio inversa, this type representing an original OV construction in the early stages of transition to VO.
Similarly, it has recently been claimed (see References) that phonological rules which are formally unrelated but functionally similar contain a real generalization, now generally termed a conspiracy. In Old French, a complex series of formally unrelated changes had exactly this kind of functional unity, apparently "conspiring" to constrain sequences of O (obstruent), V (vowel) and S (sonorant or g) as follows: $(O)(S)V^e$, $-V(S)(O)\#$, and medially $-V(S)(O)\#(S)V\,\,\,$. That the conspiracy is a real generalization can be seen from the fact that (1) the abbreviation "g" figures crucially in the environments of all the rules, although they are not collapsible, and (2) the conspiracy itself appears to have been the motivation for at least part of the changes in question. Thus, it could be claimed that Consonant Shift, Degemination and Cluster Reduction - all involving "weakened" articulations - were independently motivated, but the complex restrictions on Syncope and Apocope, as well as the changes which added material - Vowel and Consonant Epenthesis - can only be understood in terms of sequential constraints on segment types, that is, in terms of the conspiracy.

Syncope deletes medial unstressed vowels, but fails to operate in just those cases where the resulting consonant cluster would be "forbidden" in terms of the conspiracy. It is not the number of consonants that matters, but rather their type and sequence:

Lat. arbre- > French arbre
gtilbinu- > jaune
prestbyter- > OF prestre > prêtre
but quadrifures- > carrefour (3 syllables in OF)
voluntatie- > volonté

Similarly, Apocope deletes final unstressed vowels (except g) but is blocked after all consonant clusters which do not consist of S and C in that order: têpdu > *tiepd > tieîde
platnu > *platnu > plane
but gentu > *gentu > gent
prapostu > *prepost > prêvôt

Consonant Epenthesis breaks up medial SS clusters:
câmera > chambre
lazaru > OF lasdre > ladre
môlere > OF moldre > moudre

It is difficult to imagine what could motivate such changes other than syllable structure conditions.

If the changes are motivated by the conspiracy, the conspiracy is probably motivated by the relative markedness of syllable structures generally. This suggests that at least this type of conspiracy can be handled by the current formal apparatus, such as Chomsky and Halle's Marking Conventions.

CAROL RINNERT, State University of New York at Buffalo

Semantic Structure and Processing: Evidence from Aphasia

This paper explores the possibility of using semantic confusions by aphasic patients to investigate semantic processing and structure. Semantic confusions are defined as substitutions of semantically related words or phrases for the intended ones, whether in free conversation, in repetition or other exercises, or in reading aloud. Examples include substitution of yellow for brown, sell for buy, room for door, and hot for oven. Semantic confusion data from eight sources in the neurological literature are tentatively analyzed in terms of semantic relations between intended and substituted words (e.g. finger substituted for hand is an example of a 'part-whole' relation) and shared and differentiating features (e.g. in the confusion pair: short substituted for little, both share the feature or component: 'small size', while they differ as to the specificity of the size dimension: 'vertical' vs. 'nonspecific'). Possible explanations for the confusions are evaluated in light of results of the analysis. It is likely that different patients' substitutions are the result of different processes; in-depth study with individual patients appears to be the necessary next step in this research.

As a possible supplement in this investigation, semantic confusions were compared to free association behavior. All members of the semantic confusion pairs were looked up in tables of word association norms. In most cases, at least one person's free association response was the other
member of the confusion pair; in many cases a majority of subjects responded with the second word in the pair. This suggests that free association may be much like semantic confusion and could be similarly used for semantic analysis.

This type of approach could provide an empirical supplement to the current explorations in externally motivated, non-arbitrary semantics (cf. G. Lakoff, *Lg.* 48:1:76-87 (1972)). It also represents a step in the direction of linking linguistic studies with psychological and particularly neurological ones. The ultimate goal is an understanding of the actual processing of language in the human brain.

WILLIAM C. RITCHIE, Syracuse University

Constraints on Adult-Acquired Syntax

The major goal of research in adult language acquisition is to establish what intrinsic mental structures the adult brings to the task of constructing a subconscious grammar for a (second, third, etc.) language on the basis of data from that language. The fact that adults seldom attain native proficiency in a second language suggests that these structures are different in some way from those which a child brings to the same task.

The purpose of this paper is to examine empirically the proposition that adults retain no aspect of the child's specifically linguistic learning capacities. I shall call this proposition the Total Loss Hypothesis (TLH). Evidence against the TLH will take the following form: If an adult native speaker of a given language (L1) to which a universal linguistic constraint (C) does not apply (that is, C is only vacuously true of L1) acquires another language (L2) to which C does apply (that is, C is non-vacuously true of L2) and the learner imposes C on his grammar for L2, then the adult must not have lost C in the process of linguistic maturation and the TLH is disconfirmed.

Evidence for or against TLH will be presented in the form of results from an informal experiment in which native speakers of Japanese and Amharic (the grammars of neither of which contain Right Movement rules) who have learned English as adults will be asked to make relative grammaticality judgments about sentences in English which do or do not violate Ross' upward-boundedness constraint on Right Movement rules.

MARÍA-LUISA RIVERO, University of Ottawa

Antecedents of Contemporary Linguistic Analyses in Scholastic Logic

This paper points out the parallelism between certain recent analyses in transformational grammar and proposals advanced by Scholastic logicians during the 13th and 14th centuries.

Following the Aristotelian tradition, Scholastic logicians analyzed sentences as composed of subject and predicate, all other items being considered modifications of these two basic elements. Any linguistic term which did not function as either subject or predicate was then assigned two kinds of scope. Modal adverbs such as necessarily and possibly, propositional attitudes, conjunctions, negation, and relative clauses were all considered modifications, or, in the Scholastic terminology, syncategorematic words. Many ambiguities in natural language were attributed to the properties of scope of the syncategorematic words in a given sentence.

Recent linguistic analyses have relied heavily on scope to explain ambiguity and they have approached problems in a manner very similar to that of the Schoolmen. This study considers three contemporary proposals and correlates them with Scholastic antecedents. 1) Karttunen's treatment of specific and non-specific indefinite NPs is similar to Scholastic proposals dealing with quantification and subjective modalities or propositional attitudes. 2) McCawley's formalization of definite NPs and their relative clauses can be easily compared with analyses of relative clauses in Scholastic tracts (i.e. Paul of Fergula's *Tractatus de sensu composito et diviso*). 3) Lakoff and Peter's proposal for phrasal vs. sentence conjunction deals with and in a very similar way to the Scholastic practice (i.e. Peter of Spain's *Summulae logicales*).

These similarities have a historical explanation. Scholastic logicians did not have an artificial language for their reasoning and had to solve linguistic problems with their logical tools in order to research less grammatical concerns. Today, linguists are turning to the insights provided by logic for the resolution of natural language problems.
The notion of grammaticalness must be incorporated into grammatical theory because semi-grammaticalness is an intrinsic property of natural language. Yet, at present there is no way to formally account for this fact. By introducing the concept of a fuzzy set into the theory this notion can be made explicit.

Semi-acceptability is not due to performance constraints as is illustrated by the following:

(1) a. ?Christopher was alerted by Guinevere while scratching himself.
   b. ??Mary listened to John's story about herself.
   c. ??Columbus understood the proof the world was round.
   d. ?The plot of which we got wind was to force Dwight Bolinger to use paper bags.

Such sentences must be semi-grammatical, for there is no other way to account for their lowered acceptability.

The concept of a fuzzy set, developed by L.A. Zadeh, is ideally suited for accommodating semi-grammaticalness in the theory. A fuzzy set is defined as a class of objects with a continuum of grades of membership. Each object is assigned a membership coefficient between zero (total exclusion) and one (total inclusion).

A language, then, is defined as a fuzzy set of sentences. The coefficient of membership of a sequence in this fuzzy set is a measure of the degree of grammaticalness; zero is totally ungrammatical; one is totally grammatical.

Semi-grammaticalness is a function of whole derivations. I will discuss three types of derivational steps whereby a sentence can become semi-grammatical. These revolve around three new notions: fuzzy-obligatory rules, fuzzy-optional rules, and fuzzy constraints. The failure of a fuzzy-obligatory rule to operate, the operation of a fuzzy-optional rule, or the violation of a fuzzy constraint all lead to reduced grammaticalness, but not to total blocking of the derivation.

Since generative grammar, with a binary notion of grammaticalness, cannot adequately account for a large class of sequences which speakers feel are neither entirely within, nor entirely excluded from, the language, the implementation of the notion of degrees of grammaticalness by means of fuzzy concepts is a valuable step in the search for more adequate grammars.

In sentences such as (1) and (2) it is quite clear that a verbal meaning (wash and read respectively) has been deleted.

(1) It's your turn at dishes.
(2) I'm up to page six.

Furthermore, in sentences such as (3) and (4), the verb that appears on the surface contains at best a part of the semantic content required for the correct interpretation of these sentences.

In Defense of Raising

This paper concerns itself with the raising rule that promotes the subject of a complement to object position in the sentence immediately above it.

Recently, the existence of this rule has been put into question by Chomsky who has observed that many putative instances of raising are sentences in which the case of the raised NP is different than the case normally required by the higher verb for its predicate phrases. Chomsky concludes that these facts must be accounted for by some other rules and predicts that raising is not a rule of universal grammar. In this paper I discuss briefly five rules of Spanish, three of which apply exclusively to the direct object: "personal a" insertion, clitic formation, topicalization, clitic transportation, and reflexivization, as well as the "double a NP constraint," and show that these rules apply to raised subjects under exactly the same conditions as they do to direct objects.

I propose that an observationally adequate grammar of Spanish must countenance rules that allow the statement of the following fact: in Spanish the subjects of certain complements are raised and bracketed as objects of the verb of the next higher sentence, and the subsequent transformations that apply to the object can not distinguish between "true" objects and objects that are the result of raising. I conclude that Chomsky's objections to raising are a direct consequence of the transformational model with which he operates and constitute an argument not against raising but rather against the existence of a level of deep structure.

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In Defense of Raising
We made Alabama in 3 days.

They did Europe in 2 weeks.

Accordingly, it would seem appropriate to investigate both the kinds of verbs that are subject to deletion (along with the conditions that control deletion), as well as the character of the verbs that serve as "semantic dummies" for more elaborate meanings.

In the former case, it appears that the deletable verbs are manifold and dependent upon a wide variety of non-linguistic contextual circumstances. But in the latter case, a highly limited set of verbs are employed as "dummies." Therefore the character and distribution of these "dummies" will be the focus of this paper. It will be shown, for example, that only a small set of high frequency verbs are employed in this way. Further, some facts of conjunction and gapping show that these processes are semantically rather than syntactically controlled, e.g. (5) but not (6) is permitted even though the same verbs occur:

(5) John did the dishes and Bill did me in.
(6) *John did the dishes and Bill, me in.

Facts such as these suggest that lexical decomposition may have a realistic place in language use rather than simply a logical validity in formal analysis.

HARVEY ROSENBAUM, Southwest Regional Laboratory

Language Types and Universal Grammar

Greenberg's analysis of 30 different languages in his article 'Some Universals of Grammar' showed that, among other things, VSO and SOV languages are polar types for a number of surface features. It was also shown that in terms of these features, SVO languages were more like the VSO type than the SOV type. A detailed reanalysis of Greenberg's data (supplemented by data from other studies) in terms of the three language types (VSO, SVO, SOV) supports the above two conclusions and suggests the following additional generalizations:

1. Though individual languages of the two polar types (VSO, SOV) exhibit a remarkably high degree of surface feature agreement with their respective type pattern, VSO languages seem to have a somewhat higher degree of agreement to type pattern than SOV languages.

2. SVO languages as a group do not have the property of being feature consistent.

3. Two basic subsets of features can be selected from the broader patterns of features which characterize the two polar types.

4. Nearly half of the individual SVO languages contain the basic set of surface features which characterize the VSO type, but no SVO language exhibits the basic set of SOV features.

After critically examining possible explanations for the above generalizations we conclude that the most plausible explanation fundamentally depends on the following hypotheses:

1. Only the orders VSO and SOV are possible deep structures.
2. All surface SVO languages are derived from VSO deep structures.
3. Some surface SOV languages are derived from VSO deep structures.

It is also argued that the facts and hypotheses under consideration suggest the following general principle:

Languages having an identical order of main constituents in deep and surface structure exhibit a pattern of surface features maximally consistent with their language type.

The above hypotheses, which were arrived at by attempting to account for cross linguistic variation and similarity, are found to be identical with some current hypotheses about universal grammar that were reached on the basis of considerations of descriptive adequacy for a few individual languages. In addition this line of research supports theories which argue for ordered base structures, a more abstract relation between deep and surface structures, and a rich set of substantive constraints on transformations.

CHARLES RUHL, Chapel Hill, North Carolina

'It Takes ...'

Constructions with 'it takes...' provide new data for the complex of movement transformations which include Extraposition, It-replacement, Tough-movement, and 'for'-phrase movement. 'Take'-constructions allow more movements than other constructions, as can be seen in:

1) It takes an hour for an expert to play this sonata.
2) It takes an expert an hour to play this sonata.
3) An expert takes an hour to play this sonata.
4) This sonata takes an hour for an expert to play.
5) This sonata takes an expert an hour to play.

Other 'take'-expressions occur in:

6) It takes a lot of loving to make a house a home.
7) It takes two hands to handle a whopper.
8) It takes little effort to play this game.
I argue that in such constructions the underlying subject is a sentence with an indefinite element; the object of 'take' supplies specific information for this indefinite element. Thus, the underlying structure for 1 - 5 is roughly:

9) [For an expert to play this sonata in some amount of time] takes an hour.

'Take' is roughly synonymous with 'require' -- although it cannot, in my speech, be passivized as 'require' can. The lexical substructure of 'take' intersects with those of 'need', 'necessary', and 'use'; I will develop paraphrase relationships which involve these verbs. Also, I develop parallels between pairs such as 'take little effort' and 'be easy' -- parallels which help to provide a general treatment of 'it'-replacing transformations. I also analyze various 'take's -- the antonym of 'give', the antonym of 'bring', the instrumental 'take' -- and argue that the lexical similarity reflects a semantic similarity. Finally, I show that the indefinite-specific relationship I claim in 9 is present in a number of other expressions.

SANFORD A. SCHANE, University of California, San Diego

Noncyclic English Word Stress

Chomsky and Halle in the Sound Pattern of English make use of the cycle for deriving stress contours within the word. In particular, the cycle is needed for generating the stresses of (1) derivational forms, e.g. *chastriality*, and (2) prefix-stem combinations, e.g. *photograph*, or as a means for accounting for (3) stress differences such as *survey, advocate* (verbs) versus *survay, advocate* (nouns), and (4) quaternary versus no stress in the second syllable of forms such as *condensation* and *compensate*. The last pair is cited by Chomsky and Halle as particularly strong evidence in favor of the cycle; they attribute the stress difference to the stress configurations of the simpler forms *condense* and *compensate*.

We can derive all appropriate stress patterns without recourse to the cycle and without substantial change in the format of the Chomsky-Halle rules but with a difference in the mode of application: (1) Whereas the Chomsky-Halle rules assign [1 stress], which is lowered to 2, 3, etc. if a [1 stress] is subsequently assigned elsewhere, our rules uniquely assign [+stress]; late rules then convert sequences of [+stress] to their integer values.

The advantages of the proposed system are: (1) Fewer "auxiliary reduction rules" are required to wipe out wrongly generated stresses. (2) The rules become much simpler to state formally. (3) The stress assigning rules treat [stress] as a binary feature.

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an adjacent oral consonant, while contextual nasalization does not. An orthodox treatment would handle this problem with rule ordering, allowing the consonant nasalization rule to apply before contextual nasalization arises, but there are clear indications that the two types of nasalization differ in strength and, therefore, that the rule ordering solution may be only a notational convenience; a more natural solution would allow consonant nasalization to operate only before a strongly nasalized vowel.

In Guarani two degrees of contextual nasalization are treated differently by a denasalization process and exhibit different properties with respect to their ability to spread to adjacent syllables.

Similar situations involving nasalization phenomena in Polish and Portuguese are discussed, and the general conclusion is reached that, while binary solutions to these problems are formulable, such solutions are less natural than solutions involving degrees of feature strength.

GEORGE E. SETTERA, California State College, Stanislaus [FRI MORN:2]
A Non-Cyclical Approach to Stress Placement

Chomsky and Halle's rules for stress placement were written as if the concept "transformational cycle in phonology" were a fact rather than only a hypothesis. This conviction forces them to write auxiliary reduction rules (which are not part of the cycle) to clear up problems created by the cycle. Thus, while explicitation is fully stressed by the cycle, defamativion gets its final stress contour not by the cycle but by the cycle plus the auxiliary reduction rules. It is obvious that a generalization is being missed in this case, since the final stress contours of the two words are identical.

This paper presents an alternative hypothesis for stress placement: stress is placed on the basis of strong versus weak syllables. The first strong syllable from the end of a word always gets stressed, with the stress falling no later than the penultimate syllable for verbs, primary adjectives, and derived forms in -le and not later than four syllables from the end for everything else. A generalization and expansion of the alternating stress rule will give the complete stress contour. Thus, words like rhododendron, phraseur, defamination, explicitation, indistinction, and tipicalizaton are all stressed by the same two rules. The same thing is true of violète, prémissoère, manuscript, ménifet, and anticipataire, although the second rule that applies to this set is different from the one that applied to the first set.

The paper shows that it is not only possible to assign stress correctly without the use of the cycle, but that doing so obviates the need for auxiliary reduction rules. A regular rule of vowel laxing in verbs and stems reduces the concept of vowel reduction to this: every vowel reduces unless it is a) stressed, b) tense, or c) in a strong syllable, stressed or not, that is followed by a stressed syllable.

BEN SHAPIRO, Graduate School of the City University of New York
The Underlying Structure of Indirect Objects

This paper argues for the origin of the indirect object in the base in the immediate post verbal position (the IO position). In other words an S like a is the underlying form of an S like b:

a: John gave Mary the book.
b: John gave the book to Mary.

The relationship between these two sentences is accounted for by the Indirect Object Movement transformation (IOM) in TG. The question arises "which S is basic?" Several linguists have analyzed the IO in English. Most assume the base structure to be something like b (i.e. V NP PP). A few assume the base to be something like a (i.e. V NP NP). In almost no case is a principled basis for either alternative presented. I attempt a justification of V NP NP in the base by syntactic and semantic arguments (of which I include only the major arguments here).

Major Syntactic Arguments

A. In order to account for "Bill gave the idea of writing to John" we must posit V NP NP in the base, otherwise the interaction of IOM with Equi-NP deletion (END) will require two applications of IOM on one cycle, once before END and once after END. This is contrary to the principle of the cycle and rule ordering.

B. Many verbs which take indirect objects (Vio) can occur with their IO's in both 'to' and 'for' prepositional phrases (PP):

c: John sent the packages to Bill.
d: John sent the packages for Bill.
e: John sent Bill the packages.

With V NP PP in the base an ambiguity is predicted by the grammar in e. In fact, e corresponds only to c.

C. There are many instances in which the objects of the prepositions 'to' or 'for' do not correspond to sentences with the NP in IO position. This may be because the verb is not a Vio or if it is a Vio the
prepositional phrase is directional or adverbial as opposed to what I shall call "dative", the former being non-dative. It would be much simpler to generate the non-dative PP directly from the base and the dative PP from V NP NP, thereby simplifying the statement of IOM and furthermore, providing a formal explanation for the fact that PP's and dative PP's can't be conjoined.

Major Semantic Arguments
A. By deriving all IO's from PP's the generalization implicit in V NP NP is missed, i.e. that all IO's have a common element of meaning which I will call the "dative" meaning or "beneficiary" -- the typically sentient participant in the event that somehow benefits from the event. Ethical datives are clear cases of this "dative" or "beneficiary" meaning.
B. The choice of preposition for Vio in most cases seems to be a function of the dative meaning plus certain features of the verb and/or other constituents in the S (e.g. the direct object). 'For' represents the dative meaning most explicitly on the surface; 'to' is a conjunction of the dative meaning and the feature of directionality.
C. It is well known that the prepositions 'to' and 'for' have uses other than as "IO" prepositions. By having V NP NP in the base we can distinguish these uses by deriving the dative 'to'/'for' by a segmentation transformation from the base V NP NP while the non-dative 'to'/'for' will be generated directly from the base.

If this analysis is correct then the distinction between grammatical and semantic relations becomes more difficult to maintain.

AMY SHELDON, University of Minnesota [WED EVE:2]
The Role of "Parallel Function" in the Acquisition of Relative Clauses

This paper reports on a study of the acquisition of subject and object relative clauses by children between the ages of 3 3/4 - 5 1/2. The children were tested for their comprehension of four types of relative sentences in which the kind of embedding, the word order in the relative clause, and the grammatical function of the identical NPs were controlled. The results are discussed within the framework of general principles which have been proposed to account for language acquisition.

It has generally been acknowledged that sentences with center-embedded relative clauses are harder for adults to understand and remember than sentences with right branching relative clauses, because they contain an interruption of the main clause. The difficulty in processing interruptions has been attributed to short term memory limitations. If centered-embedding is difficult for adults then one would expect that this property of linguistic structure should be difficult for the language learner, since children's linguistic abilities depend greatly on their short term memory, which is much more limited than the adult's.

Slobin has recently proposed the following universal principle of language acquisition:

Avoid interruption or rearrangement of linguistic units.

In regard to the sentences that we investigated, this principle predicts that subject relatives will be learned later than object relatives because the main clause is interrupted. In addition, sentences in which the subject NP is relativized should be learned before sentences in which the object NP is relativized.

The results of our study can not be explained by Slobin's principle. The data indicate that sentences in which the identical NPs have the same grammatical function in their respective clauses are significantly easier to understand than sentences in which the identical NPs have different grammatical functions. The Parallel Function Hypothesis is proposed to account for these facts.

The implications that this hypothesis has for the grammar of adult English are explored. Examples of pronominalization are presented which are related to Parallel Function. In addition, we will present evidence from visual perception which suggests that the notion of Parallel Function is related to a more general psychological principle which plays a role in nonlinguistic as well as linguistic areas of human behavior.

MASAYOSHI SHIBATANI, University of California, Berkeley [FRI AFT:4]
Lakoff and Ross on the Anaphoric Island Constraint

Lakoff and Ross (1972) recently have pointed out that Postal's constraint, forbidding outbound anaphora in the case of lexical items, fails to distinguish the three degrees of ill-formedness found below:

(1) a. *The orphan misses them.
    b. ?*The guitarist thought it was a beautiful instrument.
    c. *John became a guitarist because he thought that it was a beautiful instrument.

They then propose the principle based on the notions of 'command' and the
morphological relatedness. Their principle is also supposed to predict the situation having to do with lexical causatives:

(2) Max finally killed Boris, but it took him three hours to bring it about.
(3) Max finally liquified the metal, but it took him three hours to bring it about.

While the issue revolves around the lexicalist-transformationalist controversy, this paper first presents counterevidence in English that points to the incorrectness of the part of the Lakoff-Ross principle having to do with the notion of 'command'. Next, Japanese causatives provide counterevidence against the principle, particularly the part having to do with the notion of morphological relatedness. Finally, on the basis of the evidence presented, the paper suggests much more general principles that do not specifically refer to syntactic structure and morphology. The implication is that a sentence like (3) does not provide a strong argument for lexical decomposition of lexical causatives.

TIM SHOPEN, Indiana University
[FR 1:1]
Context-Sensitive Constraints and Grammatical Indeterminacy

There are two possible means of describing a context-sensitive constraint. One is synthetic: a constituent is fabricated according to what material is present elsewhere in the construction. The second can be called analytical: rules match elements already in the construction, and filter out bad combinations. Only analytical rules allow a maximum general account of the internal structure of constituents.

