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INTRODUCTORY NOTE

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

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

The abstracts are arranged in the order of the program, with the number assigned in the program appearing before the author's name. An alphabetical index of authors appears on page 129.

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. The Handbook has now become an official publication of the Linguistic Society of America, although the Center still assists in its preparation.

Allene Guss Grognet, editor
Washington, D. C.
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2. Peter A. Reich, University of Toronto: Order in Deep Structure. (20 minutes)
3. Gerald A. Sanders and James H-Y. Tai, University of Texas at Austin: Immediate Dominance and Identity Deletion in Mandarin Chinese. (20 minutes)
4. Mario Saltarelli, Cornell University: Focus on Focus: Propositional Generative Grammar. (20 minutes)
5. William H. Jacobsen, Jr., University of Nevada: The Analog of the Passive Transformation in Ergative-Type Languages. (20 minutes)
6. C. L. Baker, University of Texas at Austin: Concealed Questions: Their Generation and Interpretation. (20 minutes)
7. David M. Perlmutter, Brandeis University: On the Separability of Syntax and Semantics. (20 minutes)

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8. Susan H. Houston, Northwestern University: Child Black English: The School Register. (20 minutes)
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11. David DeCamp, University of Texas at Austin: Implicational Analysis, Frequency Analysis, and Linguistic Theory. (15 minutes)
12. Francis T. Gignac, Fordham University: Semitic Interference in Koine Greek. (20 minutes)
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32. Thomas H. Peterson, University of California, Santa Barbara: Imperatives and Purpose and Reason Adverbials as Complements of Abstract Verbs in Moroe. (20 minutes)
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34. Larry M. Hyman, University of California, Los Angeles: The Role of Borrowing in the Justification of Phonological Grammar. (20 minutes)

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19. George S. Lane, University of North Carolina: The Problem of ‘Obvious’ Etymologies. (15 minutes)
20. Ronald W. Langacker, University of California, San Diego: The Vowels of Proto Uto-Aztecan. (15 minutes)
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23. Robert E. Longacre, Summer Institute of Linguistics: Sentence Structure as a Statement Calculus. (20 minutes)
24. Paul M. Postal, I.B.M. Research: Flurality and Coordination. (20 minutes)
25. William Labov and Benji Wald, Columbia University: Some General Principles of Vowel Shifting. (20 minutes)
26. George Lakoff, University of Michigan: Global Rules. (20 minutes)

7:00 P.M. Cocktails, Pavilion Room (Paying Bar)

8:00 P.M. Annual Informal Banquet for Members and Their Guests, Grand Ballroom.

After the Banquet, the Presidential Address will be given by Archibald A. Hill, University of Texas at Austin: Laymen, Lexicographers, and Linguists.

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51. Alan Bell, Stanford University: On Syllabic Consonants. (20 minutes)
52. Chin-Wu Kim, University of Illinois: Language-Specific Metarules in Phonology. (20 minutes)
53. Henry Lee Smith, Jr., State University of New York, Buffalo: The Morphophonemic Status of /h/ and /w/ in English. (20 minutes)
54. Burckhard Mohr, University of California, Berkeley: Intrinsic Variations of Acoustical Parameters of Speech Sounds. (15 minutes)
Tense has traditionally been treated as involving only one factor: the time at which the act described occurred or is expected to occur relative to the time of utterance. But examples can be given that show that, in some cases at least, other factors must be taken into consideration in order to explain the tense of a verb. (In these examples, the underlined verb is the relevant one.)

(1) The animal you saw was a chipmunk: he's running up a tree now.
(2) The animal you saw is a chipmunk: here's a picture in this guidebook.
(3) The animal you described to me will no doubt be a chipmunk.

These uses of present, past, and future tenses should be contrasted with their usual function of establishing the actual time of the occurrence of the event, as in the following:

(4) The animal we ran over was a chipmunk, but he's dead.
(5) The animal the sorcerer got hold of was a chipmunk, but now he's a badger.
(6) The thing in that chrysalis will be a butterfly soon.

The tenses in (4) - (6) may sometimes be replaced by periphrastic equivalents. This is never true of those in (1) - (3):

(7) The animal we ran over used to be a chipmunk: now he's running up a tree.
(8) *The animal you saw used to be a chipmunk: now he's running up a tree.
(9) The thing in that chrysalis is going to be a butterfly soon.
(10) *The animal that you described to me is no doubt going to be a chipmunk.

This paper will present arguments of this type for looking at tenses as being more complex than as traditionally described, and will present a means of analyzing the different tense uses, some of which are illustrated above, within the framework of generative semantics. Additional examples will be discussed in other languages; for example, epistolary tenses in Latin and gnomic aorists in Greek, which will be shown to be related to the tense uses in examples (1) - (3) above.
Various hypotheses have been proposed about the order of elements in the deep structure of English, including unordered (Staal), subject-verb-object (Chomsky), verb-subject-object (McCawley), and verb-objective-agentive (Fillmore).

A process/participant analysis of deep structure is presented and compared to similar analyses by Fillmore and Halliday. Evidence from English is given supporting a deep structure order consisting of process-affected-agent-beneficiary-causer. This underlying order, combined with the perturbing effects of three extra-clause factors -- focus, theme, and information -- most simply accounts for many of the different possible surface structures.

In this framework the hypothesized deep structure element passive is superfluous. It is simpler to consider passive strictly as a surface construction which occurs if and only if in deep structure the focus is on the affected and the causer is present. In other words passive is a special case of much more general discourse constructions.

In this paper, we will propose the notion of "immediate dominance" as a general condition on identity deletion in Mandarin Chinese and languages of the same type. This condition explains a number of interesting differences between languages like English and languages like Mandarin in constructions involving identity deletion.

The "immediate dominance" condition says that identical constituents can be deleted only if they are either immediately dominated by conjuncts of a coordination or by a subordinate clause.

This condition will be shown to explain many of the differences in the hierarchical restrictions on coordination reduction in different languages. For example, the fact that Mandarin doesn’t have gapping or deletion of identical objects, but English does. This condition also provides a unitary explanation of the hitherto unexplained pattern of pronominalization in relative clauses in Mandarin, an explanation which is quite possibly also applicable to other languages of the same type.

Some more general questions will also be raised concerning the possibility of applying this condition to other grammatical processes such as Comparative Deletion and Equi-NP Deletion.
FOCUS ON FOCUS: PROPOSITIONAL GENERATIVE GRAMMAR

An analysis of utterances is proposed in which sets like (1) (a) J. cut the cake with the knife, (b) J. used the knife to cut the cake are characterized by identical 'propositions' (a transitive and an instrumental) and different 'focus' (on the transitive proposition in (a), on the instrumental in (b)). Likewise are defined sets like (2) (a) J. built the house on the hill in three months, (b) it took J. three months to build the house on the hill, (c) it was on the hill that J. built the house in three months.

Such a view is highly motivated on empirical grounds. Semantically it offers a straight definition for a yet uncharacterized range of sentential relations (consider Lakoff/Bresnan controversy on instrumentals) as in (1) and (2) and all other complements like (3) (a) malaria caused people to die, (b) people died because of malaria. Syntactically it defines the phenomenon of 'subordination' (main/dependent clause) as a surface reflection of the deeper concept of focus, eliminating therefore verb complement embedding as in (1) (b) from the underlying representation. Further surface results of the choice of focus are the relative surface order of propositions, verb/preposition alternation (use/with, cause/because of, etc.), contrastive stress, and other phenomena.

A grammar of propositions involves (I) a system of compositions:
(i) \( \Sigma : (P)^N \) accounting for 'juxtaposition' (with conjunction as a subtype), (ii) \( P : (V/N)^N \) defining noun-less (it's raining), one-noun (J. runs) and two-noun (J. eats potatoes) propositions. It includes also (II) general processes like 'focalization', 'lexicalization', 'reduction', 'structuralization'.

Such a system of generative grammar abandons the 'centrality' of the syntactic component by recognizing a narrower unit -- the 'proposition' -- as a more suitable basis for the underlying representation of utterances; the 'sentence' (defined in terms of branching and relative order) being a definable surface reflection of a complex \( \Sigma \) of propositions.

THE ANALOG OF THE PASSIVE TRANSFORMATION IN ERGATIVE-TYPE LANGUAGES

In ergative-type languages, a distinctive case, the ergative, is used for the agent of transitive verbs, while another case, commonly called the nominative, is used for the subject of intransitive verbs as well as for the patient or goal of transitive verbs. Considerable discussion has taken place as to whether the transitive verbs in such languages are inherently passive. Linguists who have resisted this idea, feeling that a passive should be recognized only when it is a transform of an underlying active, have agreed that such languages have no passive transformations. The idea that such languages represent a more primitive type than the accusative-type languages has also been advanced more or less strongly, either because they lack an active voice or because they lack a passive transformation.

There has also been considerable disagreement as to the definition of the subject in such languages. I accept the view most recently propounded by Goebel (General Linguistics 9.1-12 [1969]) that the subject in both kinds of sentences is the nominative case form (called by him absolutive).

Many ergative-type languages may have a transformation analogous to the passive, if looked at in a sufficiently abstract way. A passive transformation in an accusative-type language may be symbolized as follows (with no implication as to word order):

\[ N_1 \ V \ N_2 \text{ (acc.)} \Rightarrow N_2 \ V_\text{p} \ N_1 \]

The originally marked, accusative form, expressing the patient, is converted into the subject; the verb phrase is marked for passive; while the original subject might be dropped, or converted into another case form such as the instrumental, or even retained in the nominative. The analogous transformation, then, may be symbolized as follows:

\[ N_1 \ V \ N_2 \text{ (erg.)} \Rightarrow N_2 \ V_\text{a} \ N_1 \]

Such a transformation would put the emphasis, not on the patient, but on the agent, by making it the subject, and might therefore be called an \textit{agentive} transformation. Examples from several languages are discussed.
Students of English grammar have frequently noted that, in addition to sentences containing explicit subordinate questions with verbs such as know, remember, and find out, there are synonymous sentences containing non-sentential objects, which we may refer to as "concealed questions":

1a) I don't know which one you mean.
1b) I don't know the one you mean.
2a) Tell me which house you wish to buy.
2b) Tell me the house you wish to buy.

If we assume that an adequate semantic characterization of such pairs of sentences must reflect the fact that they are paraphrases, we must then ask whether a more adequate treatment results from an analysis in which the two constructions are derived from an identical base representing their shared semantic reading, or from an analysis in which the two constructions are generated by different base rules, their synonymy being accounted for by interpretive semantic rules. Evidence is presented for the correctness of the second alternative; this evidence rests on pronounced syntactic differences between the two constructions. An informal rule of semantic interpretation is proposed for concealed questions, and a number of consequences for the theory of grammar and the analysis of relative clauses are examined briefly.
Most extant studies of nonstandard child language have remarked on the linguistic deprivation and nonfluency characteristic of these forms of language, and have attempted through linguistic and pedagogical means to suggest a cause and a cure for this condition. In the paper which I presented to the LSA last year, I showed that many or most of such observations can be traced to the existence of register in nonstandard genera of English, specifically in Uneducated Child Black English. In particular, observers who fail to elicit the fluent and natural Nonschool register but concentrate instead on the School register are witnessing a sampling of the children's performance which is nonrepresentative of their total competence.

In my previous paper, I set forth a beginning analysis of the Nonschool register of Child Black English in Northern Florida (CBE/Fla). The present paper, a continuation of that research based upon new data, is an analysis of several styles found within the School register of CBE/Fla. The paper discusses phonological and syntactic aspects of these styles, which I term the School Speaking style and the Reading style; it examines which characteristics of these styles lead to conclusions of linguistic deprivation and what are the chances for success of linguistic remediation programs based upon work with the School register. In addition, the status of the linguistic descriptions presented here and in the previous paper in regard to models of performance and of competence will be considered.

This paper is an attempt to call to the attention of linguists certain ill-founded assumptions made by various psychologists and educators regarding the language of lower class black and Mexican-American children. Such claims are usually put forward to explain the failure of these children in school. For example, Arthur Jensen ("Social Class and Verbal Learning." In M. Deutsch, et al., (Eds.), Social Class, Race, and Psychological Development. New York: Holt, Rinehart and Winston, 1968), states that because there is reportedly less "verbal play," less "verbal interaction," and less "reinforcing behavior" on the part of older members of the household, the acquisition of language is more likely to be delayed for the lower class child.

Jensen argues further for the uneducability of the lower class child by assuming that language and thought are functionally and developmentally completely interdependent. Thus, if the child is developmentally retarded in his linguistic ability, his cognitive processes will likewise be adversely affected. On the basis of one study, it was hypothesized that lower class Mexican-American children come from a "particularly nonverbal background." Jensen feels that the school problems these children face stem from the fact that they are developmentally retarded in a particular type of "verbal mediation." Jensen considers the acquisition of this type of learning to be the first stage that clearly sets the child apart from the lower animals psychologically, stating that "Until this stage of development is reached, the child shows little superiority to the chimpanzee of comparable age."

Finally, the paper considers the contributions which the linguist may make in dealing with this particular form of institutionalized racism.
One of the criticisms that Weinreich, Labov, and Herzog (1968) level at Halle's model of language acquisition and linguistic change (1962) is that it attributes too important a role to the parents. They suggest instead that the part played by slightly older peers is more crucial. It takes but little effort for anyone living in the United States to see the truth of that objection. This paper will try to show, however, that there may be communities or subcultures within certain communities, where the role of peers is somewhat less important than what Weinreich et al. might want to argue. The specific case to be discussed is that of some Athens-born middle-class teenagers whose parents originate from Istanbul. Istanbul Greek differs from standard Athenian in a few crucial points, the most salient of which is perhaps the use of the accusative as the indirect-object case, where Athens uses the genitive. The fact that such teenagers sometimes successfully resist pressures from peers (including occasional cruel taunting) to change their linguistic habits argues in favor of the view that the relative role of parents versus peers in language acquisition and change varies from one (sub)culture to another. In fact it depends on several extralinguistic factors, one of which is certainly that of intra-family cohesion; there are striking differences between Greece and the United States in this respect. It is by no means claimed here that the model proposed by Weinreich et al. does not (or at worst cannot) provide for such a degree of sophistication, but simply that one should be careful not to exaggerate the role of peers on the basis of observations made in this country.

References


Implicational scale analysis and variable frequency analysis, the two leading approaches to sociolinguistic variation, are frequently applicable to the same linguistic data. They are not mere alternative analytical devices, however, for they present two very different perspectives on a language in society, and they are based on very different conceptions of what a linguistic theory should be and do.

Frequency analysis attempts to produce an empirical description of a corpus. This corpus may be non-finite (e.g. all the speech acts occurring in San Francisco during an indefinite period), but it is still a set of linguistic performances in context that are being described. Because such a corpus normally contains gradient frequencies of covariables (e.g. 'r-dropping' and socio-economic level), a frequency analysis must include gradient correlations.

