CORNELL
WORKING
PAPERS IN
LINGUISTICS

Volume 2 • Spring 1981
The Cornell Working Papers in Linguistics is an informal publication of the Department of Modern Languages and Linguistics at Cornell University. It is intended as a forum for presentation and rapid dissemination of current research by the faculty and students of the DMLL. Since the papers represent work in progress, comments and criticism are invited. All correspondence may be addressed to Working Papers in Linguistics, DMLL, 203 Morrill Hall, Ithaca, New York 14853.

Due to the irregular schedule of publication, we cannot offer subscriptions. Brochures describing current issues as well as back issues will be sent to those on our mailing list.
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leonard H. Babby</td>
<td>A Compositional Analysis of Voice in Turkish: Passive, Derived Intransitive, Impersonal, and Causative</td>
<td>1</td>
</tr>
<tr>
<td>Susan R. Kesner Bland</td>
<td>Topic/Comment Sentences in English</td>
<td>32</td>
</tr>
<tr>
<td>Suzanne Flynn</td>
<td>Effects of the Reversal of Principal Branching Direction (from L₁ to L₂) in L₂ Acquisition</td>
<td>50</td>
</tr>
<tr>
<td>Steven Franks</td>
<td>Resyllabification</td>
<td>63</td>
</tr>
<tr>
<td>Robert D. Hoberman</td>
<td>Subjects, Objects, and Verb Morphology in Modern Aramaic</td>
<td>88</td>
</tr>
<tr>
<td>Richard C. House</td>
<td>Genitive Initial Sentences and Quantification in Russian</td>
<td>108</td>
</tr>
<tr>
<td>Susan McCormick</td>
<td>A Metrical Analysis of Umlaut</td>
<td>126</td>
</tr>
<tr>
<td>Margarita Suñer</td>
<td>On Null Subjects</td>
<td>138</td>
</tr>
<tr>
<td>F. van Coetsem, R. Hendricks and P. Siegel</td>
<td>On the Role of Function in Sound Change</td>
<td>166</td>
</tr>
<tr>
<td>Linda R. Waugh</td>
<td>Possibilities and Limitations of Verbal Communication: Language and Reality</td>
<td>186</td>
</tr>
<tr>
<td>Dana Wheeler</td>
<td>Subject Clitic Inversion in French</td>
<td>200</td>
</tr>
</tbody>
</table>
A COMPOSITIONAL ANALYSIS OF VOICE IN TURKISH: PASSIVE, DERIVED INTRANSITIVE, IMPERSONAL, AND CAUSATIVE.

Leonard H. Babby

Part I

1.0 Introduction. My major hypothesis is that in order to adequately describe what is traditionally called voice in Turkish, it is necessary to recognize the crucial role played by certain formal parallels in the construction of sentences and verb phrases. The first part of the paper is devoted to the formation of passive, derived intransitive, and impersonal sentences, which are treated together because they involve essentially the same syntax and morphology. The second part is devoted to a non-transformational or 'direct' syntactic analysis of causativization. The framework in which these grammatical processes can be most naturally described is a combination of the theory proposed in Bowers and Reichenbach 1979 (which incorporates certain crucial assumptions of Montague grammar) and $\bar{X}$-syntax (Jackendoff 1977).

2.0 Basic facts about Turkish. Before proceeding it is necessary to state a few elementary facts about Turkish.

2.1 Turkish is an SOV, left-branching language. A simple transitive sentence therefore has the following structure: $[S[NP[V[P[NP[V]]]].$

2.2 The subject and indefinite direct object have no case marking, i.e., they are identical to the uninflected noun stem. Definite (specific) direct objects are marked with the suffix -I-, which can for the sake of convenience be called the (definite) accusative, although it can be argued that it is in fact not a case ending. Case in Turkish is first and foremost a property of noun phrases, not nouns; case suffixes attach to the right-most constituent of the NP, which is the head noun if one is present (see Babby 1980a). In general, heads of major phrase nodes occupy the right-most position (e.g. $[NP...N]$, $[VP...V]$).

3.0 Passive sentences in Turkish. Active and 'full' passive sentences in Turkish are related in the following way: the active direct object is the passive subject; the active subject is either in an ablative taraflat 'side' construction or has the adverbial suffix -CE-; the transitive verb is marked with the suffix -Il- or one of its allomorphs (-n- or -In-), e.g.:

(1) a. (Ben) $\bar{s}u$ kalem-ı kullan-ır-ım.
I that pencil-acc use-aorist-lst. sg.
'I use that pencil'
b. Şu kalem ben-im taraf-ım-dan kullan-ıls-ar.²
    that pencil I-gen side-poss-abl use-Il-sorist
    'That pencil is used by me.'

(2a). Bu kitab siz-in taraf-iniz-dan oku-n-muştur.
    this book you-gen side-poss-abl read-Il-tense
    'This book was read by you (lit. from your side).'  

b. Bu kitab siz-ce oku-n-muştur.
    this book you-adv read-Il-tense
    'This book was read by you (lit. youly).'  

3.1 Notice that both -CE- and ablative noun phrases are regularly
    used with adverbial functions in nonpassive sentences, e.g.:

(3a). Yaş ağacı kolay-ca ışılır.
    young tree easy-ly bends
    'A young tree bends easily.'

b. Şidettli bir rüzgâr yüz-ün-den ağacı devrildi.
    strong a wind face-poss-abl tree fell-down
    'A tree fell down because (lit. from its face) of
    the strong wind.'

4.0 Derived intransitives. Since the suffix -IL- is always added
    to transitive verb stems in the formation of the passive, it is
    assumed in the literature that it is the passive suffix par
    excellence (cf. Swift 1963:107). But this assumption is patently
    incorrect since -IL- is regularly used in a number of non-passive
    constructions, the most common one being derived intransitive
    sentences (cf. English The window opened (derived intransitive) vs.
    The window was opened (passive)).

(4a). Yara aç-ıls-dá.
    wound open-Il-past
    'The wound opened.'

b. Tabak kár-ıls-dá.
    dish break-Il-past
    'The dish broke.'

c. Tel bük-üls-yor.
    wire bend-Il-progressive
    'The wire is bending.'

d. Pencere aç-ıls-ma-dá.
    window open-Il-neg-past
    'The window didn't open.'
(5a. active: Hikmet kapı-yı aç-tá
Hikmet door-acc open-past
'Hikmet opened the door.'

b. passive: Kapı Hikmet taraf-ın-dan aç-ıIl-dı.
door Hikmet side-poss-abl open-II-past
'The door was opened by Hikmet.'

c. deriv. intrans.: Kapı (kendiliğinden) aç-ıIl-dı.
door by itself open-II-past
'The door opened by itself.'

4.1 Derived intransitives have been described in the literature as sentences in which the 'empty' subject NP is filled not by lexical insertion, but by a transformation that moves the contents of the direct object NP into the subject NP (see Babby 1975, Bowers 1981). In the case of Turkish, the suffix -Il- is added to the basic transitive stem to mark its syntactically derived intransitivity. This syntactic operation can be conveniently represented as follows (capital letters stand for categories and lower case for lexical expressions; NP:∅ stands for an empty NP (see Bowers and Reichenbach 1979 and Bowers 1981).

(6a. [S NP:∅ [VP NP:x V:y]] = [S NP:x [VP NP:∅ V:y+Il]]

b. [S NP:∅ [VP NP:tabak V:kär-dı]] =
[S NP:tabak [VP NP:∅ V: kär-ıIl-dı]]

Notice that passives and derived intransitives have a common denominator, namely, in both constructions the direct object of a basic transitive verb appears as the subject of the corresponding syntactically derived intransitive. If we were to confine ourselves to just these data, it might seem that the suffix -Il- functions as a marker of syntactically derived intransitivity, with passive as a special case of a derivation in which a basic transitive stem is detransitivized as part of a syntactic operation involving the direct object (see Babby 1975 and Babby and Brecht 1975 for a treatment of -sia in Russian as a marker of syntactically derived intransitivity).

4.2 Notice that a sentence like (4b) actually gives us no information about agent involvement, and it can therefore be treated as either a derived intransitive (corresponding in English to 'The dish broke') or as an agentless passive (corresponding to 'The dish was broken (by someone)') (see Kononov 1956: section 387). If we wish to indicate explicitly that no agent is involved in the action denoted by the verb, we can induce the agentless reading by adding
the ablative adverbial expression kendiliğinden 'by itself' (cf. 5c). If we wish to assert explicitly that an agent is involved, we can add one of the adverbial agentive expressions described above in section 3.0 (cf. (1) and (2)). In other words, I am suggesting that in Turkish and, I expect, in many other languages as well, passive agents should be treated as optional adverbial expressions added to the 'basic' sentence by means of an optional categorial rule and lexical insertion (not by a transformation). The passive agent's function is to modify the action denoted by the verb, i.e., to focus the attention of the hearer on its agency. If this version of 'passivization' is correct, then we must conclude that there cannot be a passive transformation, since one of its essential components involves demoting the active subject by moving it into the verb phrase (and providing it with oblique morphology).

This non-transformational, 'direct' analysis of the passive is supported by two sets of facts that have been largely overlooked in the transformational literature. First, in most languages, including Turkish, the agentless passive is in fact basic (see Dowty ms.), i.e., it occurs in all styles of speech, while full passives are either restricted to literary or written styles or are simply not used at all (see Haiman 1976:20). It has also been observed that children acquire the agentless passive construction long before full passives (see Dowty ms.). Facts like these are of course a problem for the passive transformation, which treats full passives as basic, and agentless passives as derived from them by means of a transformation, which deletes indefinite or dummy passive agents.

Second, in most languages the passive agent is marked with oblique morphology that is normally used for adverbial expressions (e.g., the instrumental case in Russian, by-phrases in English, and the ablative in Turkish (see section 3.1)). If we consider the passive agent to be an underlying active subject that has been demoted into the verb phrase by a passive transformation, then we cannot account for the almost universal preference for adverbial marking on passive agents (e.g. a passive rule could just as easily use oblique marking that is not used in adverbial expressions or use 'special' passive agent morphology, which, to the best of my knowledge, is not attested). But the explanation is perfectly straightforward in the 'base generated' version of passivization that I have proposed above: passive agents are adverbial expressions and therefore have adverbial morphology. In what follows I will treat passives in Turkish as derived intransitives with optional adverbial expressions in -CE- or taraf constructions, which have an agentive interpretation.

5.0 Impersonal passives. The suffix -II- can also be added to a basic intransitive verb stem to form a subjectless sentence
which is referred to in the literature as the 'impersonal passive'. But the understood 'agent' in these sentences cannot be specified by -CE-, a taraf phrase, or any other means, as it can in the canonical passive. Since Turkish has no other productive means of forming subjectless sentences, I will refer to these sentences below as derived impersonals (I prefer this term since it will be argued below that these impersonal sentences are not 'passive'). As the following examples illustrate, derived impersonals in Turkish correspond to English sentences with people or one as subject.

(7)a. İstanbul-a nasıl gid-il-ir? 
İstanbul-dat how go-Il-aorist
'How does one get to Istanbul?'

darkness-loc work-Il-neg. aorist
'People don't (shouldn't) work in the dark.'

c. Cehennem-den kaç-il-ir, buradan kaç-il-maz.
hell-abl escape-Il-aor from-here escape-Il- neg aor
'One can escape from hell but not from here.'
(Ivanov 1977:10)

d. Ben-im için öl-ün-ür, çıldır-il-ir.
I-gen for die-Il-aor go-crazy-Il-aor
'People die and go crazy because of me.'

6.0 The function of -Il-. The productivity of sentences like those in (7) demonstrates that the suffix -Il- cannot be considered a marker of derived intransitivity (cf. section 4.1) for the simple reason that the verbs used in derived impersonals are all basic intransitives. Yet there is a common denominator underlying the use of -Il- in passive, derived intransitive, and impersonal sentences: in each case, one of the NP arguments for which the verb is subcategorized is not realized in the sentence. Thus it can be claimed that -Il- formally marks a reduction in the verb's basic (intrinsic) valency.

6.1 While the function of the suffix -Il- as a marker of reduced valency is relatively transparent, the proper treatment of its syntax is far from straightforward, i.e., it is not immediately obvious whether -Il- should be added to verb stems by one general rule or by two different rules (one associated with transitive verbs in passive and derived intransitive sentences and another with intransitive verbs in derived impersonals), and where in the grammar these rules (rule) should operate.

There are two different transformational approaches to -Il-
Introduction which seem plausible. The most obvious associates -Il- with a missing subject. In the case of passive and derived intransitive, the subject NP is not filled by lexical insertion and the contents of the direct object NP are moved into it; in the case of derived impersonals, there is no direct object, and the sentence therefore winds up in the surface structure as subjectless. In all three cases a 'missing' subject may be thought of as the ultimate trigger for -Il-Insertion (see Babb 1975 for a similar treatment of -sja in Russian). But there is a second analysis that is also consistent with the facts presented above: It has been established that the occurrence of -Il- on verb stems is associated with direct objects of transitive verbs and subjects of intransitive verbs, but never with subjects of transitive verbs. This ergative-like pattern can be exploited and, accordingly, -Il- can be introduced into a derivation by the same kind of syntactic rule that is used for marking the same case on direct objects and the subjects of intransitive verbs in ergative languages (see Comrie 1973; Babb 1980a, 1980b). I will argue below that both these suggestions are incorrect because neither is able to reflect -Il-'s function adequately.