English predicate nominals are a case in point. We get "That man is an idiot!" but not "That man is idiots!", etc. In a synthetic treatment, morphemes for number in an idiot and idiots would be introduced transformationally from the second lexicon. But as in all languages, there are utterances without any grammatically determined subjects, and in these cases there is no grammatical context to refer to: a different procedure would be necessary to construct predicates -- a considerable loss of generalization.

The productive and elliptical epithet pattern exemplified by "The idiot!" has distinctive sound-meaning correspondences that militate against its being derived from a non-elliptical source by deletion rules: paraphrases are not "He is the idiot!", etc., but rather "He is an idiot!"; the definiteness of the predicate nominal in "The idiot!" corresponds to that of the subject in the full sentence paraphrase.

Surely the predicate nominals idiot and idiots are the same whether they occur in non-elliptical or elliptical expressions. All subparts of propositions should be expanded by context-free means with only a 'first' lexicon; analytical (filtering) rules should then impose context-sensitive constraints just when there is structure for them to operate on.

Important consequences follow. In non-elliptical constructions it is no longer necessary to distort paradigmatic facts in order to achieve a simple syntactic generalization. Synthetic accounts ascribe a zero morpheme for third person singular to every modal, e.g. He can't vs. You can. But we can make the straightforward generalization that the class of modals is indeterminate for number and person: they carry no such features. Analytical rules for agreement operate when there are grammatically determined features for them to apply to.

Agreement Treated by Analytical Rule

<table>
<thead>
<tr>
<th>Structure</th>
<th>Effect of Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>That man is an idiot!</td>
<td>accepts</td>
</tr>
<tr>
<td>That man is idiots!</td>
<td>rejects</td>
</tr>
<tr>
<td>The idiot!</td>
<td>doesn't apply</td>
</tr>
<tr>
<td>The boys swims very well.</td>
<td>rejects</td>
</tr>
<tr>
<td>The boy swims very well.</td>
<td>accepts</td>
</tr>
<tr>
<td>The boy can swim very well.</td>
<td>doesn't apply</td>
</tr>
</tbody>
</table>

ANJANI K. SINHA, University of Chicago
[WE 3:3]
The Passive Construction in English and Hindi

The paper begins with the significant difference between be passive and get passive made by Robin Lakoff (1971) and suggests that the crucial point involved in their treatment is the relation between the causative, the inchoative and the stative expressions. (1) is ambiguous in terms of (la, lb and lc).

1. The glass was broken.
   la. The glass was broken and its pieces scattered all over when we entered the room. (stative)
   lb. We were very careful in packing the box but the glass was broken somehow. (inchoative)
   lc. The glass was broken by the burglar. (causative)

The verb in lb can be replaced by got broken or broke. In Hindi,
the difference between the verbs of these three types is morphologically marked. In English, in some cases the same verb is used causatively and inchoatively (as in 2a and 2b); in some, the inchoative has the get-passive form (as in 3).

2a. The car was stopped.
2b. The car stopped.
3. Though the security guard had locked the door, it opened accidentally.
   Because of this inchoative nature of get-passives in such situations, we don’t get them in (passive) verbs describing creativity (as in 4).

4. This sculpture made by Picasso.

But there is a kind of get-passive which is causative rather than inchoative. It is usually marked by the presence of a reflexive in the sentence.

5. Charlie had an argument with his wife yesterday so he went out and himself drunk.

The paper proposes to explain the semantic difference between 6a, 6b, 6c in terms of presuppositions and suggests how we derive them from the same underlying forms in both Hindi and English.

6a. He was drafted into the marine corps.
6b. He got drafted into the marine corps.
6c. He got himself into the marine corps.

ROYAL SKOUSEN, University of Texas at Austin

Restrictions on Phonetically-Plausible Rules in Phonology

Recent discussion in phonology has centered around the problem of psychological reality and what counts as evidence for psychologically-real rules. Generative phonology has traditionally worked from the assumption of natural, phonetically-plausible rules and unique underlying representations. Recently, however, evidence that is external to data itself, such as historical change and language acquisition, has indicated that these assumptions need to be seriously re-examined. Following Kiparsky, I refer to this type of evidence as substantive evidence, in distinction to data-internal evidence.

Hale has recently discussed passive formation in Maori, arguing that the substantive evidence indicates that the traditional generative phonological solution for passive formation is not the psychologically-real solution for Maori speakers. Hale consequently proposes a restriction on the ability of speakers to posit underlying forms that violate surface regularities in the language. Hale works from the assumption that unless his constraint is violated, regularities based on phonetically-plausible rules will be allowed. Similarly, Kiparsky allows phonetically-plausible rules unless his alternation condition is violated.

In this paper I will consider some phonetically-plausible regularities in Finnish and show by means of substantive evidence that speakers are not accounting for these regularities by means of phonetically-plausible rules. For instance, I will consider a purported rule of h-deletion in Finnish that deletes intervocalic h’s if the vowels in the environment are short and do not take primary stress. This rule of h-deletion relates, for instance, the illative ending V*n to hV*n. (V* stands for a copy of the stem-final vowel.) Thus whenever a stem ends with a short vowel not taking primary stress, the illative ending is V*n instead of hV*n.

The rule of h-deletion historically applied, but on the basis of substantive evidence I will show that speakers no longer relate the surface V*n to hV*n, even though the rule of h-deletion is natural, phonetically-plausible, and exceptionless. On the basis of analogical change, I will argue that instead of positing a synchronic rule of h-deletion, speakers learn several unrelated surface illative forms which are assigned to stems on the basis of the final syllable in the stem.

This rule of h-deletion does not violate either Hale’s or Kiparsky’s constraints, yet substantive evidence clearly indicates that speakers are not always accounting for phonetically-plausible regularities in the data. Having determined that h-deletion is no longer productive, I will suggest reasons why the diachronic rule is no longer captured by speakers of Finnish.

RICHARD SMABY, University of Pennsylvania

Context and Reference Devices in English

By taking context into account some apparent peculiarities of English referential devices can be explained.

Most transformational literature on reference has dealt with the relation of pronouns to proper nouns, such as John and Oskar (Ross 1967, Langacker 1969, Postal 1971). The properties discovered about this relation cannot be extended in total to reference between general phrases
of a text, example, although one might think because of the acceptability of

(1) After he left John went to a movie.

there is a general pattern of referential before referent in the case of constructions involving subordination. Some (Postal 1971) have even suggested extending the concept of subordination to the deep-structure of sentences like

(2) The boy who hated him, lost and then John smiled.

However, in other cases involving the same subordination constructions, referential before referent is incorrect:

(3) After he left, a man went to a movie.

By taking context into account and examining the complete reference pattern of a phrase in a text, it is argued that proper nouns are themselves referentials, just like the man, and that the ultimate antecedent of proper nouns, just as with nouns like the man, precedes all its referentials. Further, it is argued that subordinate clauses are typically referential, requiring antecedent. Combining the referential properties of subordinate clause and referential nounphrase, in particular proper nouns, one can give a principled explanation of the above examples as well as of examples like

(4) Realizing he was failing disturbed Oskar.

(5) Realizing Oskar was failing disturbed him.

As an application of the notion of ultimate antecedent, it will be shown that the philosophical controversy (Quine 1961) concerning whether

(6) Pegasus doesn’t exist.

is a self-contradiction or not rests on a too simple understanding of English grammar, in particular reference. The dissolution of the controversy requires rejecting the proposal that fictitious entities mentioned in a text be erased from the field of reference when a grammar processes a text (Karttunen 1968).

HENRY LEE SMITH, JR., State University of New York at Buffalo
An Aspectual-Structural Analysis of English Questions

Two large classes of semological questions can be distinguished depending upon the terminating suffix morphemes involved -- Resolved and Interrogativized. The terminating suffixes (megafixes) have as their basic units one pitch morphophone and one terminal juncture morphophone, and their phonemic expressions are always ended by an essential pitch phoneme. (This is a reversal of the order given in earlier statements, where the juncture phoneme was seen as following the last pitch phoneme of an intonation pattern.) The morphemes involved are $\sqrt{3}\phi, \sqrt{4}\phi, \sqrt{5}\phi, \sqrt{6}\phi$, where 1. can be expressed as /1/, /2/, /3/ at the point where the one // of the intonation pattern falls and 1. by /1/ or //, while 4. can be expressed only by /3/ or /4/, yielding emphasis, and 1. only by //, /1/. Three typical expressions, the first Resolved, the second two Interrogativized, are: "Where's he going?" ($\sqrt{3}\phi$); "Where's he going?" ($\sqrt{4}\phi$); "Where's he going?" ($\sqrt{6}\phi$).

Resolved Questions are always terminated by a pitch // preceded by a /1/ of the morphphone 1., while Interrogativized Questions always have either the obligatory // expression of the morphphone 1. or emphasis (the expression of the pitch morphphone 4.) followed by /1/ and terminating in /2/ (suspension).

There are five types of Resolved Questions: 1) Interrogative Statement Q -- What disturbed John? ($\phi$); 2) Inverted Order Q, "uninterested" -- Was he disturbed? ($\phi$); 3) Introduced Q -- What did he see? ($\phi$); 4) Resolved Fragment Q -- What? ($\tilde{\phi}$); 5) Tag Q -- He's going, isn't he? ($\phi$); He's not going, is he? ($\tilde{\phi}$); and five types of Interrogativized Questions:

1) Repeated Statement Q -- 2 he's going; 2 he's going; 2 he's going (1$\phi$); 2 he's going (1$\tilde{\phi}$); 2 inverted Order Q, including Tags, "interested" -- 2 he's going; 2 he's going; 2 Repeated Q -- 2 am I going? (1$\phi$); 2 am I going? (1$\tilde{\phi}$); 2 Interrogativized Fragment Q -- a) (isolated) tennis (anyone) (1$\phi$), b) (attached) where's he going; 2 Europe; 2 Elliptical Q -- you going? (1$\phi$); 2 John; 2 home; 2 yest (1$\phi$).

M.J. SPENCER, Pennsylvania State University
DIFFERENCES BETWEEN LINGUISTS AND NON-LINGUISTS IN INTUITIONS OF GRAMMATICALITY-ACCEPTABILITY

Representative of all linguists is the belief that there is some set of linguistic distinctions (i.e., phonemes, subject predicate relationships, etc.) that is shared by the speakers of a language and relevant to the structure of the language. However, how to identify relevant distinctions for study has been a major problem in linguistics. At the sentence level of analysis transformational grammarians assume that speakers' intuitions
about linguistic phenomena (such as ambiguity, anomalies, well-formedness, and interpretability of messages) reflect abstract linguistic distinctions, and they further assume that they can use their own intuitions. In their current articles intuitions of well-formedness form the criterion for inclusion of utterances (the data base) in grammatical rule construction. This same criterion is used to evaluate exemplar utterances generated by proposed linguistic rules, according to the belief that rules accurately reflect the language's formal structure when they generate only grammatically acceptable utterances.

This paper first establishes the meaning of grammatical acceptability (explicated by Chomsky, 1961, *Word*, 17, 219-239), and traces how the meaning changed from 1957, where grammaticality and acceptability were differentiated on the basis of semantic content, to where selectional restrictions are included in the proposed grammar, and where natural interpretation of an utterance is the criterion for grammaticality (Chomsky, 1964, "Degrees of Grammaticalness"). This development demonstrates how well-formedness was operationalized by linguists into its present status as a certain kind of acceptability.

The assumption that linguists' intuitions of well-formedness are representative and dependable is tested by presenting 150 exemplar sentences from 6 linguists' published articles to 43 linguistically naive and 22 linguistically non-naive native speakers. Experimental subjects agreed amongst themselves as to the acceptability or unacceptability of 80% of the sentences, but shared intuitions with linguists on only one-half of the exemplars. The defects of introspective psychology are found in the transformational grammarians' current over-reliance on non-consensual intuitions.

SUSAN STEELE, University of California, San Diego  
Past and Irrealis: Some Thoughts from Uto-Aztecan

The English morpheme -ed can indicate past tense.

(1) Mary liked to be intelligent.

But -ed can also indicate irrealis. As irrealis, it is required in contrary-to-fact conditionals:

(2) If John liked himself, he wouldn't worry about Mary's intelligence. (John doesn't like himself.)

As irrealis, it means attempted but unachieved with verbs which carry some intensive meaning:

(3) Mary intended to get married, but she couldn't stand to lose her identity.

As irrealis, modals in a past tense form indicate not past time, but a more tenuous possibility.

(4) (a) If it may rain tomorrow, but nobody around here thinks so.

(b) It might rain tomorrow, but nobody around here thinks so.

In other languages the same two semantic notions -- past and irrealis -- are marked by a single morpheme. This paper offers a hypothesis of why by examining the Uto-Aztecan language family.

A reconstruction of the tense-aspect-modality system in proto Uto-Aztecan gives evidence that for markers of past and markers of irrealis to have the same surface form is a reflection of an abstract predicate common to both the concept past and the concept irrealis. In proto Uto-Aztecan every morpheme of the tense-aspect-modality system could occur in various sentential positions, and each of these positions had a particular function. The semantic content of an element was modified depending on which of the positions it occurred in; however, a semantic core was retained by each element regardless of the position. This core is a close approximation of what an abstract predicate must be. One of the elements can be reconstructed to mean both recent past and suspension of reals; another, to mean both distant past and irrealis. Although each set has its own particular semantic relationship, both require that past and irrealis share a common semantic core -- or abstract predicate.

The abstract predicate is best captured by DISASSOCIATIVE. The difference between the meaning past and the meaning irrealis is the presence or absence respectively of another abstract predicate EXIST. A comparison with the semantic shifts of other elements supports the choice of the abstract predicate DISASSOCIATIVE. A consideration of the function of the various sentential positions for tense-aspect-modality elements supports the hypothesis of a predicate EXIST.

Since, in the combination of markers of past and markers of irrealis in one morpheme, Uto-Aztecan resembles a wide variety of languages, it is suggested that the relationship between the two meanings posited for Uto-Aztecan is a semantic universal. Such a position implies further that the abstract predicates which tense, aspect, and modal morphemes represent are universal.
NATURALNESS, PHONOLOGY, AND THE FLEETING VOWEL IN RUSSIAN

WILLIAM J. SULLIVAN, University of Florida

Conditions for 'naturalness' in phonology are outlined, and stratificational phonology is shown to possess several which are missing from present formulations of transformational-generative phonology. The discrepancy is demonstrated by a comparison of solutions to the problem of the fleeting vowel in Russian.

The fleeting vowel is realized as a vowel or as zero. Sometimes this is lexically or morphologically marked, but usually it is phonologically predictable. Representative data are given in the forms s6n 'sleepy', m6n 'in the dream', v s6n 'into the dream', s6nnyj 'sleepy', and v s6nnyj 'into a sleepy ...' wherein the vowels spelled o and y are predictable. Morphemes s6n, v, an 'adj. formant', a 'masc.n.sg.adj.' and a 'long form suffix' are all related to the fleeting vowel morphon (3). The alternate realizations are determined by syllabification. The relation of syllable to Pword shows that the realization of the accent on the second syllable in na6m 'rent' but on the first syllable in nd6ma 'run' is also syllabification and not accent shift. The accent co-occurs with the syllable into which the fleeting vowel morphon falls, whatever its realization.

TG phonology, lacking a base to define syllables independently of the morphology, must rely on extrinsically ordered Prules to predict the realization of the fleeting vowel. Prosodies like accent are treated as distinctive features. Thus the fictitious accent shift shows up as a separate Prule, which is a direct consequence of TG phonological theory.

Stratificational phonology exhibits at least two 'natural' features lacking in TG phonology: the treatment of prosodies and the implicit prediction of certain morphophonemic alternation purely on the basis of syllabification. The independent base or phonotactics also permits the generation of nonsense syllables. The converse not being true, we may conclude that stratificational phonology is more 'natural' than present formulations of TG phonology.

NAN JO CORBITT SUMMERLIN, Arkansas State University

A Dialect Study: Affective Parameters in the Deletion and Substitution of Consonants in the Deep South

The general purpose of this study is to investigate certain differences in pronunciation between three major groups in a rural, Deep South county: lower-socio-economic second graders, LSES senior high students, and teachers in the public schools. The latter group can be said to represent "standard" speech—the target pronunciations—for the other two groups. Or, if one wants to talk of "standard Black" and "standard White" English, then these educated adults represent both "standards." An overview of the composition of the population investigated follows:

| Table 1. Sub-Groupings Within Major Groups of Informants |
|-------------|-------------|-------------|
|            | Grade 2     | Senior High School | College Graduates |
|            | (Ages 7-9)  | (Ages 15-20)   | (Adult) |
|            | Lower SES | Lower SES       | Middle SES |
| Race       | Black White | Black White     | Black White |
|            | N = 20     | N = 20          | N = 12          |
| Sex        | M F M F M F | M F M F M F M F | M F M F M F M F |

The sub-groups have been identified for purposes of within-group and between-group comparisons.

The pronunciation differences investigated involve the following phonological variables: 1) simplification of alpha-voiced consonant clusters ending in -d or -t (in both monomorphemic and polymorphemic units); 2) r-lessness; 3) substitution of /d/ for /B/; 4) substitution of /x/, /d/, and /g/ for /B/; 5) 1-lessness.

There are at least six primary justifications for a study such as this. The present one--four from the perspective of substantive contributions, and two from the perspective of methodological contributions. The substantive aspects of the study include: 1) descriptions of some characteristics of both educated and non-standard Black English in the rural, Deep
South; 2) descriptions of both educated and non-standard White dialects in the rural, Deep South; 3) correlations of some social and linguistic variables in the Deep South; and 4) an investigation of the role of sex in language. The methodological aspects of the study include: 1) a cursory investigation into just how large a corpus of linguistic data is necessary and sufficient for reliable phonological analysis; and 2) the use of statistical tests to determine significance of quantitative differences observed.

Like the studies of Labov (1968) and Wolfram (1969), this study utilizes quantitative measurements to determine differences between and within the sub-groups of the same geographical speech community. This study, however, will be one of the first to use statistical tests to determine significance of the quantitative differences observed. Since this is one of the pioneering dialect studies making use of statistical tests to determine which of the apparent differences in relative frequency of variation from certain "standard" phonological features are really significant differences within the geographical speech community, it is hoped that this study will contribute to refinement in methodology in linguistic analysis in such a way as to be useful to other language researchers using current social science standards of interviewing.

Some comparisons between the findings of this research and those of Labov's (1968) were made.

For the area investigated, some of the most salient findings are that there are significant differences between: 1) speakers of Black and White regional "standards"; 2) educated Blacks and LSES Black school children at both levels; 3) educated Whites and LSES White second graders (but not senior high students); and 4) G-2 and senior high Black and White school children.

Furthermore, differences attributable to education level and to race are statistically significant (.05) for all variables examined, and males simplify with consistently greater frequency than do females.

Finally, using the elicitation instrument prepared for this study, a striking consistency was shown between results obtained through analysis of part of the interview and those obtained in a considerably more time-consuming analysis.

ROBERT SZABÓ, University of Texas at Austin  [WED AFT:3]

The Proper Underlying Representation for Nasalized Vowels

It has been proposed (by Lightner among others) that nasalized vowels should never be represented as such in underlying forms. The basis for this proposal is the observation that using simplicity, generality, and language-internal criteria alone, it is never necessary to analyze surface nasalized vowels as underlyingly nasalized; and it is usually better to analyze the nasalization as rule-derived.

I will present evidence that this observation is not correct for Haitian French Creole: the abovementioned criteria make it necessary to analyze all the surface nasalized vowels of Creole as underlyingly nasalized, including those which alternate with surface VN sequences. Under this analysis, the only non-underlying nasalization of vowels (in Creole) is that deriving from a phonetic rule of nasalization spread.

Alternations in Creole between $\tilde{V}$ and VN always involve a dental nasal consonant: $\tilde{V}$ always alternates with VN. Thus for Creole French, the statement that surface nasalization in the vowel is predictable from the underlying nasal consonant is equivalent to the statement that the surface nasal consonant is predictable from the underlying nasalization of the vowel.

Exceptions to a VN analysis must be marked as not undergoing a nasalization rule; they display no other common factors. All the exceptions to the $\tilde{V}$ analysis are Standard French loanwords, and are marked as undergoing a minor rule of word-final nasalization.

Thus there exists at least one language that requires underlying nasalized vowels. This has implications for Kiparsky's Alternation Condition in that it eliminates non-alternating nasalized vowels as a class of exceptions to the condition.

MARIE-LUCIE TARPENT, Simon Fraser University  [WED MORN:1]

Abstract Phonology and the Germanic Sound-Shifts

Rejecting the conventional phonetic approach to phonology, Foley (1970 a, b) deduces the existence of the abstract scale of phonological strength

$$d - d - t - t+$$

1 2 3 4
(where t+ represents tt or Θ) from the behavior of consonants in Romance lenition and the Germanic sound-shifts. This paper examines the inadequacies of Foley’s linear scale in the light of the Germanic and Celtic sound-shifts and proposes

(a) a more comprehensive two-dimensional representation of the strength relations between consonants, the vectorial graph

\[ \begin{align*} &d &\theta &t \\ &\swarrow &\searrow \\ &d &\rightarrow \\ \end{align*} \]

which explains Romance and Celtic lenition, and

(b) a more integrated interpretation of the Germanic consonant-shifts, including Verner's Law, in which the concept of strength is seen as secondary to other abstract properties of the diamond structure of the consonant graph. These findings provide more evidence that phonological relations are abstract ones unrelated to the phonetic character of the elements involved.

DALE TERBEEK, University of Chicago [TUERs MORN:4]

An Experiment in Vowel Perception: Some Implications for Phonology

This paper is a report on an experiment conducted to examine the perceptual dimensions of vowel quality. Listeners were asked to perform triadic comparisons on twelve naturally-produced vowel stimuli embedded in a constant phonetic context. Their responses were then subjected to a multidimensional scaling analysis to derive a perceptual space, that is, a geometric representation in which vowels perceived as relatively similar are placed relatively close to each other.

The present experiment differs from previous research in two respects. First, listeners were drawn from five different native language backgrounds: English, German, Thai, Turkish, and Swedish. This represents the first attempt at investigating to what extent, if any, a listener's phonological biases make his perceptual space different from that of someone with a different bias, even when each attends to the same sounds. Put in a slightly different way, we are investigating the extent to which it is valid to refer to a language-universal perceptual space.

The second way this work differs from previous research is that the analysis was done by PARAFAC (Harshman, *Foundations of the Parafac Procedure*, UCLA Working Papers in Phonetics No. 16, 1970), a powerful new analysis program capable of extracting "true" underlying dimensions or factors by taking into account interpersonal differences in the listeners' data.

It was found (somewhat expectably), by using linear regression techniques, that the first and second formants of the vowels underlie the perceptual space for all languages tested. But in addition to these purely acoustic components of the perceptual space, it appears that speakers of different languages come to create extra dimensions, based on the patterns of vowels used. Furthermore, there is some evidence that the highly abstract concept of markedness is an experimentally observable dimension of vowel perception.

ROBERT A. TERREBONNE, Wright State University [MRD EVE:3]

The Imperative Singular of the Old English Verb

A generative view of morphological variation frequently explains apparent irregularities in surface forms by demonstrating how these forms derive from underlying representations by the application of phonological rules. The most "irregular" form in the verb paradigm of Old English is the imp. sg. The ending itself varies from -Θ, to -a, to -a, and there are frequently changes in the stem, both vocalic (e.g. *cuman*, imp. sg. *cynom*) and consonantal (e.g. *settan*, imp. sg. *seta*). All of these variants can be accounted for by taking the underlying form of the end to be |ε| and by combining this ending with the different underlying structures for the stems of the various classes of verbs: |Base|ε (Strong), |Base+je| (Weak, Class I), and |Base+je| (Weak, Class II). The general rule for the ending is that final unstressed ε is deleted (but only after it causes fronting in a verb like *cuman*). Then the stem forming |j| becomes vocalic (blocking gemination) and is lost after strong clusters, giving the Θ ending of long stem Class I weak verbs and the -a of Class II. Lastly unstressed Θ is lowered to a to give the -a ending of the short stem Class I weak verbs. An apparent exception to these rules is the Class I verbs with the suffix -ettan (e.g. imp. sg. *bliccette*), but the presence of both ε and geminated consonant cluster can be explained by assuming that there is the affix boundary (=) between the base and the -ett-(|εt+j|) suffix.
ZACHARIAS THUNDYIL, Northern Michigan University [WED AFT:2]

Diglossia in Malayalam

This short paper will discuss the presence of diglossia in the Malayalam language, a branch of the Dravidian family.