Implicational analysis attempts not to describe the set of speech acts which constitute a corpus, but to model the idealized competence of the persons involved in those speech acts. Because sociolinguistic competence, both of individuals and of groups, consists not of meters and variable controls designed to maintain a specified frequency, but rather of a complex set of discrete decisions (to ain't or not to ain't), an implicational analysis consists of schemata of discrete conditional statements (if A then B). Although frequency statements may be essential to a description of linguistic performance, they are unnecessary in a competence grammar or in a sociolinguistic study based on competence.

This paper examines the problem of bilingualism in the Greek records of Semitic peoples, including non-literary papyri from the Judean desert, Nabatea, and Egypt, the various Greek translations of the Old Testament, and the writings of the New Testament. It discusses the respective Semitic substrata involved in light of the Qumran discoveries and tries to ascertain the precise influence operative in the various interference phenomena. It discusses from a theoretical point of view the evaluation of evidence for bilingualism in written documents of dead languages and shows how attempts to isolate forms of Semitic interference have been unsuccessful through the lack of a contrastive grammar approach to the languages involved. It points out the fallacy inherent in adducing parallels to supposed Semitic interference phenomena in the Koine cited from documents emanating from an Egyptian milieu, on the evidence of extensive Egyptian interference in the Greek of Egypt as outlined in my 1966 LSA and 1967 Bucharest papers. It concludes by illustrating from literary and non-literary records the main forms which Semitic interference takes in the phonology, morphology, and syntax of Koine Greek.
1. υπέδειν, τέε (for υπέδειν, τέε) P. Colt 15, 16 & 17.

2. εγώ είμι έξιρχομαι Aquila Ex. 8, 25 (29).

3. γινµ...ης είην το θυµατιον αυτής κυκλια άκαθαρτον Mk. 7, 25.

4. διακριθήκει είην Mt. 4, 4.

5. άπειρα πολλα...κατ είηεν Jn. 2, 3.

6. ἐν κοσμολαβέ εκτειν θεόν οὖν τὸν οὐρανόν κατ οὖ κατ ην Aquila Gen. 1, 1.

7. άπο εί προσώπου ου Aquila 2 Kg. 23, 27.

8. Καὶ εγένετο μετὰ τὴν τελευτὴν θαυμὴ εἴηεν κόριος LXX Jos. 1, 1.

9. γυνηθήκα τὸ θέλημα οὐ τὸ ἐν οὐρανῷ κατ είπ ηγς Mt. 6, 10.

Aramaic reconstruction.

The terms "colonial languages" and "immigrant languages" are used in Haugen's sense.

The paper deals with three problems encountered in the areal study of these languages and examines how data presented in tabular or map form can assist in their solution. They are: 1) the mechanisms by which the speakers of various dialects of a single language -- dialects which were often mutually unintelligible in Europe -- make themselves understood in the new situation; 2) the compilation of glossaries recording the lexical "adjustments" brought about by a socio-physical environment ranging from somewhat different to much different from that of Europe; 3) idiolectal vs. communal effects of wholesale bilingualism over large areas.

It is maintained that a process similar to the creolization of a pidgin or contact language takes place in interdialectal situations involving the immigrant generation as opposed to succeeding generations.

In the first millennium B.C. the Italian peninsula was occupied by people of various linguistic affiliations. The better attested of these languages are Latin, Oscan, Umbrian, Etruscan, and Greek. Despite their diversity of origin, a comparison of these languages reveals common phonological characteristics which have led them to be grouped together as a sprachbund. These include similar consonant systems, preponderance of voiceless obstruents, especially among the fricatives, vowel systems divided into non-parallel sets of short vowels, long vowels, and diphthongs, with diphthongs more frequent in the south than in the north, and demarcative initial stress accent leading to vowel syncope in non-initial syllables and simplification of the resulting consonant clusters. This paper describes some of these shared features and attempts to make explicit some criteria for determining which are the result of genetic relationship and which are the result of language contact.
The developments in Greek of clusters of one of the resonants m n l r y w with another resonant or with s have recently been discussed in *Language* 43.619-35 by Paul Kiparsky. While Kiparsky's article constitutes a notable advance in our understanding of these developments, especially as regards ws, I find some of the developments he proposes unlikely, and believe that a different set of rules will account for the data more adequately and more simply.

One group of clusters involving *s and *y (and perhaps *in) results in a long resonant medially in North Aeolic, and a short resonant in other dialects, before which a preceding vowel is lengthened. I propose that here Proto-Greek had long (voiced) resonants, which North Aeolic has preserved, while in the other dialects one mora has shifted to the preceding vowel. Long resonants attested in these dialects arose later than the shift in quantity. Proto-Greek long resonants from clusters of resonant with *s developed by assimilation of *h from *s to the neighboring resonant, as part of the general Greek voicing of noninitial *h. Long resonants from resonant plus *y arose by depalatalization of long palatalized resonants assimilated from the original clusters; this sequence of palatalization followed by depalatalization has to be posited for other consonant plus *y clusters also.

**yy** was not subject to transfer of quantity -- the evidence Kiparsky gives for such transfer can be interpreted differently; if palatal consonants in general were exempt from transfer of quantity, the peculiar treatment of *ly may be due to a delay in the depalatalization of the *l* that developed in the first instance from this cluster.

Where resonant plus *y clusters have apparently been metathesized, there is no good reason to depart from the old view that the -i- of sin, ain, air, oir comes from a glide that developed between the vowel and the following palatalized consonant and became phonemic when the consonant was depalatalized. The development of *wy to yy probably went thru a stage *gg; the evidence for a stage *yy is not reliable.

---

**I Kiparsky's rules, *Language* 43.619-35, in order:**

8. s yields h next to sonorant; e.g. ws >> wh, ay >> hy, ms >> mh, VnV >> VnV y yields h under similar conditions, but not if the following sonorant is a glide (w,y), a nasal (m,n), or a liquid (r,l); and not if the preceding sonorant is a glide; and not if the vowel before the preceding sonorant is a or o. E.g. VwV >> VW, iny >> in, ery >> ex; but yu, yw, yw, yn, yr, yl, wy, any, ozy remain.

9. liquid, nasal, or w + h or y metathesizes; e.g. ry >> yr, rh >> hr, wh >> hw, wy >> yw

10. before liquid, nasal, or w assimilates to preceding vowel in most dialects, to following sonorant in North Aeolic. E.g. ahwos 'down' >> âwos or awos, -oyos 'genitive singular' >> -oyos (whence -ô or -oyo)

**A.** *yw and *yh assimilate to *yy.

---

**II Proposed alternative rules:**

1. s before vowel or resonant and not preceded by obstructive yields h. E.g.

   - so >> ho
   - smeak >> breuk
   - slae >> hlæg
   - smorya >> h murky
   - smerek >> brom
   - smrek >> breuk
   - sw >> hwe
   - sylm >> hyilm

   tasan >> theón
   trarrón >> trbrón
   kheslóa >> khehloq
   eemi >> elmi
   phawan >> phawanos
   hewos >> hewosha
   toso >> toyo
   -hyilm >> pheroyo

2. Medial h assimilates to a neighboring consonant: hence trarrón, ekathara, khehloq ... pherooyo. (This may be part of a more general rule, which included the loss of intervocalic h. It is earlier than the operation of Grassmann's Law in Greek.)

3. Consonant + y yields long palatalized consonant (*h >> Õd). E.g.

   - thakhyo(h)a >> thagkyo(h)a (>> *ththoso ∼ thǎthō, thhəsInside
   - hmyora >> hmyoffs
   - alyos >> allos
   - krunis >> krunfís
   - "psfids
   - g amyos >> g a מאות
   - kajiyo >> kajo5
   - (hyilm >> hîmén)

   This rule is later than rules 1 and 2, because medial *sy becomes *yy, which would hardly be possible if *sy had become Õd by rule 3 before operation of rule 1, or if hy had become Õh by rule 3 before operation of rule 2. (But rule 3, like rule 2, is earlier than the operation of Grassmann's Law in Greek.)
5. If and $\dd$ are depalatalized (but not $\dd$); the glide between a preceding low central or mid back vowel (i.e., s or o) and these becomes phonemic, in which case the resonant itself is realized as short. E.g. without phonemic glide

\begin{align*}
\text{kriddo} &\rightarrow \text{krinno} \\
\text{pluddo} &\rightarrow \text{plunno} \\
\text{ktinno} &\rightarrow \text{ktinno}
\end{align*}

with phonemic glide

\begin{align*}
\text{phaddo} &\rightarrow \text{phayno} \\
\text{ankolida} &\rightarrow \text{ankoyna}
\end{align*}

(This rule appears not to have operated in the Mycenaean of 1200 B.C., but the evidence is not conclusive.)

A. If words like bodolmai 'I will', opheitos 'I am', esolmai 'I am compressed' originally contained -\text{i-\text{n}}, then \text{ln} in these words was assimilated to \text{ll} at some time prior to rule 6. (But olnumi 'I slay' and pelnavay 'I approach' could not be otherwise analyzed than as nasal presents, and so escaped this assimilation.)

6. Non-palatalized long resonants were shortened outside North Aeolic, lengthening a preceding vowel. E.g.

RR by rule 2:

\begin{align*}
\text{trarron} &\rightarrow \text{trakron} \\
\text{kheiliy} &\rightarrow \text{kheliyo} \\
\text{emmi} &\rightarrow \text{emi} \\
\text{phawenos} &\rightarrow \text{phawenos} \\
(h)\text{evo\text{\textino}} &\rightarrow (h)\text{evo\text{\textino}}
\end{align*}

RR by rule 5:

\begin{align*}
\text{krinno} &\rightarrow \text{oktrir\textino} \\
\text{plunno} &\rightarrow \text{oplunno} \\
\text{ktinno} &\rightarrow \text{ktinno}
\end{align*}

RR by rule A:

\begin{align*}
\text{g\text{\textino}\text{\textino}lomay} &\rightarrow \text{g\text{\textino}\text{\textino}lomay} \\
\text{ophel\textino} &\rightarrow \text{ophel\textino} \\
\text{wallomay} &\rightarrow \text{wallomay}
\end{align*}

This is the first of these rules that did not operate in the prehistory of every non-Mycenaean Greek dialect. (Linear B spelling suggests that it had operated in Mycenaean; if so, the evidence for continued existence of \text{f} and \text{\dd} in Mycenaean requires explanation.)

7. If is depalatalized to \text{ll} in most dialects, but becomes \text{yl} in Cypriote. E.g.

\begin{align*}
\text{a\text{\textino}g} &\rightarrow \text{allag} \\
\text{Apoll\textino} &\rightarrow \text{Apollon} \\
\text{Apollon} &\rightarrow \text{Apollon}
\end{align*}

B. At various times and places and in various ways, new examples of \text{rr}, \text{ll}, \text{mm}, \text{nn} arise, later (outside North Aeolic) than the operation of rule 6. E.g.

\begin{align*}
\text{are\textino} &\rightarrow \text{Attic arr\textino} \\
\text{leleipmai} &\rightarrow \text{leleimmai} \\
\text{Pelopos} &\rightarrow \text{Peloponn\textino}
\end{align*}

C. At different times in different dialects, intervocalic \text{w} is lost, including \text{w} in \text{WwW}. E.g. \text{awy} > \text{awy}. (By this time the \text{yy} resulting from rules 2 and 4 has become phonologically \text{y}.)

D. Some cases of intervocalic \text{y} (including those arising by rule C, in dialects where rule C has operated) at different times and places disappear or are assimilated to the preceding vowel. E.g. at some time after the composition of the oldest Homeric formulae (if these were not composed in Pelasgiotic Thessalian), in all dialects except Pelasgiotic Thessalian, genitive singular -\text{oyyo} > -\text{oo} > -\text{a}.

III Advantages claimed for the proposed alternative rules:

1. Complicated and phonetically unmotivated rules for \text{y} becoming \text{h} in word-medial position are not needed.

2. Greater use is made of \text{Cy} > \text{\textino Cy} rule, which is needed anyhow for non-resonant consonants, and to explain outcomes of *\text{my}.

3. Metatheses are not needed.

4. Phonetically unmotivated assimilation of \text{yw} and \text{yh} to \text{yy} is not needed.

5. Words like \text{nu}: 'fly' from *\text{nu}:\text{\textino} do not have to be explained by analogy or dialect borrowing.

IV Data that would favor Kiparsky's rules:

1. Corinthian \text{\textino didasiw} supports development of *\text{wy} to \text{yy} via \text{yw} rather than via \text{\dd}. Answer: 6th century Corinthian inscriptions often write \text{w} where it was never pronounced. Therefore \text{\textino didasiw} can be a hypercorrect writing of \text{\textino didasiw}.

2. Distribution of genitive singular -\text{io}o, -\text{io} vs. -\text{yo} agrees partly with Kiparsky's rules for development of -\text{oyo} to -\text{yo}:\text{\textino} in North Aeolic and to -\text{yo} (contracting to -\text{yo}) elsewhere; and Homer shows no sure example of -\text{oyyo}, which I posit as prestige of -\text{yo}, but does have one example of -\text{oyyo}, which would have arisen by quantitative metathesis of Kiparsky's -\text{yo}. Answer: It is more likely to be accident that it is one subdialect of North Aeolic that failed to replace -\text{oyo} by -\text{oo}, than that the rest of North Aeolic borrowed -\text{oo} from other dialects, and that words like \text{mu}:a outside North Aeolic are analogic or bor-
rowed. Homeric -oι occurs in a position where final short vowels can be metrically long; and the lack of unambiguous cases of -oo is an automatic consequence of Homeric meter, which allowed -ο to be substituted in the tradition for any such forms that may have existed.

1. Fauclty of rules parallel to rule 6 outside Greek. (possible examples in Hebrew and Modern Irish)

2. the same time as (But Kiparsky does not account for developments of ly either.)
One of the most controversial issues in recent studies of Early Germanic is the phonological status of *i and *e. Because of the high degree of predictability of their occurrence in terms of the following consonant and vowel segments, it had been concluded that they were non-distinctive in Proto-Germanic. The fact that perfect complementation could not be reconstructed was explained in terms of analogical levelling within paradigms, in analogy to the almost parallel alternations of *u and *o, and *eo and *iu. More recently it has been shown that North Germanic and Old English give little evidence for the raising of *e before *u, a change which is necessary if *i and *e were to have merged.

This paper will re-examine this problem using primarily the material of Old High German which most consistently shows the assumed changes. Two points will be stressed: a) the raising of e to i before u was a specific OHG (and OS) change, for it occurred also before the secondary -y which developed from *y, and b) the presence of both i and e in unstressed syllables shows that they must have remained distinct, even though their occurrence in stressed syllables might be highly predictable. Analysis of phonological processes in terms of the features involved, rather than in terms of indivisible segments, will clarify the process itself, enable one to distinguish between like and unlike events, and determine the relative chronology of the changes.

Trubetzkoý’s approach to phonological theory -- as exemplified here by his partial analysis of the phonological structure of Attic Greek stem morphemes -- raises questions which are basic to contemporary phonological theory. These questions involve the nature of the universal phonetic system, the form and content of phonological universals, and the role of the notion of markedness in the phonological component of a universal theory of linguistic descriptions.