6.2 It should be noted that there can be only one -Il- suffix per sentence, i.e., the process that introduces -Il- cannot reiterate, building up a sequence of -Il+Il-. Thus the output of detransitivization cannot itself serve as the input to impersonalization, e.g., the basic transitive verb stem dik- 'sew' cannot first be detransitivized to dik-il- and this derived intransitive stem cannot then serve as the predicate of a derived impersonal sentence like *Karanlıkta dik-il-in-mez (=One should not sew in the dark). It is important to bear this fact in mind for the following reason: Turkish has a second voice suffix, -Dir-, whose primary function is to record an increase in intrinsic valency, i.e., it is used when a verb combines with one NP argument more than it is subcategorized for (it is referred to in the literature as the causative suffix). This suffix can combine with -Il- in the sequence -Dir-Il-, never *-Il-Dir- (cf. note 14) and, most important, it can reiterate, i.e., there can be as many as three -Dir- suffixes attached to a verb stem. An explicit account of voice in Turkish should be able to account for these distributional facts.

7.0 A compositional treatment of voice in Turkish. The first part of this paper was primarily descriptive--it contains the basic facts about the voice suffix -Il- and a number of observations about its grammatical meaning. In the second part I will first outline a theory which can account for facts like these in a natural way and in which certain generalizations about the syntax of voice can be characterized explicitly. I will then analyze the syntactic processes associated with the suffixes -Il- and -Dir- (the causative suffix) in this framework.
7.1 The theory in which I will be analyzing voice in Turkish can be characterized as 'compositional' and was proposed in Bowers and Reichenbach's 1980 review of Montague's selected papers (see also Bowers 1981). The following paragraphs are an outline of the theory's major assumptions.

7.2 The structure of phrases and sentences is built up 'compositional', i.e., from the bottom up. For example, in the derivation of a simple intransitive sentence, first the derived category VP is built up from basic categories, i.e., V (cf. 8a). The derived category NP is built up as in (8b); finally NP and VP are combined into S as in (8c) (F stands for a syntactic operation, capital letters are categories, and lower case letters are arbitrary lexical expressions.)

\[
\begin{align*}
\text{(8)a. } & F_{\text{intr}} (V:a) = [V_P V:a] \\
\text{b. } & F_{\text{art}} (\text{Art:a, N:b}) = [N_P \text{Art:a N:b}] \\
\text{c. } & F_{\text{subj}} (N_P:a, V_P:b) = [S N_P:a V_P:b]
\end{align*}
\]

In other words, syntactic operations (F) combine basic categories into derived categories, and these categories are in turn combined into larger categories until the surface representation of a sentence is built up. The grammar of a natural language contains a set of these categorial rules which define the full set of surface grammatical relations of the language (B/R:214).

Note that the phrases and sentences in 'classical' transformational grammar are built from the top down by the phrase structure rules (and do not define the full set of grammatical relations), e.g.:

\[
\begin{align*}
\text{(9)a. } & S \rightarrow NP \ V_P \\
\text{b. } & NP \rightarrow \text{Art N} \\
\text{c. } & V \rightarrow V
\end{align*}
\]

7.3 As we see in (7.2) above, syntactic operations (F) produce expressions that are not simply concatenations of words, but labeled bracketing of words (B/R:206). Thus the general form of a syntactic rule is $F(a, b) = [a, b]$ and the rule that forms transitive verb phrases can be defined as follows $F_{\text{trans}}(V:a, N_P:b) = [V_P V:a N_P:b]$. For Turkish, which is an SOV language, this function can be represented as follows:

\[
\text{(10) } F_{\text{trans}} (V:a, N_P:b) = [V_P N_P:b V:a]
\]
The order of elements in the input is irrelevant, which is indicated by the comma notation. Note also that $F_{trans}$ could also mark NP:b with the accusative case, giving $[V_P NP:b+I V:a]$. But I will put off the discussion of case marking for now (see Babby 1980a).

7.4 Each syntactic operation is accompanied by a corresponding semantic operation. Thus the semantic representation is built up at the same time as the syntax (B/R:203). It is therefore not necessary, as it is in the classical theory, to ensure that deleted nodes are uniquely recoverable (Bowers 1981:54). The notion that transformations are 'meaning-preserving', i.e., that syntactic operations make no contribution to the sentence's semantic interpretation, is also explicitly rejected.

7.5 Both basic categories (N, V, ...) and derived categories (NP, VP, ...) are all initially empty. The process of filling in a lexical category with an actual lexical item (i.e., lexical insertion) is separated from the categorial rules which combine categories to form new categories (B/R:207, 214).

7.6 Each category may contain as one of its elements a null symbol $\emptyset$. A category which is realized by a null element can be called an 'empty node' and can be symbolized in the following manner: $A:\emptyset$ (B/R:212).

7.7 There is a set of 'cooccurrence transformations' which take the contents of a 'filled' node of category $A$ and transfer them to an empty node of the same category, leaving an empty node behind in the position originally occupied by the filled node (there is a general condition that all empty nodes must be filled at least once) (B/R:212). For example, the operation that takes the direct object of a transitive VP and forms a sentence whose subject is that NP (i.e., forms a derived intransitive) can be formulated for English as follows:

$$(11) \quad F_{d-intr} ([S NP:\emptyset [V_P V:x NP:y ...]]) = [S NP:y [V_P V:x NP:\emptyset ...]]$$

In Turkish $F_{d-Intr}$ would add the suffix -İl- to the transitive verb and, except for the word order in the VP, the operation is essentially the same as in English (cf. 6).

$$(12) \quad F_{d-Intr} ([S NP:\emptyset [V_P NP:y ...V:x]]) = [S NP:y [V_P NP:\emptyset ...V:x+İl-]]$$

7.8 In this theory the categories of a P-marker are filled from the
bottom to the top by means of a highly restricted class of lexical insertion rules and 'cooccurrence transformations', which apply in random sequential order. Note that lexical insertion rules themselves can be formulated as cooccurrence transformations of a restricted variety (B/R:204, 214).

7.9 The structure of a sentence may be described by means of a sequence of categorial rules and cooccurrence transformations.

7.10 Categorial rules and transformational rules (which relate classes of P-markers to each other) are interspersed among one another and, consequently, there can be no syntactic level of 'deep structure' in a system of this sort. The syntactic rules build up surface structure directly (no unmotivated deep structures are collapsed into surface structure by equally unmotivated transformational rules) (B/R:203).

7.11 Identical surface structures can have different semantic structures depending on the order in which the elements are built up. There are no extrinsic ordering constraints, so that the same phrase-marker may be formed in a number of different ways (each having a different semantic representation) (B/R:203; Bowers 1979: 64). In other words, sentences can differ systematically in their interpretation depending on the order in which surface phrase-markers are constructed (Bowers 1979:64).

7.12 The kinds of operations that can be used to form phrase-markers are constrained by the surface forms of the language. The phrase-structure rules thus act as a kind of filter specifying the class of well-formed structures.

8.0 The suffix -Il-: a compositional analysis. In this section I will describe voice in Turkish based on the compositional theory presented in the preceding paragraphs. I must point out that this is only a preliminary sketch and that there are numerous alternatives and loose ends that will have to be investigated in future studies of voice.

8.1 An intransitive VP is formed in Turkish by the following operation:

\[
(13) F_{Intr} (V:a) = [v_p \ V:a]
\]

The syntactic operation represented in (13) states that a basic intransitive verb V can combine with no other categories to form an intransitive VP. By contrast, a transitive VP is formed as follows (we can ignore the formation of the NP's):
Thus to form a transitive VP in Turkish, a NP is combined with a basic transitive V into a higher predicate category.  

In Turkish, as in most natural languages, it is possible to construct an intransitive VP from a basic transitive verb by suppressing the NP object for which the verb is subcategorized. In English this is accomplished without marking the verb for its reduced basic valency; but in Turkish the basic transitive verb's reduced combinatorial capacity must be morphologically marked. This can be accomplished by the following operation (D-Intr stands for derived intransitive):

\[(15) F_{D-Intr} (V:a) = [VP V:a+Il-] \]

In other words, if we wish to form an intransitive VP out of a transitive verb, the grammar of Turkish simply requires that we make the verb intransitive. The suffix -Il- can therefore be considered a morphological adaptor or 'prosthesis' which enables the speaker to use transitive verbs to form intransitive verb phrases.

For example, a sentence like (4a) Yara açıldı 'The-wound opened' is built up as follows: First, an intransitive VP is formed from the basic transitive verb aç-mak 'to open' by (15): [VP aç+Il-]; then this VP is combined with the noun phrase [NP yara] by means of (16) to form a sentence: [S[NP yara] [VP aç-İl-dı]] (the suffix -dı- marks the past tense, third singular).

\[(16) F_{Subj} (NP:a, VP:b) = [S NP:a VP:b] \]

The operation in (16) combines a NP with any kind of verb phrase to form a sentence (it can also account for subject-verb agreement).

8.2 Derived impersonal sentences in Turkish, which were described in section 5.0, can be built up in the following way: First a basic intransitive VP is formed by rule (13); then a subjectless sentence (i.e., [g[VP V]]) is formed with this intransitive VP directly, i.e., without first combining it with a dummy NP which is subsequently deleted. Since all verbs in Turkish are subcategorized for a subject NP, the basic intransitive verb's subcategorization condition is violated in this derivation, and Turkish grammar requires that the 'adaptor' suffix -Il- be added to the verb in order to mark this reduction in its basic valency, just as it was in the derivation of derived intransitive VP's from basic transitive verbs (see rule 15). The rule which forms derived impersonals can be given as follows (D-Imp stands for derived impersonal):
(17) $F_{D-Imp}([VP \ldots V:a]) = [S [VP \ldots V:a+Il-]]$

This rule must be limited to basic intransitive verbs (see section 6.2), but, as the examples in (7) illustrate, adverbial constituents are quite common. Since each syntactic operation has a semantic correlate, the meaning of general action, which is characteristic of derived impersonals, can be added to the semantic representation by $F_{D-Imp}$ directly, i.e., there is no need in this framework for pronominal or dummy subjects that are interpreted as equivalent to one or people and then obligatorily deleted without ever appearing in the surface structure.

In the derivation of (7b), for example, we first form an intransitive VP with the basic intransitive verb gid- 'go'. This VP is then used as the input to (17), which builds a subjectless sentence from this VP and adds -Il- to the verb (gid-il-) to mark the violation of its left-hand subcategorization condition.

8.3 Notice that we have now introduced the suffix -Il- by means of two different rules, (15) and (17). It may therefore seem that it is only a coincidence that this suffix is used in both derived intransitive and derived impersonal sentences, and that our theory has in fact failed to capture the generalization alluded to above in section 6.0, i.e., that -Il- serves as the marker of a verb's reduced basic valency in all sentences in which it occurs. It is, however, not difficult to demonstrate that a compositional theory like the one being proposed here can indeed capture generalizations of this kind, and it can do so in an entirely natural way.

Let us first compare the two rules that were proposed above to introduce -Il-:

(18) a. (=15) $F_{D-Intr} (V:a) = [VP V:a+Il-]

b. (=17) $F_{D-Imp} ([VP V:a]) = [S [VP V:a+Il-]]$

It should be clear from (18) that in both rules V:a is built up into a higher predicate category without combining it with an NP argument for which it is subcategorized. Thus in both cases, one involving the formation of an objectless VP and the other a subjectless S, there is a violation of the verb's left-hand subcategorization condition, i.e., the verb has failed to combine with a NP for which it is subcategorized. Thus in both rules -Il- is added in almost identical environments to mark the same function. This parallel in the formation of derived intransitive VP's and derived impersonal sentences is even clear in $\bar{X}$-theory, where S is treated as a higher VP, i.e., $V'''$ (see note 8).
There are basically two ways in which to incorporate these facts into an explicit account of Turkish syntax. The first is characteristic of classical transformational methodology, i.e., we can extract the configurational common denominator in (15) and (17) and write an independent rule of '-Il- Introduction', which might look like (19) ($V^n$ stands for $V$, $V'$, $V''$, or $V'''$ (=S) and $V$ fails to combine with an NP for which it is subcategorized):

\[
(19) F_{-Il-} (V^n:a) = [V^{n+1} V^n:a + Il-] 
\]

The second way is to introduce -Il- in two separate rules, as I have done in (15) and (17) above, leaving the generalizations about common form and function to a metastatement, which most likely corresponds to the kind of intuitive knowledge native speakers may be able to produce when questioned, but which does not play a role when they actually construct passive, intransitive, and impersonal sentences.