First, there exist the formal and colloquial varieties of diglossia in Malayalam. The formal variety has its own lexical and grammatical features and is used in literary dialect and formal speech. The sentences are often complex or compound and larded with Sanskrit words.

Second, diglossia appears in the use of personal pronouns. There are at least two sets of second person and third person pronouns. Also there is the formal use of the first person plural in addresses given and official letters written by political and religious leaders.

Third, there is diglossia in kinship terminology. The most interesting illustration of this is found in the words wives and husbands use to address each other and refer to each other in the presence of a third party within the "Nasrani" and "Nair" communities.

However, during the past twenty-five years there has been a conscious effort to do away with diglossia in literary dialect (purogamana sahithyam) or progressive literature by the use of Dravidian words instead of Sanskrit forms and by the superimposition of native Dravidian syntax on formal speech and written language. The rise of political consciousness and the sense of the basic equality of men have tended to minimize the use of reverential forms of address in first, second, and third person pronouns. The paper promises to illustrate all assertions and conclusions with relevant evidence.

JOHN F. VIGORITA, Cornell University [THURS AFT:2]
The Indo-European Origin of the Greek Hexameter and Distich

We may assume that the hexameter in Greek had the following shape:

-uu- / uu- / uu- / uu- / uu- / uu-x

Starting with the masculine caesura, we note that this divides into 7 syllables plus 10 syllables.

In my dissertation I have attempted to show that we may reconstruct for Indo-European the following:

A short line (a) of 8 syllables xx-x/xu-, with the option of suppressing the 5th syllable, producing xx-x/xu-. A long line (b) of 11 syllables xx-x/xu-x, again with the option of suppressing the 5th syllable resulting in xx-x/xu-x.

These two shorter lines result in a 17-syllable couplet of the shape xx-x/xu-x // xx-x/xu-x

Note first the similarities between this original and the hexameter: word end after 4 syllables and after 7; word end after 11 syllables in original; word end after 10 or 12 in Greek hexameter; bridge between syllables 6 and 7; bridge between syllables 12 and 13 in original, between 11 and 12 in hexameter.

Now to explain the differences. In the first half-line we may get the final cadence -uu- with no problems. This then leads to a line of shape xx-x/xu-. Now, unlike "longum juxta breve" or "longum juxta anceps" or "breve juxta breve", "longum juxta longum" tended to be avoided as much as possible. This then suggests that the long in position 3 will be replaced by a short, resulting finally in -uu- / uu-. Turning to the second half-line, we may assume that in addition to original 4/6 it developed a 3/7 break to reintroduce some flexibility into its structure. Thus either xx-x/xu-x or xx-x/xu-x.

Now further, since both lines ended with the same cadence, it is plausible that there was some pressure on them to begin the same way; so the 3/7 line got the form xx-x/xu-x. Now given these two alternatives, it is likely that the 3/7 line got the upper hand because of two considerations. 1) It shows a contrast between pendant line-end and blunt caesura, as was the case also in the Iambic Trimeter and the Trochaic and Iambic Tetrameter. 2) It enables the dactylic movement to be carried through to the end, resulting in: uu- / uu- / uu-x. This form may then be assumed to have swamped out the 4/6 form.

This results in an heroic couplet: -uu- / uu- / uu- / uu-x. Now reintroducing some flexibility into the line by alternating the caesural points results in: -uu- / uu- // uu- / uu- / uu- / uu-x.

Finally we may assume that at a time as early as the Iliad and Odyssey the seam was hidden by an enjambement of one syllable, the feminine being more common in the Iliad and Odyssey and gradually growing more common as time progressed. Thus: -uu- / uu- / uu- / uu-x.

In respect to the distich, a combination of hexameter and pentameter, one need only assume the addition of two more a's to give an abaa pattern, with the a's still separated by the mandatory caesura.
Several linguists (e.g. Bach (1971), Baker (1970), Chomsky (1964, 1971)) have assumed that languages fall into two categories with respect to Question Movement: (1) those which do not have Wh-Movement (e.g. Japanese), and (2) those which have Wh-Movement (e.g. English). It is believed to be a language universal that only one Wh-Movement per sentence is possible. Sentences such as (1) are unacceptable.

(1) *Who what when said?

The only grammatical version of (1) is (2), where only one Question Movement has occurred.

(2) Who said what when?

Languages such as Polish and Russian present counterexamples to the claim about the universality of a single Question Movement: they allow several Wh-Movements per sentence. Examples:

Russian:

(3) Kto cto kogda skazal? 'Who said what when?'

Polish:

(4) Kto co kiedy powiedzial? 'Who said what when?'

(5) Co gdzie Maria kupila? 'What did Mary buy where?'

Examples of this kind are abundant. The question word order (NP NP V) does not correspond to the normal order of declaratives, which is NP V NP. The order NP NP V in declaratives is a marked one. On the other hand, if a sentence contains several Wh-constituents but only one of them has been moved, we get a bad sentence, as shown in (6).

(6) *Kto kupil księżę gdzie? 'Who bought the book where?'

On the basis of the assumption that there can only be one Question Movement per sentence, various mechanisms have been proposed to account for certain facts about questions, and also about complementsizers (e.g. Baker's (1970) abstract Q morpheme replacement; Bresnan's (1970) and Chomsky's (1971) Complementizer Substitution Universal). For instance, Baker (1970) suggested that sentences like (7) are ungrammatical, because the Q morpheme can be replaced only once, and consequently only one Wh-constituent can be moved in a simple sentence.

(7) *We're not sure whether who Bill saw.

One would expect that sentences like (7) are acceptable in those languages that allow several Wh-movements. However, they are ungrammatical even in those languages. It will be shown in the paper that sentences like (7) are ruled out in any language, and on semantic rather than syntactic grounds. The solution is based on the observation that Wh-questions on the one hand and sentential questions ("yes-no" and "whether") on the other have different requirements to fulfill in order to qualify as proper questions. The effect of this is that it is never possible to have both of them in a simple sentence.

These facts about several Question Movements per sentence have bearing on the hypothesis concerning complementation as presented in Bresnan (1970).
and they found that the three groups they were working with differed greatly in the nature or type of errors they made. Similar analysis--not yet completed on these data--of the present responses is not expected to support Gleitman and Gleitman's findings.

It may be that the groups used here were too close together in educational level to show the differences found by the Gleitmans. It may also be that the differences they found were the result of IQ differences rather than educational level. In the latter case grade average might be used as a stand-in for IQ (since it correlates fairly well with IQ), or a simple IQ test might be given the subjects in order to check for the relationship of performance to IQ.

The Gleitmans conclude that individual differences show the distinction of speaker and system. If there are, however, few distinctions of any uniqueness between individuals or individuals in particular groups, then it must be argued that the speakers do indeed participate in some system--whether that system is the system of acceptability-judging or grammaticality-deciding.

[HANDOUT: Page 240]

ROBIN BARBARA WHITE, University of Texas at Austin [WED MOR:4]

A Nonglobal Rule Analysis of the Alternation of Vowel Length in Klamath

The strongest arguments for the necessity of amending the standard theory of generative phonology to include global rules have been put forward by Charles Kisseberth. These arguments are based on data from Klamath, an Oregon Indian language. One of the two global rules proposed by Kisseberth for Klamath is a rule that predicts a long high vowel is shortened in the environments $V: C_o, C_i, C_j$, providing that the vowel in question is derived from an underlying glide. The arguments for this rule are found in the paper "On the Alternation of Vowel Length in Klamath: a Global Rule".

It is the purpose of this paper to present an analysis of the same alternation phenomenon, but which does not require recourse to global rules and which further provides a more natural explanation of the facts. Kisseberth's most important claim is that in all instances where a high vowel alternates in length, it can be shown that the segment must be an underlying glide. It is our claim that one of Kisseberth's most important examples, the nominalizing morpheme which shows a three way alternation between $y$ and $i$- alternation for Kisseberth for Klamath is a rule that predicts a long high vowel is shortened in the environments $V: C_o, C_i, C_j$, providing that the vowel in question is derived from an underlying glide. The arguments for this rule are found in the paper "On the Alternation of Vowel Length in Klamath: a Global Rule".

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The rule of shortening is then restricted to apply only to those long high vowels that precede morpheme boundaries, explaining the lack of shortening in bonw-o:it-s 'cup', ya-ydi:s '(dist.) evil beings', ado-di:l-a 'puts a leg underneath'. Lack of shortening in a form such as $s$?o:-pg-a 'tray stands' is explained by the fact that the underlying form of the morpheme 'to act upon a tray' is $s$?ow/ and the rule that changes $o$ (and $i$) to $i$ is ordered after vowel shortening.

One case of the shortening of a long high vowel (in this case, derived from a glide) which does not precede a morpheme boundary is shown to be the result of another rule of the grammar.
RICHARD WOJCIK, Ohio State University  [FRI AFT:1]

Topicalization and the Verbal Auxiliary in Breton

The purpose of this paper is to explain the formation of the auxiliary in Breton and its interaction with the Topicalization transformation. The analysis is relevant to the claim that verbal auxiliaries are main verbs in deep structure.

Breton is similar to English in that some transformation like Chomsky's Affix Hopping is necessary to form participles and inflect the first element of the verb for tense and subject-agreement. However, the Breton auxiliary may occur on either side of the verb, depending on whether the verb or some other element heads the sentence. If the verb heads the sentence, the auxiliary occurs to the right of it:

(1) Skrivet en deus Yann al levr 'Yann has written the book'

If Topicalization moves an NP to the head of the sentence, the auxiliary is to the left of the verb:

(2) Yann en deus skrivet al levr
(3) Al levr en deus skrivet Yann

'Yann (topic) has written the book'

An examination of simple tenses shows that participle formation and tense absorption are not a unitary phenomenon as Chomsky treats them in English. Tense absorption, but not participle formation, is affected by Topicalization. Participles are formed regardless of the position of the auxiliary (cf. skrivet 'write' in (1), (2), and (3)), but tense absorption is blocked when the verb is in initial position:

(4) Skriv a ra Yann al levr 'Yann writes the book'
(5) Yann a skriv al levr (Yann = topic)
(6) Al levr a skriv Yann (al levr = topic)

The main verb in initial position may become a participle, but it can never be inflected for tense-subject agreement. Therefore, participle formation and tense absorption cannot be treated as a single rule.

Breton can be used to make a prima facie case against Ross' claim that auxiliaries are higher verbs. He based his claim on the premise that no transformational rule deals with the auxiliary as a constituent in itself. However, one can set up a rule of "Auxiliary Movement" to account for the shifting position of the auxiliary in Breton. The alternative is to have a rule that moves the main verb into initial position when no other element stands at the head of the sentence. I shall argue on the grounds of simplicity and naturalness that the alternative analysis is correct and that no rule of "Auxiliary Movement" exists in Breton.

ARNOLD M. ZWICKY, Ohio State University  [THURS MORN:2]

Why Is There Grammar?

Each language is a correlation between sounds and meanings (and, in some way, between these and the contexts in which they are appropriate). Such a correlation could easily be achieved by assigning unique phonetic shapes to each semantic unit and to markers of semantic structure; the resultant "language" would be free from ambiguity, but would lack grammar in the usual sense. Why, then, do real languages pair sound and meaning through the mediation of syntactic and phonological processes?

I claim in this paper that grammar works towards at least four end-brevity, perceptibility, pronounceability, and variety; and I argue that languages would not be usable for human purposes if there were no grammatical processes serving these functions.

Linguistic structures are compacted by (a) deletions and pro-ings; (b) various processes that happen to yield structural ambiguities; (c) lexical substitution, which replaces complex structures by much simpler ones and which moreover results in a correspondence of one surface element to many different pieces of semantic structure (because of homonymy and polysemy); and (d) phonological deletions and coalescences.

Perceptibility is aided by (a) chunking processes, which mark off words and constituents of various types; (b) processes, like those of agreement and selection, that provide redundancy; (c) phonological polarization; and (d) processes, especially reorderings, that make sentences easier to comprehend.

Pronounceability is served chiefly by phonological assimilation and neutralization, while variety is achieved through processes creating "stylistic variants" (including synonyms).

Finally, all of these functions may be served positively, by processes or lexical items of a certain type, or negatively, by constraints on structures or processes. Thus, pronounceable phonological sequences can be achieved by processes that alter offending sequences (by therapy, as it were) or by constraints that prevent the offending sequences from occurring in combinations of morphemes or from arising as a result of processes (that is, by prophylaxis).
I. Introduction

When widely separated languages of the same family share an unusual feature, we tend to assume that it was present in their common ancestor, lost in some descendents, but "typical" of the family:

(1) For the language

- Proto-Semitic
  - lexical roots of three consonants, with vowels as inflections
- Proto-Indo-European
  - the morphological ablaut-alternation /e - o - zero/
- Proto-Uralic
  - phonological consonant-gradation /tt-t, t-d/ etc., attested in Balto-Finnic, Lapp, and Samoyed

Such reconstructions stick close to the data of attested languages, and appear to offer some security by not making detailed claims about the phonetics of the ancestor. But specific claims are made nevertheless.

Since the structure of a Proto-language influences the directions of language change, among its descendents we should expect similar patterns to recur. This is true even where we do not yet understand the precise mechanism causing the changes. For some time we have understood that the claims of (1) are not justified: Indo-European ablaut may have obliterated earlier distinctions of quality in the short vowels /e, a, o/, and Semitic has relics of original two-consonant roots and of original vowels.

Morphological alternations as in (1) generally develop out of earlier phonological alternations, and these out of still earlier phonetic alternations. Quite possibly, the Common Indo-European, all of whose dialects were mutually intelligible, had only a phonetic alternation. The usual hypothesis is that the ablaut developed from an opposition of stressed and unstressed syllables.

Two important questions for Indo-European studies would be:

(2) From our knowledge of universal phonetic processes, what tell-tale traces would be left by a stress-conditioned syllable-gradation?

(3) What aspects of our current reconstructions other than (1) are actually formulas for sets of correspondences, where instead we can suggest specific properties of an ancestral language?

I found the search highly rewarding. Hittite has both vowel-gradation and consonant-gradation, correlated by stress as we may partly infer it from other languages. Some unusual sound correspondences in Indo-European turn out to be regular, and new etymologies are possible.

The expected consonant and vowel alternations also match the basic sound correspondences hypothesized by V. M. Iliš-Svityč and A. B. Dolgopol'skij for a greater Eurasian language family including Indo-European, Kartvelian, Hamito-Semitic, Dravidian, Altaic, and Uralic. Using recent etymological dictionaries for the several families, they have put together hundreds of plausible cognate sets.
(11) continued: Correspondences to Indo-European "horse" with consonant gradation (see (15) for phonetic justification of roots *gâw-, *kah-.)

Indo-European

Uralic

Sanskrit gâw- "cow" Balto-Finnic: Livonian keev "mare"

Celtic

Balticus Lapp giew "horse" Saami: Selkup Sîwa

Yurak sîle

The Uralic meanings include the female of various animals: the Saami palatalizations are late, like Sanskrit /s/ etc.

Other Indo-European cognates for which stress differences might explain abnormal correspondences involving palatal-velars: (1st ex. ideal) Sanskrit *khe- Sanskrit akhe Sanskrit jkhe Greek Gâfigê Greek âgâ Greek megâ Greek gomôs English daughter "I" (orig. *mêgâs) [Pâ 9g] see Hittite evd.

(12) A palatal possibly arising from a glide *ky- ??

The cognates for "heart" have "irregular" correspondences in Indo-European, and possible solutions from Uralic: Hittite Nom.pl. ki-ir

The Hittite Nom.pl. has an irregular vowel, Nom.sg.[(êa-ir)], as does the Uralic, possibly resulting from Latin Nom(êa) cor(êa) coloring by a lost /ê/. From the IE evidence, Greek kardia the root might be *kêrd- with analogy Sanskrit [h]êpdaya- introducing /a/ in the Nomitive, making Uralic êppôy. The Hittite Nom.sg. is not written phonetically.

Similar correspondences for Uralic *êê in */êêma "eye" (occulist), *êêap/ "neck" (collar, with -a), and */êêm/ "horn" are given by Hittite evd.

(13) Some pronoun cognates involving *kw-, *hw, *ty-

The root *kwâ- is plausible for the Indo-European interrogative forms, where the /w/ is retained, Sanskrit kâ- Hittite kwâ- "who" ku-êrâ "where"

The color as it does Hittite ku-êrâ-at "why" in reduction; later the Latin quod "what" /w/ is lost after /k/.

Alternations in the Indo-European 2nd and 3rd person pronouns may be explained in a similar way: Second-person pronouns first, from Sanskrit *da- "him" Sanskrit thâ- "her" Greek -ta;

Armenian ke-s Avestan (-ôwe -dûyê -dûm once)

English pronouns: 2nd person sg. thou 3rd person pl. they Sanskrit 3rd person demonstrative: Nom.sg. sa-s Oblique ta- (but the oblique might not have the 

Note the assimilations: Armenian *ôwe- becomes (*/hôw- ?/ *hôw-)

Sanskrit *ôyâ- becomes /ôsā/. We should consider whether the numeral "four" is a reduplication "be [come] two and two" -- *ôwe-ôhâ-râ- Latin quattuor, Lith. keturi Gothic fidwôr

(13) continued:

The third person demonstrative of Hamito-Semitic was probably based on */êê/-. The relative pronoun shows reflexes appropriate to this origin (except Akkadian */êê/). So does the near demonstrative (except Syrian *êê */êê/ Arabic */êê/ may be a reduplication. In the suffixed pronouns, which would be unstressed, we have:

Arabic masc. -m fem. -â

Syriac -ê -êh, -h Akkadian -g(u) -ê(a) Egyptian -ê

Arabic independent pro. huwa Proto-forms: *âwe- *âwe-

These proto-forms have an uncanny similarity to English "thou", "they".

The consonants in Akkadian and Egyptian would seem to arise by assimilations like those in Indo-European, from something like */êê/ and */ôwê/-. The Akkadian consonant symbol [a] in other words corresponds to /s/ or /h/ in other languages, Proto-Hamito-Semitic */êê/.

Dolgopol'skij (1967) suggests that */s/ is the weak-syllable representative of strong-syllable */êê/ (in various languages, [x] or [y]). The causative prefix seems to contain this phoneme, and it is a suffix in Chad */x-, on the southern periphery. So it may very well match the Hittite suffix */êê/ (active) and the Finnish */ah/ Akkadian then probably shows the assimilation of */ôwê/ to */ûx/”, as Arm. /khe-ê*/ôw-

Part IV. Syllabic Gradation

(11a) Summary of some metrical tendencies: (1) *ôveÊôvôv

(11b) Triasyllabic laxing versus the two-syllable phrase unit: (1) English divinity, Finnish soke as from the unimportant infinitive ending */êêêk/; (11) *ôveÊôvôv (cy)

Finnish sokko (noun), matto- (partitive case*-ta). With closed second syllable (11), there is only one way to form two syllables into a unit, by weakening the consonant or at least failing to strengthen it: Finnish matto-ôv (genitive)

(11c) Preventing loss of a syllable with secondary stress:

(Proto-Semitic *dâlā, Ethiopic preserved Arabic dâlā *ôvôc it as such, - English "he drew" with first Greek dâlā *ôvôc syllable actually lost in the Eng. cognate? Hebrew dâlā *ôvôc

(11d) Reducing combinations with resonants: Slowly growing stress in (1), with partial reduction gives such types as /ôvôÊôvôv/ and /ôvôÊôvôv/ in Greek, Hittite, etc.; Alternating stress in (11) with optional preservation of the length in the new long vowel.

(11e) *ôveÊôvôv

Sanskrit prefers (11): pâri- pûr- "full" Greek prefers (11): pêla- pûl- crô- crô- Meillet (Dialects) notes that Greek shwa drops (only?) after a syllable with */h/ as in /tolma/, vs. /telma/n.

Lehtinen has shown that Balto-Finnic "original" long /ô/,/ôy/ arose only before resonant plus */ôy/-. These are related: (14a) - 1st development, (14b) - 2nd development, and (14c).
Some tendencies in the manner of articulation of obstruents:

(1a) Stops at the beginning of a stressed syllable will
(1) become

*beda

Lesser tendency for voiceless stops to become

pada

be lengthened to prevent its reduction.

in some other

(14b) a vowel could be lengthened to prevent its reduction.

Liker and Abramson report for English that phonetically voice

onset time is later in
gressed

form/phi, ki/ they are not as

difficultly

/phi, ki/ in unstressed syllables. The distinction is

the smallest for

phi, ki/, greater for /dri- / and /gki- / contrasts.

(1b) Consonant lengthening occurs mainly after stress (primary or

second) as in (14ai), but manner differences can result, as in

Pam 

* /phi- / gave rise to /phi/. Compare the first development in

(15a1) and (15a2). Lapp has many varieties, but may keep three

series separate: /t̪/  (phi- /t̪/), /t̪h/  (phi- /t̪h/), /ts̪/  (ts̪-

when manner changes do not occur above from /t̪, t̪h, ts̪/ respectively

Part V. Some finds in consonant-gradation and vowel-gradation

(16) Hittite verbal conjugation:

There were two types, originally differing probably in syntax.
The "-mi" conjugation was originally unstressed in the present singular,
the "-an" conjugation (related to Indo-European perfects) was stressed
on the stem. The 3pl. present ending *-ânti was stressed in both
conjugations. Stresses are reconstructed.

The vowel harmony affected the "-mi" conjugation, converting /e/ to /a/ before

 adversely. This presumably helped to oppose singular and plural also.
It occurs more rarely in the XI-conjugation, where the intervening
consonant plays some role. Exceptions in the "-mi" conjugation are

the 3rd pl. present, maintaining /e/ by analogy to the singular

-- morphologically more isolated forms show essentially no

exception.

The vowel-gradation is well preserved in many paradigms. For the

verb "to eat" add to the above:

lag. preterite: e-d̪-un

1pl. present: e-du-wa-a-ni

The extra vowel-writing /-a/- is a fairly reliable indication of

actual stress (not necessarily etymological). Confirmation of stress

for the preterite (indicated by the /a/ above) comes from the verb

"to be":

lag. present e-es-mi (never e-es-mi)

lag. preterite e-es-un (never e-es-un)

(17) Hittite noun paradigms:

"water" Nom.sg. wa-ar-tar Dat-Loc. pl. w-e-te-na-as

Nom.pl. w-e-da-ar Dat-Loc. sg. w-e-te-ny

w-i-da-ar w-i-te-ny

From the form /w-i-te-ny/ we might conclude that a stress shifted
late in the history of the language no longer brings about voicing.

Compare the Dat-Loc.sg. of "heart": /kar-di/, elsewhere /kar-ta-.../.

(18) Sketch of Burmian obstruent correspondences: velar examples

Proto-Burmian: *k 

Hanito-Semitic: *s 

Indo-European: *g

Uralic: kk

Kartvelian is most like Hanito-Semitic; Dravidian like Uralic; initial

voiceless become strong in Altaic /k/.

The emphatic /k/ is rare, Hamitic usually /p/ but, Chad, Cushitic implosive /b/ instead.