The analysis of the Attic Greek problem in the Grundzüge is in terms of marked vs. unmarked oppositions. The distributional constraints are captured by a set of neutralization rules (N-rules). It is the function of N-rules to prohibit the marked member of the neutralized opposition from appearing in the position of neutralization. A paradox which Trubetzkoý apparently overlooked in his analysis of the Attic Greek phenomena reveals that phonological context must be taken into account in order to determine which is the marked and which is the unmarked member of the opposition. This suggests the need -- which Trubetzkoý did not recognize -- for a universal set of context-sensitive conventions which relate M-U feature values to their phonetic representations.

If we accept the view of the role of phonetic features in phonology which is implied by the interpretation advocated in this paper, then it would be reasonable to expect to find universal neutralization rules. Evidence is adduced in this paper in favor of such an expectation.
"Obvious" etymologies have always been with us. Such were, for example, the presumed connections between Lat. deus and Grk. theōs, between Lat. dies and Eng. day, between Lat. habeo and Goth. haban, etc., to mention only a few. These now of course appear ridiculous to the trained Indo-Europeanist, though attempts to salvage the latter comparison are still not infrequent. But others that violate all established phonetic laws are still with us, e.g. Goth. wulfs, etc.: Skt. vrkas; or Goth. dag 'day': Lith. dągas 'heat' (as derived from *dhegn- 'burn'; Goth. hais, etc. 'neck': Lat. collum (as from *kel- 'turn'), etc. Of course the more ambiguous the phonology of a language is and the less well its phonetic laws are established, the easier it is to find "obvious" etymologies. This makes Tocharian an easy victim. For example the following are often quoted without regard to the problems involved: A pe, B paive 'foot' (: Lat. pēs, etc.), A poke, B pokai 'arm' (: Grk. pēkhus, etc.), A, B pont- 'all' (: Grk. pant-), A, B tāk- 'be' (: Grk. ástreka), A, B yok- 'drink' (: Lat. aqua), and others.

This paper proposes to examine a few of these "obvious" etymologies, both some that have been with us for a long time and others that have more recently arrived in the standard lexica used by the student of the various Indo-European languages. It is hoped to be possible to reject them entirely or to arrive at a plausible explanation of their phonology.

The two major works concerning the reconstruction of the Proto Uto-Aztecan sound system are in accord with regard to four of the five vowels to be reconstructed for the proto language (*a, *a, *o, *u). They disagree, however, on whether the fifth vowel should be identified as *e or as *i (a high, non-front, unrounded vowel); the reflex of this fifth proto vowel is *e in some daughters, but it is *i in approximately the same number of daughters. Various arguments for selecting one vowel or the other are critically examined. It is concluded that *i is the proper reconstruction on the basis of the evidence currently available.
This paper presents the results of an investigation into the possible genetic relationships of Tai-Kadai, Sino-Tibetan, Austronesian and Malayo-Polynesian. The conclusion of the paper is that these languages are all members of one family, and that Tai-Kadai, Austronesian and Malayo-Polynesian are more closely related than has been previously reported. Lexical materials examined are taken from Tibetan, Kachin, Mandarin, Cantonese and the six national languages of mainland Southeast Asia.

The supporting evidence for these conclusions is exclusively phonological, although the languages in question share a large number of common grammatical features. The phonological evidence is of two types: cognates and the development of tonal systems from non-tonal systems.

The list of cognates, based on regularly recurring sound changes, includes such items as: frog, foam, rind, circle, dust, to cough, to sneeze, to pare, to fly, to blow, to be swollen, to dip-soak, to pinch, etc.

Tonal systems develop from non-tonal systems through a two-way split in the vowel system (vowel register) or in the consonant system (voiceless vs. voiced). Tone contour in the modern languages is the sum of the initial and final consonants and vowel length, where differentiated, in an earlier non-tonal stage. This feature is clearly demonstrable in Tibetan between written Tibetan and modern dialects, in Mon-Khmer between Cambodian and Vietnamese, in Malayo-Polynesian-Tai-Kadai between Malay and Thai.

The close relationship between Tai-Kadai, Austronesian and Malayo-Polynesian can be shown through the large number of commonly shared cognates which include the following: day, eye, bladder, belly, tree trunk, lime, chaff, bud, to smile, to hiccough, to yawn, to hear, to hold, to flicker, to whistle, etc. and through the possibility of determining the tone contours of Vietnamese and Thai cognates of Malay words.
The predicate calculus has its linguistic analogue in clause structures. The statement calculus has its linguistic analogue in sentence structures. Sentence structures are combinations of clauses in patterns not reducible to the structure of a single clause. The simple sentence represents, however, an identity value of clause combination.

Clauses combine in sentences in two ways: (a) peripheral-nuclear combinations; and (b) nuclear combinations. Peripheral elements of the sentence include not only clauses but other elements such as Vocative, Exclamation, and Sentence Conjunction. The periphery also includes, however, Sentence Margins which express such relations as prior time, concurrent time, subsequent time, condition, concession, purpose, cause, and circumstance. The structures expounding such margins may be single clauses or sentences. Nuclear combinations of clauses express such primitive relations as: coordination, antithesis, alternation, and quotation. Further sentence types are obtained: (a) by deriving one type from another (e.g. Indirect Quote from Direct Quote), (b) from reworking a Sentence Margin + Nucleus into a new nucleus, (c) from combining two consecutive sentences in a paragraph into a nuclear sentence pattern, and (d) from partially merging two juxtaposed clauses. A universal scheme, the sentence neighborhood, summarizes all possible sentence types in all languages.

It has been fairly well established that there are general conditions, partially statable in terms of the notion subordinate clause, or some near equivalent, determining when an English coreferential pronoun can have its definite antecedent nominal (NP) lying on its right. Roughly, such Backwards pronominalization is possible when: (i) the pronoun is in a clause subordinate to that in which the antecedent NP occurs; a typical illustrative paradigm follows, where identical subscripts indicate presupposed coreference, and '*' indicates cases where coreferential linkages are blocked:

(i) a Harry will win, if he tries harder  
   b *he will win, if Harry tries harder  
   c if Harry tries harder, he will win  
   d if he tries harder, Harry will win

Principle (i), though requiring considerable amendment, covers subordinate clauses like those in (ii), relative clauses, both appositive and restrictive, and complement constructions.

Given the wide scope and apparent validity of (i), apparent exceptions of a new and far-ranging sort, provided in an extremely interesting paper by Miss E. Edes of Harvard University, are at first depressing. She points out that sentences such as the following are well-formed:

(iii) they left the party after John told Sue that the cops were coming

She notes the contrast between (iii), with a plural pronoun in the main clause, and:

(iv) *he left the party after John told Sue that the cops were coming

where the pronoun is singular. On the basis of examples like:

(v) *they left the party after John and Sue had an argument

Edes concludes that the acceptability of (iii) is a function of the fact that the antecedent NP are split. In the present paper, I argue that this is only partly true and show that the apparent exception to (i) in (iii) is in fact a function of a general principle governing coordinate constructions and can serve, therefore, to justify an analysis of plural pronouns which derives them from underlying coordinate sources.
Current instrumental studies of sound changes in progress confirm impressionistic observations of vowel shifts as over-all rotations in phonological space. The simplest expression of such rotations is by n-ary rules. When historical records of known shifts are viewed in the light of such observations, some general principles of vowel shifting emerge. In chain shifts, (1) tense vowels rise, (2) lax vowels normally fall, and (3) u → ʊ and ə → æ, but not the reverse. These unidirectional movements are consistent with a revised model of phonological space in which a single dimension of openness extends from the most open vowel [a] to the most closed [i]. Spectrographic examination of current vowel shifts in American English shows that rising tense vowels can be maintained distinct from lax vowels of the same height in natural speech but not in minimal pair judgments. Such "consistently useless distinctions" do not serve to distinguish words for native speakers, but maintain the identity of word classes in close proximity.
There are two groups of verbs that seem superficially alike.

A: remember, manage, see fit, have sense, etc.
B: decide, want, be ready, have in mind, etc.

The facts that distinguish A-verbs from B-verbs include the following:

(i) In asserting or questioning a sentence with an A-verb as predicate, the speaker is simultaneously asserting or questioning the complement. John managed to open the door implies John opened the door. To ask Did John manage to open the door? includes asking Did John open the door?

(ii) If an A-verb sentence is negated, it implies negation of the complement. John didn’t remember to open the door implies John didn’t open the door. If the complement itself is also negated, the implication is positive. John didn’t remember not to open the door implies John opened the door.

(iii) The sentence with an A-verb predicate and its complement sentence may not contain conflicting time references or locative expressions. It makes no sense to say *John managed to open the door tomorrow.

It is argued that (i)-(iii) and a number of other facts that distinguish A-verbs from B-verbs are not unrelated and that there is some underlying general principle from which they all follow. I will try to formulate this principle and then discuss its significance in the context of the general problem of deciding what semantic representations ought to represent.
Traditional grammarians assume the derivation of indirect discourse from direct discourse. Among the many reasons for abandoning this view is the fact that accepting it entails the marking of complements both for the speaker's belief in the statement quoted and for his belief that the "now" of the statement quoted overlaps his own. These devices would be needed to account for the derivation of sentences (b), (c), and (d), from sentence (a):

(a) John said, "George is here now."
(b) John said that George is here now.
(c) John said that George was here now.
(d) John said that George was here then.

If the traditional view is abandoned, and indirect discourse is described as a type of that-complementation, "now" and other pronouns require no special account. Description of sentences like (c) requires an account of belief, accomplished by marking the verb of the matrix. Evidence from English and other languages shows that this marking is subjunctive and that the English "sequence of tenses" is an irregular sequence of moods.

The concern of this paper is the interpretation of anaphoric it in sentences such as the following:

The publisher paid Jones ten thousand dollars for a new book on grammar, but it could never happen to me.

In this case, it refers back to one portion of the antecedent sentence (i.e. "The publisher paid...ten thousand dollars for a new book on grammar") and specifically excludes another portion (i.e. "Jones"). Such cases show that it can refer back to a non-constituent. We present some of the relevant generalizations underlying the interpretation of such pro-forms. Our analysis rejects Ross's proposed notion of "sloppy identity", which we show produces a grammar which allows a much wider range of interpretations than is actually possible. We propose that the central generalization here involves the notion of 'pairing' or contrast. Specifically, we propose that the anaphoric it refers back to that portion of the antecedent sentence which is out of contrast, and excludes from its interpretation that portion which is in contrast. Thus, in the above example, Jones is in contrast with me, and it is this contrasted portion of the antecedent which is excluded from the interpretation of it. Other examples of this generalization are discussed, along with the question of how contrast can be predicted.
Reflexivization in English is usually described as a cyclic process with conditions that can be expressed in terms of constraints such as "command", "bounding", etc. (P. Rosenbaum, English Grammar II, IBM, Yorktown Heights, N. Y., 1968; J. Ross, Constraints on Variables in Syntax, M.I.T. diss., 1967). The present paper raises the question of the universality of such conditions; in particular, what advantages or drawbacks do the various constraints (and, in fact, the notion of cyclicity itself) have in the description of Eskimo reflexive constructions? To answer this question, a particular kind of reflexives (the so-called "possessive" suffixes; J. Mey, "Possessive and Transitive in Eskimo", Journal of Linguistics 6 [1970, in press]) is investigated, and an explanation is sought why Eskimo cannot express simple reflexive notions such as "to kill oneself" using the reflexive forms. Comparison with other languages (e.g. Latin) suggests that we need some additional machinery to account for the Eskimo phenomena of reflexivization; the notion of "commander-in-chief" (i.e. the highest node that commands some other node) is suggested as a possible useful addition to grammatical terminology.

This paper uses evidence from a non-Indo-European language to support the view that constructions which have previously been considered as semantically and syntactically separate sentence and clause types are related in deep structure to complements of certain basic, universal classes of verbs. In Abstract Syntax and Latin Complementation (MIT Press, 1968) R. Lakoff has shown that, in Latin, imperatives and purpose and reason adverbials share identical properties with the sentential complements of certain major verb classes: verbs of command (e.g. "to command"), desiring (e.g. "to want"), and declaration (e.g. "to say" as well as "to mean/entail") respectively.

Moore, a Niger-Congo language from West Africa, formally distinguishes the three above mentioned verb complement classes and exhibits respective identical properties in imperatives, purpose adverbials, and reason adverbials, e.g. a) same complementizer at the head of both clauses; b) presence/absence of the subjunctive; c) application/non-application of equi-NP-deletion; d) same restrictions on subjects. It is suggested (along the lines of what Lakoff proposes for Latin) that imperatives, purpose adverbials, and reason adverbials are derived from the complements of "abstract" verbs which belong to the above three verb classes but which are deleted in the surface structure. Base structures and derivations are provided as well as an explanation for the close semantic similarity between purpose and reason adverbials (e.g. both can answer to a question using why).
Imperatives and Purpose and Reason Adverbials as Complements of Abstract Verbs in Mooré

Abbreviations: -I = imperfective; -P = perfective; me = declarative marker

1) a) yeela me ti bamb kula me. "They said that they left." 
   they say-P me that they leave-P me.

   b) yeel b la me ti bamb kuli. "He told them to leave." 
   he say-P them la me that they leave.

   c) data me ti bamb kuli. "He wants them to leave." 
   he want-P me that they leave.

2) a) yeela me ti bamb pa kul ye. "He said that they didn't leave." 
   he say-P me that they not leave ye.

   b) yeel b la me ti bamb da kul ye. "He told them not to leave." 
   he say-P them la me that they not leave ye.

   c) data me ti bamb da kul ye. "He wants them not to leave." 
   he want-P me that they not leave ye.

3) a) data me n kuli. "He wants to leave." 
   he want-P me to leave.

   b) yeela me ti kuli. (unacceptable as reduction of la)

   c) data me ti kuli. (unacceptable as reduction of lb)

4) a) ti fo kuli! "Leave!" 
   that you(sg) leave.

   b) ti bamb kuli! "Let them leave!" 
   that they leave.

   c) (ti fo) da kul ye. "Don't leave!" 
   (that you-sg) not leave ye.

   d) n kuli!

   e) kuli! "Leave!" (sg)

   f) kul-y "Leave!" (pl)

5) a) yeel m la me ti mam kuli. "I ordered myself to leave." 

   b) ti mam kuli! "Let me leave!"

   c) yeend b la me ti bamb kuli. "I order them to leave." 
   I say-I them la me that they leave.

6) a) m kula me ti bamb waa me. "I left because they arrived." 
   I leave-P me because they come-P me.

   b) m kula me ti bamb pa wa ye. "I left because they didn't arrive." 
   I leave-P me because they not come ye.

   c) m kula me ti mam ba$ me. "I left because I was ill." 
   I leave-P me because I ill me.

   d) m kula me n baa me.