I prefer the solution which involves two separate rules and a metastatement because it does not involve a highly abstract rule like (19) and is therefore a more realistic reflection of actual linguistic behavior.9

Part II

9.0 Causativization in Turkish: preliminaries. In the first part of this paper I argued that the suffix -Il- reflects a crucial parallelism in the formation of derived subjectless sentences and derived objectless verb phrases. I argue in the second part that the suffix -DIR- and its allomorphs, often referred to in the literature as causative suffix, also reflects a crucial parallel in the construction of sentences and verb phrases (this time between the construction of intransitive sentences and transitive verb phrases).

9.1 In addition to the suffix -Il-, which signals that a verb has been built up into a higher predicate without combining it with a NP argument for which it is subcategorized, Turkish has another voice suffix that can be said to do just the opposite: the suffix -DIR- marks an increase in the verb's basic valency, i.e., it is used when a verb is built up into a higher predicate category by combining it with a NP argument for which it is not subcategorized.10

9.2 Causativization in some traditional treatments is described as a syntactic process which adds a 'new' subject to a sentence and demotes the 'old' or basic subject to a position in the VP. In an SOV language the new causative subject can be thought of as nudging
the old subject to the right, i.e., as displacing it into the VP, where it occupies the first available unoccupied NP position (in a case language, it assumes the first available oblique case in a case hierarchy). This conception of causativization can be represented as follows:

\[(20) [_{S} \text{NP:a} [_{VP} \text{V:b}]] \rightarrow [_{S} \text{NP:c} [_{VP} \text{NP:a V:b+DIR-}]]\]

Note that in syntactic derivations of this kind the new NP and -DIR- are added at the same time and -DIR- is normally associated with the resulting sentence's causative interpretation.\(^\text{11}\)

10.0 **Causativization: basic data.** In the following paragraphs I will present the basic facts about causativization in Turkish that any theory must account for. I will then propose a 'direct' analysis for these facts.

10.1 **Transitivization.** When a basic intransitive (1-place) sentence is causativized, the 'old' subject becomes the direct object and -DIR- is added to the verb. A derivation of this kind can be said to involve derived transitivity since an intransitive verb is in effect made transitive (its basic valency is increased). The following sentence pairs illustrate this process.

(21) a. Orhan koş-tu.
   Orhan run-past
   'Orhan ran.'
   
      Attila Orhan-acc run-caus-past
      'Attila made Orhan run.'

(22) a. Orhan öl-dü.
   Orhan die-past
   'Orhan died.'
   
      Attila Orhan-acc die-caus-past
      'Attila killed Orhan.'

   basin water with fill-past
   'The basin filled with water.'
   
   b. Orhan havuz-u su ile dol-dür-du.
      Orhan basin-acc water with fill-caus-past
      'Orhan filled the basin with water.'

Notice that although the syntactic process that relates the (a)
and (b) sentence pairs in (21)–(23) appears to be the same, the semantic results of this process are not the same: while (21b) can undoubtedly be called a causative sentence (Attila makes or causes Orhan to perform the action denoted by the verb), sentence (23b) clearly does not have the same interpretation, i.e., Orhan, the 'causative subject', is felt to be more directly involved in the performance of the action denoted by the verb than in (21b).

What appears to be going on here is this: Turkish has a productive process which adds an additional NP argument to the verb's basic set of arguments. If the verb is intransitive, the corresponding derived transitive sentence will have a causative interpretation provided that the basic intransitive verb's subject has an agentive meaning, as in (21). In (23) the intransitive subject is not agentive, and the corresponding derived transitive sentence accordingly does not have a causative reading; the pair in (23) is in fact a simple transitive/intransitive pair. Thus the process usually referred to in the literature as causativization is primarily a syntactic process which adds an NP to the verb's basic inventory of arguments (theories differ as to where this NP is added). The semantic effect or analogue of this syntactic operation depends on the meaning of the verb and its arguments. What all 'causativized' intransitive sentences invariably have in common is their syntactically derived transitivity.12

10.2 Causativization of basic transitive sentences. When a basic transitive (2-place) sentence is causativized, the subcategorized or 'old' subject is marked dative (-E), the case of the indirect object, since the accusative case/direct object is already occupied. It should be obvious from the following examples that -DIR- cannot be characterized simply as a 'transitivizing suffix' since it is added to a verb that is already subcategorized for a direct object NP.

    Hasan all package-pl-pos-s acc open-past  
    'Hasan opened all his packages.'

b. Polis Hasan-a bütün paketlerini aç-târ-dâ.  
    police Hasan-dat all packages open-caus-past  
    'The police had/made Hasan open all his packages.'

The basic word order in the VP is: indirect object+direct object+verb, as in (24), but there is a strong tendency for definite to precede indefinite (Lewis 1967) and definite direct objects can often precede definite indirect objects (cf. section 12.0 for significance of these facts):
(25) a. Çocuk süt-ü iç-ti.
child milk-acc drink-past
'The child drank the milk.'

b. (Onlar) süt-ü çocuğ-ä iç-ir-di-lër.
they milk-acc child-dat drink-caus-past-pl
'They made the child drink the milk.'

10.2.1 It is very common for the subcategorized or 'old' subject to remain unspecified (cf. 'agentless passives'). e.g.:

(26) a. (Ben) saat-im-i [tamir et-tim]_v
I watch-poss-acc fix-past
'I fixed my watch.'

b. (Ben) saat-im-i [tamir et-tir-dim]_v
I watch-poss-acc fix-caus-past
'I had my watch fixed/I had someone fix my watch.'

The existence of sentences like (26b) and the fact that they are so common in all styles of Turkish is a problem for syntactic analyses in which a rule simultaneously adds a NP to the derivation and marks this expansion of the verb's valency with -DIR-: this analysis requires that we add a dummy or pro NP meaning 'unspecified person', and then obligatorily delete it. But an analysis which introduces the 'new' NP and the causative suffix independently by different operations does not run into this problem. We shall return to sentences with 'missing' NP's below (see note 15).

10.3 Causativization of derived transitive sentences. The syntactic process described in the preceding paragraph can apply to derived transitive as well as to basic transitive sentences, i.e., the output of causativizing a basic intransitive can itself be causativized. If a derivation involves two causativizations, the verb will naturally be marked by two causative suffixes (causativization can theoretically apply up to three times per derivation, with the addition of three causative suffixes to the verb (see section 6.2 and note 6)), e.g.:

(27) (Ben) köpeğ-e kuş-lar-î uç-ur-t-açağ-îm.
I dog-dat bird-pl-acc fly-caus-caus-fut-1st-sg
'I'll have the dog make the birds fly away.'
(Underhill 1976)

10.3.1 The basic or 'old' subject can remain unrealized in 'double causative' constructions as well (cf. (26)):

Hasan die-past
'Hasan died.'
b. (Ben) Hasan-ı öl-dür-düm.
   I Hasan-acc die-caus-past
   'I killed Hasan.'

c. (Ben) Hasan-ı öl-dür-t-tüm.
   I Hasan-acc die-caus-caus-past
   'I had Hasan killed/I had someone kill Hasan.'

10.4 Causativization of basic three-place sentence. When a sentence that contains a verb subcategorized for a direct object and an indirect object is causativized, the 'old' subject is moved further down the hierarchy. Since the genitive case is not available (it is used in possessive constructions only), all that is left is the ablative and the instrumental case; both are used, but only in special postpositional constructions. The ablative is used with taraf 'side' and is the same construction used in full passive sentences (the following example is from Comrie 1976:263).

   (29) Diği Hasan-a mektub-u müdür tarafından
dentist Hasan-dat letter-acc director side-abl
göster-t-ti.
   show-caus-past
   'The dentist made the director show the letter to Hasan.'

(The instrumental is used with vasıta 'means'; see Lewis 1967:147 for details).

10.5 Detransitivizing causatives. It is quite common in Turkish for a causativized sentence to be detransitivized, the result being a sentence with an unspecified causative agent, e.g.:

       a month ago Hasan die-past
       'Hasan died a month ago.'

       a month ago Hasan die-caus-Il-past
       'Hasan was killed a month ago.'

Notice that these same processes can freely interact in nominalizations as well:

       Hasan-gen die-caus-Il-neg-part-poss-dat sure-past
       'He was sure that Hasan hadn't been killed.'
'Doubly causativized' sentences can also be detransitivized:

    Hasan die-caus-caus-Il-past
    'Hasan was ordered killed.'

While a causative sentence can be detransitivized, a detransitivized sentence cannot be causativized, a fact which is reflected by the obligatory order of the suffixes: (DIR) (DIR) Dir+Il, but not *Il-Dir (cf. note 6).

11.0 A compositional analysis of the Turkish causative. The preceding section contains a description of the basic facts of causativization in Turkish. In this section I will propose a 'direct' syntactic analysis of these facts which is parallel in many respects to the one proposed for the suffix -Il- above in section 8.

Syntactic analyses of causativization must account explicitly for the following well-known surface facts: (i) Case marking and grammatical relations in causative and non-causative sentences are identical; (ii) One of the object NP's in a causative sentence is interpreted as the basic or 'real' subject/agent of the verb. In other words, the causativized verb and its 'real' agent are both constituents of the same VP (cf. the direct object in (21) and (22)). Previous analyses have attempted to capture the latter fact by making the 'agentive object' NP an actual sentential subject at some point in the derivation. In Aissen's treatment (see note 11) it is the subject of an embedded sentence and it "floats" up into the matrix VP after the rule of Verb Raising operates. In the far more plausible 'demotional' analysis mentioned above, there is no need for an embedded clause: the new causative agent is introduced directly into the subject position and the old subject is simultaneously moved into its object position in the VP (see Bowers, 1981:chapter 2). The analysis of causativization proposed below carries this approach one step further, incorporating it into the compositional theory described earlier. In this framework, causativization can be characterized as 'direct' because the object NP which is interpreted as the basic subject/agent of the causativized verb is never the syntactic subject at any stage of the derivation. Rather, it is simply incorporated into the VP in the object position in the process of building up a sentence. The central problem for a 'direct' analysis is to explain in a natural, explicit way why a NP object receives a subject/agent interpretation in causative sentences (cf. (21) and (24)), but not in non-causative ones.

11.1 Intransitive sentences and transitive verb phrases. We saw above in section 8.0 that the distribution of the suffix -Il- depends
crucially on a parallel between the formation of derived subjectless sentences and derived objectless VP's. My analysis of the suffix -DIR- also depends on a parallel between the formation of VP's and S's, this time between intransitive (one-place) sentences and transitive (one-place) verb phrases: in both cases, a NP and a V are combined into a higher predicate category, S and VP respectively. We can begin by looking first at the formation of basic transitive VP's and intransitive S's (V:b in (33) is a basic transitive verb).

\[(33) \ F_{\text{trans}} \ (\text{NP:a, V:b}) = \ [\text{VP NP:a V:b}]\]

\[(34) \ F_{\text{subj}} \ (\text{NP:a, [VP V:b]}) = [\text{S NP:a [VP V:b]}]\]

Operation \(F_{\text{trans}}\) can itself introduce accusative case marking on NP:a, in which case the output would be [\text{yp NP:a+acc V:b}], or the case marking can be handled by the kind of independent configurational case marking rule suggested in Babby 1980a.

Ergative languages can be thought of as directly reflecting this parallel in the formation of intransitive S's and transitive VP's in their surface case marking patterns: they mark the direct object and the subject NP of intransitive sentences the same way, and treat the subject NP of a transitive sentence differently by marking it with a special 'ergative' case (see Babby 1980a, 1980b; Dowty ms.:35).

11.2 Derived transitive verb phrases. In addition to forming transitive VP's from a NP and basic transitive verb, Turkish regularly forms derived transitive VP's by combining a direct object NP with a basic intransitive verb. In order to accommodate the union of a NP and an intransitive verb into a transitive VP, the suffix -DIR- or one of its allomorphs is added to the verb, forming a derived transitive verb. In other words, if we wish to combine a basic intransitive verb and a NP into a transitive VP, we must first make the verb transitive, which is accomplished in Turkish by adding -DIR- to the basic intransitive verb stem. This is accomplished by the following syntactic operation (D-trans stands for derived transitive):

\[(35) \ F_{\text{D-trans}} \ (\text{NP:a, [VP V:b]}) = [\text{VP NP:a+acc V:b+DIR-}]\]

The rest of the derivation of causative sentences consists of simply combining the derived transitive VP in the output of (35) with a NP to form a sentence. This is accomplished by \(F_{\text{subj}}\) in (34), which is used to combine any VP, transitive or intransitive, derived or basic, with a subject NP to form a sentence.

Notice that the 'direct' derivation of causative sentences
just proposed above involves adding 'new' objects to basic VP's, and not adding 'new' subjects to basic sentences. In other words, causativization is a process that builds derived VP's, not sentences.