(19) New etymological possibilities: See (11) on *go- "shew". For example *tab- "take, grasp"; Latin habere, habere, German haben,

Gothic *hafjan, gigan, Lith. gabentis "take along", Htt. e-tp-mi (no h-),

Skt. Apotī "attain"; HS *p, Egyptian haff "grasp, list"; Avestan hap-

and Greek hesos (from both *s, also see Herling. "te x") Altoi *apa-

< *apa-; perhaps initial-stressed nouns HS *kapa hoof, fused nouns HS *kapa hoof, Utahic *kapp,IE OHK hoof, Skt. saphan [Altaic *kap(a)-, *kap(a)-

grasp, bite]. Possibly cf. "to bite", Kartvelian and HS *kko-, Basque Suspl./pl, Indo-European *g accomplished?

** Thanks especially to Frank Gooding for help in presentation and some
crucial examples, though he need not agree with the hypotheses proposed.

(14d) Sanskrit reflexes of the "long syllabic resonants", in reality

*Ov-v. Types *Ov-v, *OvR(-)xen, etc., also existed originally.

(15) *Cana-0, *Cana-0, *Cana-0, *Cana-0.

(16) continued:
Sturtevant (1951) notes that he can find only a half-dozen words
beginning with simple /el-, en-, eu/ but 450 examples of initial

/e-es-/ etc. This indicates not the irrelevance of the double writing,
as he claims. Rather it may be a result of the shifting of /e/ to /a/
when the /e/ has not acquired a stress. Compare the alternants:

(1) is-xar (es-xar is rare or non-existent)

(12) The durative verbal derivatives illustrate lengthening from

secondary stress as in (14ai). (I know of no way to decide which of the

two stresses is primary, which secondary -- did stress shift to initial?)
Chol Phonology and Ritual Style

Chol Vowels

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### Oppositions

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<td>hatet</td>
<td>?a-</td>
<td>-et</td>
</tr>
<tr>
<td>3</td>
<td>(+clu) Sp</td>
<td>honon-lohon</td>
<td>k-...on-lohon</td>
<td>-on-lohon</td>
</tr>
<tr>
<td>4</td>
<td>(+clu) Hr</td>
<td>hatet-la</td>
<td>?a-...la</td>
<td>-la</td>
</tr>
<tr>
<td>5</td>
<td>(+clu)</td>
<td>honon-la</td>
<td>k-...la</td>
<td>-on-la</td>
</tr>
<tr>
<td>6</td>
<td>(-clu) Sg</td>
<td>hini</td>
<td>?i-</td>
<td>-9</td>
</tr>
<tr>
<td>7</td>
<td>(-clu) Pl</td>
<td>hino?</td>
<td>?i-...?</td>
<td>-?</td>
</tr>
</tbody>
</table>

### Gladys' Box

The persons participate in two sets of oppositions
The omniperson participates in none of the oppositions
The imperson participates in one set of oppositions

The "personal" oppositions (clusion) in the speech event form the third dimension.

CHOL PRONOUNS IN THREE COGNITIVE FEATURES & Gladys' Box
§1. The parent Indo-European word accent, which was based chiefly on pitch, was movable. In some words the primary accent occurred on the root syllable, in others on an affix or ending, and in still others it alternated from form to form, as in Gk. nom. patēr 'father', voc. pāter, acc. patēra, gen. patrōn, dat. (historically loc.) patēri. On the other hand, the earliest known Germanic accent was based chiefly on stress, with primary stress fixed on word-initial syllables, as in OE fēder and Present English fāther.

§2. Primary stress, whether based chiefly on pitch or chiefly on stress, demands an increased expenditure of effort, just as lesser degrees of accent require reduced effort. In parent Indo-European, the stops /p t k/ were FORTIS (that is, strongly articulated) when the nearest preceding word accent was primary, e.g. /k/ in *klēp- 'steal', /t/ in *dēt- 'tooth', /k/ in *dēwk- 'lead, draw'. Conversely, these stops were LENIS (that is, they were gently articulated) when the nearest preceding word accent was reduced, e.g. /p/ in *lojpā 'remnant', /t/ in *mātēr 'mother', /k/ in *pēkenōs 'hidden, secret'. /p t k/ were lenis also in PROCLITICS (that is, in phrase-bound forms that preceded primary phrase accent, e.g. /k/ in *kōm-mōjnis (L com-mōnis) 'common'.

§3. Except in word-initial position, these factors were to govern the operation of Verner's Law. In word-initial position, however, the governing factor was the new Germanic primary stress, which was fixed on word-initial syllables. As a result of this new stress, /p t k/ were invariably fortis in word-initial position, regardless of how they had been articulated in Indo-European times. It *pātēr, for example, producing pre-shifted *pātēr 'father'. As the historic evidence indicates, the effect of the new stress was confined to word-initial position.
§4. Both before and after the shift of /p t k/, their fortis and lenis allophones remained unchanged except (as already noted) in word-initial position. As might be expected, too, the fricatives that shifted from /p t k/ were originally voiceless. It happened, however, that Proto-Germanic also possessed the voiced fricatives /θ ð g/, which had developed respectively from IE \( /b^h d^h h^h/ \). As the phonologic evidence shows, the lenis voiceless fricatives that arose from IE /p t k/ merged with these voiced fricatives and so came to be distinguished by voice:

<table>
<thead>
<tr>
<th>LENIS VOICELESS ARTICULATION</th>
<th>MERGER WITH VOICED /θ ð g/</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE</td>
<td>Earlier PGmc.</td>
</tr>
<tr>
<td>[-p] *lojþa</td>
<td>/θ/ *laþþa &gt; Go. láþa ‘remnant’</td>
</tr>
<tr>
<td>[-t] *petár</td>
<td>/ð/ *faþþar &gt; Go. fadar ‘father’</td>
</tr>
<tr>
<td>[-k] *kom-mójnis</td>
<td>/g/ *ga-mójnis &gt; Go. ga-máins</td>
</tr>
</tbody>
</table>

L com-múnis ‘common’

o in [θ ð g], above, indicates voiceless articulation. The change of lenis voiceless to voiced articulation under reduced accent is common and widespread. In Modern English, for example, [v] in active has developed from [f] in ME actif, [o] in the [oa] from [ þ] in ME þe, and [z] in apples [æplz] from [s] in ME [æples].

§5. As shown above, the lenis allophones that shifted from IE /p t k/ merged with the Proto-Germanic voiced fricatives /θ ð g/.

<table>
<thead>
<tr>
<th>FORTIS VOICELESS ARTICULATION</th>
<th>PHONEMIZATION OF [f þ x]</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE</td>
<td>Earlier PGmc.</td>
</tr>
<tr>
<td>[-p] *klép-</td>
<td>/f/ *klef- &gt; Go. hlif- ‘steal’</td>
</tr>
<tr>
<td>[-t] *dýt-</td>
<td>/þ/ *tunþ-, Go. tunþus ‘tooth’</td>
</tr>
<tr>
<td>[-k] *dewk-</td>
<td>/x/ *twx-, Go. tiuhan ‘lead’</td>
</tr>
</tbody>
</table>

§6. Unlike IE /p t k/, IE /s/ was already fricative and already had voiced and voiceless allophones, namely [z] before a voiced obstruent, as in *kúzdom, and [s] elsewhere, as in *sénti, *némo- mes. In other respects, however, the Proto-Germanic development of IE /s/ is comparable with that of IE /p t k/. Thus IE voiceless [s] remained voiceless following primary accent in IE *wéþ- > PGmc. *wés- ‘feast, dine’; whereas this allophone was replaced by voiced [z] under reduced accent in IE *wés- > PGmc. *wez- ‘indulge oneself’. Though it is clear that the [s] and [z] allophones were to emerge as separate phonemes, in this instance the splitting process was different. Here also a merger was responsible, but this was a merger in the environment of the co-allophones, not a merger of the co-allophones themselves. With the Proto-Germanic fixation of word-initial primary stress, forms like *wés- ‘feast’ and *wez- ‘indulge oneself’ came to bear identical stress, so that /s/ and /z/ now occurred as separate phonemes within identical immediate environments.

§7. The foregoing interpretation of Verner’s Law follows what may be called a cause-and-effect analysis. In Indo-European and pre-Germanic times, the fortis and lenis articulations of /p t k/ were governed by the position of the movable primary accent. At the beginning of the Proto-Germanic period, this distribution of fortis and lenis allophones was changed in only one respect: under the new word-initial primary stress, word-initial /p t k/ were invariably fortis, regardless of how they had been articulated in earlier times. In itself, the shift of /p t k/ to the corresponding voiceless fricatives was merely a phonetic process of limited importance. But when the lenis allophones of these fricatives became voiced and merged with PGmc. /θ ð g/, the result was a new phonemic opposition: voiceless /f þ x/ versus voiced /θ ð g/.

§8. The conventional formulation of Verner’s Law is decidedly different from the process described above. Conventionally, it is supposed that the Germanic accent remained movable for a long period of time that is variously estimated to have lasted between a few centuries and at least a thousand years. In the first place, this assumption is wholly without factual support. And
furthermore, it does not make phonologic horsesense. If it made sense, two such parent forms as *kptóm '100' and *kom-mánis 'common'—each with primary accent on the same syllable—would have retained this accent and would have undergone exactly parallel developments. Yet /k/ in these two forms shows two wholly different shifts: to /x/ in *kptóm > Go. hund '100' but to /g/ in *kom-mánis > Go. ga-máins 'common'. Unless the accentuation of one parent form was changed before the shift, namely *kptóm, /k/ would hardly produce /x/ in one instance but /g/ in the other. It is of course possible to ignore or deny the relationship between L com-mánis and Go. ga-máins 'common'. If so, however, it is likewise necessary to ignore or deny the relationship between such forms as L con-venire and Go. ga-giman 'come together', L con-ventio and Go. ga-qumhs 'assembly', OIr. com-arbre and Go. ga-arbha 'co-heir, fellow heir', and so on. All these are accepted as etymologically valid in Pokorny's Indo-European dictionary. The most serious objection to the conventional formulation of Verner's Law, however, is the fact that it does not explain this change but merely attempts to delimit its operation. And, as the foregoing etymological evidence shows, the conventional formulation fails in this respect as well.

§9. The primary purpose of this paper has been to improve my own thinking and writing on the subject of Verner's Law. Until recently, I did not recognize that the phonemic split between PGmc. /f/ and /g/ was the result of a conditioned merger, as described above in §4. Secondly, I did not see that the phonemic split between PGmc. /s/ and /z/ resulted from a merger in their immediate environments. To be sure, if we never had to test and retest our reasoning, linguistics might well be a much easier subject than it is, but somehow it would not have the same fascination.

1. Restrictions:

(1.1) A negative passive sentence always has the negative marker preceding bēi.

(1.2) A bēi-sentence must have le (status-changing particle) plus a resultative complement or an adverb of frequency, duration, etc. (Only a limited number of verbs like dī "to beat", shū "to eat", lūshū "to save (from an unfortunate happening)"). etc. can occur in a bēi-sentence with le alone without an accompanying resultative complement or an adverb of some other type.)

(1.3) A bēi-sentence does not occur in the imperative form.

(1.4) A bēi-sentence is used mainly to express unhappy or unfortunate events for the subject as well as to explicitly mark passivity.

(1.5) When a sentence has both direct and indirect objects, only the direct object may be proposed to be a passive subject.

(1.9) "Tā bēi tā thītai mā/dī. he by his wife scolded/beaten" (1.9') Tā chāngchāng/xīhuan bēi tā thītai mā/dī. be often/like by his wife scolded/beaten "He is often/likes to be scolded/beaten by his wife."

(1.10) Hūjiyan shī bēi tā jīdāu le. that-MEASURE matter by him find-out LE "That matter was found out by him."

(1.11) Tā bēi rēn *kān/yēn/gūn le. be by person look-at/talk-about/cheat LE "He was looked at/talked about/cheated by others."

(1.11') Tā bēi rēn kānjiyan/shuōne le. he by person look-persuade/talk-about-angry LE "He was seen/talked about (such that he became) angry by others."

(1.12) Hūjiyan shī bēi tā jīdāu hén chīngchu le. that-MEASURE matter by him know-DE/find-out-DE very clear LE "That matter was clearly known by (i.e. to) him", or "That matter was found out by him and, as a result, it was clear (to him)."
II. Structure:

(2.1) = (1.9')

(2.2) = (1.9')

(2.3) = (1.12)

(2.4a) Tä syühau yifen syln la.
he write-finish one-MEASURE letter IE
“He finished writing a letter.”

(2.4b) *(Tä) yifen syln bëi tâ syühau le.
(there-be) one-MEASURE letter by him write-finish IE

(2.5a) Tä syühau nênfên syln la.
he write-finish that-MEASURE letter IE
“He finished writing the letter.”

(2.5b) Nênfên syln bëi tâ syühau le.
that-MEASURE letter by him write-finish IE
“That letter was finished writing by him.”

(2.6a) Tä jîdsou nênfên syln la.
he mail-away that-MEASURE letter IE
“He mailed that letter out.”

(2.6b) Nênfên syln bëi tâ jîdsou le.
that-MEASURE letter by him mail-away IE
“That letter was mailed out by him.”

(2.7a) Tä gïile Mëi nêlben shë le.
he give-IE Mary that-MEASURE book IE
“He gave Mary that book.”

(2.7b) *(Mëi bëi tä gïile Mëi shë le.
Mary by him give-IE that-MEASURE book IE
“Mary was given the book by him.”

(2.7c) Nêlben shë bëi tä gïile Mëi le.
that-MEASURE book by him give-IE Mary IE
“That book was given to Mary by him.”

(2.8a) Tä nadsoule wë nïlyangben shë.
he take-away-IE I that-two-MEASURE book IE
“He took those two books from me.”

(2.8b) *(wë bëi tä nadsoule nïlyangben shë.
I by him take-away-IE that-two-MEASURE book IE
“Those two books were taken away by him.”

(2.8c) Nïlyangben shë bëi tæ tuñg wë jär nadsou le.
that-two-MEASURE book by him from me here take-away IE
“Those two books were taken from me by him.”

(2.9) A D N L I F B
Passive NP-Deletion

A = Agentive, D = Dative, N = Neutral, L = Locative, I = Instrumental, F = Factitive, B = Benefactive
III. English Passive:

(3.1)

(3.2) The window wasn't broken by John.

(3.3) Chwänghu màyou bòi John dèpo.
window not-PERFECTIVE by John strike-broken
"The window didn't get broken by John."

(3.4) Chwänghu búshí (bòi) John dèpo de.
window not-COPULA (by) John strike-broken
"The window was not broken by John." (literally, "The window was not (such that) (by) John broke it.")

(3.5)

(3.6)

(3.7)

(3.8) A shabby house like that can get built in ten days.

(3.9a) Your cache of marijuana got found by Fido, the police dog.
(3.9b) They got your cache of marijuana found by Fido, the police dog.

(3.10a) How did this window get opened?
(3.10b) How did someone get this window opened?

(3.11a) Mary got shot on purpose.
(3.11b) Mary got someone to shoot her on purpose.
(3.11c) Mary got herself shot on purpose.

(3.12a) Radicals must get arrested to prove their machismo.
(3.12b) Radicals must get the police to arrest them to prove their machismo.
(3.12c) Radicals must get themselves arrested to prove their machismo.
One Form and Its One Meaning -- The Hebrew Preposition ba

1. hu yəsəv baxeder
he sits be + the + room

   "He sits in the room."

2. hu omed besof bašura
he stands be + (the) end (of) the + line

   "He stands at the end of the line."

3. hu yavo baxalos
he he will come be + three

   "He will come at three."

4. hu yavo beqod ša'ot
he he will come be + another hour

   "He will come in another hour."

5. hu kara et hasofer baxalos ša'ot
he he read (dir. obj.) the + book be + three hours

   "He read the book in three hours."

6. hu paras et hanaknik baxasakin
he he sliced (dir. obj.) the + salami be + knife

   "He sliced the salami with a knife."

7. hu paras et hanaknik basimma
he he sliced (dir. obj.) the + salami be + joy

   "He sliced the salami with/in joy (or: joyfully)."

8. hu paras et hanaknik be'acmo
he he sliced (dir. obj.) the + salami be + himself

   "He sliced the salami by himself."

9. hu hezzik baxeres
he he held be + the + board

   "He held on to the board."

9'. hu hezzik et baxeres
he he held (dir. obj.) the + board

   "He held the board."

10. hu mevin bavelšanut
he understands be + linguistics

   "He is knowledgeable in linguistics."

10'. hu mevin et havelšala
he understands (dir. obj.) the + question

   "He understands the question."

11. hi bağda bo
she she betrayed be + him

   "She betrayed him."
12. **He** fought **in** the **army.**

**OR**

**He** fought **against** the **army.**

The following analyses exemplify some of the work done in other languages based on the same theory of linguistics:


---

**SOUTH MIN (TAINAN DIALECT)**

7. *Muirjite imakka* (i1) te tua khim e si si chikuos.
   *Muirjite imakka* (i1) te tua khim e si si chikuos.
   every musician he at play piano RM time love sing
   'Every musician, when he plays the piano, loves to sing.'

8. *Muirjite imakka* (i1) te tua khim e si jin i, tio chikuos.
   *Muirjite imakka* (i1) te tua khim e si jin i, tio chikuos.
   every musician at play piano RM time he then sing
   'When every musician, plays the piano, he sings.'

9. *I, te tua khim e si jin muirjite imakka, tio chikuos.
   I, te tua khim e si jin muirjite imakka, tio chikuos.
   he at play piano RM time every musician then sing
   'When he plays the piano, every musician sings.'

10. *I, muirjite imakka, te tua khim e si jin tio chikuos.
    I, muirjite imakka, te tua khim e si jin tio chikuos.
    he every musician at play piano RM time then sing
    'When every musician plays the piano, every musician sings.'

11. *In bo si iau ho siang jin siong sim?
    In bo si iau ho siang jin siong sim?
    he wife die after make who very sad
    'Who did his wife's death make very sad?'

**KOREAN**

    *Caksi-tal-i* ilena myon ai-tal-mata hakyo-e kanta.
    when he gets up, each boy goes to school.
    'When he gets up, each boy goes to school.'

---
(37) a. Each boy goes to school when he gets up.
b. When he gets up, each boy goes to school.
c. He goes to school when each boy gets up.
d. When each boy gets up, he goes to school.

(38) a. Who is surprised by the claim that he is a fraud?
b. When he gets up, each boy goes to school.

(39) a. This is the man who was surprised by the fact that he had cancer.
b. He goes to school when each boy gets up.

d. When each boy gets up, he goes to school.

(40) The boss himself loses his temper.

(41) *A boss himself loses his temper.

(42) A boss who himself loses his temper should not criticize employees for doing so.

MANDARIN
(43) Zhe jiushi taitai bu · xu ta he jiu de neige ren, ·
this is he wife not allow he drink wine RM that person ·
"This is the person who his wife didn't allow to drink wine.'

SOUTH MIN
(44) Jile tosi in bo m jun jiu de hili lang, ·
"This one is he wife not allow he drink wine that person ·
"This is the person who his wife didn't allow to drink wine.'

KOREAN
(45) I saram-i cali cha-ky cukam-i siphike mantan saram-i-
this man self wife's death sad make man ·
"This is the man who his wife's death made sad.'

YORUBA
(46) Okumrin nai ti esum na pe o, je eletan jo loju ngbe ni Urbana, ·
man the claim the that he be fraud surprise lives in Urbana ·
"The man who the claim that he was a fraud surprised lives in Urbana.'

HEBREW
(47) Ha'she ye ha'shamu ye hu, haye meragel hiftria gar betel Aviv.
the man that the rumor that he was spy surprised him lives in Tel Aviv ·
"The man who the rumor that he was a spy surprised lives in Tel Aviv.'

(48) a. Hier ist die dame, die, der Gedanke überraschte, dass sie, ·
here is the lady whom the thought surprised that she ·
yesterday married had ·
"Here is the lady, who the thought surprised that she ·
had gotten married yesterday.'
b. Hier ist die dame, die, der Gedanke dass sie, gestern ·
here is the lady whom the thought that she ·
gestern geheiratet hatte überraschte.
married had surprised ·
"Here is the lady, whom the thought that she had marry ·
yesterday surprised.'
Pseudoperfect Constructions like "have it finished by midnight"

A: Like and unlike the Perfect:

Superficial resemblance to "continued effects" perfects with have + past part., and to existential perfects (McCawley's terminology), eg. occur with already:

1) Gran already has the dress finished.

But differ from true perfects in various ways:

-- Object intervenes between aux. and past part., and if moved away by rule, the aux. is not destressed (H.King's rule):

2) The only bed I have made up is in the basement.

-- Do occurs in questions and negatives:

3) Do you have your beds made yet?

4) If he doesn't have that letter written up by the time I come back, I'll fire him.

-- Have is active:

5) Have those clothes washed by tonight, or else!

6) Barny has I guess, the car washed (= Pseudoperfect)

-- Can have adj., prep. phrase or ing complement instead of past participle. (Suggests underlying be-construction).

7) Don't worry, we'll soon have it in perfect condition again. looking nice and tidy.

-- Not used with involuntary verbs because these lack notion of effort:

8) Unfortunately I have the explanation forgotten.

*He should have the thimble seen by now.

*It wasn't me that had the egg dropped. (not a pseudoperf.)

But okay:

9) Well, we would have believed it - Gran has the knitting needle lost again!

though only in ironic sense of "manage to".

Limited to verbs suggesting both duration of exertion of effort and tangible result of effort, which fall into two classes: inchoative verbs and durative activity verbs seen from point of view of activity's being completed.(Underlyingly single class). Together these coincide with the class of verbs whose past part can somehow be predicated.

Inc heoatives

10) I already have two of them smashed up

made

finished

tidied up

opened

killed

folded

(?sold)

Completion of some activity

11) I already have two of them covered

sprayed

painted

done

embroidered

written

dusted

washed

(?eaten)

Punctual non-inchoative verbs are excluded because no obvious result is inferrable:

12) I already have two of them thrown

hit

spat at

looked at

kicked

Non-purposeful activity verbs excluded because no effort needed to bring about completion (unless construed as deliberate acts):

13) I already have two of them slept in

sat on

lain on

stood on

Inchoative verbs whose result requires deletion of the verb describing the action are also excluded:

14) I already have two of them put on the table

taken into Aunty Sissy's bathroom

brought

gotten

Context, i.e. extra-linguistic knowledge, can sometimes determine whether a pseudo-perfect is grammatical or not:
15) Good, now I have that lettuce picked = okay if picking one lettuce is an arduous task.
16) I have Oliver Twist read = okay if I am not a Dickens fan, and reading O. T. was imposed upon me & required prolonged effort to get done.

B: Relation to Causative

Pseudoperfects are semantically very close to causative get-constructions (as suggested by notion of effort), which behave like pseudoperfects in (1) - (16), provided agent of get = agent of complement. But they differ from causative get in various ways:

-- Time reference: have describes result of an action while get describes action and result:

17) I got } two dresses embroidered by two o'clock. had }

-- Result cannot be envisaged without indicating duration (time within which) as well as end point, unless present (wh. implicitly = "by now");

19) Goodnight. I hope I get } my front door open. You know how it sticks.

20) Goodnight. I hope I get } my front door open by the time you have come tomorrow morning. You know how it sticks.

(Note: by now/by x time expressions typically accompany true perfects)

C: Origin of Pseudoperfects

In British English questions and negatives of pseudoperfect require have got, not have:

21) Have you got } your beds made yet?

If he hasn't got } that letter written up by the time I come back, I'll fire him.

and also, in Brit. Eng. I have got = I have.

In any English, get is generally considered to be COME ABOUT + HAVE, at least in receptive sense. How to relate this to causative get and pseudoperfects?

Via Preterite-Present hypothesis (Indo-European terminology). Pret.Pres. = class of verbs with past (= perfect) form but present meaning, containing an inchoative, where asserting that some state has come into being amounts to asserting that this state is at present (Sk. गो, Goth. witan). In English:

22) I have forgotten what his name is — I forget what his name is.