7) a) m kula (me) bamb s$ wa wa$ yinga. "I left because of their having arrived." 
   I leave-P(me) their se come-P wa because-of.

   b) m kula(me) bamb yinga. "I left because of them." 
   I leave-P(me) them because-of.

   c) m kula me ti bamb.

   d) fug yinga yaa neere. "The (looks of/essence of the)garment is pretty." 
   garment body is pretty.

8) a) m kula (me) bamb s$ wa wa$ yinga. "I left because of their having arrived." 
   I leave-P(me) their se come-P wa because-of.

   b) m kula(me) bamb yinga. "I left because of them." 
   I leave-P(me) them because-of.

   c) m kula me ti bamb.

   d) fug yinga yaa neere. "The (looks of/essence of the)garment is pretty." 
   garment body is pretty.

9) a) yaa bamb s$ wa wa$ yinga la m kuly$. "It's because they came that I left." 
   (it) is their se come-P wa because-of that I leave-P.

   b) yaa ti bamb waa me la m kuly$.

10) m s$ kula yinga dat n yeela me ti bamb waa me. 
    my se leave-P wa body-of want-I to say me that they come-P me 
    "The fact of my leaving means that they have come." or "The fact of 
    my leaving results from their having come."
11) a) X because Y = "Y is the cause of/reason for X."
   b) X means/entails Y = "Y results in X" or formally: Y X

12) a)

13) a) m kula me

14a) a)

14b)

15) a) m waa me ti bamb kuli. "I came so that they would leave."
I come-P me that they leave.

b) m waa me ti bamb da kul ye. "I came so that they wouldn't leave."
I come-P me that they not leave ye

16) a) m waa me n na n ges yamba. "I came (in order) to see you."
I come-P me to be-going to see you.

17) a) m was (me) se na yile ti bamb kuli (w). "I came so that they would leave."
I come-P(me) se definitely [desire?] that they leave.

18) yaa bamb kulba yingga la m waya. (it) se definitely [desire?] that they leave that I come-P
"It's in order that they may leave that I have come."

19) a) a data bamb kulba. "He wants them to leave."
he want-1 their leave-ing-wa

b) a yeela bamb kulba.

20) Question: "Why have you come?"
Answer: a) "In order to see you."
   b) "Because you called me."
It has been proposed by Lakoff and Peters (1967) that comitative structure is derived from phrasal conjunction, and Fillmore (1968) proposes the reverse. In the light of this disagreement, Mandarin Chinese is here investigated particularly because of the fact that the phrasal conjunctor and the comitative marker have the same phonetic form. Actually, numerous sentences containing this marker are four-way ambiguous, and the comitative structure is observed to be just one of the two sub-types of 'association' (Chao 1968), the other being here proposed as 'uni-directional', to which many comitative sentences discussed in Peters (1966) belong. For every comitative sentence, there is a corresponding phrasal conjunction sentence (pointing to the close relatedness), but not vice versa, strongly pointing to the infeasibility of Fillmore's proposal. It follows that a grammar achieves economy by deriving both structures from one underlying structure; but that they should not be postulated as syntactically variant forms of an underlying semantic structure is evidenced by the semantic feature [principal], which is present in comitative but not in phrasal sentences, and by the fact that the feature [principal] is systematically accompanied by a set of syntactic characteristics. Thus it is here proposed that comitative is derived from phrasal when [principal] appears under any, but not all, nouns as an inflectional unit. The absence or presence of [principal] then accounts for the different semantic interpretations and different surface structures.
Comitative versus Phrasal Conjunction

A. GEN as a sentential conjunctor: (may not be negated)
   a. Zhang San gen Li Si (dou) yao chu qu.
      Both Zhang San and Li Si want to go out.
   b. Wo gen ta (dou) bu zuo shi.
      Both he and I are not working.
   c. Ding Yi gen Wang Er (dou) xihuan he cha.
      Both Ding Yi and Wang Er like to drink tea.

B. GEN as a phrasal conjunctor: (may not be negated)
      Zhong Zheng Road runs parallel to Zhong Shan Road.
   b. Wo gen ta bu yikuar jin cheng.
      He and I are not going to town together.
   c. Zhang San gen Li Si zai yikuar shangliang.
      Zhang San and Li Si are discussing (together).

C. GEN as a comitative conjunctor (bi-directional): (may be negated)
   a. Xiao Ming gen ta baba (yikuar) dao jieshang qu.
      Xiao Ming is going to town (together) with his father.
   b. Zhang San mei gen Li Si chaoguo jia.
      Zhang San never quarrelled with Li Si.
   c. Wo xiang gen ta (yikuar) chang ge.
      I would like to sing with him.

D. GEN as a uni-directional conjunctor: (may be negated)
   a. Zhang San gen Li Si jie qian.
      Zhang San is borrowing money from Li Si.
   b. Wo mei gen ta dacha.
      I did not interrupt him.
   c. Li Si gen tade haizi jiang gushi.
      Li Si is telling stories to his children.

E. GEN as a full verb, meaning 'to follow': (may be negated)
   a. Gou zheng tian gen (zhe) zhuren.
      The dog is following his master all day.

b. Xiao Ming gen (zhe) laoshi zou shang tai qu.
   Xiao Ming is following his teacher to the platform.

c. Ni weishenmo bu gen she wo zou?
   Why aren't you following me?

G. Underlying structures:
   a. Phrasal conjunction:

   \[ S \rightarrow NP \rightarrow VP \]

   \[ NP \rightarrow NP_1 \ldots \ldots \rightarrow NP_n \]
b. Comitative:

```
S
/\  /
|   |
NP VP
```

$\text{NP}_1 \ldots \text{NP}_n$  [+principal]

(see constraint below)

c. Derivation of [principal]:

Noun $\rightarrow$ [+principal] / when NP is directly dominated by S

Constraint: [+principal] may occur under any but not all nouns.

Current practice in generative phonology, in contrast with its theoretical aims and goals, has generally been characterized by a lack of concern with psychological reality. Instead, considerations such as 'simplicity' (feature counting, distributional regularities, etc.) and the as yet ill-formulated concept of markedness, in addition to some out and out attempts to parallel the course of historical reconstruction, have come to take the place of direct psychological verification of proposed solutions. The few exceptional attempts in this latter direction have been largely experimental in nature (Contreras & Saporta [1960], Ladefoged & Fromkin [1967], Zimmer [1969]). While experimentation will doubtless provide the ultimate universal means of gaining insight into the mental aspects of phonology, in this paper attention is focused on the data of borrowing. Data from Nupe (a Kwa language of Central Nigeria), which has borrowed heavily from Hausa (a Chadic language of Northern Nigeria and the Niger Republic) demonstrates that languages that have extensively borrowed thereby betray the 'linguistic consciousness' of the speakers of the borrowing language. The process of 'lexicalization' in Nupe of incoming Hausa words of distinct phonological properties exhibits a significant degree of consistency that is equivalent to (and would be recoverable from) well-designed experimentation, and observation of second language acquisition ('foreign accents'). Thus it is shown that borrowing accurately reveals the reality of the morpheme structure conditions as well as the correct form of the internalized phonological rules of Nupe. Finally, lexicalization provides strong support for abstract phonology.
In an attempt to account for irregular sound changes, the authors propose to examine the time variable in phonological change. Data from various Chinese dialects, based principally on DOC (Project 'Dictionary on Computer', U. C. Berkeley), exhibit some characteristics of incomplete sound change. The authors will suggest that sound change is gradual not only socio-geographically (speaker-to-speaker spread) but also lexically (lexeme-to-lexeme diffusion) and that free variation and spontaneous phonemic split may be viewed as sound change in progress. Furthermore, a careful comparison of historical records and modern reflexes shows that sound changes do not always take place one after another, as serially ordered phonological rules might lead some to believe, but rather different trends of phonological change may overlap along the time dimension and interfere with each other in the course of operation, causing thereby 'residues' to regular sound change.

Lexical diffusion and competing sound changes provide a theoretical basis for introducing optional and minor rules as well as disjunctive rules for which no phonological (or morphological) condition can be ascertained. The subcategorization of phonological rules will necessitate rule features in the lexical representation of 'irregular' lexical items.
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<td>Zhong-yuan</td>
<td>Yun-lue Yi-tong</td>
<td>Standard Mandarin</td>
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**TABLE 2 (cont'd)**
Alexander Hull, Duke University

ON THE ORIGINS OF THE MODERN FRENCH VERB SYSTEM

It is usually stated that during late medieval French the erosion of verb endings by progressive loss of final consonants caused a shift of the burden of signalling person and number from the ending to the subject pronoun, which became a kind of verbal prefix. However, the evidence shows that this process, virtually complete in the standard language today, met with considerable resistance in the beginning. Several alternative solutions were tried. The most widespread was a system in which person was distinguished by prefixes and number by endings: /z parl/ 'I speak'; /z parlo/ 'we speak'; /i parl/ 'he speaks'; /i parlo/ 'they speak.

The starting point here was the remodelling of the third-person-plural form, most important since the third-person subject pronouns, singular and plural, were homonymous. The construction je parlo has been most persistent in northern rural French. Analogous development in northern Italian dialects probably shows French influence.

This system, originating in lower-class speech, had a fatal flaw: it was incompatible with more conservative upper-class usage, since je parlo could be, and often was, misinterpreted as a singular. Hence lower-class urban speakers, more often obliged to communicate with users of the cultivated language, abandoned it during the 16th and 17th centuries, and such forms came to be a shibboleth of ridiculed rural patois. The extension of on parle to replace the now overly elegant nous parlons and the unacceptable je parlo must date from this period, originating no doubt in Paris, but influenced by Norman and Picard dialects where phonetic developments had led to confusion of on and nous.

It has ever since remained the usual form in familiar speech, and has been widely propagated and imitated both within and outside the limits of French proper.

**TABLE 3.**

<table>
<thead>
<tr>
<th>Guang-yun</th>
<th>Zhong-yuan yin-yun</th>
<th>Xi-ru er-mu-zi</th>
<th>Standard Mandarin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1008</td>
<td>1324</td>
<td>1626</td>
<td>1962</td>
</tr>
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</table>

[58]
On the Origins of the Modern French Verb System

A. 13th-century paradigms:
1. ſanť antrę vwe vant  ſanťwe
2. ſanťos antręs vves vans  ſanťweess
3. ſanťe antrew vvet vant  ſanťvet
4. ſanťons antręns vvens vandous  ſantiyens
5. ſantes antręs vves vandes  ſantiyes
6. ſanťents antręnts vvesents vandents  ſantweents

B. Phonetic developments obscure ending distinctions, analogical levelings occur, unstressed pronouns become person markers (13th-14th centuries):
1. ſe ſanťe z antre 3. i vwe(t)
2. tũ ſanťos t(t) antre(s) 6. i vwe: (t)
3. (m.) i ſanťe il antre
   (f.) elė ſanťe el antre 3. i van(t)
Indef. on ſanťe on antre 6. i vando(t)
4. nu ſanťons nuz antron(s)
5. vů ſanťe(s) vuz antre(s) 3. i ſantwe(t)
6. (m.) i ſanťos il antre(t) 4. nu ſantyen(s), *-yon(s)
   (f.) elė ſanťos eloz antre(t) 6. i ſantwe: (t), *-tewn(t)

C. First restructuring in popular speech (14th-15th centuries):
1. ſe ſanťe z antre 3. i vwe(t)
2. tũ ſanťos t antre(s) 6. i vweyon(t)
3. (m.) i ſanťos il antro(t)
   (f.) a ſanťos al antro(t) 3. i van(t)
Indef. on ſanťos on antre(t) 6. i vandom(t)
4. ſe ſanťons z antron(s)
5. vů ſanťe(s) vuz antre(s) 3. i šant(ɔ)è
6. (m.) i ſantos il antron(t) 4. ſe šantyon(s), *-ten(s)
   (f.) a, i ſantos al, il antron(t) 6. i šantyon(t), *-ten(t)

D. Second restructuring in popular speech (16th-17th centuries):
1. ſo šąt ť âtr 3. i vwa
2. tũ šąt t âtr 6. i vwa(y)
3. (m.) i šąt il âtr
   (f.) a, el šąt al, el âtr 3. i vă
Indef. ŏ šąt ŏn âtr 6. i văd
4. ź šąt ŏn âtr
5. vů šąte vuz âtre 3. i šătè
6. (m.) i šąt iz âtr 4. ź šătè
   (f.) i, el šąt iz, elz âtr 6. i šătè
As long as historical (or "genetic") linguistics limited itself to a description of sound changes in the form of a supposed temporal sequence, e.g. $a \rightarrow b$ (however one wishes to interpret the formula), the problem of causation could be ignored. However, when an explanation of sound changes was sought, a closer look at the relation between historical linguistics and other branches of history, especially social history, became necessary. Few historical linguists have given any attention to the relation, probably because they consider themselves to be primarily linguists rather than historians. Ignorance of the problems of historical theory and the philosophy of history has had as an effect the adoption of assumptions about the nature of change and causation that have been discarded in other historical disciplines. I propose to examine briefly the extent to which the theory of historical explanation in other fields can be applied to problems of historical phonetics. Illustrations will be taken from Romance.

In the philosophy of history the problem of causation continues to be a hotly debated subject. For some historians the notion of 'cause' implies a rigid determinism and therefore must be completely abandoned in serious history. For other historians history is incomprehensible unless it involves the study of the causes of events. The word 'cause' is ambiguous and can be interpreted in various ways.

Although students of historical phonetics have often studied the causes of various phonetic changes, they have rarely given any thought to their underlying assumptions about the nature of 'cause' in general. Nineteenth century historical phonetics was largely concerned with accurate descriptions and sought the causes of phonetic change only in the case of exceptions to general sound laws. The substratum theory was an attempt to explain regular sound changes. In the twentieth century the school of descriptive linguistics tended to seek purely physical causes of sound changes, while structuralism attempted to find causes in the nature of phonological systems. Transformational grammarians today tend to limit themselves to the statement that phonetic changes are changes in grammatical rules, and to say little about the causes of such changes.

Underlying many accounts of phonetic change has been the implicit assumption of mono-causality, i.e. the idea that there can be one and only one cause of any sound change, a presupposition discarded long ago in all other fields of history. A conscious understanding of the nature of historical explanation can lead to a clearer view of phonetic change, although undoubtedly there will be debate about the relative importance of various factors in phonetic change.

The voicing of intervocalic stops in early western Romance will be examined as an example of varying interpretations of the causes of a particular sound change.
38. Paul L. Kirk, San Fernando Valley State College
THE DEVELOPMENT OF JALAPA MAZATEC VOICED ASPIRATES

In Jalapa de Diaz Mazatec, methathesis of the voiceless velar fricative with the preceding vowel has resulted in voiced aspirates (murmured vowels), each homorganic with the syllabic nucleus it precedes. These voiced aspirates, although they are not systematic phonemes since they are allophones of /h/, are of interest because of their apparent unique occurrence in a New World language. Their historical development from Proto-Mazatec phonology is clearly discernible. This paper traces that development. In addition, tape recordings of Mazatec speech are presented with the paper to illustrate the phonetic qualities of the voiced aspirates.