11.2.1 In derived intransitive sentences, a basic transitive verb is used to form an intransitive VP; -IL- is used to accommodate this 'marked' union. Just the opposite happens in derived transitive sentences: a basic intransitive verb is used to form a transitive VP; -DIR- is used in this 'marked' union. The suffix -IL- is used in derived subjectless sentences for the same reason that it is used in derived objectless VP's: a verb is built up into a higher predicate category without combining it with a NP for which it is subcategorized. But -DIR- is never involved with the subject NP for the following straightforward reasons: -DIR- is used when a V is built up into a higher predicate category by combining it with a NP for which it is not subcategorized; since all Turkish verbs are subcategorized for a subject NP (there are no basic subjectless/impersonal verbs in Turkish) and since there is only one subject NP per sentence, there cannot be 'derived subject' constructions, i.e., sentences in which the verb combines with a subject NP for which it is not subcategorized in the process of forming a sentence.13

11.3 Basic VP vs. derived VP. There is a crucial difference between Ftrans and FD-trans: In Ftrans (=33), a NP and a basic transitive verb are combined directly to form a transitive VP. But notice that in FD-trans (=35) a basic intransitive VP is first built with an intransitive verb by Ftrans (=13), and only then does FD-trans combine a NP with this intransitive VP by incorporating the former into the latter to form a transitive VP that is identical in structure to basic transitive VP's formed by Ftrans (except, of course, for the presence of the suffix -DIR-). Thus Ftrans and FD-trans have different inputs, but almost identical outputs:

\[(36) \text{a. } F_{\text{trans}} (=33): (\text{NP:a, V:b}) = [_{\text{VP}} \text{NP:a+acc V:b}] \]
\[\text{b. } F_{\text{D-trans}} (=35): (\text{NP:a, } [_{\text{VP}} \text{V:b}]) = [_{\text{VP}} \text{NP:a+acc V:b+DIR-}] \]

I will discuss the significance of this formulation of F_{D-trans} after presenting a sample derivation.

Sentence (21b), repeated here as (37), has the following derivation (case and tense are ignored):

\[(37) \text{Attila Orhan-a koş-tur-du.} \]
'Attila made Orhan run.'
(38) a. First an intransitive VP is built up by $F_{\text{intr}}$ (=13), giving $[_{\text{VP}} V:\text{kos-}]$
   
   b. Then a derived transitive VP is formed by incorporating a NP into this intransitive VP by $F_{\text{D-trans}}$ (=35), giving $[_{\text{VP}} \text{NP:Orhan-}i V:\text{kos-tur-}].$

   c. Finally, the output of $F_{\text{D-trans}}$ is combined with a NP by $F_{\text{subj}}$ (=34) to form a full sentence:

   $[_{\text{S}} \text{NP:Attila} [_{\text{VP}} \text{NP:Orhan-}i V:\text{kos-tur-duj}]]$

Orhanı, the accusative direct object in (37), is interpreted as the real or 'effective' agent of the verb, i.e., he is the one who actually does the running.

11.4 Agentive objects in causative sentences. Although the direct object Orhan-ı (acc) is never the syntactic subject of a sentence at any point in the derivation of sentence (37), it is nevertheless understood as the subject/agent of the action kos-'run', i.e., it has essentially the same interpretation as the subject NP Orhan (nom) in (21a): Orhan kostu 'Orhan ran'. In the following paragraph I will attempt to explain how Orhanı, the derived direct object in (37), and Orhan, the subject of the corresponding non-causative sentence (21a), get the same interpretation. Compare $F_{\text{D-trans}}$ and $F_{\text{subj}}$ (V:b is a basic intransitive verb in both):

   (39) a. (=34) $F_{\text{subj}}$ (NP:a, $[_{\text{VP}} V:b]) = [_{\text{S}} \text{NP:a} [_{\text{VP}} V:b]]$
   
   b. (=35) $F_{\text{D-trans}}$ (NP:a, $[_{\text{VP}} V:b]) = [_{\text{VP}} \text{NP:a V:b+DIR-}]-$

Notice first of all that the inputs to both syntactic operations are identical. In addition, the syntactic operations themselves and their outputs are parallel: in both a NP and VP are combined by a categorial rule. Now recall that in this compositional theory each syntactic operation has a semantic analogue (cf. section 7.4). Since the syntactic operation $F_{\text{subj}}$ and $F_{\text{D-trans}}$ share so many properties, it seems perfectly natural to assume that the semantic analogues of these two syntactic rules are also parallel, i.e., the NP mentioned in the input of $F_{\text{D-trans}}$ receives a semantic representation which is essentially the same as the one received by the NP specified in the input of $F_{\text{subj}}$, i.e., the subject NP of an intransitive sentence. If, in addition, this NP is also animate/human, the sentence receives a causative interpretation. Thus the 'direct' analysis of causativization proposed in this paper can indeed relate causative/non-causative sentence pairs like (21)-(23), and it can do this without having to claim that the surface direct object in the b-sentences is a syntactic subject of a sentence at some deeper, unobservable stage in the
The parallel between $F_{\text{subj}}$ and $F_{\text{trans}}$ can be even more clearly represented in $\lambda$-theory, where $S (\equiv V''')$ is treated as the same basic category as VP (\equiv V' and V'') (see Jackendoff 1977). I am therefore claiming that if NP is combined with V', V'', or V''' (\equiv S), it receives the semantic interpretation of subject, no matter what its position or case may be in the surface structure.

11.4.1 It is not difficult to understand now why $F_{\text{trans}}$ (the operation that forms basic transitive VP's) and $F_{\text{trans}}$ must be formulated differently (cf. section 11.3): $F_{\text{trans}}$ combines NP and V into a VP directly and, therefore, there is no combination of NP and VP, which automatically explains why the direct object of basic transitive VP's never has a subject/agent interpretation. But $F_{\text{trans}}$ does involve the combination NP and VP, which explains the derived direct object's subject/agent reading. Thus the two rules for the formation of transitive VP's have essentially the same output ($\left[_{\text{VP}} \text{NP:a V:b} \right]$) in Turkish, but they have different inputs, different syntactic operations, and, most important for the analysis of causative sentences, different semantic representations (cf. section 7.11). We can conclude then that 'subject of $V^n$' (where $V^n = V'$, V''), or V''') should not be defined configurationally, i.e., in terms of phrase marker domination and linear order (e.g. $\left[_{\text{VP}} \text{NP V^n-1} \right]$), since any such configuration would necessarily include the direct object NP of basic, non-causative VP's as well. Subject must be defined functionally, i.e., in terms of the syntactic function or functions that combine NP and VP; the surface grammatical relations of this NP and VP do not play a role in this universal definition.

$F_{\text{trans}}$ incorporates NP into VP (creating a surface direct object that is felt to bear a subject/agent relation to its main verb) rather than simply combining NP and VP as equal, independent constituents of a higher predicate category. It must be pointed out that incorporation of a NP into a VP with a concomitant interpretation of the NP as subject/agent is not limited to derivations involving causativization. It has recently been pointed out by J. Bowers (personal communication) and D. Dowty (cf. ms. and bibliography therein) that the subject NP in VSO languages must also be incorporated into the VP by a subject-forming operation like the following:

\[(40) \quad F_{\text{subj}} (\text{NP:a, } \left[_{\text{VP}} \text{V:b ...} \right]) = \left[_{\text{S}} \left[_{\text{VP}} \text{V:b NP:a ...} \right] \right] \]

Even though NP:a is a constituent of the VP (and therefore an object of the verb), it is nevertheless interpreted as the subject of the sentence because the semantic analogue to operation (40) registers NP:a as subject in the semantic representation.
Speaking in general terms, it can be concluded that a NP will invariably receive a subject/agent semantic interpretation if it is combined with a VP as part of a syntactic operation that specifically mentions both of these constituents in its input; the grammatical relations, case, word order, etc. specified in the output of these operations does not play a role in this operational definition of subject. For example, we can account directly for the subject/agent interpretation of the direct object NP in sentences involving what is usually referred to as subject-to-object raising by means of a syntactic operation that combines a NP and VP into a higher VP (the NP becomes the surface direct object of the higher VP's head verb). We can also account for the subject/agent interpretation of the genitive NP in what are traditionally called nominalizations: here a NP and VP are combined directly into a higher NP. In Turkish, the NP is marked with the genitive case and the main verb receives a participle or verbal noun suffix in addition to a possessive suffix that 'agrees' with the genitive subject NP (see (31)). Finally, in many languages indefinite subject NP's, especially in existential sentences, are often surface constituents of the VP (cf. sentences involving there-insertion in English and the genitive marking on the 'subject NP' in Russian negated existential sentences (Babey 1980b)). The common denominator in all these derivations is a categorial operation that specifically mentions NP and VP in its input; the output of these operations plays no role in the definition of subject, which is why it has cross-linguistic, universal validity.

11.5 Summary. The 'direct' syntactic analysis of causativization presented above has a number of advantages over previous analyses: (i) It builds up the surface structure of causative sentences directly, i.e., without the need for ad hoc underlying structures and transformations whose sole purpose is to map these structures into observable sentences. More specifically, the 'direct' analysis accounts for the subject/agent interpretation of the object NP's in causative sentences without having to make these NP's 'subject of the sentence' at some deeper level in the derivation: all constituents occupy their surface position/case from the outset, and, therefore, no ad hoc transformations or empty nodes are required. (ii) Causativization is presented as an essentially VP-internal operation, which seems correct since it is invariably the verb that is marked and the verb's subcategorization condition that is 'adjusted'. I am therefore claiming that there is in fact no causative rule (Fcaus) per se. This is just what we want since the output of FD-trans does not always receive a causative interpretation (cf. section 10.1). (iii) The 'direct' analysis predicts that the case marking in causative sentences will be the same as in non-causative sentences with the same number of NP arguments because all we are doing in both cases is building up (derived) transitive VP's and then forming sentences from them (recall that the syntactic output of Ftrans and Ftrans are identical).
12.0 Causativization in basic transitive sentences. The preceding section dealt with the causativization of basic intransitive VP's. In this section I will argue that essentially the same principles are involved in the causativization of basic transitive VP's (i.e., the formation of derived two-place VP's from basic one-place VP's).

Turkish has a number of basic verbs that are subcategorized for two objects, a direct object and indirect object, and it has a categorial rule like (41) that builds up basic two-place VP's:

\[
(41) \text{F}_{\text{trans}^1} (\text{NP:a, NP:b, V:c}) = [\text{VP NP:a NP:b V:c}]
\]

NP:a, the indirect object, is dative, and NP:b, the direct object, is accusative (cf. section 2.2) (this case marking can be accounted for directly by (41) or can be marked configurationally by a separate rule). A sentence is built up from the output of (41) by F subj (34):

\[
(42) _{S} \text{NP:Orhan} [_{V_P} \text{NP:bana NP: bir kitap V: verdi}]. \text{ me a book gave 'Orhan gave me a book.'}
\]

12.1 Derived two-place VP's. Turkish can also form a derived two-place VP: a verb subcategorized for a direct object only is combined with a NP for which it is not subcategorized to form a two-place VP. This is accomplished by the following syntactic operation:

\[
(43) \text{F}_{\text{D-trans}^1} (\text{NP:a, } [_{V_P} \text{NP:b V:c}]) = [_{V_P} \text{NP:a NP:b V:c+Dir-}]
\]

The suffix -Dir- is added to the verb stem in this derivation for precisely the same reason that it was added in the causativization of basic intransitive VP's: the verb is being combined with one NP argument more than it is subcategorized for, and -Dir- marks the verb's expanded valency. The new NP constituent in the output of (43) is marked dative, the case of the indirect object: it is interpreted as the subject/agent of the causativized verb because it is combined with VP by a syntactic operation that mentions both NP and VP in its input (cf. (41) and (43)).

Let us run through the derivation of sentence (44).

(44) Polis Hasan-a kapı-yi aç-tir-dı.
    police Hasan-acc door-acc open-caus-past 'The police made Hasan open the door.'

(45) a. \text{F}_{\text{trans}} (=33) builds up a basic VP: [_{V_P} \text{kapı-yı V: aç-}].
b. \( F_{D-trans} \) combines this basic transitive VP with an NP by incorporating the NP into the VP (cf. (38b)) and marking the verb with -DIR-:

\[
\text{NP:Hasana \ NP:kapıvē V:actēr-}\]

Since NP:Hasana is combined with a VP, it is registered as subject of the VP in the semantic analogue of (43).

c. \( F_{subj} (=34) \) combines this derived two-place VP with NP:Polis to form a sentence

\[
\text{NP:Polis \ [Vp:NP:Hasana \ NP:kapıvē V:actērdē]}\]

Polis is interpreted as a 'causative agent' because it is the subject of a sentence whose predicate is a derived two-place VP in which the indirect object Hasana is the effective subject/agent.

Note that \( F_{D-trans} \) can apply to the output of \( F_{D-trans} \), the result being a doubly derived two-place VP with two suffixes on the verb (see examples (27) and (28)).