I have discovered (= have come to know) — I know I have decided to (= have come to intend) — I intend

Probably the pret.pres. formation rule involves deletion of inchoative and of some part of the perfect (or whatever underlies it).

Therefore, on the evidence of UK. have got = have, have is the preterite present of get:

(LEXICAL CONCEPT) HAVE COME TO HAVE

But have is also related to BE (cf. Bach)

So if underlying structure of causative get =

\[
\text{CAUSE} \rightarrow \text{V} \rightarrow \text{NP} \rightarrow \text{be} \rightarrow \text{NP} \rightarrow \text{COME ABOUT} \rightarrow \text{V} \rightarrow \text{S} \rightarrow \text{S}.
\]

after BE — HAVE rule (triggered by NP at the front of S, ?), COME ABOUT is deleted, and with it part of the perfect (not indicated in this diagram). CAUSE remains unlexicalized.

Final question: How do pseudoperfects relate to ordinary causative have and to the perf. aux. have? Very tentative suggestions: it's not clear exactly what origin of causative or perfect have is, (also from undelying be???) but perhaps there is some parallelism between these two and other transitive/intransitive quasi-modal pairs such as the 2 begin so that ordinary causative have and likewise pseudo-perfect have are "root" forms, while perfect have may be a sort of "epistemic" form.

Sk. गो, Goth. witan). In English:
The Syntactic Development of Genie

Sample Utterances

Two-word utterances

N + N - Possessives
2. Curtiss car. (7-17-72) "Curtiss's car."

N + N - Locatives
1. Cereal kitchen. (1-10-71) "Cereal is in the kitchen."
2. Shopping store. (8-21-72) "Let's go shopping at the store."

Mod + N
1. More soup. (10-21-71) "I want more soup."
2. Big car. (1-5-72) "That is a big car."

N + V - (Subject - Verb)
1. Mark paint. (10-27-71) "Mark is painting."
2. Carolyn come. (3-1-72) "Carolyn came."

V + N - (Verb - Object)
1. Want milk. (10-14-71) "I want milk."
2. Spit out gum. (6-14-72) "Judy spit out her gum."

N + Pred Adj
1. Dave sick. (5-29-72) "Dave is sick."
2. Stocking white. (11-4-71) "The stocking is white."

V + N - (Noun of location)
1. Going Akron. (5-8-72) "We're going to Akron."

Neg + N
1. No more father. (2-2-72) "Father is no more."
2. No more cereal. (7-5-72) "I can't have cereal."

Neg + V
1. No more have. (10-2-72) "You can't have it."

Requests: (No longer in use.)
1. Ride yes. (12-8-71) "I want a ride."
2. Game yes. (12-29-71) "I want to play a game."

Imperatives (very rare)
1. Dave errand. (1-12-72) "Dave, go on an errand!"
2. Play piano. (6-13-72) "Play the piano!"

Three-word utterances

N + V + N (Subject - Verb - Object)
1. Genie love Marilyn. (11-29-71) "Genie loves Marilyn."
2. Teri chew glove. (12-8-71) "Teri chewed your glove."

V + NP (Verb - Object)
1. Want more soup. (12-15-71) "I want more soup."
2. Want more sandwich. (12-27-71) "I want another sandwich."

NP + V (Subject - Verb)
1. Mark mouth hurt. (12-29-71) "Mark's mouth hurts."
2. Wax ear hurt. (2-21-72) "The wax in my ear hurts."

NP
1. Little bad boy. (1-5-72) "He is a bad little boy."
2. Valerie mother purse. (2-20-72) "That is Valerie's mother's purse."
3. Small two cup. (3-13-72) "I want two small cups."

V + VP
1. Want buy dessert. (1-24-72) "I want to buy some dessert."
2. Want go shopping. (7-19-72) "I want to go shopping."

N + V + N (Object (topic) - Verb - Locative)
1. Applesauce buy store. (4-72) "I want you to buy applesauce at the store."

Negative
1. No more ear hurt. (7-24-72) "My ear doesn't hurt."

Four-word utterances

NP
1. Little white clear box. (7-12-72) "I want a box that is white and clear."

NP + NP - Predicatives
1. Curtiss car big car. (1-24-72) "Curtiss's car is a big car."
2. Red car Marilyn car. (7-24-72) "Marilyn's car is a red car."

NP + NP (Subject - Object)
1. Big elephant long trunk. (6-26-72) "Big elephants have long trunks."

1. Want buy toy refrigerator. (10-23-72) "I want you to buy me a toy refrigerator."

Sample question responses

WHO Questions

Marilyn: Who do they belong to?
Genie: Dave.

Curtiss: Who is naughty?
Genie: Genie.

WHAT Questions

Marilyn: What did you do at the park?
Genie: Climb.

Marilyn: What did you climb?
Genie: Ladder.

WHERE Questions

Curtiss: Where were you today?
Genie: Big gym.

Curtiss: Where are you going to put the picture?
Genie: Wall.

WHY Questions

Marilyn: Why did I slap your hand?
Genie: Pull blouse.

"Because I pulled your blouse."

Marilyn: Why do you like Curtiss?
Genie: Go shopping.

"Because she takes me shopping."

HOW Questions

Dave: How should I reach it?
Genie: Get ladder.

WHOSE Questions

Curtiss: Whose cane is that?
Genie: Joel.

Curtiss: Whose dish is that?
Genie: Teri.

"Because I pulled your blouse."

"Because she takes me shopping."

B. Condition II

1. The duck was standing by the boy. Suddenly it ran across the barnyard. "duck"/The duck, "boy"/the boy, "duck"/it.

2. F7 1.28 If any one of them [Secretary General's deputies] has any power to veto the Secretary General's decisions the nature of the organization will have changed. If they give him advice when he asks it, or if they perform specified duties under his direction, the nature of the U.N. will not of necessity change. "deputies"/them, "power"/any power to veto... decisions, "Sect'y Gen"/Secretary General's, "decision"/the Secretary General's decisions, "nature"/the nature of the organization, "U.N."/the organization, "deputies"/they.

D. Condition III

1. The duck was standing by the dog. Suddenly it ran across the barnyard. "duck"/The duck, "dog"/the dog, "duck"/it.

2. It was barking as it ran.

3. D7 1.20 It ["something"] is the force in the universe that makes men love goodness even when they turn away from it. It is the power that holds the stars in their orbits, but allows the wind to bend a blade of grass. "something"/It, "force"/the force in the universe, "universe"/the universe, "mankind"/men, "goodness"/goodness, "mankind"/they, "goodness"/it, "something"/It.
An Argument Against Global Rules in Phonology

A. Background

Definition of opacity (Kiparsky 1971:621:622)

A rule \( A \rightarrow B/C \) is opaque to the extent that there are surface representations of the form

1. \( A \) in environments \( C \), or
2. \( B \) in environments other than \( C \).

Universal principle of minimization of opacity (Kiparsky 1971:623)

Rules tend to be ordered so as to become maximally transparent.

Global conditions and opacity (Kisseberth 1972:14)

Global conditions on rules will be the major source of opacity, since a global condition on a rule necessarily means that there will be surface forms that are opaque with respect to the rule (i.e., undergo the rule only by virtue of information not contained in the phonetic representation itself). The loss of a global condition is thus a move towards a less opaque rule; note that what in Kiparsky (1968) would involve a shift into a feeding order from a non-feeding order would involve, in the present framework, a loss of a global condition. Our reanalysis of the problem in no way impairs Kiparsky's analysis of certain historical changes as being instances of rule simplification.

B. Examples of simplification

I. Reordering from counter-feeding to feeding order

Finnish - Stage I (Kiparsky 1968)

1. Diphthongization
   \( ee \rightarrow ie \)
2. Loss of medial voiced continuants (DEL)
   \( \gamma \rightarrow \\ /V/ \)
   /\( /vee/ /'take'/\) \( /t\)\( eye/ /'do'/\)

   1. Diph \( \gamma \rightarrow \eta \)
   2. DEL \( \gamma \rightarrow \eta \)

Finnish - Stage II

2. Loss of medial voiced continuants (DEL)
   1. Diphthongization
   \( /vee/ /t\)\( eye/ \)
   2. DEL \( \gamma \rightarrow \eta \)

   Note: All outputs are transparent.

Conclusion

Within a global rule model, the diphthongization rule of Stage I would be reformulated to include the following global condition in order to derive opaque forms:

Finnish - Stage I (Reformulated)

1. Diphthongization
   \( \gamma \rightarrow [\eta / \gamma / /-\) \( DEL \) \( DERIVED /] \)
   Only underlying long vowels (and not long vowels derived by DEL) diphthongize.

2. Loss of medial voiced continuants (DEL)
   (Formulation unchanged)

Finnish - Stage II

Diphthongization loses the global condition (simplification) and applies to all long vowels whether basic or derived. The universal minimization of opacity principle correctly orders the rules to apply in the feeding order DEL before Diphthongization.

II. Reordering from bleeding to counter-bleeding order

German - Stage I (King 1969)

1. Terminal Devoicing (TD)
   \( [+\) \( obs/ \rightarrow [-\) \( voice]/ \)
2. Vowel Lengthening (VL)

\[ V \rightarrow [+\text{long}] / [+\text{voice}] \]

<table>
<thead>
<tr>
<th>/lob/</th>
<th>/lobes/</th>
<th>/veg/</th>
<th>/veges/</th>
</tr>
</thead>
<tbody>
<tr>
<td>'praise'</td>
<td>'of praise'</td>
<td>'path'</td>
<td>'paths'</td>
</tr>
</tbody>
</table>

1. TD

| lo:p | lo:bes | vek | ve:ges |

2. VL

| lo:p | lo:bes | ve:g | ve:ges |

Note: All outputs are transparent.

German - Stage II

1. Terminal Devoicing (TD)

<table>
<thead>
<tr>
<th>/lob/</th>
<th>/lobes/</th>
<th>/veg/</th>
<th>/veges/</th>
</tr>
</thead>
</table>

2. Vowel Lengthening (VL)

| lo:b | lo:bes | ve:g | ve:ges |

Note: [lo:p] and [ve:k] are opaque since a long vowel appears in an environment other than before a voiced obstruent.

Conclusion

Since the forms of Stage I are transparent, the rules are properly sequenced by the universal (unmarked) minimization of opacity principle. However, since the forms of Stage II are opaque, one of the rules must be reformulated to include a language-specific global condition.

German - Stage II (Reformulated)

1. Terminal Devoicing (TD)

   (Formulation unchanged)

2. Vowel Lengthening’ (VL’)

   \[ V \rightarrow [+\text{long}] / [+\text{voice} / [+\text{TD DERIVED}]] \]

   Vowels lengthen before voiced obstruents or before voiceless obstruents derived from TD.

The change, then, from Stage I to Stage II is described within a global rule framework as a change from an unmarked state to a marked state by the addition of a language-specific global condition.

Swiss German - Stage I (Kiparsky 1968)

1. Umlaut

   \[ V \rightarrow [-\text{back}] / ...\text{umlaut context}... \]

2. Back Vowel Lowering (BVL)

   \[ \begin{array}{c}
   [-\text{high}] \\
   [+] \\
   [+\text{cons} / -\text{grave} / -\text{lateral}] \\
   \end{array} \]

   \[ o \rightarrow [+\text{low}] / \]

   Note: [bode] is opaque since lowering operates on vowels which are apparently not [-back].

Conclusion

Since Stage I is transparent, the rules are properly sequenced to apply in the bleeding order Umlaut before BVL. However, since Stage II exhibits opaque outputs, one of the rules must be reformulated to include a global condition.
Swiss German - Stage II (Reformulated)

1. Umlaut (Formulation unchanged)
2. Back Vowel Lowering' (BVL')

\[
\begin{align*}
V_{\text{high}} & \rightarrow [+\text{low}] / \left\{ [+\text{back}] / +\text{UMLAUT} \right\} [+\text{cons} / \text{-grave} / \text{-lateral}] \\
\end{align*}
\]

\( o \) or umlauted \( o \) lower in the context specified.

The change, then, from Stage I to Stage II is described within a global rule framework as a change from an unmarked state to a marked state by the addition of a language-specific global condition.

REFERENCES


first definition of phonological idioms:

utterances which fall outside the bounds of speech produced by the grammar and do not obey the same constraints

(a) P. 18 months. orange juice \( \rightarrow \) [du]
(b) H.L. 0:8 [prat\text{I}] \( \rightarrow \) [piti]
(c) H. [m\text{P}'] for sound of carriage on cobblestones

types of idioms:

- dialectal (ideophones) -- learned as deviant forms
- idiolectal -- created
- progressive -- exhibit phonetics beyond those of the phonology
- regressive -- exhibit phonetics less sophisticated than those of the phonology
- phonetic unit
- onomatopoeic

units of organization of the maturing phonology:

- sentence
- syllable
- distinctive feature
- segment

(d) CV with reduplication:

- mama, kiki, tu, baba, bibi

(e) partial reduplication

- babi, kiti

the acquisition of phonology -- the search for the systematic nature of speech -- revolves around the discovery of successively more abstract phonological units

(f) 'clock' \( \rightarrow \) 'truck'

\[
\begin{align*}
[kak] & \rightarrow [tak] \\
\end{align*}
\]

tikatika:

\[
[ktkatika], [ttkatka] \\
\]

\( ti \) and \( ka \) in the repertory
(b) H.L. 'danke schön'  [dankan - j]  →  [d@gg@]

(i) H.L. 'baby'  [ba-bi]  →  [b@ba]  →  [b@bi]  →  [b@bi]

(j) H.L. 'tick-tock'  [tak]  →  [t@k@t@k@]  →  double click
   →  [t@h-t@h], [t@h@], [t@h-t@h]

(k) M. 'daddy'  [da-]

Second definition of phonological idioms:
(i) idioms are forms encoded (lexically) on the basis of a
   unit different from that which is used to organize regular
   speech;
(ii) idioms are exceptions to the entire body of synchronic
   rules of the grammar as a result of their separate encodings;
(iii) idioms are exceptions to the diachronic rules which
   affect other productions of a speaker.

Types of phonological changes in phonological acquisition:
(a-i) the change from one unit to another as the basis of
   phonological organization.
(a-ii) the transfer of known phonological information from
   incorporation in one kind of unit to another, and the
   concomitant transfer of phonetic information.
(a-iii) The addition of a new (phonetically distinct)
   phonological unit of the same type which is already in
   use, introducing a new phonological contrast, and often
   a new phonetic one as well.
(a-iv) the complete revision of the set of phonological
   rules at the time of (a-ii) and the modification of the
   set of rules at the time of (a-iii).
(b-i) the development of a new phonetic realization for
   an existing phonological unit.
(b-ii) the slow and non-dramatic spread of a single phonetic
   realization.
(b-iii) loss of potential contrastive function of two phones
   -- by suppression, by allophonic organization, etc.

<table>
<thead>
<tr>
<th></th>
<th>u</th>
<th>i</th>
<th>ü</th>
<th>(W)</th>
<th>ë</th>
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</thead>
<tbody>
<tr>
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<td>mid</td>
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<td>rising</td>
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<td>-</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

This matrix follows the distinctive feature framework proposed in
Wang 1968.

REFERENCES


Wang, William S-Y. 1968. Vowel features, paired variables, and the
   English vowel shift. I. g. 44, 685-708.
Evidence from Portuguese for the "Elsewhere Condition" in Phonology

(1) a. Present indicative

<table>
<thead>
<tr>
<th>a-themes (1st conjugation)</th>
<th>a-themes (2nd conjugation)</th>
<th>a-themes (3rd conjugation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>m[φ]ra  m[φ]vásem</td>
<td>m[φ]re  m[φ]vásem</td>
<td>m[φ]wo  m[φ]vásem</td>
</tr>
<tr>
<td>m[φ]ra  m[φ]vásem</td>
<td>m[φ]re  m[φ]vásem</td>
<td>m[φ]wo  m[φ]vásem</td>
</tr>
<tr>
<td>m[φ]ra  m[φ]vásem</td>
<td>m[φ]re  m[φ]vásem</td>
<td>m[φ]wo  m[φ]vásem</td>
</tr>
</tbody>
</table>

b. Present subjunctive

<table>
<thead>
<tr>
<th>a-themes (1st conjugation)</th>
<th>a-themes (2nd conjugation)</th>
<th>a-themes (3rd conjugation)</th>
</tr>
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<tbody>
<tr>
<td>m[φ]ra  m[φ]vásem</td>
<td>m[φ]re  m[φ]vásem</td>
<td>m[φ]wo  m[φ]vásem</td>
</tr>
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<td>m[φ]ra  m[φ]vásem</td>
<td>m[φ]re  m[φ]vásem</td>
<td>m[φ]wo  m[φ]vásem</td>
</tr>
<tr>
<td>m[φ]ra  m[φ]vásem</td>
<td>m[φ]re  m[φ]vásem</td>
<td>m[φ]wo  m[φ]vásem</td>
</tr>
</tbody>
</table>

(2) i u  (3) i u  (4) Neutralization

(5) 1st conj. = theme & 6) 1st sing indic m[φ]ra, subfjct m[φ]re, etc.

(7) Harmony (prelim. version)

(8) [[[Prefix] + Root] Stem + V] Theme (Tense/ Mood/ Aspect) + Person + Number + Verb

(9) a. [[[mor] + a] + va + mos]vb = morávamos, 1st plu. imperf indic
   b. [[[mor] + a] + ev + e]vb = móres, 2nd sing pres subjunct
   c. [[[mor] + a] + o]vb = móro, 1st sing pres indic

(10) Truncation V - φ/— ]Th V ...)vb

(11) a. Harmonizing

<table>
<thead>
<tr>
<th>1st sing indic</th>
<th>2nd sing subjunct</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd conj.</td>
<td>3rd conj.</td>
</tr>
</tbody>
</table>

b. Non-harmonizing (remainder of indicative, imperative)

(12) Harmony (final version)

(13) Indicative | Subjunctive

| mor+a+o | mov+e+o | dorm+i+o | mor+a+e | mov+e+a | dorm+i+a |

(14) a. If a two-syllable inflection follows the theme vowel, stress the antepenultimate syllable (the theme vowel); e.g. (9a) morá-ramos. More formally,

b. Otherwise, stress the penultimate syllable; e.g. all the forms in (1). More formally,
(15) mor+a+o mor+a+e mor+e+o mov+e+a etc.
    \( \emptyset \emptyset \emptyset \emptyset \) Truncation (10)
moro more movo mova Stress (14b)

(16) Harmony (12)
    (17) Harmony (12)
    (Truncation (10)
    (Stress (14)
    (Neutralization (4)

(18) móve movémos movéis fúgi fugimos fugis
    movémos movéis fúgi fugimos fugis Lowering
    movémos movéis fugimos fugis Neutralization

(19) Lowering (prelim. version)
    \[
    \begin{align*}
    V & \quad \text{[+stress]} \rightarrow [-\text{low}] / \rightarrow \text{St} \ldots \text{Vb} \\
    [-\text{high}] & \rightarrow [-\text{high}] / \rightarrow \text{St} \ldots \text{Vb}
    \end{align*}
    \]

(20) Lowering (final version)
    \[
    \begin{align*}
    V & \quad \text{[+stress]} \rightarrow [-\text{high}] / \rightarrow \text{St} \ldots \text{Vb} \\
    [-\text{high}] & \rightarrow [-\text{high}] / \rightarrow \text{St} \ldots \text{Vb}
    \end{align*}
    \]

(21) (16) Harmony (12)
    (22) Stress (14)
    (Truncation (10)
    (Lowering (20)

(24) "Two adjacent rules of the form \( A \rightarrow B/P \rightarrow Q \)
    \( C \rightarrow D/R \rightarrow S \)
    are disjunctively ordered if and only if:
    (a) the set of strings that fit \( PAQ \) is a subset of the
        set of strings that fit \( RCS \), and
    (b) the structural changes of the two rules are either
        identical or incompatible."

(25) Harmony
    \[
    \begin{align*}
    [e o] & \rightarrow \left\{ \begin{array}{c}
    \text{[high]} \\
    \text{[low]} \\
    \end{array} \right. \rightarrow \text{St} \rightarrow \text{Th} \ldots \text{Vb}
    \end{align*}
    \]

(26) Lowering
    \[
    \begin{align*}
    [V & \quad \text{[+stress]} \rightarrow [-\text{high}] / \rightarrow \text{St} \ldots \text{Vb} \\
    [-\text{high}] & \rightarrow [-\text{high}] / \rightarrow \text{St} \ldots \text{Vb}
    \end{align*}
    \]
1. The Accessibility Hierarchy

In a study of over 30 languages we have found that there is a language-indepen­dent hierarchy of NP positions which determines their relative accessibility to such "focusing" transformations as REL-CL, WH-QUEST, and CLEFT. The Major Branch of the hierarchy, given in (i) below, characterizes the relative accessibility of certain major NP positions. (ii) defines a partial extension of the hierarchy to minor positions. ("\( \Rightarrow \)" means "greater than or equal to in accessibility").

**ACCESSIBILITY HIERARCHY (AH)**

(i) Subj \( \Rightarrow \) DObj \( \Rightarrow \) IObj \( \Rightarrow \) Obj-Prep \( \Rightarrow \) Genitives \( \Rightarrow \) Obj-Comparative Particle

(ii) if \( X \Rightarrow Y \) and \( Y \) dominates \( Z \) then \( X \Rightarrow Z \)

2. The Major Branch

The Major Branch was defined specifically with respect to (restrictive) relative clause formation (RCF). RCF was effected in a variety of different ways in the languages studied. Sometimes (Turkish, Basque, Korean) the subordinate clause occurred before the head NP and sometimes not. Sometimes a personal pronoun was present in the position relativized into (Arabic, Welsh, Batakan) and sometimes not. And so on. A particular strategy in a given language is called major if it can be used to relativize subject NPs. All the languages studied possessed at least one major strategy and often more than one. (For example Finnish has one major strategy in which the subordinate clause occurs postnominally and is introduced by a case-marked relative pronoun. It has a second strategy in which the subordinate clause occurs pre­nominally, the verb form is converted to a nonfinite form, and no Rel-marker is used.)

The Major Branch is defined to be the ordered collection of NP positions for which there are at least two languages having major strategies that naturally relativize that position and all positions to the left of it but none of the positions to the right of it. Table I below presents in summary form a statement of some of the languages having strategies defining each position.

<table>
<thead>
<tr>
<th>Position in Hierarchy</th>
<th>Languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Only Subjects</td>
<td>Malagasy, Kalagan, Javanese, German</td>
</tr>
<tr>
<td>2. Subjects and Direct Objects</td>
<td>Welsh, Finnish, Malay</td>
</tr>
<tr>
<td>3. Subjects - Indirect Objects</td>
<td>Basque, Luganda</td>
</tr>
<tr>
<td>4. Subjects - Objects of Prepositions</td>
<td>Yoruba, North Frisian (Fering)</td>
</tr>
<tr>
<td>5. Subjects - Genitives</td>
<td>French, German, Romanian, Finnish</td>
</tr>
<tr>
<td>6. Subjects - Objects of Comparison</td>
<td>English, Hebrew, Danish, Italian, Russian</td>
</tr>
</tbody>
</table>

Remarks on Table I:

1. Some languages appear twice as we are referring to different major strategies. Thus the first mention of German and Finnish refer to their pronominal strategy, the second mention to their postnominal strategy.

2. Many languages have secondary strategies that pick up where a given major strategy stops. Thus in Welsh the major strategy uses the rel-marker \( \theta \) and presents no pronoun in the position relativized into. But a secondary strategy is used for indirect objects and other oblique case NPs. It differs from the first in that it introduces the subordinate clause by the particle \( X \) and does present a personal pronoun in the position relativized into.

In other cases, however, the major strategy referred to in Table I is essentially the only one in the language. Thus in Malagasy it is not grammatical to directly relativize on e.g. direct objects, as in the clothes that Mary washed.