39. Sarah Grey Thomason, Yale University
ON THE NATURE OF ANALOGICAL CHANGE

Much of the recent disagreement in diachronic linguistics between generativists and more traditional historical linguists has centered around the concept of analogical change. The discussion is seriously hampered by a general lack of convincing statements about the nature of this historical process. One may find in the handbooks many good examples of different kinds of analogical change, but attempts by such scholars as Kuryłowicz and Winter to make valid generalizations about the factors contributing to the survival and spread of analogical innovations have failed. The reason for these failures is that the complexity of the factors involved has been consistently underestimated. It is seldom (or never) possible to point to one single linguistic circumstance as the sole cause of a particular analogical change, and very little progress can be made toward a general theory about analogical change until the entire relevant linguistic environment is considered in analyzing such changes. The purpose of this paper is to describe the main factors which must be taken into account: the overall patterns of change in various parts of the grammar at a given period in the language's history; the numbers and frequency of the forms involved; proximity of the forms in syntactic constructions; and the various types of similarity between the changing form or forms and the analogic model, whether a single form or a whole form-class -- phonological, morphological, syntactic, and semantic.
Operating with a distinctive feature matrix allows the author to relate problems in diachronic Romance consonantism traditionally treated in isolation (the 'gorgia toscana', word-initial alternation in all consonants in Central and Southern Italian dialects and in Sardinian, preservation of 'geminate' reflexes of Latin R- and less often L-, N-, F-, and S- in various Romance languages, spirantization of voiced or voiceless intervocalic stops) to the general problem of the Latin-Romance consonantal trajectory and to provide simple, elegant, and insightful solutions to these problems.
A simple language test was devised to evaluate an aphasic's sentence-construction ability. A word is presented to the patient, both spoken and written to minimize any potential performance deficits in any modality; the patient is asked to use the word in a sentence or to explain its meaning. In the course of giving this test to two patients, it was observed that verbs tended to be nominalized in the response; this is in contrast to both other patients and all control subjects. This verbal behavior was neither encouraged nor discouraged by the experimenter. The data so obtained from these two patients is discussed from several points of view: first, some observations by Luria and Tsvetkova [1968] and Marshall [1968] which are relevant to this type of aphasia are considered; second, the putative performance strategies involved in the word-to-sentence test are postulated and finally, the lexicalist and transformational descriptions of derived nominals are compared as plausible models.

Like have and be, get may be regarded as basically a transformationally derived verb, one that has no lexical existence in the deep structure of English but is inserted by means of syntactic rules. Furthermore, get has many of the same structural relations as be and have and differs from them chiefly in aspect. Whereas they are basically stative, get is basically inchoative: John was/got sick; John had/got a cold.

Whatever its deep-structure status, get plays a major role in the aspect system of English. One of the relationships in that system which it reflects is that between inchoative and inceptive with stative and active respectively: He got to be captain and He got to thinking about it. Another is that between inchoative and causative; to cause an action or a state to exist implies that the action has begun or the state has been entered: Bill got John mad; John got mad.

In these aspectual functions, get alternates with such related verbs as go, come, become, and begin, as well as with the causatives have, make, and cause. By comparing get with these verbs in some of the many constructions in which they occur and by describing the selectional restrictions holding between the verbs and their subjects and complements, one can demonstrate the interrelatedness of aspects such as stative, inchoative, inceptive, durative, and causative in the verb not only with each other and with temporal expressions in the sentence but also with features such as animacy and agency in the noun. The passive use of get reveals the aspectual connection, but not identity, of the passive with the inchoative and causative constructions. The use of the inherent character of the features to account for constraints on certain constructions has a parallel in phonology and appears preferable to classifying verbs simply in terms of their potential syntactic frames.

The great popularity of get in colloquial usage derives from its broad grammatical foundation as well as from its ability to neutralize certain distinctions when they are irrelevant, such as that between come and go in certain contexts, and to avoid the aspectual ambiguity of such a construction as be + past participle.
This paper is part of a larger essay to test the semantic relevancy of Noam Chomsky - Morris Halle's phonological formalism (The Sound Pattern of English, 1968). It examines:

- the implications of a dichotomy binary distinctive specified/scalar descriptive minimally specified semantic features (especially in minimizing the inventory of semantic features, in structuring the lexicon and in refining the concept of semantic calibration),
- the possibility of operating with semantic matrices instead of semantic trees (and the necessity therefore of a previous linearization of the syntactic phrase-markers),
- the nature of the semantic matrices.

It is understood that we operate within an orthodoxly interpretive semantic component.

The order of application of rules in Panini's grammar is not always explicit from the design of the grammar. Some insight can be gained into the considerations that prompted post-Paninian grammarians to introduce order, from an examination of the metalinguistic rules established by them. These rules are commonly stated as criteria by which to judge and solve rule conflicts. They are formulated as procedures one is to follow in the case of a conflict between sets of rules applicable at the same time in one context, or in various different contexts. One of these criteria which was formulated already by the earliest commentator, Katyayana, is the antaranga-bahiranga paribhasa. It recognizes that the physical succession of the constituents of a base form is responsible for the order in which grammatical rules apply to the successive contexts within that base form. Two considerations seem to be involved in the operation of this metarule, namely that of the time of the appearance of the constituent in the base form and that of the distance from its nucleus. This paper presents a few illustrations of this metarule and of the limits of its applicability.
John Wesley Powell's classification of the linguistic stocks of North America into 55 families in 1891, based on the intensive fieldwork of the Bureau of American Ethnology staff between 1879 and 1891, provided a baseline for later work in American Indian linguistics and anthropology. After its publication, genetic classification became a less salient problem as Franz Boas and his students turned to structural description and psychological characterization of particular languages, especially in the 1911 *Handbook of American Indian Languages*. Indeed, the revision of the linguistic work of the Bureau was a major factor in the growth of Boasian anthropology.

Boas' conviction that areal and genetic causes of linguistic similarity could not be distinguished was taken up by A. L. Kroeber and Roland Dixon in their classification of the languages of California in 1903. Largely as a result of the influence of Boas' most brilliant linguistic student, Edward Sapir, Kroeber turned toward genetic explanations of the same similarities by 1919. Boas, whose linguistic interests were ethnographically motivated, turned away from genetic problems; Sapir, on the other hand, concerned himself with the training of linguists and the professionalization of linguistics as a science.

Sapir was at the center of a group of Boasian linguists whose fieldwork during the first two decades of the twentieth century provided data for revisions of the old Powell classification. Linguists and anthropologists have, for the most part, seen the history of linguistic classification in North America as a quantum jump from Powell's 55 stocks to Sapir's 6. Correspondence (Boas papers, Kroeber papers, B.A.E. archives) as well as published materials indicate greater complexity. Sapir recognized an intermediate classification of 23 units, accepted by most of his colleagues; his 6-unit classification first appeared in 1921, not 1929, and summarized the fieldwork of the previous two decades. Sapir's major innovations were in time depth and culture history, degree of relationship, and use of morphological data in conjunction with lexical.

The main purpose of the present paper is to relate recent developments in the generalization of automata, and of rewriting systems, to the specification of languages through transformational grammars. It is argued that a syntactic description is inherently two-dimensional (in a sense which is precisely defined), and that production rewriting systems, of the sort commonly used to specify "deep structure", do not capture this two-dimensionality property. The alternatives suggested have been developed by various researchers, and can be viewed in a common framework.

Results concerning the relationship of the syntactic formalizations of Peters-Ritchie and various two-dimensional calculi and generalized automata theories are mentioned. On the basis of these results, it is shown that there is no reason to sustain a radical split between transformational grammars and phrase structure grammars. It is pointed out that this distinction is artificial, having a historical origin, and that there has long been ample evidence that rules of the phrase structure type are interspersed with transformational rules.

Lastly, and briefly, it is suggested that the inherent two-dimensionality of grammars is related to the fact that a sentence is a network of concepts, that the semantic base is not a linear arrangement at all, but a representation similar to that advocated by Quillian. If this last conjecture has not been worked out in detail as of yet, it is at least an alternative that must be explored in seeking a comprehensive generative theory of sentence structure.
Humboldt's famous query regarding the ultimate mystery of language has been answered in modern linguistics by reference to the recursive nature of grammar, which permits an infinite number of sentences to be formed from a finite lexicon because the sentences can be of unlimited length. But it is difficult to see how this solves Humboldt's puzzle if, as is readily admitted, most long sentences transcend the limitations of human perception. Furthermore, it may be argued that this answer mis-construes the question. It is not a question regarding the number of sentences but rather the number of uses of sentences. The question still remains even if we accept that the number of usable sentences in a language is finite. That is, we must then ask how a language makes infinite use of a finite number of sentences. The answer to this question obviously lies not in any characteristic of grammar, but in the fact that various sentences can be used for an infinite variety of utterances. This realization puts the study of grammar in a different perspective, and requires us to ask radically different questions regarding its function in language. It also requires us to ask to what extent the announced goals of linguistics can bring us nearer an answer to questions such as Humboldt's.

This paper will be concerned with the general phenomenon of the co-occurrence of functionally-related phonological rules in a grammar and the implications of this phenomenon for the theory of grammar. I will argue very briefly that it is a characteristic feature of human languages for a grammar to contain a number of rules which, in some deep sense, have the same function. Present phonological theory emphasizes structural similarity to the neglect of functional similarity. The bulk of the paper will then attempt to establish that phonological theory cannot continue to neglect functional relatedness without in the process failing to characterize the essential nature of phonological structure. The beginnings of a theory for dealing with one essential aspect of functional relatedness will be proposed, very tentatively, of course.

There seems to be two essential ways in which rules may be functionally related. (1) They "do" the same thing. For example, in Yawelmani there is a rule that inserts a in the context C_CC; but there are also two rules which delete consonants, and these rules operate on a sequence of three consonants to give an output containing just two consonants in a row. Vowel epenthesis and consonant deletion in this example are functionally the same in that they break up triliteral clusters (which are phonetically inadmissible in Yawelmani). (2) Rules may avoid creating strings with a structural property which other rules in the grammar eliminate. For example, in Yawelmani there is a rule that deletes a short vowel, but just in case deletion of that vowel will not yield as output a triliteral cluster. Vowel deletion avoids creating the kinds of strings that epenthesis and consonant deletion break up.

In Yawelmani, all rules avoid creating unpermitted consonant clusters. In other languages, however, some rules may avoid creating strings with a given property, whereas other rules do not. For example, in Tunica, adjacent stressed vowels are not permitted in the phonetic output. Certain rules in Tunica fail to apply if application would create adjacent stressed vowels, whereas other rules apply without
regard to whether they create the phonetically inadmissible sequence. The operation of a later rule reduces the unpermitted sequence to a permissible one.

Restrictions on phonological rules of the sort considered above are natural restrictions, and I propose to make grammars containing such restrictions more highly valued than grammars containing totally arbitrary restrictions on rules, by establishing a notion of rules applying obligatorily relative to a given constraint on derivations. This theory of derivational constraints will be described briefly.

Phenomena of functional interaction of morpheme structure and phonological rules, recently pointed out by Kisseberth, arise historically in diverse ways. A phonological conspiracy can originate trivially through a single sound change which leaves reflexes both in the lexicon and the system of rules. Of greater interest are cases where phonotactic and paradigmatic conditions set the limits on phonological developments which a language undergoes. Examples of this type are analyzed in the paper. It is argued that the theory of language acquisition provides a rationale for their historical origin. The notion of "partial conspiracy" is discussed and related to the historical process of rule generalization. In connection with this problem, the general question of historical versus synchronic explanation in phonology is raised.
ON SYLLABIC CONSONANTS

Some generalizations concerning syllabic consonants are presented, based on an investigation of the syllable structures of approximately 150 languages. The nature of the diachronic processes that create and destroy syllabic consonants is treated concomitantly with their synchronic characteristics, the two being closely related. Implications for phonological theory and description are drawn.

It is shown that syllabics are not limited to vocoids (segments that are +sonorant and -consonantal) and resonants (those that are +sonorant and +consonantal). Obstruents (-sonorant and +consonantal) also occur as syllable peaks — usually fricatives, but occasionally stops as well. Of the four major segment classes, it appears that only laryngeals (most naturally separated from the glides and represented as -sonorant and -consonantal) cannot be syllabic.

General patterns of the voicing, length, place of articulation, stress, and tone of syllabic nasals, resonants, and fricatives are described.

The distribution of syllabic consonants is compared to that of vowels, on one hand, and to the corresponding nonsyllabic consonants, on the other.

The loss of a neighboring vowel is almost always a necessary condition for the rise of syllabic consonants. The additional circumstances that favor their creation and the possibility of origins not involving vowel loss are discussed.

LANGUAGE-SPECIFIC METARULES IN PHONOLOGY

In Korean, several phonological phenomena which are overtly different in forms of rules nevertheless share a property which is essentially a tendency toward a more closed (raised) articulation. For example, in certain environments,
(1) w becomes p;
(2) r, s, and ß become l;
(3) Sp becomes imploded (unreleased);
(4) Vowels are raised (e.g. o — i, m — o, a — ß, ø — u, etc.);
(5) In consonant reduction of the type CC — C (e.g., k- — k, lp — p, lm — m, nc — n, etc.), what seems to be governing the deletion is the principle of closed articulation in that what is deleted is the more open C (in terms of the degree of aperture), i.e., the more closed C remains.

This suggests that the principle of closed articulation is a phonological metarule specific to Korean which projects itself onto several phonological rules in the language. Such projection naturally gives rise to a functional similarity, but a generality involved in rules of this sort is not expressible in a "collapsed" form (in a "schema") due to structural dissimilarity of rules.