12.2 One rule or many. According to the 'direct' analysis of causativization presented above, the suffix -DIR- is introduced by two different rules, \( F_{D-trans} \) and \( F_{D-trans} \). While it is possible to write a single, abstract rule of 'DIR-Introduction', I prefer not to do so for the same reason that I avoided positing a single rule of -Il-Introduction (cf. section 8.3): rules of this kind do not seem to reflect actual linguistic behavior. We can capture the fact that -DIR- has a single, invariant function (marking an expanded subcategorization condition) by means of a metastatement rather than a transformation that extracts the common denominator from several different rules.

12.2.1 There is another argument that supports positing separate 'causative' rules rather than having a single rule that (i) incorporates the NP in the input into the VP, (ii) marks the verb with -DIR-, and (iii) allows the newly incorporated NP to be separately case marked in the VP according to the Turkish case hierarchy. This argument is based on sentences like (29). The verb göstermek 'show' is subcategorized for a basic direct object and indirect object. In (29) it is the NP müdür 'director' that is added to göstermek's basic valency. Since the direct object/accusative and the indirect object/dative are already occupied by the verb's basic arguments, müdür, which is the subject/agent of göster-t-mek must
be case marked with the next free case down the Turkish case hierarchy,—the ablative. But notice that müdür cannot simply be marked ablative in (29); it must rather be part of an ablative tarafından construction (the same construction that is used for passive agents). This fact argues against a single 'causative' rule for Turkish since causativization of a basic two-place VP to a derived three-place VP requires the introduction of a tarafından, not simple ablative case marking directly on the subject/agent object NP. Thus the three separate rules that are responsible for the generation of causative sentences are the following:  

\[(46) \ a. \ F_{D-trans} (NP:a, [VP V:b]) = [VP NP:a+acc V:b+Dir-] \]
\[\quad b. \ F_{D-trans_1} (NP:a, [VP NP:b V:c])
= [VP NP:a+dat NP:b V:c+Dir-] \]
\[\quad c. \ F_{D-trans_2} (NP:a, [VP NP:b NP:c V:d])
= [VP NP:[NP:a tarafından] NP:b NP:c V:d+Dir-] \]

Notes

1 In the representation of Turkish agglutinating suffixes the capital letters represent sounds that are subject to the rules of vowel and consonant harmony; lower case letters correspond to sounds that are not subject to harmony. For example, the suffix -IL- has four realizations (-IL-, -IL-, -UL-, -UL-); -IYOR- has four realizations while -DIR- has eight (-DIR-, -TIR-, -DIR-, -TIR-, -DUR-, -TUR- etc.).

2 Personal pronoun subjects that are neither emphatic or contrastive are normally omitted (cf. ben 'I' in (1a)). There is no third person personal suffix (cf. (1a) and (1b)).

3 Note that Lyons 1977:487 treats passive agents as adverbial phrases (see Chomsky 1965:129 as well). In Babby 1978 a number of arguments is presented for treating both instrumental agents in Russian passive sentences and locative u 'at' agents in 'service causative' constructions like the following as adverbial expressions introduced by an optional phrase structure rule and lexical insertion:
Babuška sīla sebe novoe plat'e u modnoj
grandmother sewed herself new dress at stylish
NOM DAT ACC
portnixi.
dressmaker
GEN

'Grandmother had a new dress made for herself at a
stylish dressmaker('s)' or 'Grandmother had a stylish
dressmaker make her a new dress.'

4 Active and passive are related, but lexically and semanti-
cally, as well as syntactically (Bowers 1981). What I have said
here for passives formed with morphemes like -il- in Turkish
and -šja in Russian also holds for passives formed with 'passive
participles' and the copula (see Babby and Brecht 1975).

5 The problem is far more complex in Russian where there
are transitive impersonal sentences like Menja 'me (acc)' tosnit
'I feel sick' and samolet 'plane (acc)' vstrjavalono 'jolt (n. sg.)'
'The plane got jolted'.

6 I am assuming here that each of the voice suffixes is
associated with a syntactic operation and that the left to right
order of the suffixes reflects the order in which these operations
apply.

7 Many traditions consider causativization to be a voice
phenomenon (Kononov 1956). Since -il- and -dīr- have similar
functions (both mark derived valency) and since -il- is universally
recognized as a voice suffix, I will use the term 'voice' to refer
to both. But I must emphasize that nothing substantive hinges on
this; it is a matter of terminological convenience.

8 Notice that this theory is entirely compatible with X
syntax (Jackendoff 1977), e.g., it would be more accurate to formu-
late (14) as \( F_{Trans} (NP:b, V:a) = [\overline{\nabla} NP:b V:a] \) and then have another
operation combine the derived category \( \overline{\nabla} \) and AUX to form \( \overline{\nabla} V:a AUX:b \). We shall return to X theory when discussing causativization
below.

9 The 'direct' generation of derived intransitive sentences
that I proposed above in section 8.1 differs from the kind of analy-
sis that could be proposed in a structure-preserving framework,
where a transitive VP is built up first, and then the direct object
is moved into the empty subject (\[\text{NP}\emptyset \ldots \text{I}\]) by means of a Co-
occurrence Transformation (which also adds -Il- to the transi-
tive stem (see rule (12); Babby 1975)). I prefer the direct 
approach for a number of reasons, the most obvious one being that 
it provides the most straightforward account of the observable 
linguistic facts, i.e., it does not require a stage where there is 
a direct object and an empty subject NP, and consequently, it 
does not need a transformation whose sole function is to relate 
this non-occurring structure with surface derived intransitive 
sentences.

10 Turkish has a number of different causative suffixes whose 
distribution cannot be predicted in terms of the verb's stem. In 
addition to -DIR-, the most common, there is -Ir- and -t-. I will 
use -DIR- to stand for any causative suffix.

11 An alternative syntactic analysis of causativization 
(Aissen 1974) involves a bisentential deep structure. The matrix 
verb is an abstract element CAUSE and the embedded subject corres-
ponds to the 'old subject' in the 'demotional' analysis discussed 
above. This deep structure, which is completely unmotivated for a 
language like Turkish, requires an equally ad hoc transformation 
Verb Raising) to map it into the surface structure: VR raises 
the lexical verb in the embedded sentence into the matrix sentence 
and somehow combines it with CAUSE to form a causative verb. VR 
also triggers S and VP pruning in the embedded sentence, with the 
result that the embedded sentence's NP arguments "float" up to the 
matrix sentence where they assume their appropriate positions in 
the matrix VP. Note that this bisentential analysis predicts 
that certain cyclic transformations should be able to apply on 
the embedded S cycle, before VR, which applies on the matrix 
cycle only. But as Aissen 1974 observes, there is no evidence for 
this. Instead of abandoning the bisentential VR analysis on the 
basis of this fact, Aissen attempts to salvage it by claiming that 
VR is a precyclic rule, which means that it operates before any of 
the cyclic rules and destroys the embedded S environment so that 
cyclic rules cannot operate. In the second part of this paper I 
will propose a 'direct' syntactic analysis of causativization which 
easily avoids the insurmountable difficulties associated with the 
VR approach. I will also argue that the 'direct' analysis is better 
than the 'demotional' approach mentioned above since it does not 
involve any unmotivated rules or structures.

12 Note that Turkish has two ways of forming transitive/intrans-
sitive pairs (see Bowers 1981:chapter II): a derived intransitive 
(marked by -IIl-) is formed from a basic transitive, or a derived 
transitive is formed from a basic intransitive (marked by -DIR-);
only the latter can have a causative interpretation. Russian by contrast has only one productive means of forming transitive/intransitive pairs, namely, intransitivization (marked by -SJA), and, therefore, does not have a productive means of forming morphological causatives. Thus (23b) corresponds in Russian to a sentence with a basic transitive verb zapolnit' 'fill' while (23a) corresponds to a sentence whose predicate is a derived intransitive zapolnit'SJA 'fill (intr)'

a. Bassejn zapolnil-SJA vodoj. (=Havuz su ile doldu) 
   basin filled with-water 
   'The basin filled with water.'

b. Orhan zapolnil bassejn vodoj. (=Orhan havuzu su ile Orhan filled basin with-water dol-DUR-du) 
   'Orhan filled the basin with water.'

Speaking in greatly simplified terms, a verb is a basic intransitive in Turkish if it denotes an action that is not felt to be inherently agentive; thus kaynamak 'boil' is a basic intransitive, while yazmak 'write', okumak 'read', dikmek 'sew' etc., are basic transitives.

13 It may be tempting to try to explain the fact that there can be only one -IL- suffix per sentence, while there can be up to three -DIR- suffixes per sentence, by associating -IL- with the subject NP, of which there is only one, and by associating -DIR- with the VP, in which there can be up to three object arguments (cf. section 6.2). But this would require that derived intransitive sentences have an empty subject NP (and a transformation to move the direct object into it (cf. (6))), and that derived subjectless sentences have no subject NP at all. Since this alternative entails a number of problems that are beyond the scope of this paper, I will not pursue it any further at this time (see Babby 1975:330 for discussion of the distinction of empty subject NP and absence of subject NP in Russian).

14 The 'direct' analysis of causativization that I have proposed in this paper is based on the assumption that the suffix -DIR- and the 'new' NP are added to the VP simultaneously by the same syntactic operation (cf. (46)). But there is still one loose end to be accounted for with respect to this assumption: It was pointed out in section 10.2.1 that it is very common in Turkish for the verb to be marked with -DIR- and for the sentence to have a causative reading, but for the agentive object NP to be missing (cf. (26)), e.g.:

i. Attila kutu yaptı. 'Attila made (a) box.'
ii. Attila kutu yaptırdı. 'Attila had a box made/had someone make a box.'

If we wish to retain our assumption that -DIR- is added to the verb by the same operation that adds a new NP to the VP, we are forced to conclude that in the derivation of sentences like (26) and ii. above, a pro or dummy NP is added when -DIR- is, but is subsequently deleted. Since the 'direct' approach's most appealing claim is that it can avoid syntactically unmotivated underlying structures that are mapped into surface structures by obligatory transformations, we must conclude that this alternative is unacceptable.

The only reasonable alternative seems to be this: -DIR- is added to the verb stem by separate rules that perform only one operation: they create new verbs whose meaning and subcategorization are different from the basic verb. For example, one such rule (F-DIR-₁) would create derived transitive verbs from basic intransitive verbs. These derived verbs are combined with NPs to form VP's just as basic verbs are (which automatically predicts that the case marking in the VP of causative sentences must be the same as in non-causative). In the derivation of sentences like (26) and ii. above, the missing direct object NP is simply not included in the derivation just as the direct and indirect object of basic verbs are often omitted without any affect on the verb's morphology. This can be done because the causative meaning is part of the derived verb's semantic representation.

But adopting this approach has an interesting consequence, namely, we no longer have any motivation for claiming that causativization is a syntactic process: A rule that adds -DIR- to a verb, creating a new, derived verb is not an operation on syntactic structures; it is a lexical operation because its domain is confined to a single word, not a phrase marker. But this suggestion is not as radical as it may first appear to be; D. Dowty notes that:

"...the form of lexical rules and the manner of their semantic interpretation is in general exactly the same as that of true syntactic rules, the only difference being in the status of the outputs of the rule in the grammar; in the case of syntactic rules, the outputs are all grammatically derived expressions of the language, but in the case of lexical rules, the outputs are merely possible derived lexical items of the language; ..." (Dowty ms.:25)

Bowers (1981:11) observes that:

"...any separation between 'syntactic' processes
and 'lexical' processes is quite arbitrary. It is a matter of fact that the central grammatical processes in natural languages are characteristically both syntactic and lexical. Some processes are 'more lexical' and others are 'more syntacti-\c{c}.' Languages vary widely, however, in the ways in which they can encode fundamental semantic relations into grammatical form, so that it is neither theoretically nor practically possible to maintain a strict separation between lexicon and syntax."

This lexical approach to causativization has a number of advantages, e.g., it predicts the obligatory -DIR-IL-order of suffixes (cf. section 6.2) since the lexical rules must operate before the syntactic rules (cf. note 6). Unfortunately, the scope of this paper does not permit me to pursue this line of inquiry any further. But one thing should be clear: the central problem for a theory of causative sentences is to determine whether the derived VP's are to be created by lexical or syntactic rules.

References


_______. 1978. Participles in Russian: Attribution, Predica-


Dowty, David. ms. Grammatical Relations and Montague Grammar.


TOPIC/COMMENT SENTENCES IN ENGLISH *

Susan R. Kesner Bland

**Introduction.** In descriptions of topic (T) and comment (C) in topic-prominent languages like Chinese, a number of features of topic/comment sentences (TCS's) emerge:

a) the T is a NP in sentence-initial position
b) the T is followed by a sentence (the C)
c) the T has the following relation to the C: it 'limit[s] the applicability of the main predication to a certain restricted domain' (Chafe 1976:50).
d) the T has a variety of functions in its relation to the discourse: topic establishment, topic re-establishment, etc.
e) T's are definite (this includes generics and proper nouns)
f) there are no constraints on what may be T—subject, object, indirect object, genitive constructions, etc.
g) the T is not necessarily an argument in the C
h) T's can occur in embedded clauses, i.e., they are not restricted to one sentence type

The features of TCS's in English, on the other hand, are generally thought to be much more restricted. The canonical English TCS is described as a sentence with features (a-c), although the English T will most often be preceded by a phrase like *as for* or *concerning:*

(1) *(As for Concerning)* this book, let's put it on reserve.