3. Extending the Major Branch

In order to be able to compare the accessibility of non-major NPs we are currently analyzing our data to determine principles that allow us to compare relativizability of major positions with minor ones. (ii) above is one such principle—a very weak one, but it does allow us to say that in general embedding constituents in others reduces accessibility (or at least never increases it).

4. Explanatory Value of the Accessibility Hierarchy

We present four pieces of crosslinguistic data from syntax, semantics, and performance, that can be explained, at least partially, in terms of the AH.

4.1 The multiple verb forms in Malayo-Polynesian (e.g. Malagasy, Kalagan, Ivatan, Javanese) and Bantu (Luganda, Shona) can be shown to have a common major function: they make inaccessible NP accessible. Thus in Malagasy, while we cannot relativize on the direct object of Mary washed the clothes we can passivize the sentence and relativize on the derived subject, since sub-
jects are accessible in Malagasy. Thus PASSIVE allows us to move inaccessible NPs into accessible positions. Further Malagasy has a third voice whose function is to move oblique case NPs into subject positions, making them accessible. Thus the instrumental constituent in Mary washed the clothes with the soap can be subjectivized. Similarly Kalagan has the "only subjects are accessible" constraint and a system of four verb voices permitting various oblique case NP to be subjectivized and hence made accessible.

In Bantu on the other hand, characteristically both subjects and direct objects (which may include indirect objects) are directly accessible. Oblique case NP are frequently not directly accessible. Both Luganda and Shona however possess "prepositional" verb forms whose direct objects would be the oblique case NP of the simpler verb form. In Luganda for example we cannot directly relativize the knife in the simple sentence John killed the chicken with the knife. But we can convert the verb to an instrumental form making the knife a direct object, whence it is relativizable, as in John killed with the knife the chicken.

In fact even in German the verb froms have a somewhat similar effect in the pre-nominal RCF strategy which works only on subjects. Thus in John wrote the letter we cannot directly relativize (using the prenominal strategy) on the letter, but if we passivize, making letter the superficial subject, we do obtain the by John written letter.

4.2 The AH enables us to make certain cross-language predictions concerning the distribution of retained pronouns in the position relativized into (e.g. the girl that John gave the book to her). Languages which retain such pronouns present in surface more of the logical structure of the relative clause than languages that do not present such pronouns. The reason is that logically a relative clause designates individual(s) in the domain of the head NP of which the sentence represented by the subordinate clause is true. (Note: only sentences, not "clauses" have truth values). Pronoun-retaining languages present this restricting sentence explicitly in surface and are in this sense logically more transparent than languages that do not.

It is natural to predict then that the logically more transparent strategy will tend to be used in the inherently more difficult (=less accessible) positions. Table II bears out this prediction for the languages studied that characteristically retain pronouns in major positions.

<table>
<thead>
<tr>
<th>Language</th>
<th>Subj</th>
<th>DO</th>
<th>IO</th>
<th>O-Prep</th>
<th>Genitives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hebrew</td>
<td>(+)-</td>
<td>(+)</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Arabic</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Persian</td>
<td>-</td>
<td>(+)</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Welsh</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Batak</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Key: + = pronoun obligatorily retained, (+) = optionally retained, - = not retained.

Clearly pronoun retention increases as we descend the AH. Furthermore, it often happens that languages which do not characteristically retain resumptive pronouns do in positions low on the AH. For example, Malay, Icelandic, Quechua, and Turkish usually do not present resumptive pronouns but do retain genitive personal pronouns (yielding relative clauses like the man that I saw his dog). In fact, in certain dialects of English one hears Here comes the man I can never remember his name.

4.3 Several facts concerning coreference of NPs in relative clauses are predicted on the basis of the Preference of Reference Condition which is stated in terms of AH:

**PREFERENCE OF REFERENCE CONDITION (PRC)**

If the restricting sentence of a relative clause contains two or more coreferents anaphoric to the head NP then the position relativized into will be the one highest on the Accessibility Hierarchy. Thus we predict that the pronoun in the man that he saw is not judged coreferential with the head NP, for otherwise it would have been the most accessible and the only relative clause permitted by PRC would have been the man who saw himself. Of course in English the left-right order of major constituents in unmarked sentences largely follows the AH and consequently Postal's Crossover Principle covers most of the ground that PRC covers. But PRC is more general since it works in languages in which left-right order is at variance with relative accessibility. Thus in Malagasy the unmarked word order is VOS. RCF moves the head NP to the left, thus across the direct object (recall that only subjects are relativizables). Yet in relative clauses like the man that loves himself the pronoun is judged coreferential with the head NP just as it is in the simplex sentence Loves himself the man. PRC predicts this since the subject position is the preferred reference, and clearly Crossover simply does not obtain. In fact even in certain cases of backwards reference in English we can violate Crossover in accordance with PRC: the fox creame that the man who ordered it refused to eat
Note also the PRC correctly predicts the universal absence of reflexive relative pronouns, given that reflexivity indicates anaphoric reference, and assuming that the relative pronoun derives from the NP in the position relativized into. The reason is that a pronoun that is essentially anaphoric must be lower on the AH than its antecedent and therefore the head NP will always relativize into the higher position.

Speakers will frequently paraphrase a sentence, even approximately, to relativize on a position high in the AH rather than a low one, even where the low one is accessible in the language. Thus in English, French, and particularly Swedish, one frequently gets the woman who had her coat stolen alongside, and often in preference to, the woman whose coat was stolen, thereby relativizing on a subject, not a genitive. And in Yoruba (where genitives are not accessible) possessor NPs can often be construed as direct objects, whence they are accessible. Thus the he stole my money can be rendered as (roughly) he stole me in money.

A second case in point involves objects of comparison. Even where we can say, as in English, the boy John is bigger than there is a preference for the boy who is smaller than John. And some languages (e.g. Finnish, Luganda) have systematic ways of construing objects of comparison as ordinary direct objects (e.g. John height-exceeds the boy), whence they are relativizable.

A final case: NPs in sentence-complements of lexical NPs as the country in the prediction that the country will fall are generally inaccessible, but not universally so. Languages like Hebrew and Persian with pronoun retaining strategies can relativize here. Still one more generally (e.g. in English, Finnish, Arabic, and Romanian) finds an alternative to the country that I believe the prediction that will fall by relativizing not into the rather inaccessible embedded sentence but by construing the head NP as an object of a preposition of the main verb, retaining a pronoun in the embedded S. Thus: the country about which I believe the prediction that it will fall. Interestingly the apparent underlying sentences e.g I believe about the country the prediction that it will fall are usually less acceptable than the derived relative clauses.

1. Genie's dichotic listening results:

A. Words

<table>
<thead>
<tr>
<th># of pairs</th>
<th>#correct</th>
<th>#correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>right ear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>left ear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) 3/27/72</td>
<td>29</td>
<td>6</td>
</tr>
<tr>
<td>(2) 5/10/72</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>(3) 8/16/72</td>
<td>30</td>
<td>5</td>
</tr>
</tbody>
</table>

overall percentages 16% 100%

(In the first two sessions, there was generally only one response; errors were omissions. In session three, there were two responses to every trial.)

B. Environmental Sounds

<table>
<thead>
<tr>
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<tbody>
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<td>20</td>
<td>12</td>
</tr>
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<td>14</td>
</tr>
</tbody>
</table>

overall percentages 65% 92.5%

2. Comparison of Genie's verbal dichotic listening results with normal, split-brain, and hemispherectomized subjects:

<table>
<thead>
<tr>
<th>percent correct:</th>
<th>better ear</th>
<th>weaker ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>normals</td>
<td>60</td>
<td>52</td>
</tr>
<tr>
<td>Genie</td>
<td>100</td>
<td>16</td>
</tr>
<tr>
<td>right hemispherectomized</td>
<td>99</td>
<td>24</td>
</tr>
<tr>
<td>split-brain</td>
<td>91</td>
<td>22</td>
</tr>
</tbody>
</table>

3. Normal dichotic listening:

![Diagram of auditory pathways]

STEPHEN KRASSEN, University of California, Los Angeles
VICTORIA FROMKIN, University of California, Los Angeles
SUSAN CURTISS, University of California, Los Angeles

A Neurological Investigation of Language Acquisition in the Case of an Isolated Child

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<td>24</td>
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<tr>
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<td>91</td>
<td>22</td>
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</tbody>
</table>

3. Normal dichotic listening:

![Diagram of auditory pathways]
4. Dichotic listening in the split-brain and right hemispherectomized subject (suppression only):

- **Language**
- Primary auditory receiving area
- Contralateral pathway
- Ipsilateral pathway

left ear ———> right ear

- Ilse Lehiste, Ohio State University
  
**Phonetic Disambiguation of Grammatically Ambiguous Sentences**

**List of Sentences**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>German teachers visit Greensboro.</td>
<td>(Stageberg, 1958)</td>
</tr>
<tr>
<td>2.</td>
<td>The hostess greeted the girl with a smile.</td>
<td>(Stageberg, 1958)</td>
</tr>
<tr>
<td>3.</td>
<td>Visiting relatives can be a nuisance.</td>
<td>(Jacobs and Rosenbaum, 1968)</td>
</tr>
<tr>
<td>4.</td>
<td>The old men and women stayed at home.</td>
<td>(Rossell, 1957)</td>
</tr>
<tr>
<td>5.</td>
<td>He rolled over the carpet.</td>
<td>(Halle, 1969)</td>
</tr>
<tr>
<td>6.</td>
<td>I know more beautiful women than Mary.</td>
<td>(Langendoen, 1969)</td>
</tr>
<tr>
<td>7.</td>
<td>John doesn't know how good meat tastes.</td>
<td>(Chomsky, 1964)</td>
</tr>
<tr>
<td>8.</td>
<td>The shooting of the hunters was terrible.</td>
<td>(Katz and Fodor, 1964)</td>
</tr>
<tr>
<td>9.</td>
<td>Steve or Sam and Bob will come.</td>
<td>(Langacker, 1968)</td>
</tr>
<tr>
<td>10.</td>
<td>The police stopped fighting after dark.</td>
<td>(Wardhaugh, 1972)</td>
</tr>
<tr>
<td>11.</td>
<td>I don't believe he said she was an Eskimo.</td>
<td>(Bach, 1968)</td>
</tr>
<tr>
<td>12.</td>
<td>The feeding of the tigers was expensive.</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>The screaming of the victims was terrible.</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>The president of the university's committee on educational policies came.</td>
<td>(Fries, 1952)</td>
</tr>
<tr>
<td>15.</td>
<td>The lamb is too hot to eat.</td>
<td>(Jacobs and Rosenbaum, 1968).</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td>B</td>
</tr>
<tr>
<td>1.</td>
<td>The teachers were from Germany.</td>
<td>The teachers taught German.</td>
</tr>
<tr>
<td>2.</td>
<td>The hostess smiled.</td>
<td>The girl smiled.</td>
</tr>
<tr>
<td>3.</td>
<td>Relatives who visit are a nuisance.</td>
<td>It is a nuisance to visit relatives.</td>
</tr>
<tr>
<td>4.</td>
<td>Both men and women were old.</td>
<td>The men are old.</td>
</tr>
<tr>
<td>5.</td>
<td>Where was he rolling?</td>
<td>What did he roll over?</td>
</tr>
<tr>
<td>6.</td>
<td>I know a greater number of beautiful women than Mary does.</td>
<td>I know women who are more beautiful than Mary.</td>
</tr>
<tr>
<td>7.</td>
<td>The meat tastes good.</td>
<td>The meat is good.</td>
</tr>
<tr>
<td>8.</td>
<td>The hunters shot badly.</td>
<td>The hunters were shot.</td>
</tr>
<tr>
<td>9.</td>
<td>(Steve or Sam) + Bob (= 2)</td>
<td>Steve or (Sam + Bob) (= 1 or 2)</td>
</tr>
<tr>
<td>10.</td>
<td>The police quit fighting.</td>
<td>The police stopped the fighters.</td>
</tr>
<tr>
<td>11.</td>
<td>A. It's not the case that I believe that he said it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B. I believe that he did not say that she was an Eskimo.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C. I believe that he said she wasn't an Eskimo.</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>The tigers were fed.</td>
<td>The tigers did the feeding.</td>
</tr>
<tr>
<td>13.</td>
<td>The victims screamed.</td>
<td>?? Somebody 'screamed' the victims.</td>
</tr>
<tr>
<td>14.</td>
<td>The president of the committee came.</td>
<td>The whole committee came.</td>
</tr>
<tr>
<td>15.</td>
<td>The poor lamb is hot and tired.</td>
<td>The guests are waiting for the roast lamb to cool off.</td>
</tr>
</tbody>
</table>
### Table 1
Correct scores (%) by speaker and listener group.
L = linguists, NL = non-linguists.

<table>
<thead>
<tr>
<th>Listener group</th>
<th>Speaker M.G.(NL)</th>
<th>Speaker L.B.(L)</th>
<th>Speaker T.S.(NL)</th>
<th>Speaker R.B.(L)</th>
<th>Overall score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linguists (N = 15)</td>
<td>57.39</td>
<td>69.86</td>
<td>64.38</td>
<td>59.86</td>
<td>62.86</td>
</tr>
<tr>
<td>Non-Linguists (N = 15)</td>
<td>54.49</td>
<td>69.86</td>
<td>62.75</td>
<td>58.99</td>
<td>61.52</td>
</tr>
<tr>
<td>Overall score</td>
<td>55.94</td>
<td>69.86</td>
<td>63.57</td>
<td>58.43</td>
<td>62.19</td>
</tr>
</tbody>
</table>

### Table 2
Correct scores (%) and confidence ratings on a scale of 0-4.
N = number of sentences.

<table>
<thead>
<tr>
<th>Speaker</th>
<th>N</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.S.</td>
<td></td>
<td>N%</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>T.S.</td>
<td>4</td>
<td>60.00</td>
<td>5</td>
<td>58.72</td>
<td>3</td>
<td>71.13</td>
</tr>
<tr>
<td>R.G.</td>
<td>7</td>
<td>53.33</td>
<td>0</td>
<td>3</td>
<td>53.33</td>
<td>4</td>
</tr>
</tbody>
</table>

### Table 3
Correct scores (%) and level of significance of overall scores (under the assumption of equal likelihood of both meanings) (df = 1)

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Speaker M.G.</th>
<th>Speaker L.B.</th>
<th>Speaker T.S.</th>
<th>Speaker R.B.</th>
<th>Overall score</th>
<th>( t )</th>
<th>( p )</th>
<th>Disambiguated score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>53.3</td>
<td>80.0</td>
<td>72.2</td>
<td>31.1</td>
<td>56.67</td>
<td>3.2889</td>
<td>&lt; .01</td>
<td>57.9</td>
</tr>
<tr>
<td>2</td>
<td>72.2</td>
<td>95.6</td>
<td>52.2</td>
<td>48.9</td>
<td>67.22</td>
<td>21.5555</td>
<td>&lt; .0005</td>
<td>62.9</td>
</tr>
<tr>
<td>3</td>
<td>51.1</td>
<td>67.8</td>
<td>56.6</td>
<td>41.7</td>
<td>52.50</td>
<td>0.5886</td>
<td>&lt; .50</td>
<td>51.7</td>
</tr>
<tr>
<td>4</td>
<td>51.1</td>
<td>67.8</td>
<td>56.6</td>
<td>41.7</td>
<td>52.50</td>
<td>0.5886</td>
<td>&lt; .50</td>
<td>51.7</td>
</tr>
<tr>
<td>5</td>
<td>51.1</td>
<td>67.8</td>
<td>56.6</td>
<td>41.7</td>
<td>52.50</td>
<td>0.5886</td>
<td>&lt; .50</td>
<td>51.7</td>
</tr>
<tr>
<td>6</td>
<td>51.1</td>
<td>67.8</td>
<td>56.6</td>
<td>41.7</td>
<td>52.50</td>
<td>0.5886</td>
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</tr>
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<td>8</td>
<td>51.1</td>
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<tr>
<td>9</td>
<td>51.1</td>
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<td>51.1</td>
<td>67.8</td>
<td>56.6</td>
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<tr>
<td>11</td>
<td>51.1</td>
<td>67.8</td>
<td>56.6</td>
<td>41.7</td>
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<td>0.5886</td>
<td>&lt; .50</td>
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</tr>
<tr>
<td>Ave. Score</td>
<td>55.94</td>
<td>69.86</td>
<td>63.57</td>
<td>59.43</td>
<td>62.19</td>
<td>62.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A Statistical Approach to Reconstruction

Consonants (frequencies): k (16.1%), g [g] (13.2%), t (12.6%), d (9.7%), g [g] (7.5%), y (4.2%), s (3.5%), z (2.8%), z (2.7%), g (2.4%).

Vowels (frequencies): a (33.9%), u (17.5%), i (13.3%), o (6.4%), è (6.3%), Í (5.7%), e (3.3%), Ò (2.7%), Ò (0.5%), È (0.3%), à (0.3%), Ò (0.2%

The "echo-vowel" hypothesis: "ov" and "cv"... (S. E. Martín, "Lexical evidence Relating Korean to Japanese," Language 2, 195-251, p. 221)

Table 1: Comparison of Actual and Predicted frequencies of (-)V1CV1 in two-syllable nouns

<table>
<thead>
<tr>
<th>V1</th>
<th>Frequency V1:V</th>
<th>Number of (-)V1CV1</th>
<th>Predicted</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>396</td>
<td>25</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>t</td>
<td>428</td>
<td>215</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>1</td>
<td>56</td>
<td>8%</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>u</td>
<td>226</td>
<td>18%</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>o/0</td>
<td>8%</td>
<td>8%</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>ò</td>
<td>15</td>
<td>1.5%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>è</td>
<td>55</td>
<td>5.5%</td>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>

(Other possible hypotheses to account for same data: -V1CV2, -V1CV1, -V1CV1, CV1 CV1V1)

1.3. The hypothesis that OC ≤ < CS, CS

Table 2: Comparison of Frequencies of GO + CS + GO with Go

<table>
<thead>
<tr>
<th>OC (total)</th>
<th>V frequency (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
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<td>1.1</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
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</table>

The hypothesis that CS ≤ < CS, CS

Table 3: Comparison of hypothesized frequencies of -t, -t, -t and -t

<table>
<thead>
<tr>
<th>OC (total)</th>
<th>V frequency (%)</th>
<th>Total (Resultant correction of &quot;v&quot; line in Table 2: 7.9, 19.5, 5.5, 21.7)</th>
</tr>
</thead>
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<tr>
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Table 4: Comparison of the ratios of i and i after labials and other consonants

<table>
<thead>
<tr>
<th>OC occurrences</th>
<th>Ratio occurrences</th>
<th>i</th>
<th>i</th>
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<tbody>
<tr>
<td>t</td>
<td>75</td>
<td>5</td>
<td>151</td>
</tr>
<tr>
<td>b</td>
<td>21</td>
<td>7</td>
<td>31</td>
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<tr>
<td>m</td>
<td>50</td>
<td>9</td>
<td>101</td>
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<tr>
<td>k</td>
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<td>11</td>
<td>21</td>
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<tr>
<td>g</td>
<td>24</td>
<td>8</td>
<td>31</td>
</tr>
</tbody>
</table>

200 201
3. Table 5: Comparison of Actual (A) and Predicted (P) Number of Occurrence
   of (-)VO- Sequences

<table>
<thead>
<tr>
<th>V</th>
<th>f</th>
<th>b</th>
<th>n</th>
<th>d</th>
<th>t</th>
<th>n</th>
<th>c</th>
<th>j</th>
<th>r</th>
<th>k</th>
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<td>112</td>
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<td>62</td>
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<td>91</td>
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<td>221</td>
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<td>91</td>
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<td>6</td>
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</table>

Table 6: Relative Frequencies of Vowels in Nouns, by Syllable

<table>
<thead>
<tr>
<th>Syllable</th>
<th>Vowels (Frequencies) in Descending Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 of 2</td>
<td>a (19%) u (22%) i/I (12%) o/O (6%) e/E, e, i, e, e (5-0%)</td>
</tr>
<tr>
<td>1 of 3</td>
<td>a (11%) u (20%) i/I (15%) o/O (7%) e/E, e, i, e, e (5-0%)</td>
</tr>
<tr>
<td>2 of 3</td>
<td>a (10%) u (20%) i/I (9%) o/O (6%) e/E, e, i, e, e (5-0%)</td>
</tr>
<tr>
<td>1 of 1</td>
<td>a (22%) i/I (10%) o/O, u (5%) e/E, e, i, e, e (5-0%)</td>
</tr>
<tr>
<td>2 of 2</td>
<td>a (26%) i/I (21%) o/O, u (5%) i/I (8%) e/E, e, i, e, e (5-0%)</td>
</tr>
<tr>
<td>3 of 3</td>
<td>i/I (8%) e/E, e, i, e, e (5-0%)</td>
</tr>
</tbody>
</table>

4. Results that give pause: All of the unpatterned discrepancies in the
   above tables, plus many others, including the non-correlation of the
   ratios of i-I:KO and E: I:G in spite of the morphophonemic relation-
   ship, and the striking frequency of nI, 2% of nW while i-I+i-I totals
   only 22% of V, etc.
### Phonemes Common to All Dialects

- Consonants: p t k b d g m n p s l r w y
- Vowels: u (o) a i e
- Diphthongs: aw ay iw uy

### Dialectal peculiarities

| /v/ | NAG | LEG | VIR | PAN | OAS | LIB | IRI | BUH | SOR | GUB | MAS
<table>
<thead>
<tr>
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<tbody>
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<td>medial</td>
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<td>/o/</td>
<td>yes</td>
<td>none</td>
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<td>-?c-</td>
<td>-?c-</td>
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<td>-?c-</td>
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</tbody>
</table>

### Pronominal System (NAGA)

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<th>GENITIVE</th>
<th>LOCATIVE</th>
</tr>
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<tbody>
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<td>akj</td>
<td>ku</td>
</tr>
<tr>
<td>you (sg)</td>
<td>ika</td>
<td>mu</td>
</tr>
<tr>
<td>he/she</td>
<td>s(i)ya</td>
<td>n(i)ya</td>
</tr>
<tr>
<td>we (incl)</td>
<td>tia</td>
<td>ta</td>
</tr>
<tr>
<td>they (pl)</td>
<td>kum</td>
<td>ninda</td>
</tr>
<tr>
<td>you (pl)</td>
<td>kumu</td>
<td>nindj</td>
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</table>

### Deitics

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<th>LOCALATIVE</th>
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<td>to</td>
<td>to that to that (near) (far)</td>
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</tr>
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### Cognates (Basic Vocabulary)

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### Dialects

- NAGA
- LEASPI
- VIRAC
- PANDAN
- DARAGA
- SORSOOGON
- GUBAT
- MASBATE

### Dialectal Varieties

- PAN
- SOR
- GUB
- MAS

### Cognates

- NAGA
- LEASPI
- VIRAC
- PANDAN
- DARAGA
- SORSOOGON
- GUBAT
- MASBATE

### Nominal Indefiniteness

- NAGA
- LEASPI
- VIRAC
- PANDAN
- DARAGA
- SORSOOGON
- GUBAT
- MASBATE

### Cognates of Common Nouns

- NAGA
- LEASPI
- VIRAC
- PANDAN
- DARAGA
- SORSOOGON
- GUBAT
- MASBATE
### VERBAL INFLATION (NAGA)
(R-verb root(C.V,...))