Implications of this observation in phonological theory, which is currently devoid of an evaluation metric correctly reflecting generality of this kind, will be discussed.
1. Fricatives and affricates become stops.

   \[(s, ss, c, ch) \rightarrow t \] / \[\{ C \}\]  C - consonant

   \# - word-boundary

   - nas 'sickle'
   - nac 'day'
   - nach 'face'

   cf. nas-ir [nasi] -ir - object case
   nac-ir [naji] 
   nach-ir [nachi]

   - nas-kwa homi [nati] 'sickle and hoe'
   - nac-kwa pam [nati] 'day and night'
   - nach-kwa son [nati] 'face and hands'

   nas-kwa homi [nati] 'sickle and hoe'
   nac-kwa pam [nati] 'day and night'
   nach-kwa son [nati] 'face and hands'

   kass-\( t \) [katta] 'went'

2. Glide \( \{ w \} \) and liquid \( \{ r \} \) become homorganic stops.

   \[\{ w \} \rightarrow \{ p \} \] / \[\{ C \}\]

   - tow-\( 't \)ta 'it was warm' but \( \text{top-}t \)ta 'it is warm'
   - tow-i 'warm weather' but \( \text{top-k} \)o 'warm and'
   - tow-\( \text{m} \) 'warmth' but \( \text{top-so} \) 'it is warm'

   - kur-\( 't \)ta 'walked' but \( \text{kot-}t \)ta 'to walk'
   - kor-i 'walking distance' but \( \text{kot-k} \)o 'walk and'
   - kor-\( \text{m} \) 'walking pace' but \( \text{kot-so} \) 'the walks'

   - ithir-nar \( \rightarrow \) ithit-nar \( \rightarrow \) [ithi] 'the next day'
   - hor-nipur \( \rightarrow \) hot-nipur \( \rightarrow \) [hotni] 'single-sheet quilt'
   - sur-karak \( \rightarrow \) [sutkar] 'spoon'

3. Stops are unreleased word-finally and before C.

   - [nat'], [nat 'kwa ...], [kat'ta] 'it' - unreleased

4. Vowel raising

   - e \( \rightarrow \) \( \text{e} \)
   - e \( \rightarrow \) \( \text{e} \)
   - \( \text{e} \) \( \rightarrow \) \( \text{e} \)
   - ha-\( \text{k} \)o \( \rightarrow \) \( \text{hag} \)u 'do and'
   - mor-\( \text{a} \) \( \rightarrow \) \( \text{mul} \)o 'do not know'

5. Consonant reduction

   - ps \( \rightarrow \) p, e.g. \( \text{ops-}t \)ta \( \rightarrow \) [opta] 'there is no' cf. \( \text{ops-}i \) 'without'
   - ks \( \rightarrow \) k, noks-to \( \rightarrow \) [nokto] 'soul and'
   - nc \( \rightarrow \) n, anc-kora \( \rightarrow \) [ankora] 'sit!' \( \text{anc-}t \)ta 'sat'
   - ik \( \rightarrow \) k, ilk-\( \text{ca} \) \( \rightarrow \) [ikca] 'let's read' \( \text{ilk-}t \)ta 'read'
   - im \( \rightarrow \) m, colm-ta \( \rightarrow \) [colm] 'is young' \( \text{colm-}t \)ta 'young'

   cf. ccalp-o\( \rightarrow \) [calbodo] 'even if short'

6. Three "modes" of articulation in French

   (P. Delattre, Principles de Phonétique Française, 1951, pp. 37-38)
   a) "tendu", as opposed to English "relâché",
   b) "antérieur", as opposed to English "postérieur",
   c) "croissant", as opposed to English "décroissant".

7. a) A \( \rightarrow \) B / X\( \_YZ\)
   b) A \( \rightarrow \) B / X\( \_YW\)
   c) A \( \rightarrow \) B / X\( \_Y\) \( \{ Z \}\)

8. a) \[ ] \( \rightarrow \) \( \phi \) / \( \# C_\_C_\_ \)
   \( \phi \) \( \rightarrow \) V / \( \# C_\_C_\_ \)

   V - vowel

   b) \[ ] \( \rightarrow \) \( \phi \) / \( C_\_C_\_C_\_ \)
   \( \phi \) \( \rightarrow \) V / \( C_\_C_\_C_\_C_\_ \)

9. a) \( \text{VC-VC-VC-...} \rightarrow \) \( \text{VC-VC-VC-VC-...} \)
   b) \( \hat{\text{Y}} \) \( \rightarrow \) V / \( \hat{\text{Y}} \) \( \text{VC-VC-VC-VC-...} \)
   c) \( \text{VC-VC-VC-VC-VC-...} \rightarrow \) \( \text{VC-VC-VC-VC-VC-VC-...} \)
   d) \( \odot \hat{\text{Y}} \) \( \rightarrow \) V / \( \odot \) \( \text{C} \) \( \odot \)

   \( \odot \) - applies iteratively
   \( \odot \) - mirror image environment

10. \( \odot A_\_A_\_ > \odot A_0 \)

11. degree of aperture

<table>
<thead>
<tr>
<th>segments</th>
<th>e.g.</th>
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<tbody>
<tr>
<td>0</td>
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</tr>
<tr>
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<td>released stops</td>
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<td>2</td>
<td>affricates</td>
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<td>3</td>
<td>fricatives</td>
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<td>6</td>
<td>high vowels</td>
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<tr>
<td>7</td>
<td>mid vowels</td>
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<tr>
<td>8</td>
<td>low vowels</td>
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[80]
The concept of the morphophone clarifies the structural provenience of the phonemes /h/ and /+/, probably the two most controversial phonemes in the Trager-Smith inventory for English. Initial phoneme /h/ is the expression of initial morphophone h., but postvocalic /h/ phonemes are never the expression of the morphophone h., but are (1) organic, as in /hɔt/ of o.--/kɔt/ caught (Central Atlantic Seaboard); /h/ of eh.-- /kɔn/ can (n.) (CAS); (2) essential, as in /h/ of o.--/lɔh/ law (CAS); (3) conditioned (the result of smoothing) /h/ of ow.--/wɔh/ wore (CAS); exrescent (conditioned and binding on all speakers of a dialect, but not on all speakers of a language)--/h/ of o. /wɔh/ /wɔh/ war (CAS); (5) epenthetic (in free variation with its absence in certain dialects)--/h/ of o. /h/ of a.--/h/ /h/ /h/ /h/ sorry (Buffalo, N.Y.); (6) expressed (result of consonantal in substitution with h.)--/kæt/ of k.Š.t. (k.Š.t. with k. r.--London); (7) contrastive --/mɪll/ million /mɪll/ Meighan (where l. of m.Š.y.n. million has been absolutely lost, but /h/ is inserted between /l/ and /y/ where speakers of these dialects wish to contrast million with Meighan).

Contrary to my former statements, I now suggest that there is no +. morphophone, but rather |. In macrofix superfixes used in tactical phrases and in certain lexical phrases, the /+/ phoneme is the expression of |, e.g. gʊd+bɔy, Jʊn+rɔn. In all other cases, that is, in both lexical and tactical microfix superfixes and in lexical macrofix superfixes, /h/ is not the expression of the juncture morphophone but is (1) predictable (with major words)--night+rɔte, Lɒŋ+fsland; (2) contrastive--aŋ+tɔm vs. aŋ+nɛm (when ordinarily /nɛm/ would occur for both); (3) obligatory--pərlɪməntærɪən, cɪr+cɛmənς, φοτόγραφy; (4) exrescent--Plɔt+, aɔ+τ; (5) epenthetic--/h+/fɔt, aɔ+τ; (6) expressed--possibly in fɔ+tɔk/ attack, fɔ+lɔw/ allow, etc., of f.Š.t.=t.Š.k., f.1=1.ɒn., where the t., l. of the pre-subbase morphemes are in substitution with h. expressed by /h/. Cf. French /h/ of h. ~ h. in le+Havre, le+šarıkɔts vɛrts.
The present paper presents some new evidence for the well-known relationship between pitch (fundamental frequency) and duration on the one hand, and other properties of certain speech sounds, such as tongue height and voicing, on the other.

Assumptions about (1) the laryngeal control of speech, specifically of the width of the glottis, about (2) the timing of laryngeal activity with respect to activity of supraglottal articulators, and about (3) the resulting relationship between subglottal and supraglottal air pressure, prove to be sufficient to explain observed variations. This is considered as evidence for the universal rather than language-specific nature of such variations.

These intrinsic properties of speech sounds are then discussed as possible explanations for certain sound changes.
Amplitude (A) and fundamental frequency (F₀) contours of CVC syllables (speaker WJ)
Average fundamental frequency contours of CVC syllables

Average fundamental frequency contours of three vowels in initial position (VCV)
As linguists our concern is not with the physical structure of sounds, but with abstract relationships between entities which manifest themselves as sounds. Our phonological parameters should not be based on phonetic data, but rather on phonological relationships exhibited by phonological rules. I take as my primary data not physical sounds, but phonological laws, and construct a set of distinctive features based on linguistic relationships. This set of phonological distinctive features yields insights into the nature of language and allows generalizations which a set of phonetic distinctive features cannot.

A. Data

First Germanic consonant shift
voiceless stop > continuant (Latin tres, English three)
voiced stop > voiceless stop (Latin dennis, English tooth)
voiced aspirate > voiced non-aspirate (Skt. bharami, Eng. bear)

Transformational phonetic description
[-voice] → [+continuant]
[+voice, -aspiration] → [-voice]
[+voice, +aspiration] → [-aspiration]

fails to reveal any relationship among the subparts of the shift.

Second Germanic consonant shift
voiceless continuant > voiced stop (three, drei)
voiceless stop > affricate (tooth, Zahn)
voiced stop > voiceless stop (do, tun)

Transformational phonetic description
[-voice, +continuant] → [+voice, -continuant]
[-voice] → [+strident]
[+voice, -continuant] → [-voice]

fails to reveal any relationship among the subparts of the shift,
fails to reveal any relationship between the first shift and the second shift.

First Spanish consonant shift
long stop > short stop (bucca > boca)
voiceless consonant > voiced consonant (vita > vida)
voiced stop > voiced continuant (habere > ha̱per)

Transformational phonetic description
[-voice, -continuant, +long] → [-long]
[-voice] → [+voice]
[+voice, -continuant] → [+continuant]

fails to reveal any relationship among the subparts of the shift,
fails to reveal any relationship between the Germanic shift and the Spanish shift.
B. Establishment of phonological features

velars separate from dentals and labials

North German sagen > sayen, but baden, beben > idem
Sanskrit ghansas > hansas, but didhami, bharami > idem

velars and dentals separate from labials

Danish kage > kaye, bide > bide, købe > idem
Spanish lego > leo, credo > creo, but haber > idem

phonological relationship:

\[
\begin{array}{c}
g \\
d \\
b \\
\end{array}
\]
-------------> 1 2 3
relative phonological strength α

voiced stops are stronger than voiced continuants (sagen > sayen, etc.)

phonological strength β

<table>
<thead>
<tr>
<th>strength</th>
<th>g</th>
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relative phonological strength α

a new basis for comparative linguistics:

β strength 2 → β strength 1
α strength n

where 1 ≤ n ≤ m
for North German m = 1
for Danish m = 2
for Spanish m = 3

a prediction: there is no language where d > b but g > idem

the formulation of the rule requires that if d > b then g > γ

voiceless stops are stronger than voiced stops

Germanic voiceless stops > Danish voiceless stops

English cake, Danish kage; bite, bide; cheap, købe

Latin voiceless stops > Spanish voiceless stops

vita > vida; sapere > saber; aqua > agua

phonological strength β

<table>
<thead>
<tr>
<th>strength</th>
<th>γ</th>
<th>b</th>
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relative phonological strength α

C. Systematic phonological interpretation of data in part A

First Germanic consonant shift

t > θ interpreted as t - t<sup>+</sup> - t - θ

d > t interpreted as d - t

d<sup>h</sup> > d interpreted as d<sup>h</sup> - d - d

Isolating

A t<sup>+</sup> - t<sup>+</sup> (phonetic manifestation)
B t<sup>+</sup> - θ, d<sup>+</sup> - d (increase of bond strength)

we have left
t - t<sup>+</sup> or θ strength 3 - θ strength 4
d - t or θ strength 2 - θ strength 3
b<sup>h</sup> - d or β strength 1 - β strength 2

The characteristic of the first Germanic consonant shift is

β strength n - β strength n+1

Second Germanic consonant shift

t > t<sup>s</sup> interpreted as t - t<sup>+</sup> - t<sup>s</sup>
d > t interpreted as d - t

θ > d interpreted as θ - d - d

Isolating

A t<sup>+</sup> - t<sup>s</sup> (phonetic manifestation)
B θ - θ (High German version of Verner's Law, a generalization of θ - θ / θ)

we have left
t - t<sup>+</sup> or θ strength 3 - θ strength 4
d - t or θ strength 2 - θ strength 3
b<sup>h</sup> - d or β strength 1 - β strength 2

long, aspirated, and affricated voiceless stops stronger than simple voiceless stops

Latin bucca > Spanish boca

English t > t<sup>h</sup> (top)

Danish t > t<sup>s</sup> (Tivoli)
The characteristic of the second Germanic consonant shift is

\[ n \rightarrow n+1 \]

The second Germanic consonant shift is essentially a repetition of the first.

**Spanish consonant shift**

- \( t^+ \rightarrow t \) or \( 8 \text{ strength } 4 \rightarrow 8 \text{ strength } 3 \)
- \( t \rightarrow d \) or \( 8 \text{ strength } 3 \rightarrow 8 \text{ strength } 2 \)
- \( d \rightarrow s \) or \( 8 \text{ strength } 2 \rightarrow 8 \text{ strength } 1 \)

The characteristic of the Spanish consonant shift is

\[ n \rightarrow n-1 \]

The Spanish consonant shift is contrapositive to the Germanic consonant shift. The Spanish shift is a weakening of consonants, the Germanic shift a strengthening of consonants. This relationship, inexpressible in transformational phonology, indicates the need for a new system of distinctive features based on phonological relationships.

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56. Oliver M. Willard, University of Oregon

**FEATURES: UNARY OR BINARY?**

I hope to show (i) that Lamb’s unary features allow a more compact lexicon, but (ii) that Jakobson's binary features allow simpler rules for the realization of the lexicon in actual sentences. I will therefore propose a system based on the principle of markedness for converting unary lexical items, to make them available to undergo the operation of binary phonological rules.

I will discuss some of the stratificational grammarians' own examples to show that both plus and minus values for features are necessary in the phonological component of a grammar (though not in the lexicon), since some rules operate only when a feature is present but others operate only when a feature is absent. Unless, for instance, we are willing to consider “Unaccentedness” to be a positive feature and “Accent” to be the mere negative absence of this feature, some stratificational examples cannot be adequately described with unary rules.

Neutralization is essentially negative, since it cancels out one or more of the differences between units which are in contrast elsewhere in the system. Consequently I hope to show (i) that predictability and not distinctiveness is the most practicable criterion for isolating the features, or "phonons", of a language, and (ii) that much unnecessary controversy has arisen from attempts to capture the ignis fatuus of "distinctiveness".
The phenomenon of linking in French as well as that of pause is not solely a phonological one. The rules of linking and pause are in fact syntactically constrained and their application depends on the grammatical category of the constituents involved. The following examples may serve as an illustration.

1. savant_aveugle 'learned blind man'
2. aveugle_savant 'learned blind man'
3. savant / aveugle 'blind scholar'
4. aveugle / savant 'blind scholar'

In (1) linking is obligatory and in (2) pause is prohibited (indicated by the inverted arc) whereas in (3) linking is prohibited and in (4) pause is obligatory (indicated by the slant line). Before the application of the linking and pause rules, however, (1) and (3) are phonetically identical and so are (2) and (4). Thus, if the linking and pause rules were uniquely phonological, there would be no way of determining whether the rules apply or not.

Assuming that phrases such as (1-4) are derived from relative clause constructions, we derive (1) and (2) from the deep structure (5).