The possibility of such phrases before the T implies that the functional role of an English T in discourse will be more limited in its relation to the preceding discourse, and therefore require a more restricted version of feature (d) above. In other words, due to the implicit or explicit phrases *as for* and *concerning,* the English T can serve only to retrieve something which was already in the discourse. Moving on to the remaining properties, while the feature of definiteness in (e) is also required for English T's, features (f), (g), and (h) are not typically referred to in descriptions of English TCS's.

In this paper, I will examine a group of English TCS's taken
from unplanned/informal discourse, and characterize them according to how they function in their discourse settings. I will show that English T's function not only to retrieve discourse, but also to introduce discourse, to echo discourse, and to help with various sentence processing difficulties. Moreover, I will argue that these data call into question many of the generally held assumptions about English TCS's, by demonstrating that the same features which have been ascribed to TCS's in topic-prominent languages are also found in the data. My purpose, therefore, is to expand the prototypical notion of TCS in English, in order to account for a variety of sentences found in informal English conversation.

**The Data.** The data below are taken from several sources: two 1-hour taped sessions of informal conversation with five participants in each session, and various conversations which I have taken part in or overheard. In the discussion which follows the data, I will provide the discourse contexts for these sentences. The data have been divided into four groups according to the functions of the T's in the discourse: Retrieval (2), Introduction (3), Echoing (4), and Processing Difficulties and Repairs (5).

(2) a. All of those ones you had like that, were they all questions?
   b. Some of these I don't think you ever come across in natural language.
   c. German I took last year.
   d. Hebrew I just took one semester.
   e. Dutch, I was living in Belgium, and they speak Flemish there--Dutch--so I took it.
   f. All the things they were saying, I didn't know half these words.
   g. Roy I didn't know very well then.

(3) a. Your pants, you can't go out like that.
   b. Arthur. 8 1/2 x 11 envelopes? You got any?
   c. My papers, the whole break was ruined.
   d. Rain, we haven't had a nice weekend all fall.
   e. The paper I'm working on, I can't believe the detail that's needed.
   f. Yonkers, that's an interesting name.
   g. My work, I'm going crazy.
   h. The Fox River, do you know, that's near Algonquin, outside of Chicago?
   i. Other people, they say, well they look at it another way.
(4) a. The course, we went too fast.
   b. Jane I should call.
   c. Donlon, I know Donlon.
   d. Phonebill, I got my phonebill yesterday.

(5) a. My next-door neighbor, well, the other one, not the
   boy, she, her boyfriend lives with her.
   b. My family, well my mother, we didn't even have a
   car for ten years.
   c. These people, I mean, they're all on drugs.
   d. Anyway, the people, like they walk around either
   in leotards or leotard skirts.
   e. One of the people who lives in my apartment, her
   boyfriend goes to Rochester, and they call each
   other about every three nights.
   f. One woman, she called me, 'cause someone, on my block,
   cleans for her.

The data above all share the canonical surface structure form--
a NP followed by a sentence. By sentence, I have included both
full sentences as in (2a) and gapped sentences as in (2b). Al-
though the syntactic differences are often discussed in the
literature (cf. left-dislocation vs. topicalization) such issues
are not the concern of this study. These sentence types have
been grouped together as TCS's due to the nature of the relation-
ship between the leftmost NP and the sentence which follows it.
Thus semantically, these TCS's are constrained by the notion that
the C 'asserts, asks, promises, etc. something about the topic of
S' (Gundel 1974:92). This appears to be necessary in all types
of TCS's in order to prevent the speaker from generating a
sentence like

(6) ?Montague grammar, the oranges are in the refrigerator.

unless of course, there is some discourse situation which could
conceivably tie the leftmost NP to the sentence. Although this
may at first seem unlikely in the case of (6), a closer exami-
nation of the data will reveal that the semantic relationship is
not always immediately transparent until the context is examined.
All of the TCS's discussed also share the feature that the T does
not have focal stress, i.e., none of these T's can felicitously
occur in cleft constructions. This can be considered as a
corollary of the property of definiteness since T's are given or
presupposed information, and C's contain some kind of new inform-
ation about the T. In clefted sentences, however, the clefted
NP contains the new information, and the subordinate clause con-
tains the presupposed information. A clefted version of the TCS
in (1) above illustrates this point:
(7) "It's this book that we should put on reserve." 

(7) would be entirely inappropriate in the original discourse context of sentence (1).

**Discourse Function.** TCS's in English are generally characterized as having the following discourse function: the T announces the 'theme' of the sentence, i.e., what the sentence is about, and the rest of the sentence comments on this T. As we have already seen above, the topic NP is usually felt to be given (known or presupposed) information, something which the speaker wishes to foreground or focus upon in that particular sentence. The T provides a way for the speaker to retrieve something from previous discourse in order to indicate what she is going to talk about before she actually does talk about it. Following this definition of T, Gundel (1974) finds that many of her TCS's can be preceded by phrases like *as for* or *concerning*, thus in effect showing that T's do have this 'retrieval' function. For example, according to Gundel, (8b) does not represent a TC construction in this context, since the leftmost NP represents new information, and consequently cannot combine with *as for:*

(8) a. Who left early?
   b. *#As for John, he left early.*

Furthermore, the sentence following the leftmost NP in this example does not play the role of C since it is presupposed information in the discourse setting. On the other hand, sentence (2a) (repeated below), came up in a discourse with the following context:

(9) Context: Two people were discussing certain types of linguistic constructions. In order to return to one particular type just mentioned, one speaker asks:

(2a) Speaker: All of those ones you had like that, were they all questions?

(2a) is the type of TCS discussed by Gundel and the typical TCS mentioned above, i.e., it is a NP (although here a complex NP) which could be preceded by *as for* or *concerning*, since its role is to retrieve something that was previously mentioned, in order to question it.

Gundel's only examples of TCS's which cannot be preceded by *as for* or *concerning* are examples which are structurally different in that the C contains a gap, as in (10) below:
(10) * As for beans I like.

Example (10) cannot combine with as for or any prepositional or adverbial phrase due to its structure--this has nothing to do with the function of the T here, as a comparison with (11) reveals:

(11) As for beans, I like them.

I shall argue however, that there are, in fact, many examples of TCS's in English which cannot be preceded by as for or concerning for functional, not structural reasons. This will become clear when we examine the function of TCS's in various discourse settings. The T's in the data will be shown to function in several different ways in addition to the prototypical function of retrieval of some information which is presupposed, given, etc. I have used the term Retrieval to name the latter functional role (cf. the sentences in 2) and the following functional roles to account for the T's in (3), (4), and (5) respectively: Introduction, Echoing, Processing Difficulties and Repairs.

In the following sections I will discuss each of these functional roles by looking at the discourse settings in detail. I will argue for an expanded notion of TCS in English, and show that in informal English, TCS's do not really differ very much from those in topic-prominent languages like Chinese, i.e., they are not just limited to one type. Since I have already introduced the category Retrieval above, I will discuss the other functional roles first, and then return to Retrieval at the end of this study.

Before proceeding, however, there is one more preliminary point which should be discussed. When I first examined the TCS's above, another role came to mind, that of Contrast. I was, no doubt, influenced by Chafe (1976), who says that all English TCS's are contrastive. Although I immediately saw that this was not quite right, particularly for Introduction sentences like (3a-g), the Retrieval sentence (2f), and Echoing sentences (4a-d), I was still tempted to maintain a Contrast category. It became evident, however, that the notion of contrast is too broad, for it could be argued that almost anything that we say in some sense contrasts with what was said before. Thus, for example, we retrieve something old from the discourse in order to focus in on it, in contrast to the immediately preceding context, or we introduce something new to the discourse in order to contrast it to what was just said. Most changes of discourse T are contrastive in some way in order to keep the conversation running smoothly. Contrast then, may be subsumed under some of the other functional roles which are discussed--it is one reason for introducing something
new or retrieving something old.

**Function 1: Introduction.** It is often said that subject-prominent (as opposed to topic-prominent) languages use separate propositions instead of T's to establish the T of a discourse (cf. Li and Thompson 1976:484). For example:

(12) \{Remember
\[Do you know\] Tom? Well, he fell off his bike yesterday.

The sentences in (3), however, are examples where the new T of discourse is established by an initial NP, not a proposition—hence a T in a TCS. Let us look at some of these examples, repeated here with their discourse contexts:

(13) Context: Speaker is a passenger in a car on the way to school. Speaker and driver engage in small talk about the weather. 2–3 minutes of silence. Then speaker begins the conversation with the following sentence. (Note that although this T was not discussed that particular morning, the driver is aware that the speaker is working on a particular paper.)

(3e) Speaker: The paper I'm working on, I can't believe the detail that's needed.

(14) Context: Five people are discussing swimming in various places and someone mentions how strange it is to her (she lives near the Mississippi) that people want to come just to see the Mississippi.

Speaker A: That's funny to me that people want to come to the Mississippi to see it, 'cause it's just like, OK, a river!'

Speaker B: 'OK here's a river.'

Speaker C: Muddy, dirty...

(3h) Speaker B: The Fox River, do you know, that's near Algonquin, outside of Chicago?

Speaker C: I'm like seven hours from Chicago.

Speaker B: That's an incredible river. I got out of there and I was covered with green slime!

(15) Context: Speaker and addressee are getting ready to go out to dinner. Speaker looks at addressee disapprovingly.

(3a) Speaker: Your pants, you can't go out like that.
(16) Context: Speaker is looking out the window. No previous discussion, for addressee has just entered the room.

(3d) Speaker: Rain, we haven't had a nice weekend all fall.

In (13), (15) and (16), although it would be possible for the speaker to have used an introductory proposition of the type mentioned by Li and Thompson, e.g., Do you know the paper I'm working on? Look at your pants, It's raining again, this is not necessary in these contexts. Each NP, followed by a short pause, is sufficient for establishing a framework for the sentence. Indeed, such sentences are quite common, particularly (13) and (15), which typify sentences between speakers who are very familiar with each other. Therefore, contrary to the usual function of T in English—that of retrieving given information—these sentences and the rest of the sentences in this section are introducing something new into the discourse, i.e., it has not been discussed in that conversation. It can, however, be identified by the addressee since it is definite.

(14) is an interesting example because the TCS serves as a topicalized introductory proposition. For this speaker, the use of a T in leftmost position is used in conjunction with the introductory proposition do you know... One explanation for this TC structure concerns the fact that there were several speakers actively participating in this conversation at once interrupting each other, and sometimes speaking at the same time. This situation is related to a phenomenon discussed by Ochs (1979) which concerns 'assuming the floor.' In other words, when a speaker wishes to speak, she must listen for the first appropriate moment in which she can get a word in. Ochs suggests that TC constructions appear in such contexts because in order to 'take hold of the floor' the speaker refers to something initially, and only subsequently does she form a C about it. 'The initial NP acts as a place holder allowing the speaker to maintain the floor' (p. 75). In the case of (14) then, expressing the topic The Fox River may allow the speaker to take the floor and immediately establish the T; the speaker then finishes forming her question about it. This notion of 'taking the floor' also seems to be related to what Givón (1976:156) calls 'communicative stress'. He says, for example, that overelaboration and topicalization are used with higher frequency when there is communicative stress. One example of communicative stress would be a noisy communicative situation, as in (14).

A typical feature of Chinese TCS's mentioned at the beginning of this article is that the T is not an argument in the C. Several of the sentences in the data presented here also have this
feature. This is typical of many sentences whose function is Introduction (cf., 3a, c, d, e, g), but it is also found in T's whose function is Echoing (cf. 4a) and in Processing Difficulties and Repairs (cf., 5e). Though the T is not an argument of the verb, it still serves to set up a framework for the main predication. In other words, the T limits the range of assertion of the S by creating the domain within which the predication will felicitously occur. Li and Thompson (1976) and Chafe (1976) claim that in English, such devices as temporal adverbs and prepositional phrases—rather than T's—serve the function of establishing the framework. The data here, however, clearly show that this is not necessarily the case. Let us look at some further examples:

(17) Context: Beginning of conversation. Speaker A looks at a rather unhappy speaker B.
Speaker A: What's the matter?
(3g) Speaker B: My work, I'm going crazy.

(18) Context: Two students greet each other after a short vacation from school.
Speaker A: How was your break?
(3c) Speaker B: My papers, the whole break was ruined.

Note that in (17) and (18) there seems to be a cause-effect relationship between the T and C. The context is sufficient to create this connection; the speaker does not need to formulate a more complex construction due to my work, etc. These sentences may also be examples of starting to answer the question before the whole sentence is formulated, with the cause already foremost in the speaker's mind.