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<th>Actor</th>
<th>Direct Object</th>
<th>Passive</th>
<th>Locative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfective Future</td>
<td>nag + R</td>
<td>C + in + R (-C)</td>
<td>C + in + R (-C)</td>
<td>C + in + R (-C)</td>
</tr>
<tr>
<td>Imperfective Future</td>
<td>nag + C.V. + R</td>
<td>C + in + R (-C)</td>
<td>C + in + R (-C)</td>
<td>C + in + R (-C)</td>
</tr>
<tr>
<td>Infinitive</td>
<td>nag + R</td>
<td>C + in + R (-C)</td>
<td>C + in + R (-C)</td>
<td>C + in + R (-C)</td>
</tr>
</tbody>
</table>

### Example

(root \(\text{bakal} \) 'to buy')

<table>
<thead>
<tr>
<th>Perfective Future</th>
<th>nag + bakal</th>
<th>Example (root bakal 'to buy')</th>
<th>nag + bakal</th>
<th>Example (root bakal 'to buy')</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imperfective Future</td>
<td>nag + bakal</td>
<td>Example (root bakal 'to buy')</td>
<td>nag + bakal</td>
<td>Example (root bakal 'to buy')</td>
</tr>
</tbody>
</table>

### Danish long vowels, 4 heights

- **hvide** 'white' [vi:3a]
- **hvede** 'wheat' [ve:5a]
- **væde** 'wet' [ve:5a]
- **vade** 'wade' [ve:5a]
The Abstractness Controversy: Experimental Input from Hindi

1. [pakăr] "catch" (imper.) [pakāra] "caught"
   [phīsla] "slip" (imper.) [phīsla] "slipped"
   [sāpāk] "road" [sāpākē] "roads"
   [hičkē] "hesitate" [hičkē] "hiccough"
   [sisāk] "sob" [sisāk] "a sob"
   etc. etc.

2. ṑ → /VC.CV

   Note: the proper formulation of the ṑ-deletion rule is much more complicated than this, however for present purposes this simplified version will suffice. (Cf. M. Ohala (1972) Topics in Hindi-Urdu phonology. UCLA Ph.D. dissertation.)

   /pākār + a/ but /pākār + ta/ yields yields ṑ by ṑ-deletion rule /pākārta/ ṑ-deletion rule inapplicable

   /kesar + ०/ "saffron" + plural is [kesarī].
   /kesar + iya/ is [kesariya] not *[kesariya].

3. ॥ → /VC.CV.

   6. [ʃuṭk:] "snap of a finger" [gʰōsala] "nest"
      [ʃuṭk:] "hut" [ʃuṭk:] "crab"
      [aŋkra] "100" [ʃuṭk:] "lizard"
      [titi:] "butterfly"

   7. [gʰōsala] "nest"
      [kēkra] "crab"
      [ʃuṭk:] "hut"
      [łeśak] "stickiness"
      [łošak] "the hanging, or suspension"

   8. kesar ("saffron") + -iya is kesarīya ("saffron-colored")
      du:dh ("milk") + -iya is du:ḍhiya ("milky")

   9. response | gʰōsaliya | ṭφpriya
      5 | gʰōsaliya | ṭφpriya
etc. etc.

   10. [śipak] "stickiness" [kisem] "kind" (noun)


12. Response to 10 repeated words
Response to 5 [gösala]-type words
inconsistent
30%
consistent
70%
Response to 5 [pakä]-type words
inconsistent
15%
consistent
85%

Ø response Ø response Ø response Ø response

<table>
<thead>
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<td>All 10 repeated words</td>
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<td></td>
</tr>
<tr>
<td>&quot;cue&quot; word</td>
<td>% indicated response 1st time</td>
<td>% indicated response 2nd time</td>
<td>net change</td>
<td></td>
</tr>
<tr>
<td>[duːh]</td>
<td>ø</td>
<td>59</td>
<td>52.5</td>
<td>-6.5</td>
</tr>
<tr>
<td></td>
<td>ø</td>
<td>41</td>
<td>48.5</td>
<td>+6.5</td>
</tr>
<tr>
<td>[kesä]</td>
<td>ø</td>
<td>51</td>
<td>52.5</td>
<td>+1.5</td>
</tr>
<tr>
<td></td>
<td>ø</td>
<td>49</td>
<td>47.5</td>
<td>-1.5</td>
</tr>
</tbody>
</table>

13. 5 [gösala]-type words
"cue" word | % resp. 1st time | % resp. 2nd time | net change |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[duːh]</td>
<td>ø</td>
<td>46</td>
<td>-7.5</td>
</tr>
<tr>
<td></td>
<td>ø</td>
<td>54</td>
<td>+7.5</td>
</tr>
<tr>
<td>[kesä]</td>
<td>ø</td>
<td>25</td>
<td>+11.5</td>
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<tr>
<td></td>
<td>ø</td>
<td>75</td>
<td>-11.5</td>
</tr>
</tbody>
</table>

14. 5 [pakä]-type words
"cue" word | % resp. 1st time | % resp. 2nd time | net change |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[duːh]</td>
<td>ø</td>
<td>72</td>
<td>-6</td>
</tr>
<tr>
<td></td>
<td>ø</td>
<td>28</td>
<td>+6</td>
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<tr>
<td>[kesä]</td>
<td>ø</td>
<td>77</td>
<td>-8.5</td>
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<tr>
<td></td>
<td>ø</td>
<td>23</td>
<td>+8.5</td>
</tr>
</tbody>
</table>

15. All 10 repeated words
"cue" word | % indicated response 1st time | % indicated response 2nd time | net change |
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[gösala]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[kesärya]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. Speaker A
/gösala/
(by a-deletion rule)
[gösala]
And:
[kesärya]
( exception
as lexical item
to a-deletion rule)
[kesärya]

Speaker B
/gösala/
[kesärya]
I. Vowel Harmony

| /a o/ | DOlMINANT | tos' - father |
| /e u/ | RECESSIVE  | /to'sa/ - father |
| /sìg/ | raspberry | tisqa' - skunk |
| /qa't/ | for a rb. | /tisqalaykin/ near a skunk |

went across /w'iyikse/ I went more recently /w'i'yiksaq/ I went more recently

/ννινινι/ - paternal aunt /ννινιν/ - my aunt /ννινινι/ - my father

/cik '/ - destroy /cik'ilaq / I am destroying with my foot

II. Umatilla Sahaptin data from Rigsby and Silverstein

[yipaxikan] 'downriverward' [aţinţani] 'westward'
[yipaxikan] 'from downriver' [aţinţa] 'from the west'
[tunxikan] 'upriverward' [aţinŢa] 'downward'
[tunxikan] 'from upriver' [aţinţa] 'from below'

[ikà'nya] he spit' [iţá'nma] 'he ate it up'
[i'pa'apa] 'he bit it' [i'pa'apu'] 'he broke it by biting'

Umatilla

[iţapaq'tka] he hung it up [iţapaq'ixa]
[iţapaq'ilta] he's hanging it up [iţapaq'ilka]
[iţapaq'ilta] he'll hang it up [iţapaq'ilka]
[iţawk'a] he crossed over [iţawk'a]
[iţampu'] he threw it out of [iţampu']

[i'mak] he tanned it k --------> $C$ / (C) (e)
[i'mak] he's tanning it
[i'mak] he'll tan it
[i'tsaj] he nursed
[i'tsajak] he forked it

Columbia Sahaptin

[u]   [i]   [i]

Proto-S

NP

NP

NP

NP

Umatilla

Selected References


Nessly, L. (1971) Simplicity and explanatory adequacy in Southern Paiute. Read at the 1971 annual LSA meeting, St. Louis, Mo.

----- (1972) Conditioned Natural Processes in Phonology. Read at the 1972 Summer LSA meeting, Chapel Hill, N.C.


I. Introduction

In recent work in phonology, the claim has been made that there exists a heretofore unsuspected kind of generalization - a "conspiracy" - which consists in the functional similarity of formally dissimilar rules whose output or result in the same (Kisseberth 1970). The diachronic study of such a conspiracy in Old French (where the rules conspire to ensure a preferred syllable structure) provides evidence in support of such a claim, and gives some indication of what kind of formal device might be appropriate to represent it.

Three arguments support the claim that a conspiracy is a real generalization:

1. The rules are formally distinct but their function is the same (Kisseberth's argument). Here, this common function is represented by writing the rules separately from their outputs. The outputs are the syllable structure conditions which the rules, if they are to apply, must not violate. Where the conditions differ from one rule to the next, they can be seen to be progressively more precise statements of admissible syllable structures.

2. There is an interesting formal similarity among the output conditions - the repeated occurrence of an unnatural class of segments including all non-syllabic sonorants and s (here abbreviated informally as "sw") - which is entirely fortuitous and unexplained without recourse to a notion like that of the conspiracy.

3. Some of the rules have an independent motivation (e.g. the Vowel Deletions are clearly dependent on Old French stress patterns, and Cluster Reduction is presumably motivated by some kind of ease-of-articulation principle), but some rules (especially Vowel Insertion) and the restrictions on others (cf. the rôle of S) are very probably motivated by the general move toward a preferred syllable structure, that is, by the conspiracy itself.

II. Vowel Deletions

1. A non-final vowel is deleted after an accented vowel. Diphthongization of the accented vowel - limited to open syllables - shows that a first stage - Post-Stress Syncope I - closed certain syllables, leaving others open and free to diphthongize:

   (1) Diphthongize:
   pêde > pied
   pêtra > pierre
   trêsaire > OF criensbre (g)
   *antéphona > antiemme (P)

   Do not diphthongize:
   têsta > OF teste > tête (g)
   têde > tendre
   *rêina > OF resme > rême (P, B-W)
   *trêmollo > tromble (B)

(2) Post-Stress Syncope I

   \[ V \rightarrow \emptyset \]  

   Condition: a. \[ L\{„nas\} \] or \[ \emptyset \{„nas\} \] L
   b. \[ S\{„cor\} \] or \[ \emptyset \{„cor\} \] S (\(„as\) is a sonorant or s which, if \(„con\), is homorganic with an adjacent sonorant.)

   The rule then applied very generally, but not when its application would have left a sonorant or palatalized velar (\(„\) at this point?) in the middle of a cluster. Non-syncope forms subsequently lost their entire last syllable:

   (3) Syncope:
   pêde > pied
   têsta > OF teste > tête (g)
   pêtra > pierre
   têsaire > OF criensbre (g)
   trêsaire > OF criensbre (g)
   *antéphona > antiemme (P)

   Do not syncope:
   pêde > pied
   pêtra > pierre
   têsaire > OF criensbre (g)
   *antéphona > antiemme (P)

2. Before the accented, non-initial vowels (other than a) are deleted, but only when the resulting cluster consists of a single consonant, preceded or followed by s. All other potential clusters block the rule:

   (5) Syncope:
   matutina > matin
   radicina > radice
   navigère > nager
   *albispina > OF albispe > alabépine
   constaînte-mente > constamment
   quadrifidre > quadrifendre
   *miscélate > OF mescler > mêler
   testimnxi > OF temoinx > mêvoir
   subvenire > subvenir

   The only exception is the potential sonorant cluster PH (but not MH - cf. volanté above), which allows Pre-Stress Syncope, but the nasal later deletes, and SS becomes SS. (Cf. Apocope, where the same cluster is exceptional)

(6) Post-Stress Syncope

   \[ \langle \text{back} \rangle \rightarrow \emptyset \]

   Condition: \((a)^1\{„o\}^1\{„s\}^1\)

   The effect of both Syncope rules is partially to define possible medial clusters in Old French. This definition is subsequently refined by Cluster Reduction (15).

3. Final vowels (other than a) are deleted after single consonants and certain clusters. All undeleted final vowels become schwa, represented in the examples by final orthographic \(„\), which was pronounced until approximately the fourteenth century (Bourciez, p. 44).
The rule - Apocope - applies after single consonants, simplified geminates, and clusters of SC (in that order), whether the clusters were original in Latin or produced by Syncopation.

(6) \textit{bove} > \textit{boeuf} \quad \textit{cadidu} > \textit{OF chat} \quad \textit{chaud (G)}
\textit{drape} > \textit{drop} \quad \textit{vert}
\textit{valle} > \textit{val} \quad \textit{génitu} > \textit{gent (adj.)}
\textit{salru} > \textit{sauf} \quad \textit{praepósitu} > \textit{OF prevost} \quad \textit{prévôt (G)}
\textit{campu} > \textit{champ} \quad \textit{hôte} > \textit{OF ost 'army (G)}

Obstruent clusters consisting of two coronals or two voiceless stops are first reduced, then Apocope applies:

(9) \textit{sept} > \textit{sept} \quad \textit{niñitu} > \textit{net}
\textit{scriptu} > \textit{écrit} \quad \textit{pétidu} > \textit{pet}

Velas turn to yod before consonants and liquids, yielding SC clusters which permit Apocope:

(10) \textit{factu} > \textit{fait} \quad \textit{placitu} > \textit{OF plait 'convention (G)}
\textit{nigru} > \textit{noir} \quad \textit{soulu} > \textit{OF oil} \quad \textit{cell (G)}

Cluster-final glides disappear, either through Dental Palatalization and Yod Ketathesis, or by deletion after a consonant cluster:

(11) \textit{palétiu} > \textit{palais} \quad \textit{Dionysiu} > \textit{Benis} \quad \textit{côrtiu} > \textit{mort}
\textit{conséliu} > \textit{conseil} \quad \textit{côriu} > \textit{cuir} \quad \textit{sang}

But after all other clusters, Apocope fails to operate:

(12) \textit{patre} > \textit{père} \quad \textit{cébulu} > \textit{amble} \quad \textit{génère} > \textit{gendre}
\textit{dupli} > \textit{double} \quad \textit{lêpore} > \textit{lievre} \quad \textit{léticu} > \textit{lière}
\textit{tobre} > \textit{tibre} \quad \textit{hômine} > \textit{homme} \quad \textit{dôllgit} > \textit{cuelle}
\textit{noumi} > \textit{nome} \quad \textit{saîni} > \textit{OP same} > \textit{âne} \quad \textit{écrit} > \textit{ouvre}
\textit{rébêu} > \textit{rouge} \quad \textit{cèlamu} > \textit{chameu}
\textit{têne} > \textit{OP tome} \quad \textit{cômité} > \textit{conte}

(13) Apocope

\[ \text{back} \rightarrow \emptyset \quad \text{round} \rightarrow \emptyset \quad \text{op (G)} \quad \# \]

Condition: \textless \text{b} \text{g}\#

At this point, the condition on Apocope comes close to defining all possible final clusters in Old French. One class of exceptions has the sonorant cluster \textit{ny}, which allows Apocope, but which is later "fixed up" to agree with the general pattern defined by the condition on Apocope (Grt. Cluster Reduction (17)):

(14) \textit{verre} > \textit{OP vor} \quad \textit{ver}; \quad \textit{comni} > \textit{OF corn} \quad \textit{cor (G)}

The other class of exceptions is discussed under Vowel Insertion (18).

III Consonant Deletion

1. An earlier stage of Cluster Reduction was posited for Apocope (6), but the generalized rule deletes any obstruent before any sonorant (i.e. before obstruents and nasals), but it does not delete sonorants and \textit{ny} and therefore applies to the complement of \textit{S}. (Note that \textit{ny} remains in Old French until at least the 11th century, while Cluster Reduction, like most of these changes, is pre-10th century. Grt. Bouchier, p. 162-1. See examples in (1, 5, 7, 11, and 12)). The effect of Cluster Reduction is thus to define exhaustively medial clusters in Old French, with the exception of certain sonorant clusters, discussed below.

(15) Cluster Reduction (II)

\[-\text{son} \rightarrow \emptyset / \text{op} \quad \text{where \textit{op} is an obstruent or a nasal} \]

Condition: \textless \text{b} \text{g}\#.

2. Sonorant clusters are altered in three ways (probably independently of the conspiracy, in fact):

1. In nasal clusters, \textit{ny} is deleted in favor of \textit{ny}:

(16) \textit{hômine} > \textit{homme} \quad \textit{âmme}
\textit{têâme} > \textit{femme} \quad \textit{somme} > \textit{some}

2. A nasal is deleted after \textit{ny} before a consonant or finally (Gt. (6, 14)).

3. An obstruent is inserted between all nasals and a following liquid, and between sonorants (and \textit{ny}) and a following liquid:

(17) \textit{câmilu} > \textit{comble} \quad \textit{têâneru} > \textit{tenbre}
\textit{spimula} > \textit{ésingle} \quad \textit{môleru} > \textit{OF molde} > \textit{moudre (G)}
\textit{câmera} > \textit{chambre} \quad \textit{Lâzaru} > \textit{OF lascir} > \textit{indre (G)}

IV Vowel Insertion

1. In final position, Apocope applies to the following forms, which then have SS clusters or OS clusters in the "wrong" order, but these are "fixed up" by the insertion of a new final vowel:

(18) \textit{mâtor} > \textit{maire} \quad \textit{mélir} > \textit{OF mle} > \textit{mule} \quad \textit{entre}
\textit{mêlor} > \textit{OF mole} \quad \textit{mule} \quad \textit{jolui} > \textit{onsamble}

2. Initial clusters of OS (all in fact consisting of O+L) remain unchanged in French:

(19) \textit{credere} > \textit{croire} \quad \textit{placere} > \textit{plaire}

but initial clusters of \textit{S+G} do not:

(20) \textit{spathu} > \textit{OF esme} > \textit{öpè} > \textit{SG} \quad \textit{écritu} > \textit{OF escrit} > \textit{écrit} > \textit{Gt. statu} > \textit{OF estat} > \textit{étë} \quad \textit{Smaragdu} > \textit{OF esmeradu} > \textit{émadu (G)}

Vowel Insertion thus defines initial and final clusters in Old French. Note that by separating the rule from its output, it can be represented in the same way as the others, and its functional similarity is made obvious:

(21) Vowel Insertion

\emptyset \rightarrow \textit{e} // \#

Condition: a. \# OSV
b. \# VSO \#
The Conspiracy

In its final form (probably reached in the 10th century), the conspiracy allows only the following syllable structures:

(22)  
\[ \# (c)^1 (l)^1 v - \]
\[ - v (s)^1 (c)^1 \# \]
\[ - v (s)^1 (l)^1 (s)^1 v - \]
\[ - v \{v \} \# v - \]
\[ - v \{v \} \# v - \]

The restrictions on clusters consisting only of s are somewhat idiosyncratic; some are allowed to remain unchanged:

(23)  
\[ \text{arma} > \text{arme} \]
\[ \text{insula} > \text{OF isle} > \text{Ile} (c) \]
\[ \text{almu} > \text{OF ane} > \text{ane (0)} \]
\[ \text{pmal} > \text{OF ame} > \text{eme (0)} \]

References


References for Abstract


### I. Examples from comparison between semantic confusion and free association:

<table>
<thead>
<tr>
<th>Semantic Confusion Pair</th>
<th>Word Associates</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target Word</strong></td>
<td><strong>Substituted Word</strong></td>
<td><strong>Stimulus Word</strong></td>
</tr>
<tr>
<td>brown</td>
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<td>glass</td>
</tr>
</tbody>
</table>

### II. Examples from tentative categorization of semantic confusions by relations between members of each pair (target word on left, substituted word on right):

1. **Synonyms**
   - abroad overseas
   - liberty freedom
   - *children* family
   - *door* room
2. **Antonyms**
   - allow prohibit
   - *foot* toe
   - *village house, street*
3. **Same Category**
   - draw paint
   - coat sweater
   - *fingertips* bananas
   - *3/4* 75
   - Ontario Newfoundland
   - *me* him
   - *wife* mother
4. **Category/Instance**
   - a. (class and member)
     - aircraft airplane
     - vegetables potatoes
     - *chair* office
     - *door* room
     - **USSR** here
8. **Spatial Contiguity**
   - *ear* nose
   - *fingertips* glove
   - glasses eyes
   - *hand* finger
5. **Object/Description**
   - a. (object and descr.)
     - bay wet
     - shovel iron
   - b. (descr. and object)
     - glorious culture
     - political politician
6. **Part-Whole Relations**
   - a. (part to whole)
     - *children* family
     - *door* room
   - b. (whole to part)
     - *foot* toe
6. **Part-Whole Relations**
   - b. (function of instr.)
     - *remember memory travel train*
   - c. (instr., object used with it)
     - *pen* paper
   - d. (objects and actions related as instr., purpose, goal or manner)
     - curtains draw
     - reign crown
     - effort money
     - sail to the wind
7. **Action and Outcome**
   - *bathe* bath
   - *speech* discussion
   - *match* to light
   - *pen* write
8. **Spatial Contiguity**
   - *ear* nose
   - *fingertips* glove
   - glasses eyes
   - *hand* finger
9. **Item and Location**
   - a. (item located in/on)
     - aircraft airplane
     - vegetables potatoes
   - b. (member and class)
     - Volga river
     - son boy
   - b. (location of item)
     - *radio* music
     - *wall* paper
10. **Instrument and Function**
    - a. (instr. has function of)
      - *match* to light
      - *pen* write
    - b. (function of instr.)
      - *remember memory travel train*
    - c. (instr., object used with it)
      - *pen* paper
    - d. (objects and actions related as instr., purpose, goal or manner)
      - curtains draw
      - reign crown
      - effort money
      - sail to the wind
11. **Shape and Size Analogies**
    - *finger* glove
    - *table* bench
    - *pen* pencil
    - *shovel* spoon

*Indicates a pair in more than one category*

**from data obtained in USSR (Luria, 1970)**
III. Examples of extraction of some common and differentiating characteristics:***

<table>
<thead>
<tr>
<th>X (Target Word)</th>
<th>Y (Substitution)</th>
<th>Common Meaning (shared features or components)</th>
<th>Differentiating features or components</th>
</tr>
</thead>
<tbody>
<tr>
<td>breakfast</td>
<td>dinner</td>
<td>meal</td>
<td>time (morning vs. night), sequence (first vs. last)</td>
</tr>
<tr>
<td>elbow</td>
<td>knee, shoulder</td>
<td>joint, connector of body parts</td>
<td>specific parts connected, location (upper-lower arm vs. thigh-calf vs. arm-trunk)</td>
</tr>
<tr>
<td>older</td>
<td>better</td>
<td>superiority</td>
<td>age vs. quality, evaluation</td>
</tr>
<tr>
<td>short</td>
<td>small</td>
<td>small size</td>
<td>specificity of dimension (vertical vs. nonspecific)</td>
</tr>
<tr>
<td>shovel</td>
<td>spoon</td>
<td>implement, function: scooping</td>
<td>size; what scooped</td>
</tr>
<tr>
<td><strong>USSR</strong></td>
<td>here</td>
<td>present location</td>
<td>name vs. anaphoric reference</td>
</tr>
</tbody>
</table>

**from data obtained in USSR (Luria, 1970)

***most of these characteristics could be expressed, more or less arbitrarily, in conventional semantic feature notation

IV. Examples showing no consistent notion of hierarchical importance of the substituted item (target word on left, substitution on right):

vegetables → potatoes      | pipe → cigar
holiday → Easter          | socks → sandals
London → city              | little → short
| short → small             |
El viento hizo mi barrilete voltear el tuyo.
The wind made my kite knock down yours.

No vimos nadie afuera.
We did not see anybody outside.

No dejen pasar nadie.
Don't let anybody in.

Han tocado el timbre.
The bell has been rung.

Me pareció oír sonar el timbre.
I thought I'd heard the bell ring.

Los chicos hicieron contar un cuento a Luisa.
The children made Louise tell a story.

A los turistas los encontramos en el centro.
We saw the tourists in town.

A los turistas los vimos llegar del centro.
We saw the tourists arrive from downtown.

A los soldados vi matarlos.
I saw the soldiers killed.

La policía les cortó el pelo a unos muchachos.
The police cut the boys' hair.

A los soldados vi matar.
(a) I saw the soldiers kill people.
(b) I saw someone kill the soldiers.

Teresa hizo abrirle la puerta a la señora al portero.
Theresa made the doorman open the door for the lady.

Al portero Teresa le hizo abrirle la puerta a la señora.
The lady Theresa made her open the door for the doorman.

A la señora Teresa le hizo abrirle la puerta al portero.
The lady, Theresa made her open the door for the doorman.