5. \( \text{Det} \rightarrow \text{NP} \rightarrow \text{N} \rightarrow \text{NP} \rightarrow \text{S} \rightarrow \text{VP} \rightarrow \text{V} \)

The application to the above phrase-marker of the rules of Relative clause formation, Relative clause reduction, and Adjective shift and of Ross's Pruning principle, yields a structure represented by (6).

6. \( \text{Det} \rightarrow \text{NP} \rightarrow \text{V} \rightarrow \text{N} \rightarrow \text{NP} \rightarrow \text{VP} \rightarrow \text{V} \)

The derivation of (3) and (4) is as follows: to the deep structure (7) the same rules of Relative clause formation and Relative clause reduction apply. After Pruning we get the structure represented by phrase-marker (8).

7. \( \text{Det} \rightarrow \text{NP} \rightarrow \text{N} \rightarrow \text{NP} \rightarrow \text{S} \rightarrow \text{VP} \rightarrow \text{V} \)

8. \( \text{Det} \rightarrow \text{NP} \rightarrow \text{V} \rightarrow \text{N} \rightarrow \text{NP} \rightarrow \text{VP} \rightarrow \text{V} \)

From the phonetic point of view the constituents V + N in (6) seem to behave as one entity, i.e., (1) requires linking and the meaning of (2) prohibits pause; on the other hand, the constituents N + V in (3) and (4) seem to behave as distinct entities, i.e., in (3) linking may not occur and in (4) pause is necessary in order to disambiguate (4) from (2). What this suggests is that the speaker feels the presence of a boundary between the noun and the adjective in constructions like that of (8), a boundary which is not present between the adjective and the noun in constructions like that of (6).

This paper will suggest as a tentative explanation of the phenomena of linking and pause that pruning does not erase completely all traces of severed branches; it will suggest that the boundary which separated the pruned node from the preceding noun be adjoined to this noun as a reminder so to speak, that at some point in the derivational history of the structure there was an embedded sentence following the noun. To remain with the horticultural terminology of Ross I will call this the GRAFTING principle.
I will attempt to show that a number of processes in English phonology "conspire" to yield phonetic forms which have the property that primary stresses in words can be further to the left in nouns than in adjectives or in verbs, and further to the left in adjectives than in verbs. Some of the evidence which I will present is the following:

A. Primary stress is first assigned finally (cf. Tennessee, debonair, guarantee (this final stress is normally subsequently retracted - cf. manatee, manifest, gallivant - under complicated conditions)). Whether or not a form can be non-finally stressed depends on what consonants it ends in. Non-finally stressed verbs can only end in sonorants (cf. jettison, monitor, bamboozle); non-finally stressed adjectives in sonorants (genuine, personal) or in the consonants s or ß, or in the cluster pt (obvious, adequate, indigent); and non-finally stressed nouns in sonorants or in any dental cluster (arsenal, integer, medicum, cinnamon; Titicut, pyramid, abacus, Elizabeth, elephant, Everest).

B. There is a rule which deletes word-final lax æ after this vowel has caused velars to palatalize (cf. allége-allegation, reduce-reduction). For verbs, however, a more general form of this rule applies, deleting not only mid but also low front vowels. Thus crédit, establish, etc., can be shown to end in a low front vowel in underlying representation (among other things, this vowel explains the laxing of the penultimate vowel of such verbs (cf. crèdo, crédence; stable)). Thus verbs appear to be stressed only finally or penultimately (regret/inherit), in contrast to nouns, where stress can appear on any of the last three syllables (Berlin, horizon, cinnamon). The fact that it is for verbs that antepenultimate stress is not possible (if the verb ends in a nonsonorant) is the same fact as the fact that non-finally stressed verbs end in a smaller class of consonants than is possible for the other two major word-classes (cf. A).

C. While there are noun-verb pairs in which stress is retracted in both members (comment, ambush), or is not retracted in either (arrest, lament); or is retracted only in the noun (tormenty, tormentN), there are no pairs in which the stress is retracted only in the verb (policeN, y, and not *police). 

D. There is a rule desstressing -ate and certain other affixes from which stress has been retracted. This rule, however, does not apply to verbs. Thus such pairs délégatey - délége are produced - pairs containing nouns followed by two unstressed syllables, a situation which cannot arise for verbs.

The significance of such "conspiracies" - groups of rules which have the same function, while being formally totally distinct, will be briefly discussed.
59. D. L. Olmsted, University of California at Davis

THE EFFECT OF POSITION IN THE UTTERANCE ON ACQUISITION OF PHONES BY CHILDREN

This topic is explored with reference to data collected from the spontaneous utterances of 100 children between the ages of 15 and 54 months. A distinct advance over previous investigations is afforded by the fact that the sample contains, for most of the children, multiple attempts at most of the phones, not simply one chance to pronounce each phone in some test situation. Age-norms are suggested for the several phones of English and the notion of an Index of Acquisition (IA) is developed for the different age-groups of children in connection with the different phones. The situation respecting the effects of different utterance-positions turns out to be more complicated than has been suggested by previous investigators. The results from these data are contrasted with the suggestions of previous workers, e.g. Wellman et al., Templin, and Jakobson.

60. Thelma E. Weeks, Stanford University

SPEECH REGISTERS IN YOUNG CHILDREN

This study examines the question of the use of speech registers by children. Subjects for the study were three children: one girl and two boys aged one year six months, three years, and four years ten months, respectively. Data was gathered over a two-year period from the boys and for six months from the girl. For the purposes of this study, register is defined as a style of speaking (e.g., formal, imitative or clarified) or voice intensity (e.g., whisper-shout) and pitch (e.g., normal-high), when used to convey additional information or emotion beyond that conveyed by the words alone. Interest centers on the age at which children learn to use various speech registers and in what social contexts. In general, the results show that children begin to make use of speech registers at the same time that they begin to acquire language, although full mastery of speech registers is acquired more slowly than general linguistic competence. Also, the progression of the acquisition of registers varies a great deal more than does the acquisition of grammatical forms. Determining factors for the variation are suggested by this study.
A complete linguistic theory must provide an account of the relation between grammatical theories of competence and psychological theories of performance. The research reported below is used to claim that the speed with which words are recognized as having occurred in a sentence is correctly described by the grammatical relations among those words in the sentence in question.

Using the latency for recognizing that two words occurred in a sentence, it is demonstrated that the grammatical relations among words strongly influence their retrieval from immediate memory. 1) Grammatically related words are recognized faster than unrelated words, contradicting predictions based on serial position alone. 2) Furthermore, related words are recognized faster when they are presented for recognition in the same order as that described by the structure of the sentence. Preference of order for the head noun and embedded verb of relative clauses is determined by the grammatical relation of the words in question. 3) In cases where surface order and underlying order conflict, the underlying order determines the preferred recognition order. However, when surface and underlying orders differ, the preferred recognition order may be determined by the semantic predictability of the relation in the sentence. For passive sentences with semantic clues to relational interpretation, the surface order of the words is preferred for recognition. For passive sentences with semantically reversible subjects and objects, the underlying order is preferred. This last result suggests, of course, that retrieval latencies are not determined by sentence structure alone, but may reflect other aspects of competence as well.
In any language, linguistic correlates of spatial relations, and of relations derived from these by a process of abstraction, are likely to exhibit a relatively high degree of symmetrical organization. In languages in which such relations are covered by systems of spatial prepositions, it is the subsystems of the orientation type that will tend to show this feature most characteristically. However, closer examination shows that superficial parallels or similarities of kind may often conceal important differences of degree. The purpose of this paper, based on a detailed analysis of a subsystem of present-day English prepositions, is to identify one such case in this language and to point to some of the apparent implications with regard to the usefulness of the concepts of symmetry and asymmetry as applied to natural languages in general. The oppositions above/below and over/under participate in a system of spatial prepositions not all members of which are paired off in this fashion, and their respective terms may be assumed to be symmetrically related. While this is true in a general sense, a careful comparative examination of the various meanings of the individual terms, for which examples are provided, reveals that above and below are related to each other considerably more systematically, and hence more symmetrically in terms of strict antonymy, than are over and under. In the former case we find essentially one-to-one mirror-image semantic contrasts; in the latter, a gradient of contrastiveness extending between strong direct contrast and the absence of any kind of immediate relationship between the two terms. Symmetry in natural language - as opposed to various formalized 'languages' - is thus seen to be a matter of degree, and excessive reliance on this concept may lead to serious distortion of descriptive data.

Quantifiers in natural language have long been a source of interest both for linguists and logicians. What has been lacking, however, is an approach both linguistically sound and logically sophisticated, to the actual syntax and semantics of the quantificational system used in normal English (as opposed to the quasi-English generally analyzed by most philosophers). Such an approach would be based upon an investigation of the presuppositional structure of quantifiers, as determined by the standard test: constancy of presuppositions under question and negation.

The existential "some" in logic is defined as "at least one" or "one or more". This is far from sufficient for natural English: "some", as a quantifier operating on plural count nouns, does indeed assert "at least one" (although it is only used when it applies to "at least two"), but in addition it presupposes "not all". "Some dogs have fleas" presupposes that (is used appropriately when) (i) some dogs don't have fleas (i.e., not all dogs have fleas) and (ii) there are at least three dogs in the universe. The structure of the semantics of this "some" can be given formally by

\[
\text{some } ([x_1 \mid i \geq 3], Fx)
\]

\[
P: (i) \exists x \forall y \exists z (y \neq z \& Fy \& Fz)
\]

\[
(ii) \exists x \exists y \exists z (Fx)
\]

\[
A: \exists x \exists y \exists z (Fz)
\]

In fact, all non-universal quantifiers (e.g. "most", "many") presuppose against the universal. To allow for the possibility of universal application English uses disjunctions of the form "some if not all", "few if any", "seldom if ever". Further analysis of quantificational usage reveals that "some" does not presuppose against "many" but, on the other hand, "many" presupposes "some". The fact that "some" and "all" -- but not "some" and "many" -- define mutually exclusive conditions is an insight attributable to and formalizable by presuppositional analysis.

This approach will be utilized in investigating other parts of the English quantifier system. Special attention will be given to the interaction of negation with quantification and to the nature of generics.
In positive sentences a cardinal number $n$ can often be interpreted either in the sense of \textit{at least} $n$ or \textit{exactly} $n$.

1. John has 200 dollars.
2. John has 175 dollars.

In one sense (1) implies (2); therefore the negation of (2) is incompatible with (1). The "normal" negation (i.e., without emphatic stress) of quantitative terms (e.g., \textit{many}, \textit{all}, \textit{pretty}, \textit{warm}, \textit{love}) is of the "at least" sense; that is, \textit{not at least} = \textit{less than}.

To account for such relations of inclusion, we can formulate rules of the sort \textit{hot} implies \textit{at least warm}, \textit{cold} implies \textit{at least cool}, \textit{old} implies \textit{at least middle aged}, \textit{brilliant} implies \textit{at least intelligent}, \textit{intelligent} implies \textit{at least smart}, \textit{smart} implies \textit{not dumb}.

Relations of inclusion play a role in English with respect to a number of constructions, including constructions with \textit{only}, \textit{but}, and \textit{much less}. For example, in expressions such as \textit{X isn't even Y, much less Z}, $Z$ must imply at least $Y$, or the expression is anomalous.

3. Rita Sue doesn't even like Ernie, much less love him.
4. *Rita Sue doesn't even love Ernie, much less like him.
5. *Rita Sue doesn't even like Ernie, much less dislike him.
6. Rita Sue doesn't even dislike Ernie, much less hate him.

Since all of the above verbs imply that Rita Sue knows Ernie, it is possible to substitute any one of them in the blank in (8).

7. Rita Sue doesn't even know Ernie, much less ___ him.

This paper describes the role of relations of inclusion with respect to various constructions in English.
29. Is Rita Sue smart?
30. Yes, in fact she's brilliant.
31. No, she's brilliant.
32. No, in fact she's stupid.
33. *Yes, (in fact) she's stupid.
34. Is Ernie dumb?
35. Yes, in fact he's an ignoramus.
36. No, he's an ignoramus.
37. No, in fact he's brilliant.
38. *Yes, (in fact) he's brilliant.
39. Does Ernie like his chopper?
40. Yes, in fact he loves it.
41. No, he loves it.
42. No, he hates it.
43. *Yes, (in fact) he hates it.
44. Beautiful  Pretty  Attractive
    Pretty  Attractive
    Attractive  Presentable
    Ugly  Unattractive
    Unattractive  Not attractive
    Not  Warm
    Warm  Cool
    Not cool  Middle aged
    Middle aged  Not young
    Not young  Brilliant
    Brilliant  Intelligent
    Intelligent  Smart
    Smart  Not dumb
    Stupid  Dumb
    Hate  Dislike
    Love  Like
    Dislike  Not like
45. John only likes rice (... he doesn't love it).*
46. John only dislikes rice (... he doesn't hate it).*
47. *John only eats rice (...?)*
48. *John only loves rice (...?)*
49. Only (F, Fx, E₁ E)

[Presupposition: (1) Fx
(2) (G) (G₅ & E₁ (G,F))

Assertion: - (G) (G₅ & E₁ (G,F) & Gx) *

50. a. E_love (love, like)
    b. E_loathe (hate, dislike) *
51. (G) (G₅ & - (F-G))  
52. (G) ((G₅ & - (F-G)) - G)  
53. a. Brigitte Bardot is only pretty.
    b. (...she isn't beautiful).
    c. (...she isn't intelligent).*
54. John only eats rice, he doesn't sell it (as well).
55. Fx
56. (G) -(G-F) & - (F-G) 
57. (G) ((F & D) - (G & D)) & (F & U) - (G & D) 
58. *Rita Sue is only stupid, she isn't pretty.
59. Rita Sue is only stupid, she isn't ugly.
60. The water is only hot, it isn't dirty.
61. The water is only cold, it isn't dirty.
62. The water is only hot, it isn't clean.
63. The water is only cold, it isn't clean.
64. John likes rice, but he doesn't love it.
65. John dislikes rice, but he doesn't hate it.
66. John eats rice, but he doesn't sell it.
67. *John loves rice, but he doesn't like it.
68. *John hates rice, but he doesn't dislike it.
69. Brigitte Bardot is pretty, but she isn't beautiful.
70. Brigitte Bardot is pretty, but she isn't intelligent.
71. *Rita Sue is stupid, but she isn't pretty.
72. Rita Sue is stupid, but she isn't ugly.
73. *Rita Sue doesn't even like Ernie, much less love him.
74. *Rita Sue doesn't even love Ernie, much less like him.
75. *Rita Sue doesn't even like Ernie, much less dislike him.
76. Rita Sue doesn't even dislike Ernie, much less like him.
77. *Rita Sue doesn't even hate Ernie, much less like him.
78. *Rita Sue doesn't even hate Ernie, much less dislike him.
79. Rita Sue doesn't even know Ernie, much less _____ him.
83. He could not read the text, much less translate it.¹
84. He's unwilling to rent the house, much less buy it.
85. ?He could not translate the text, much less read it.
86. ?He's unwilling to buy the house, much less rent it.