Examples (19)-(21) illustrate some other T's whose function is to introduce something new:

(19) Context: Bookstore. One salesman calls to another.
(3b) Speaker: 8 1/2 x 11 envelopes? You got any?

(20) Context: Speaker and addressee driving in a car. Several minutes of silence until speaker sees a sign for 'Yonkers'.
(3f) Speaker: Yonkers, that's an interesting name.

(21) Context: Student talking about her job at the library, saying that she'd like to quit but can't since the library is so busy.
(3i) Speaker: I'll just have to stick it out. But I'm not working next semester. I can't. Other people, they say, well they look at it another way.
Beginning with example (19), note that the context (a bookstore) is very well-established, i.e., both people are employed in this store and the situation in the discourse may be a very common one to them. The speaker is probably looking for the most expedient way to get what he wants. In (20) the sign establishes the discourse setting, although the addressee was neither looking at it nor thinking about it at the time. (21) is an example where the speaker introduces something new—'other people's opinions'—in order to set up a contrast with her own opinion.

In this section, we have observed that the T is not previously discussed in the particular discourse. The T is not, however, 'brand-new' but rather it is identifiable due to the speaker and addressee relationship or the discourse context. Hence we see generics, proper nouns, and other definite referring expressions as T's. This is consistent with the notion that definiteness is a property of T's in TCS's.

Gundel (1974) has used the property of definiteness to show that T's are presupposed, given, or old information which retrieve what was already in the discourse. The problem, however, is that Gundel has not separated the notion of presupposed, given or old information which is established in a discourse from presupposed, given, or old information which has been established at some time prior to the discourse, or is established pragmatically at the time of the discourse due to the speaker-addressee relationship or their immediate circumstances. Such a distinction allows us to say that in English, as in topic-prominent languages, TCS's can introduce new T's into the discourse. This functional role of T's is not accounted for in Gundel's framework, nor is it typically referred to in other discussions of English TCS's. One exception, however, is Keenan and Schieffelin (1976) who briefly discuss left-dislocated NP's not preceded by as for or concerning. They provide an example similar to (17) and suggest that the T is part of the new information given about the general discourse topic in the conversation.

Function 2: Echoing. Four of the sentences in the data illustrate what I shall call an Echoing role, i.e., the T repeats the word which immediately preceded it in discourse, as follows:

(22) Context: Two students talking. One mentions a course she took in the past. The other asks:
Speaker A: What did you think of the course?
(4a) Speaker B: The course, we went too fast.
(23) Context: Speakers A and B get together after not seeing each other for a long time. Speaker B has been asking about various people--Jane, Mitch, and Andrea. After hearing about Mitch and Andrea, speaker A says:

Speaker A: So what else is new?

(4b) Speaker B: You asked about Jane. Jane I should call.

(24) Context: 5 students are talking about where they live.

Speaker A: Where do you live?

Speaker B: Donlon

(4c) Speaker A: Donlon, I know Donlon.

(25) Context: 5 students are talking about apartment expenses.

Speaker A: The only thing I have to pay for is electricity and the phonebill.

(4d) Speaker B: Oh phonebill, I got my phonebill yesterday.

Givón (1976) suggests that it would be infelicitous for a speaker to use as a T a noun phrase which has been mentioned directly before in conversation, unless ambiguity of reference is expected, or the situation is noisy. Thus he gives the following example (p. 153):

(26) Context: Once there was a wizard.

?Now the wizard, he lives in Africa.

Givón fails to mention, however, a situation where a different speaker takes the floor. (22), (24) and (25) exemplify the latter situation--a new speaker takes a turn. In doing so, the speaker may be repeating what was previously mentioned in order to 'hold her place' in the conversation (cf. previous section). Once establishing her turn by echoing what was just said, the speaker then comments on it when she has formed an appropriate sentence.

Example (23) is different from the other three examples in that the speaker says something and echoes herself, not another speaker. This may relate somewhat to a principle which Chafe (1976) mentions: one sentence often echoes the syntax of the preceding one. This principle in its present form does not explain the TCS above since Chafe refers to sentences which have similar surface syntax, e.g., Rõnalõ ate the meat, Bõb ate the beans. Let us consider broadening this principle, however, to say that a sentence often echoes some part of the preceding one, particularly the final word and its case role. This would certainly help us to explain (25); moreover, such a principle seems to be needed independently of this situation, i.e., for a discourse explanation of
why speakers choose the passive in some contexts.

It appears, for example, that speakers sometimes use the passive in order to talk about the NP which was just used in the preceding sentence in final position. In other words, in order for a discourse to continue smoothly, it is often the case that the object in the preceding sentence becomes the subject of the following sentence through passivization, for echoing the final word somehow ties the sentence more closely to the preceding one. Although the surface syntax from the preceding sentence is not echoed, the grammatical relations are. Thus the echoed word from the preceding sentence is still an object in its case role, but it is foregrounded in the following sentence by passivization. In English, therefore, if a non-emphatic final NP of a sentence is going to continue to play the role of object in the following sentence, putting it in initial position means that it can either be passivized or act as a T in a TC construction. Choosing the passive as opposed to a TC construction brings up certain phenomena which I will return to in the final section.

**Function 3: Processing Difficulties and Repairs.** Before looking at the data in this section, it is important to explain what I mean by 'processing difficulties and repairs' and what I do not mean by it. I do NOT mean that a great many TCS's are 'accidents', 'speech errors', or the like. Rather, for various reasons, a speaker may choose a NP quite early and then pause, often with a filler like umm, well or I mean, and then continue with a resumptive pronoun. Alternatively, she may start with an initial NP which becomes rather complicated due to repair or modification, causing her to form a TCS, rather than a subject-predicate sentence. Moreover, sometimes a speaker may choose a NP prematurely, and have difficulty putting it into a sentence.

In Caddo, an American Indian language, Chafe (1976) reports that the TC constructions relate to the issue of processing. He cites examples where speakers announce a NP in a sentence before it is given a case role. Consequently, these T's, or 'premature subjects' can be thought of as 'a kind of aberration in the timing of the process of sentence construction' (p. 52). These T's are not yet smoothly integrated into the following sentence. Chafe argues that this is a special property of Caddo T's, but as we have already seen above, and as we will further discuss below, English discourse also exhibits this phenomenon.8

One may ask why I have chosen to discuss some of the sentences below in this section when there are examples of the same phenomenon—premature NP's—in all of the other categories of TC constructions. My main reasons for separating (27) and (28), for example, from Retrieval are the following: (i) They both exhibit
explicit hesitation or 'filler' words. (ii) They occur in discourse where the speaker has already been talking, so they do not represent NP's used to 'take the floor'. One might argue, however, that the speaker may indeed be trying to 'keep the floor'. These are just two examples showing that the functional roles overlap, and there are probably a number of ways that these sentences could be classified. What is most important, however, for the purposes of this paper, is to show the various ways that TCS's function in English, in order to expand the somewhat narrow view taken in much of the literature.

Let us proceed to some examples of processing difficulties and repairs:

(27) Context: Speaker is discussing a trip to Boston where she met some students who used a number of expressions (slang) which were strange to her. After running through some of them, she says:

(5c) Speaker: These people, I mean, they're all on drugs.

(28) Context: Speaker had commented that she thought the people in her dorm dressed strangely. This T changes in the next few sentences, and then to retrieve the topic of how they dress she says:

(5d) Speaker: Anyway, the people, like they walk around in either leotards or leotard skirts.

(29) Context: Talking about cars.
(5b) Speaker: My family, well my mother, we didn't even have a car for 10 years.

(30) Context: Student had been talking about her co-ed dorm. She had previously mentioned one of her male neighbors, and now she is talking about her other neighbor, a female.

(5a) Speaker: My next-door neighbor, well, the other one, not the boy, she, her boyfriend lives in the building too.

Contexts (27) and (28) are cases where the speaker started out with a NP and then placed a filler I mean or like after the respective NP's. Such separation of subject from predicate appears to invite the use of a resumptive pronoun in both cases. We do not, of course, know why the speaker hesitated and put in a filler, but it may be due to premature choice of a NP, or a number of other reasons. What is interesting, nevertheless, is the fact
that informal conversation seems to abound with resumptive subject pronouns, suggesting that speakers do not like to produce sentences where the subject and predicate have been separated, i.e., when the verb is not delivered immediately following the subject.

In (29) and (30) we have examples of repair. In (29) the speaker starts with a NP which she then qualifies before continuing; she then resorts to a resumptive pronoun. (30) also contains a NP which the speaker further explains, followed by what seems to be a false-start resumptive pronoun she, and finally a C. This sentence may also be complicated by the presence of a genitive.

Similarly, in the S below, the TCS may result from difficulty with the English genitive:

(31) Context: Talking about phonebills.
(5e) Speaker: One of the people who lives in my apartment, her boyfriend goes to Rochester, and they call each other every three nights.

The initial NP in (31) is somewhat long and complex so that the speaker uses it as a T and then continues with a possessive adjective and noun as the subject of the C. Having started the sentence as she did, unless the speaker wishes to add an 's onto apartment, which is rather clumsy, she has little choice but to resort to a TC structure. Bob Ladd (personal communication) has pointed out that this type of sentence, which is very common, also results from the fact that the apartment mate has a greater connection to the context than the apartment mate's boyfriend. Thus the speaker starts out with a phrase that will 'anchor'9 the boyfriend to the speaker and apartment mate.

The final example in this section is a sentence where the speaker seems to get into trouble with her choice of NP in the embedded clause:

(32) Contexts: Speaker is talking about finding someone to clean her house. A prospective house-cleaner called her, and she says the following about it:
(5f) Speaker: One woman called me, 'cause someone on my block, she cleans for her.

Had the sentence been better planned, a relative clause might have made it clearer: One woman called me who works for someone on my block. The speaker seems to have added someone on my block in order to elaborate on the matrix subject one woman. Once again, this can be considered as an example of 'anchoring'. But after
saying *someone on my block*, it does not appear that the speaker 'wishes' for it to be in subject position, since the sentence is about *one woman*, and not *someone on my block*. The resulting sentence is a TCS whose pronominal references are not easy to follow. My impression of the sentence is that the speaker ran into a problem upon saying the NP *someone on my block*, and opted for a solution which would maintain the intended case roles, even at the expense of somewhat sloppy reference. This does not mean that the speaker was consciously making these decisions, but rather, the subject of the highest sentence probably influenced the outcome. This solution is possible for the speaker because a TC construction is not as constrained syntactically as a subject-predicate construction.

Note also that (32) contains an example of a TC construction in a subordinate clause. Li and Thompson (1976) point to the occurrence of TCS's in subordinate clauses in topic-prominent languages as an example of the wide distribution of TCS's in these languages. One may wish to argue that (32) was only created as a result of a processing difficulty, and therefore should not be compared to a sentence in Chinese, for example. Indeed there was a processing difficulty; nevertheless, such difficulties are extremely frequent in spontaneous conversation, and the language offers one solution in the form of TCS's. Further study is needed to see whether complex sentence constructions encourage the use of TCS's as the data here suggest.

**Function 4: Retrieval.** Let us now return to the function of Retrieval which was discussed at the beginning of this paper. By now, it is hoped that the reader is convinced that retrieval is not the only function of T's in English. Below are some more examples of T's with this functional role:

(33) **Context:** Professor talking to students in a semantics seminar about possible quantifiers. Six different possibilities are listed on the board and are being discussed.

(3b) **Professor:** (pointing to the blackboard) Some of these I don't think you ever come across in natural language.

(34) **Context:** Speaker was asked what other languages she has studied besides French. She replies Spanish, German, Hebrew, and Dutch. She was then asked if she knows all of them well. She replies:

**Speaker:** Well, I mean, I've taken Spanish and because I speak French, I understand it. (2c) German
I took last year. I took the CEEB and everything as my language requirement for my graduate program. Umm, (2d) Hebrew I just took one semester, umm and (2e) Dutch, I was living in Belgium and they speak Flemish there--Dutch--so I took it.

(35) Context: Four students are talking about unusual expressions that their friends from different parts of the country use. Speaker takes the floor with the following:

Speaker: Over the break I went to Boston and I didn't understand...they were speaking English and (2f) all the things they were saying, I didn't know half these words.

(36) Context: Speaker A talking about what she did two summers ago, and in particular a birthday party that their group threw for her. She asks speaker B where he was then.

Speaker A: What'd you do that summer?
Speaker B: Oh I hung around with some other people. I sorta needed a change from the group, ya know, the same old people day in and day out--Greg, George, Steve...mmm...(2g) and Roy I didn't know very well then.