A la señora Teresa le hizo al portero abrirle la puerta.
The lady, Theresa had the doorman open the door for her.
Pedro lo hicieron callar. Peter, they made him shut up.

Pedro entró al salir Luisa. Peter went in when Louise went out.

El entró al salir ella. He went in when she went out.

A mi tío le hicimos creer que estaba loco. Ty uncle, we made him (dative) believe that he was crazy.

El despertador lo hice sonar a las siete. The alarm clock, I made it (accusative) go off at 7.

A mi hermano no lo dejan salir de noche. My brother, they don't let him (accusative) go out at night.

Al portero lo vi abrirle la puerta a la señora. The doorman, I saw him (accusative) open the door for the lady. (compare with (18)b' where portero is dative)

References


Noncyclic English Word Stress

I. Cyclic stress assignment (from SPK)

1. \((\text{thea}t)_{\text{i}}(\text{ic} + \text{al})_{\text{i}} + \text{ty}_{\text{i}}\)

2. \((\text{tele}g\text{raph})_{\text{i}}(\text{stem})_{\text{j}}\)

3. \((\text{survey})_{\text{i}}(\text{le} + \text{y})_{\text{i}}\)

4. \((\text{atten}t)_{\text{i}}(\text{le} + \text{t} + \text{ion})_{\text{j}}\)

II. Noncyclic stress

A. Detail rule (for assigning integer values)

\[ (+ \text{stress}) \rightarrow \left[ (1 \text{ stress}) \ldots (3 \text{ stress}) \right] \]

\[ \ldots \text{means any number of stressless syllables} \]

The rightmost \(+\text{stress}\) not on the final syllable becomes \([1\text{ stress}]\); all remaining \(+\text{stress}\) become \([3\text{ stress}]\).
1. Exceptions: chandelier Tennessee briquette

2. Rhyme rule

3.3...1 -> 3...4...1

3. Componentiality recommendation

4. Huston rule

5. Initial syllable rule

V —— [n+1 stress]/ —— C₀ —— C₂ ——. C₀

6. But: theatricality (see 17)

7. Parallelagram

8. Stress rule

9. D. Initial syllable rule

V —— [n+1 stress]/ —— C₀ —— C₂ C₀

10. But: theatricality (see 17)

11. Parallelagram

12. Stress rule

13. Monongahela Winnipesaukee California

14. Emancipate parallel + c + gram

15. Rule ordering:

   Word-internal rules
   (c) ASR
   (b) AR II

   Word-final rules
   (a) ASR
   (b) ASR

   detail rule

16. Emancipate + ion + (b) +

   +

   (c) ASR

   3 1
detail rule

17. Emancipate + ic + al + i + ty +

   (a) +

   (c)

   3 1

   init. syll. rule

18. Indemnify + ät + ion +

   (b) +

   (c)

   4 3 1

   init. syll. rule

19. Alvove archive +

   +

   (e)

   ASR (modified)

   1 3 1 3
detail rule

20. Survey survey

   +

   (e)

   ASR (modified)

   1 3

   init. syll. rule

21. The modified ASR applies in the contexts:

   #C₀ V C₀ V C₀ V

   (alcove, archive, survey (n.))

   #C₀ V C₀ V C₀ V

   (attest + at + ion, condense + at + ion, electric + on + ics)

22. Attest + ät + ion +

   (b) +

   (c) +

   ASR (modified)

   3 3 1
detail rule

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Appendix

Rule ordering:

1. stress rule \( \{(a), (b), (e)\} \)
2. detail rule \( \{(c), ASR, AR~II\} \)
3. rhythm rule
4. initial syllable rule

(i) Nouns marked as exceptions to (b) undergo the subcase of (e) assigning final stress: e.g. Brazil, icon, torment.

(ii) Word final monosyllabic stems are stressed by (e): e.g. -gram, -mit, -fer. e.g. -gram, -mit, -fer.

(iii) Nouns composed of the stems in (ii) retract stress by the ASR: e.g. parallelogram, cinematograph, permit (n), transfer (n).

(iv) In addition to (iii), certain bisyllabic morphemes are marked to undergo the ASR (see 21 above).

(v) Forms marked as exceptions to the ASR automatically undergo AR II: e.g. cardiogram, helicograph, catamaran.

(vi) In nouns (and adjectives) the tense vowel of -ate becomes lax prior to application of the stress rule: e.g. the verb advocate undergoes (e), ASR; the noun advocate, laxing of -ate, (b).

(vii) [3 stress] in the environment [1 stress] \( C_{0} \rightarrow C_{0} y \# \) is eliminated: e.g. elementary, advisory, but allergy.

(viii) [4 stress] in the environment \( C_{0} \rightarrow C_{0} y \# \) is eliminated: e.g. explanation but etymology.

Two questions frequently asked are "What were the instructions?" and "What exemplars did you use as stimuli?". The instructions used are below, and are followed by a representative sampling of stimulus sentences which demonstrate the range of subjects' judgments.

Instructions

In front of you is a stack of cards. Each card has a statement typed on it. I want you to make a decision - whether or not you accept the statement as complete and well formed. You probably would like me to be more specific. I'll try. Can you casually accept the statement? Does it seem naturally well formed? If you were to hear the statement, would you, as a listener, be able to make at least one interpretation of it? Is your reaction one of non-questioning—"Sure, that's all right"? This would be my reaction to something like "John plays golf."

On the other hand, when you look at the statement do you have to ponder on it and try and figure it out? Do you have to make analogies to more familiar and comfortable feeling sentences to accept it? Do you have to contrive a situation and add context or words to have an interpretation come into your mind? This would be my reaction to something like "Golf plays John." And it would really take a lot of work for me to accept something like "John plays and." These statements, where I have to effortfully force an interpretation or interpret by analogy to a familiar sentence I would consider not complete, well formed, or acceptable. To use a colloquial phrase, I want your gut reactions of acceptance or non-acceptance to these statements.
You will find some sentences where there is a noun or a proper name and a pronoun, both with the same subscript. (E shows sample card.) In these cases, you must be able to interpret them as both referring to the same person for you to consider the statement acceptable. For example, in the statement "He$_2$ learned that John$_1$ had won," the he$_2$ and the John$_1$ are not usually interpretable as referring to the same person, and this statement would not be considered okay. The subscript does not mean that the noun and pronoun in question are the same, but simply is a notation indicating which items in the statement you must consider interpretable as referring to the same person for you to accept the statement. You will probably find both acceptable and unacceptable statements of this subscript type.

Remember that punctuation is part of a sentence and often directs how you should interpret a sentence. For instance, commas in "The girl who was bored yawned" would change the meaning from one among many girls to the only girl.

After you have carefully read the statement out loud, make a decision and announce it by saying "Yes, okay" or "no, not okay." You may reread the statement once if you wish. Then place the card behind the shield and look at the next card. Continue until you have completed the pack. You may ask me to repeat any part of the instructions at any time. You must say "Yes" or "No" on each statement. If you don't know what a word means, please tell me. If you find you are losing concentration, slow down. Any questions? Tell me what you have understood your instructions to be. (Reread parts they haven't understood, straighten out any confusions, make sure with samples, then have the subject begin.)

Sentences are grouped by article. Each sentence is preceded by the linguist's judgment (+ or -) and the page number of the article in which the sentence appeared. The proportion of subjects in each group who judged the sentence acceptable (+) follows the sentence. There were 20 E's in each naive group and 10 E's in each non-naive group. N = naive E's, NN = non-naive E's, R = random order of presentation, and F = fixed order of presentation.


<table>
<thead>
<tr>
<th>Sentence</th>
<th>N</th>
<th>NN</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 I persuaded Fred for Roxanne to commit herself.</td>
<td>.15</td>
<td>.05</td>
</tr>
<tr>
<td>35 I screamed that I would go.</td>
<td>.90</td>
<td>.85</td>
</tr>
<tr>
<td>47 Karl let himself be rumored to enjoy surfing.</td>
<td>.35</td>
<td>.45</td>
</tr>
<tr>
<td>48 We got ourselves misunderstood.</td>
<td>.60</td>
<td>.40</td>
</tr>
<tr>
<td>70 I agreed with Jim to disagree.</td>
<td>.80</td>
<td>.75</td>
</tr>
<tr>
<td>75 Pete and Tom resemble.</td>
<td>.15</td>
<td>.15</td>
</tr>
<tr>
<td>110 Resource was had to illegal methods.</td>
<td>.25</td>
<td>.15</td>
</tr>
<tr>
<td>117 I forced Tom to threaten to resign.</td>
<td>.75</td>
<td>.70</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Sentence</th>
<th>N</th>
<th>NN</th>
</tr>
</thead>
<tbody>
<tr>
<td>245 John who is from the South hates cold weather.</td>
<td>.85</td>
<td>.75</td>
</tr>
<tr>
<td>246 They pointed to a dog who was looking at him hopefully.</td>
<td>.70</td>
<td>.45</td>
</tr>
<tr>
<td>249 Any book, which is about linguistics, is interesting.</td>
<td>.15</td>
<td>.90</td>
</tr>
<tr>
<td>247 The man who fixed the radio left this note.</td>
<td>.95</td>
<td>.95</td>
</tr>
<tr>
<td>252 I know a man knows George.</td>
<td>.45</td>
<td>.25</td>
</tr>
<tr>
<td>253 John saw the letter opened which was from Mary.</td>
<td>.45</td>
<td>.35</td>
</tr>
<tr>
<td>257 He is an anthropologist, whom I met at a party last week.</td>
<td>.70</td>
<td>.85</td>
</tr>
</tbody>
</table>
is in Boston.

+ 261 The Lord Mayor's Show brought out the suburbanite in full force. .30 .80 .80 .80

From: On So-Called "Pronouns" in English, by Paul Postal (1969)
- 204 Big as a dog was, he couldn't lift it. .20 .20 .10 .10
- 205 It was that scandal that Louis spoke. .10 .00 .00 .20
- 209 A boy said he would help. .90 .95 .90 1.00
+ 215 I bred some lions. .30 .20 .10 .10
- 218 Did you see Bill, who is six feet tall? .90 .80 .90 .90
- 218 None of the cars, which were Chevrolets, were any good. .85 .95 1.00 .60
- 218 They never insulted the men, who were democrats. .75 .70 .80 .50
+ 218 None of you guys are any good. .90 .95 1.00 .50
- 219 Let us three, who are men, leave first. .55 .50 .70 .50

- 290 A jug got broken from India. .40 .30 .40 .20
+ 291 I sent the lap from Sweden out. .45 .40 .50 .60
(Jug and India replaced by lamp and Sweden.)
- 291 He dreamed a problem which was really tough up. .10 .05 .00 .20
+ 294 She is a woman who Frank is shorter .50 .45 .60 .40
than. (He, men, and taller replaced by she, woman, and shorter).
+ 299 Anna's complaining about him, infuriated Peter. .90 .90 .90 1.00
- 199 He isn't bothered by the possibility that Fred will be unpopular. .25 .15 .10 .00

Linguist judgment Subjects' judgment Number of Sentences
- - (unacceptable) 8
+ + (acceptable) 11
- - 0 (unclear) 10
+ 0 8
- + 6
+ - 2

Summary of Sample of Stimulus Sentences

+ 320 Nothing is proved by the fact that she sleeps. .85 .85 1.00 .70
+ 321 What everyone thinks about is the idea that misery loves company. .80 .80 .90 .80
- 322 What Bill tended was to think big. .30 .30 .10 .10
- 322 What we endeavored was not to antagonize him. .75 .55 .40 .40
+ 323 Nothing tempts Bill to be interviewed by the company. .60 .75 .50 .60
+ 324 We dared the doctor to examine John.1.00 1.00 1.00 1.00
- 133 I would prefer for me to play the piano. .60 .50 .70 .70
+ 328 We dislike to be so coy. .70 .50 .70 .50

From: English Transformational Grammar, by R. A. Jacobs and Peter Rosenbaum (1968)
- 56 What the doctor condescended was to review my manuscript. .50 .45 .60 .30
+ 68 What Caesar refused was to submit to the senate. .65 .60 .90 .40
+ 68 What I wanted was to file a protest. .95 .35 1.00 .80
(The cleft transformation—a what at the beginning and a was before the infinitival to—has been applied.)
- 195 What Guido tempted was for Daisy to adopt the rat. .25 .20 .10 .00

From: English Transformational Grammar, by R. A. Jacobs and Peter Rosenbaum (1968)
**Table 1: Data on the fleeting vowel accounted for herein**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>son</td>
<td>'dream'</td>
<td>son'</td>
</tr>
<tr>
<td>2.</td>
<td>v són</td>
<td>'into a'</td>
<td>vəsən-</td>
</tr>
<tr>
<td>3.</td>
<td>vo sůn</td>
<td>'in a'</td>
<td>vəsən-</td>
</tr>
<tr>
<td>4.</td>
<td>sonnyj</td>
<td>'sleepy'</td>
<td>sənəm-ajə</td>
</tr>
<tr>
<td>6.</td>
<td>v sonnyj</td>
<td>'into a'</td>
<td>vəsən̩̆m-ajə</td>
</tr>
<tr>
<td>7.</td>
<td>səz̩̆́́̈́</td>
<td>'burn down'</td>
<td>səz̩̆́́̈́-t̩̆́́</td>
</tr>
<tr>
<td>8.</td>
<td>soʃ̩̆́́̈́</td>
<td>'I''l___'</td>
<td>səz̩̆́́́-u</td>
</tr>
<tr>
<td>9.</td>
<td>səz̩̆́́̈́</td>
<td>'I burnt down'</td>
<td>səz̩̆́́̈́-l̩̆́́</td>
</tr>
<tr>
<td>10.</td>
<td>nəm</td>
<td>'rent'</td>
<td>nə́j̩̆́m-</td>
</tr>
<tr>
<td>11.</td>
<td>nəj̩̆́m-</td>
<td>'___, e̅.̆ğ̩́'</td>
<td>nə́j̩̆́m-a</td>
</tr>
<tr>
<td>12.</td>
<td>stol</td>
<td>'table'</td>
<td>stol-</td>
</tr>
</tbody>
</table>

A = transliteration
B = meaning
C = morphoic transcription
D = phonemic transcription

**N. B.1) the symbol ɜ used for the fleeting vowel in column C replaces the symbol ʃ in Halle 1959 (Sound Pattern of Russian).**

2) the specification of voice in voiced obstruent clusters is not precise. Details of the realization of v are also only hinted at: the best solution for this depends on the solution to this problem.

**Table 2: Phonotactic organization of (archi)phonemes into syllables**

<table>
<thead>
<tr>
<th>WI</th>
<th>Sylp</th>
<th>Sylp</th>
<th>Sp</th>
<th>Sp</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>son</td>
<td>sən-</td>
<td>*. (son ʃ)</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>sná</td>
<td>sən-ʃ</td>
<td>*. (n-ə)</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>v són</td>
<td>vəsən-</td>
<td>*. (s ən ʃ)</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>vo sné</td>
<td>vəsən-</td>
<td>vəsən̩̆</td>
<td>*. (n-ə)</td>
</tr>
<tr>
<td>5.</td>
<td>sónnyj</td>
<td>sənəm-ajə</td>
<td>vəsən̩̆nojə</td>
<td>*. (s ən ʃ)</td>
</tr>
<tr>
<td>6.</td>
<td>v sónnyj</td>
<td>vəsən̩̆m-ajə</td>
<td>fəsōn̩̆nojə</td>
<td>*. (s ən ʃ)</td>
</tr>
<tr>
<td>7.</td>
<td>səz̩̆́́̈́</td>
<td>səz̩̆́́̈́-t̩̆́́</td>
<td>səz̩̆́́̈́-ğ̩́́</td>
<td>*(ʒ o - ʃ)</td>
</tr>
<tr>
<td>8.</td>
<td>soʃ̩̆́́̈́</td>
<td>səz̩̆́́́-u</td>
<td>səz̩̆́́́-k̩̆́́</td>
<td>*(ʒ o - k̩̆́́)</td>
</tr>
<tr>
<td>9.</td>
<td>səz̩̆́́̈́</td>
<td>səz̩̆́́̈́-l̩̆́́</td>
<td>səz̩̆́́̈́-k̩̆́́</td>
<td>*(ʒ o - k̩̆́́)</td>
</tr>
<tr>
<td>10.</td>
<td>nəm</td>
<td>nə́j̩̆́m-</td>
<td>nə́j̩̆́m-</td>
<td>*(j o m ʃ)</td>
</tr>
<tr>
<td>11.</td>
<td>nəj̩̆́m-</td>
<td>nə́j̩̆́m-a</td>
<td>*(nə́j̩̆́m ʃ)</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>stōl</td>
<td>stōl-</td>
<td>*(stōl ʃ)</td>
<td></td>
</tr>
</tbody>
</table>

**Fig. 1: Realizations of the fleeting vowel: v/ʃ/ə**

**Fig. 2: Vocalic realization of ɜ related to the syllable**
Fig. 3: Zero realization of a related to the syllable

Fig. 4: Realization of the desinence marker related to the syllable

Fig. 5: Recursive element: unrestricted series of syllables

Fig. 6: Word- and syllable-final clusters related to the syllable

Fig. 7: Accent and unaccented syllables

Fig. 8: Word-initial clusters related to the syllable

Fig. 9: Relation of syllable to Pword
A Nonglobal Rule Analysis of the Alternation of Vowel Length in Klamath

1. Kisseberth's Global Rule of Vowel Shortening:

\[ V \rightarrow V + [-\text{long}] \]

\[
\begin{align*}
V = & \begin{cases} 
0, & C \in \{0, 3, 4\} \\
2, & C \in \{1, 2\} 
\end{cases} \\
C_0 + C_2 & \rightarrow C_2
\end{align*}
\]

Condition: the vowel to the left of the arrow must be an underlying glide.

2. Kisseberth's Underlying Representations:

- a) ke-y-s 'snow' (cf. ken-a 'snows')
- b) koe-y-s 'thorn' (cf. ksen-a 'pricks')
- c) sqe-y-s 'sewing' (cf. sqen-a 'sews')
- d) yeb-i:-s 'digging' (cf. yebn-o:-l-a 'finishes digging')
- e) wol-i:-s 'question' (cf. wol-a 'questions'; woln-wapk 'will question')
- f) soyn-i:-s 'race' (cf. soyn-a 'races')
- g) walaq-i:-s 'chokecherry gum'
- h) ce:l-i:-s 'porcupine'
- i) sqoc-i:-s 'breastbone (human)'
- j) adim-i:-s 'visorod cap'
- k) qaq-l-i:-s ' (woman's) underpants'

Kisseberth's underlying representations: a) /ken+y+s/ d) /yebn+y+s/ and f) /soyn+y+s/

n-dropping: n \rightarrow \emptyset / + y_{\text{nom.}}

Vocalization (VOC):

\[
[\text{-conson} \rightarrow \text{+vocal}] / C + y_{\text{nom.}}
\]

n-dropping: ke +y+s yeb +y+s soyn+i:s

VOC: -------- -------- --------

Global Short. ------- ------- -------

Output: kers yeblia soynia

3. Global Deletion and Lengthening:

a) sle?-a 'sees', slei:-na 'let's see', slei:-k-a 'goes to see', slei:-s 'seeing'

b) ?i-yah?-a 'hides pl. objs.', ?i-yah-wapk 'will hide pl. objs.'
c) pag-a 'smokes', pa-pg-a '(dist.) smoke'
d) lac-a 'builds a house', la-lx-a '(dist.) build houses'
e) qa:w-a 'catches a thrown obj.', qa-wq-a '(dist.) thrown obj.'
f) ?ew-a 'is full', ?ew-a '(dist.) are full', *?e-?w-a

g) ?i-yah?-a 'hides pl. objs.', ?i-yah-a '(dist.) *?i-?yah-a

Vowel Deletion (VD): V \rightarrow \emptyset / + prefix + C_1 CV

Glottal Deletion and Lengthening (GL):

(V) \rightarrow (V:) \emptyset C

\[
\begin{align*}
\text{VD} & \text{ /?e+?ew+a/} /sle+?c+a/ /?i+yah+wapk/
\text{GL} & \text{ /?e+?w+a/} /sle+?c+a/ /?i+yah+wapk
\end{align*}
\]

Output: ?ewa sle?c a ?yawwapk

4. 1st cycle

\[
\text{VOC} \quad /sle+sl?+i+s/ \quad /s?e-swan?+i+s/ \quad /s?e+swan?+y+s/
\]

\[
\text{GL} \quad /sle+sl?+i+s/ \quad /s?e-swan?+i+s/ \quad /s?e+swan?+y+s/
\]

2nd cycle

\[
\text{VOC} \quad /sle+sl?+i+s/ \quad /s?e-swan?+i+s/ \quad /s?e+swan?+i+s/ \quad /s?e+s+swan?+y+s/
\]

\[
\text{GL} \quad /sle+sl?+i+s/ \quad /s?e-swan?+i+s/ \quad /s?e+swan?+i+s/ \quad /s?e+s+swan?+y+s/
\]
Derivation with GL ordered before VOC:

1st cycle
\[ \text{GL: } \sle(y)+s \]
\[ \text{VOC: } \text{sid}(e) \text{wan}(?)+s \]

Shortening
\[ \text{Output of 1st cycle: } \sle\text{ys} \]

There is no point giving the second cycle, because there is no way that it could make the above forms grammatical.

Established order of the rules:

a) n-dropping
b) Vocalization
c) Glottal deletion and lengthening
d) Global Shortening

(7) a) sge:y-s 'the buying', b) sge?-a 'buys', c) sge:n-at 'pl. buy'
d) sge?an-5-a 'goes to buy', e) sge?an+ank 'having bought'.

UR /sge?n/ /sge?n+y+s/

n-dropping
sge? +y+s

VOC
sge?+i:+s

GL

Output
*sge?i:s

(8) Alternative solution: nominalizing morpheme is /1:/ and the UR of sge-y-s is /sge?n+1:+s/.

Glide Formation #2: (GF#2)

New order of rules:

a) Glottal deletion and lengthening
b) n-dropping (before /1/)
c) GF#2
d) a non global shortening rule: \[ V \rightarrow \text{long} \]

Derivations:

\[ \text{Output keys: } \text{sid}\text{ys} \text{sid}\text{ys} \]
a) **yadil• 'evil being', ya-yadil• '(dist.) evil beings' /yadil/  
b) pei-oil• 'finishes bathing' /oil/  
c) bon-oil• 'cup' /oil/  
d) sdo-oil• 'puts a leg underneath' /di:l/  

b) pe:w-o:l-a 'finishes bathing'  
c) Bonw-o:t-s 1 cup 1/o:l/  


d) sdo-di:l-a 'puts a leg underneath' /di:l/

I. (14)  
a) sg-oyki:n-a 'canoes to the edge', kiw-i:ki:n-a 'pokes an obj. out of water', wa:n-iki:n-a 'extends out of water in a line', /oyki:n/  
b) ks-oygi 'puts a living obj. over', cin-i:gi 'put the back up', ho:y-i:gi 'runs over slowly', /oygi/  

II. Trilliteral Shortening:
\[ V \rightarrow \text{long} / V: C_1 \text{---} C_1 V; \]

(15)  
a) s?ow-1: 'passes out a tray',  
b) s?o-di:l-a 'puts a tray underneath'  
c) s?o-pg-a 'puts a tray out of sight'  
/s?ow/  

Glid Deletion and Compensatory Lengthening:  
\[ +\text{vocalic} \text{ high} \text{ back} \rightarrow \text{long} / \text{empty} 3 \]

(16)  
a) kiy-a 'lies', kis-a 'falsehood'  
b) low-a 'is foggy', low-as 'fog', lo:y-ya:s 'starts to get foggy'  
c) wot-a 'eats up', wot-s-a '(dist.) eats up', wwo:w:1-a  
d) sawik-kiy-a 'almost became angry',  
e) pec-lag-wi:s 'footprint'
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