¹Nos. 83 and 84 from The Structure of Language, "Negation in English", by Edward S. Klima

66. Jean Casagrande, University of Florida

AGREEMENT IN FRENCH

Within the scope of simple sentences agreement can be limited to two rules but may not be further reduced. The first rule accounts for the agreement in gender and number of adjectives and past participles with the subject, and of AVOIR past participles with the preceding object. The task of the second rule is to specify the agreement of the verbal element in person and number with the subject.

Arguments are given for rule ordering, for the auxiliary formation rule, for the deep identity of adjectives, verbs, adverbs, and prepositions, against the placement of agreement rules in the cycle, and against a unique agreement rule.
67. Marlys McClaran, University of California at Los Angeles

THE VERBAL CATEGORIES IN YUCATEC MAYA

Descriptive studies to date of Yucatec Maya have labelled the various morphemes of the verbal system and have noted cooccurrence restrictions, but an internally coherent system with explanatory value for the syntactic phenomena has been lacking. The analysis offered here provides a solution for some traditional problems in Mayan linguistics including (a) the distribution and function of the two sets of personal pronouns, (b) the so-called "passive" forms and (c) the modals and conjunct forms. It provides a basis for a description of nominalized constructions.

The linguistic analysis is integrated into the results of a study in descriptive semantics in which informants produced distributionally defined lexical classes and two-item rules indicating which classes could combine to form acceptable utterances. These lexical classes are not synonym sets, nor morphological form classes nor free association categories, but rather covert classes whose class meanings contribute to the meaning of sentences beyond the meaning contributed by the deep structure constituents, the syntactic function of these constituents and the referential features of lexical items. The kind of knowledge involved is that which allows us in English to know that in the sentence John kicked the dog, John has a relation to kick which is different from that of John to undergo in John underwent psychoanalysis.

This kind of information about the covert classes of Yucatec is offered along with the observed facts of surface structure as the basis for the proposed analysis of the verbal syntactic phenomena.

68. Alan M. Stevens, Queens College of the City University of New York

CASE GRAMMAR IN PHILIPPINE LANGUAGES

It is well known that in Philippine languages one NP is focused on, i.e. is made subject or topic and is marked by a special particle. The case relationship of this NP to the verb is marked by verbal affixes, and other NP's in the sentence are marked by other particles.

In Universals in Linguistic Theory brief references are made to universal case grammar as applied to Philippine languages. I would like to explore these further and examine some of the implications of applying these suggestions to the notion of focus.

Fillmore suggests that focusing is equivalent to topicalization of one of the case prepositions (in his sense): "its original case preposition is replaced by (the focusing particle) and an affix is inserted into the V which indicates the case category of the chosen NP."

But what is the original case preposition? It is not always possible to go from the focused NP and its presumed case preposition to the correct V affix by relying on what would be expected from a corresponding English sentence. For example, the goal of the verbs 'wash' and 'sweep' is focused on by inserting a locative affix on the verb. On the other hand, the goal of 'give' and 'throw away' is focused on with an instrumental affix on the verb. Some verbs have several of these possibilities. Is this merely a matter of subcategorization of verbs according to the set of case relations they take or are there deep (i.e. universal) semantic and syntactic justifications for these selections?

The case relationships of non-causitive, causitive, and non-focus sentences will be examined.
In most works dealing with componential analysis attention is limited to a relatively small universe (kinship terminology, morphological paradigms, etc.).

In languages with words having a more or less agglutinative and therefore clearly transparent structure (e.g. Slavonic languages) an attempt at componential analysis outside the domain of kin terms and grammatical paradigms may prove successful and useful.

This paper wishes to draw attention to some problems of semantic components of Russian word-formational affixes and to elucidate the feasibility of componential analysis of Russian morphemes.

The inventory of the domain of Russian affixal morphemes, which is comparatively small, has been many times and contradictorily described. One of the main reasons for the non-uniqueness of linguistic descriptions of Russian morphemes is the inconsistent treatment of relevant (distinctive) and irrelevant (non-distinctive) semantic components.

The validity of some types of semantic tests applicable to Russian morphemes is discussed and arguments for a general difference between relevant and irrelevant semantic components are offered.

The surface structure of the passive and executive constructions is most commonly of the form:

\[ NP_1 + \{ \text{BEI} \} + NP_2 + VP \]

where \( NP_1 \) is the patient, \( NP_2 \) the agent, in the passive (BEI) form, and \( NP_1 \) is the agent, \( NP_2 \) the patient, in the executive (BA) form. It has been postulated that the deep structures of these constructions consist of an active sentence plus a BEI or BA formative respectively (Wang, Hashimoto, 1964 and 1966). Hashimoto recently suggested that these constructions may be treated as embedding structures with BEI or BA as the matrix verb. The co-occurrence restrictions among the Agent-NP, Patient-NP, and the VP in the BEI and BA sentences, however, remain an unsolved problem. These restrictions are not the same as those found among the identical NPs and VP in an active counterpart of the form: Agent-NP + VP + Patient-NP. In this paper, we examine the BEI and BA constructions with simple verbs, compound verbs, and resultative verbs having either a transitive or intransitive matrix verb. The analysis shows that there are differences between the BEI, BA, and active sentences at the deep structure level beyond the presence or absence of BEI and BA. These differences cannot be explained by syntactic conditions alone. They are essentially caused by a number of semantic factors which also determine the co-occurrence relations among the elements of the sentences in question. Consequently, new deep structures of BEI and BA constructions are proposed, and several issues concerning the nature of 'deep structure' in the theory of syntax are raised and discussed.
Inflectional affixes in the Igbo verbal system include a few prefixes, suffixes, and morphemes of tone replacement. These occur with a verb base, which may consist of one to three, or perhaps occasionally four or five, syllables. The first syllable is itself a verb root, which with very few exceptions occurs independently as a monosyllabic verb base. The second syllable may be another such verb root. The second syllable in other cases and all remaining syllables, with one exception noted later, are bound morphemes; although a few two-syllable sequences are at present unanalyzable, it seems reasonable to assume that each syllable is a separate morpheme.

It is tempting to hypothesize that the bound morphemes occurring in bi- and polysyllabic bases are themselves verb roots which merely do not happen to occur as independent monosyllabic bases. However, the restriction of obvious monosyllabic roots to first and second position in a polysyllabic base suggests that the bound morphemes constitute a separate morpheme class, which we call "base formatives". About thirty such base formatives have been identified. The semantics of these morphemes strongly support this analysis. One independent root occurs also as a base formative, with a significant element of semantic symmetry.

The parallel with Bantu "verbal extensions" is interesting. However, Igbo also has two morphemes which function differently from base formatives, and even more like Bantu extensions.

The isolated Albanian dialect of Mandrica is located in a single village of Bulgaria near the Greco-Turkish border. The dialect has undergone strong contact effects from the neighboring languages. One phonetic result is that dental spirants have merged with sibilants, so that '20' accidentally resembles '10, -ty', which is not true of other Albanian dialects.

The decades in spoken Bulgarian undergo an abnormal syncope of the vowel of '-ty' not found generally in other word classes. Mandrica Albanian, though inheriting the Albanian vigesimal system, shows the same abnormal syncope. I term this a "particularity" and not an "irregularity" since it is seen to be a regular rule of the language once the correct syntactic context is identified and incorporated. It is this rule that Mandrica has borrowed.
It can be shown that the diachronic dental palatalization law of Portuguese (see Naro 1969b) is non-directional:

\[
\begin{align*}
\text{[+cons]} & \geq \text{[+high]} \\
\text{[+cor]} & \geq \text{[+high]} \\
\text{[+ant]} & \geq \text{[+back]}
\end{align*}
\]

Typical examples are filium > filho and apiculam > abelha. Intuitively these changes involve assimilation or spreading of the feature [+high] in both directions -- backward from yod and forward from k. Another change of the same type involves the lowering of mid vowels on both sides of a low vowel, followed by spread of [+round] (exs: ao > ọ > ù, on > ọ > ò as in solam > só, mar > mór; see Naro 1969a). However, there are clearly cases in which features spread directionally (ex: Portuguese velar palatalization, in which [-back] spreads backward only). Given the intuitive connection between lack of directionality and spread of features it is postulated that all diachronic non-directional sound changes are assimilative.

Several apparent counter-examples are discussed and are shown to be consistent with the hypothesis upon closer examination. An interesting case is Oliveira’s rule:

\[
\begin{align*}
\text{[+stress]} & \geq \text{[+high]} \\
\text{[-low]} & \geq v_1
\end{align*}
\]

This rule, which raises unstressed mid vowels in hiatus, has been a part of Portuguese phonology for several centuries. As a synchronic rule it is non-directional but obviously non-assimilative. Diachronically, however, the first examples found are with $v_2 = ą$. Traditionally a change like $a e > a ą$ would be at worst a dissimilation but an alternative treatment is presented. Other examples are discussed.
As is well known, the perfect tense in English is expressed by have together with the appropriate past participle suffix on the following verb; the latter may be given the single abstract symbol -en. Unlike the usual complex lexeme, the two components of the realization, have and -en, are not contiguous but are separated by a verb stem, e.g. have taken. The same situation is found for the progressive tense, realized as be...-ing, and the passive lexeme, realized as be...-en, as in have been being taken, realizing L/perfect progressive passive take/. In treating this phenomenon within a rewriting frame of reference, the usual approach is to first order the units so that have and -en are contiguous and then to rearrange them by means of a transformational rule which permutes the suffix and the following verb stem.

The present paper presents the latest stratificational treatment of this phenomenon, which accounts for the facts by means of a simple relational network description without any permutations. The description is then expanded to show the treatment of word boundaries as well as the phenomenon of 'subject inversion' as a means of expressing the yes-or-no question, e.g. have the books been taken?

This new stratificational treatment, which is more economical than earlier ones, makes use of a new type of node, called the one-way 'and', and a new type of line, on which impulses can move in only one direction. This new equipment appears at first glance to constitute an added complication in the notational system of stratificational grammar, but besides the above-mentioned phenomena, it provides a simpler means than heretofore available of accounting for the conditioning of alternate realizations, e.g. the various realizations of the past participle suffix. Moreover, the entire network system of the now familiar version of stratificational grammar can be reduced to a system which has only three types of nodes plus a blocking element, and in this more refined system the 'new' one-way nodes can be incorporated without additional equipment.
American linguistics during the past few decades has been characterized by the transition from the dominance of one theoretical extreme to that of another. This change in basic attitudes has by some authors been called a "change in scientific paradigm", using a concept suggested by Thomas A. Kuhn in "The Structure of Scientific Revolutions" (U. of Chi. Press, 1962). This application of Kuhn's notion will be critically evaluated. Some striking, though rarely mentioned, parallels between the two extreme views will be pointed out. In conclusion, some of the considerations pertinent to the development of a moderate theoretical position in linguistics will be presented.

Recent advances in mathematical linguistics (John P. Kimball (1967) "Predicates Definable over Transformational Derivations by Intersection with Regular Languages," Information and Control, 11, 177-195; P. Stanley Peters and R. W. Ritchie (1970) "On the Generative Power of Transformational Grammars," to appear in Information Sciences) have made it possible to study certain hypotheses of empirical linguistics in terms of this field. Some linguists have attempted to present evidence in favor of (Bach, Lakoff, McCawley, Ross) or against (Chomsky) the hypothesis that all natural languages have the same underlying structure. Their arguments, which have been far from universally convincing, are framed within various versions of the theory of transformational grammar, which attempts to provide a fully explicit basis for choosing the descriptively adequate grammar for a natural language from among the class of all possible grammars.

It is now possible to demonstrate that published versions of transformational theory fail to provide a means to empirically test the universal base hypothesis. This has been shown by proving that a highly trivial base component suffices for the description of arbitrary recursively specifiable sets of data, including many which are not possible natural languages, when supplemented by an appropriately chosen transformational component. Furthermore, there are an infinite number of bases which are "universal" in this sense. One reason why this is so is the extremely abstract nature of the relationship between a transformational grammar's rules and the structural descriptions it assigns. Apparently, the nature of this relationship makes it necessary to impose far more stringent constraints on entities which are to qualify as transformational grammars than the formal constraints which have been imposed thus far. Quite likely the necessary constraints will have a nature radically different from those which are familiar.

Thus not only current versions of the theory of transformational grammar, but also current approaches to the refinement of this theory are inadequate to the resolution of an important issue of current linguistics.
The recent frequency dictionary of Russian by Steinfelt is apparently unique in that it gives the case frequencies of individual nouns (approximately 900 of them). Examination of these data shows large and consistent differences among different semantic groups of nouns. For example, while personal individual nouns (e.g. 'woman') have the nominative as the most frequent case, personal collectives (e.g. 'army') have the genitive as the most frequent. A cluster analysis by computer is being prepared and the results are expected to be incorporated in the paper.

Among the theoretical considerations arising from these results are the following. (1) The theory of the connection between frequency and marking may be modified by the introduction of 'conditional marking' based on semantic features of the noun. (2) A view is developed that a case system involves certain core relations between particular semantic groupings and cases revealed among other ways by the frequency data of the type presented here. The redundancies of such a system are almost completely destroyed by processes that may be called metaphorical in the broadest sense. Two types are considered here, first metaphor in the usual sense and then something that will be called grammatical metaphor, the process by which paraphrases involving the same truth-value meaning arise but with the noun in different case forms. One of these case forms is basic for the noun and the other(s) derived. In one usage of the term 'grammatical meaning' it is this which is changed by such a 'metaphor.'
Research in developmental phonology has focused almost entirely upon 1) the child from birth to about one year, which is by its very nature prelinguistic or 2) the child of three or four years and beyond, thus overshooting the most crucial period of development. Consequently, an enormous mass of research has literally been conducted "around" the primary phase of phonological development leaving behind a virtual vacuum. This research gap is obviously not the result of design but, rather, of circumstance, the essential difficulties being 1) the inaccessibility of adequate quantities of representative longitudinal data for study between the ages of one and three years, and 2) the near impossibility of doing controlled experiments with children under three years of age.

The present study 1) reports the data gathering procedures used to obtain detailed longitudinal phonological records from two children beginning with the 15th month of life (earliest period that meaningful utterances could be inferred), 2) summarizes the generative descriptions derived from analyses of the data, and 3) presents comparisons between the grammars of the two children.

The results clearly demonstrate that although the phonological inventories of both children are nearly identical, each is following an entirely different developmental pattern of movement toward the adult model. In fact, most of the children's phonological regularities can only be captured by expressing them as "output" relations to the adult model "input", i.e., the child's system cannot be studied as an independent one, but rather the approach must more nearly approximate that of historical reconstruction or comparative linguistic analysis.

In general, two simultaneous processes of phonological growth were revealed: 1) sequential feature acquisition linked chiefly with initial and final position environments, and 2) acquisition of "implicit" rules which operate upon the feature system. However, it is methodically nearly impossible to unambiguously assign features directly to children as past theories have suggested; rather, they must be inferred indirectly by determining which ones are necessary to "make the rules work" in much the same way one goes about establishing syntactic and semantic categories.
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