These sentences reveal further aspects of TCS's that I would now like to consider. First of all, notice that in these particular examples, the T is an object and the verb is not easily passivizable.. This feature shows up frequently in retrieval T's, but it is not limited to this functional category--it occurs in all of the other functional categories discussed here. Let us explore the possibility, therefore, that it relates to a general sentence processing phenomenon. In (33-35), since the speaker's point of view is quite important, the speaker remains the subject. For this reason, it is often difficult to passivize first person sentences (cf. The course was taken by me) since the sentence becomes quite depersonalized. This seems to be the case in the above contexts. Note that even if the speaker were talking in the third person, the passive voice would still be inappropriate, suggesting that the problem relates to the personal point of view taken in the discourse, rather than to any particular person, like first person only. In each of these sentences the point of view is separate from the T, so that the speaker is trying to maintain both a focus on a particular object and her point of view. While a passive sentence could not do this in these contexts, TCS's can.
And finally, let us turn to one more aspect of these examples. Chafe (1976) has pointed out that we often put things first when we are 'running through' a number of possibilities which have already occurred in previous conversation or are presupposed for other pragmatic reasons. This phenomenon turns up in (36) where the speaker was running through a list of friends, and in (34) as well. This raises the question of whether this type of context is particularly amenable to sentences with no pause after the T and a gap in the C (cf. 2b, c, d, g), since the context is so well defined or limited.

(34) is an interesting example of syntactic echoing. The speaker is running through a list of languages, and uses two TC structures of the same type (2c and 2d), but when she came to (2e), she seems to have to pause to formulate a more elaborate explanation. The result is a TCS, but it is one whose structure could not be delivered as effortlessly as the other two. Further study of contexts where we get a juxtaposition of these two types of TC constructions (i.e. those with no pause following the T and a gap in the C versus those with a pause following the T and a full sentential C) may bear on questions relating to the differences and similarities of these sentences both structurally and functionally.

Conclusion. In this study I have proposed that spontaneous conversation in English is much richer in TCS's than many researchers would lead us to believe. In particular, TC constructions in English occur in various discourse settings not only to retrieve or reintroduce old information, but also to echo what has just been said, to present something new into a discourse, and to help the speaker with various processing difficulties and repairs. Thus the canonical English TCS which begins with as for or concerning performs only one of a variety of functions that TCS's serve in informal English. Furthermore, the data presented here show that English TCS's are both functionally and syntactically similar to TCS's in topic-prominent languages, i.e., they can be characterized by the same list of features seen in the introduction. And finally, some interesting questions have been raised about the TCS as a sentence processing phenomenon in English.

Notes

*I'd like to thank Bob Ladd, Pete Siegel, Julie Herschensohn, Wayne Harbert, and Len Babby for their valuable comments.

1 See for example, Li and Thompson (1976) and Chafe (1976).
No systematic attempt beyond punctuation has been made to denote intonation. Indeed, the relevance of intonation to the problem studied here is unclear and awaits further study.

Bob Ladd has provided me with this example.

The cross-hatch (#) denotes sentences which are grammatical but infelicitous due to the context.

I'd like to thank Pete Siegel for bringing this to my attention. See Bolinger (1961) for a similar view.

Note that here speaker B is mimicking what someone might say upon seeing the Mississippi, hence my use of quotation marks. Speaker B is thus responding facetiously to speaker A's previous comment.

See Prince (1979) for a discussion of the various types of entities introduced into a discourse.

Note that this is also extremely common in French:

(i) Moi, je suis professeur.
"me, I am a teacher"

Prince (1979) uses the terms 'anchored' and 'unanchored' to distinguish between two types of 'brand-new' entities in discourse. 'Anchored' basically means linked to an entity which is already known by the addressee.

See Kuno's discussion of 'empathy' (1976), and Ladd (1980) for a discussion of 'point of view'.

References


Gundel, Jeanette. 1974. The role of topic and comment in linguistic theory. Bloomington: IULC.


Kuno, Susumo. 1976. Subject, theme, and speaker's empathy—a re-examination of relativization phenomena. In Li, ed. 417-44.


Effects of the Reversal of Principal Branching Direction (from \( L_1 \) to \( L_2 \)) in \( L_2 \) Acquisition

Suzanne Flynn

Introduction

This paper summarizes initial experimental data which suggests that a proposed universal principle which is effective in first language acquisition is also effective in second language acquisition. This principle, we propose, affects both the rate and pattern of second language acquisition. In particular, we argue that this principle constrains the acquisition of anaphora in second language as it does in first language acquisition.

The principle, which was initially identified in first language acquisition (e.g., Lust, 1981) is sensitivity to the principal branching direction (PBD) of a language as stated in 1.

1. Principle of first language acquisition

In early child language, direction of grammatical anaphora accords with the principal branching direction of the specific language being learned.

Branching direction is defined in 2, and principal branching direction in 3.

2. Branching direction (BD)

A Right branching structure reflects the generation of recursive terms to the right of a non-null site (i.e., \( A \rightarrow \alpha A \), where \( \alpha \) represents some non-null site) (cf. Chomsky, 1964, 123, fn. 9).

A Left branching structure reflects the generation of recursive terms to the left of a non-null site (i.e., \( A \rightarrow A \alpha \)).

3. Principal branching direction (PBD)

PBD is evaluated with regard to major recursive devices of a language, e.g., relative clauses adverbial subordinate clause, sentential complementation. For example, in a language where the PBD is right, each structure in the set of major recursive devices will be right branching.
In general, the principal branching direction (PBD) refers to the direction in which major recursive devices such as relative clauses and other forms of sentence complementation are positioned in a language. Sentences 4. to 7. exemplify this principle for English and Spanish which are considered to be principally right branching languages and sentences 8. and 9. exemplify this principle for Japanese which is considered principally a left branching language.

**Right Branching**

**English**

4. Relative clause
   This is the book that the man I met on the train going to Tokyo wrote.

5. Subordinate clause
   John plays chess when Ø smoking his pipe.

**Spanish**

6. Relative clause
   La novela que escribió es muy original.
   'The book that he wrote is very original.'

7. Subordinate clause
   Escucharé música mientras lea el manuscrito.
   'I will listen to the music while I read the manuscript.'

**Left Branching**

**Japanese**

8. Relative clause
   Kore wa Tōkyō e iku kisha de atta otoko no hito no kaita hōn desu.
   (this Tokyo to go train met man wrote book is)
   'This is the book that the man I met on the train going to Tokyo wrote.'
   (See Smith, 1978)

9. Subordinate clause
   Uchie kaetta toki ruumeetoga paatiio shite ita.
   (home to returned time roommate party doing was)
   'When I went home my roommate was having a party.'
Experimental studies which have compared English, Arabic, Japanese and Chinese children's early acquisition of complex sentence structures have shown that this principle in 1. above, constrains the acquisition of certain basic types of anaphora in these languages (Lust, B., 1981; Lust, B. and Wakayama, T.K. 1979; Lust, B., Loveland, K. and Kornet, K. 1980; Lust, B. and Chien, Y.C. 1980; Lust, B. and Barazangi, N. ms; Lust, B., Solan, L; Flynn, S., Cross, C., and Schuetz, E. 1981.) Thus, for example, English speaking children have been found to prefer forward anaphora in accord with the right branching structure of English. That is, they prefer the forward anaphora exemplified in sentence 10. or sentence 12. but eschew backward anaphora as in sentences 11. or 13.

**Pronominal**

10. **Forward**
   Oscar bumped the wall when **he** found the penny.

11. **Backward**
   When **he** closed the box, **Cookie Monster** lay down.

**Null**

12. **Forward**
   Bill ate the apple when Ø coloring the book.

13. **Backward**
   When Ø cutting the grass, Jimmy walked the dog.

On the other hand, Japanese speaking children have been found to prefer sentences with backward anaphora as in 15. rather than 14. [This preference has been argued to be explained by children's sensitivity to the left branching structure of Japanese and their attempt to make anaphora accord with this PBD (Lust and Wakayama, 1979).]

**Coordination**

14. **Forward**
   Inuwa hoeru shi Ø kamitsuku
   (dog(s) bark and Ø bite.)

15. **Backward**
   Torito mushiwa naku.
   (bird Ø and cricket sing.)

Current research in first language acquisition is pursuing these results further (e.g., Lust, B., Wakayama, T.K., Snyder, W., Bergmann, M., in preparation). If these first language acquisition
findings continue to be confirmed, then these data will provide evidence that the PBD provides a significant constraint on the first language acquisition process and, specifically, that this constraint holds on a critical aspect of language, i.e., anaphora. This principle is said to "constrain" the first language acquisition process in that it limits the options a young child must consider for acquiring this complex aspect of language.

Implications for second language acquisition

In this study we tested the following hypothesis: if sensitivity to the PBD is a significant part of the essential competence for language, and if acquisition of a second language involves this essential language competence, then second language acquisition should also involve this principle of branching direction in some way. Specifically, if a learner's hypotheses about branching direction are necessary to the acquisition of the second language as well as to the first, then we would expect that there would be significantly more difficulty in second language acquisition in the case where there is a mismatch between the branching direction of the first and second languages and less difficulty in the case where there is not a branching direction mismatch. One might expect that hypotheses of adult second language learners about branching direction are set for first language and would need to be revised if the branching direction of the second language differs from the first. However, no such revision in hypotheses would be necessary where the first and second languages match in branching direction. Moreover, if these hypotheses about PBD constrain the acquisition of anaphora, then we would predict that effects of the first and second language branching direction mismatch will affect the acquisition of anaphora. Specifically, we would predict more anaphora errors particularly with regard to directionality of anaphora where the first language does not match the second language in PBD. In the case where the PBD of the second language matched that of the first language one might expect the pattern of acquisition of anaphora in the second language to be similar to that in the first, but one would not necessarily predict this in the case of a branching direction mismatch. The general hypotheses which we tested are summarized in 16.

16. Hypotheses

I. Rate
   Rate of acquisition (for complex sentence structures) will differ significantly between $[L_1 \text{ (PBD)} = L_2 \text{ (PBD)}]$ vs. $[L_1 \text{ (PBD)} \neq L_2 \text{ (PBD)}]$. 
II. Pattern

Patterns of acquisition of complex sentence structures would differ significantly between $L_1$ (PBD) = $L_2$ (PBD) vs. $L_1$ (PBD) $\neq$ $L_2$ (PBD).

$L_2$ acquisition patterns would be similar to $L_1$ acquisition patterns where $L_1$ (PBD) = $L_2$ (PBD), but not necessarily where $L_1$ (PBD) $\neq$ $L_2$ (PBD).

These hypotheses can be evaluated both with regard to complex sentence structures which demonstrate recursion in general, and with regard to complex structures which involve anaphora within the recursion. This would allow us to evaluate our hypotheses both in terms of the effects of PBD in themselves, and also in terms of the effects of PBD on anaphora in particular.

The experimental study

For this study, two groups of subjects studying English as a second language at Cornell were tested. One group consisted of native speakers of Spanish; the other group consisted of native speakers of Japanese. As shown in Fig. 1, mean levels as well as ranges of English language ability were similar between these two groups as measured by the English Placement Test of the University of Michigan.

17. Groups: Japanese (N = 15) Spanish (N = 15)

<table>
<thead>
<tr>
<th>Mean age</th>
<th>Mean age</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.0 years</td>
<td>25.0 years</td>
</tr>
</tbody>
</table>

Mean score on EPT (averaged over listening comprehension and grammar scores)

<table>
<thead>
<tr>
<th>17.9</th>
<th>17.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.5 - 23.0</td>
<td>7.5 - 23.5</td>
</tr>
</tbody>
</table>

Subjects were asked to imitate a set of complex sentences in English varying in type of anaphora and branching direction (i.e., either pre- or post-posed subordinate clauses). We will report here on the results of a subset of these types involving pronominal anaphora. As suggested by the examples of the stimulus sentences below, complex sentences 18. to 22. with subordinate when clauses varied systematically in branching direction. That is, they were either right branching where the subordinate clause was postposed to the right of the main clause, or left branching where the subordinate clause was preposed to the left of the main clause. Sentences 18. and 19. varied in branching direction but did not involve anaphora. Sentences 20. and 21. varied additionally in directionality of pronominal anaphora.
in accord with the branching direction differences. The sentences in 20. exemplify forward pronominal anaphora; sentences in 21., backward pronominal anaphora. Comparison of sentences 18. and 19. with sentences 20. and 21. allowed us to test the factor of the directionality of anaphora in addition to the factor of branching direction differences. Sentences in 22. represent control sentences which had a preposed subordinate clause but forward pronominal anaphora. This sentence type was used to provide a more precise test for whether apparent effects of directionality of anaphora which might be found in 20. and 21. were significant above and beyond their branching direction differences, i.e., when BD was reversed but anaphora was not. All sentences were equalized precisely in syllable length and roughly in word length. All were designed to disallow easy pragmatic solution.

No anaphora

18. **RB** a. The boss informed the owner when the worker entered the room.
   b. The worker called the owner when the lawyer finished the plans.

19. **LB** a. When the actor finished the book the woman called the owner.
   b. When the man dropped the television the woman hugged the child.

With anaphora

20. **RB** (Forward anaphora)
   a. The man answered the boss when he installed the television.
   b. The worker introduced the foreman when he entered the room.

21. **LB** (Backward anaphora)
   a. When he delivered the message the actor questioned the boss.
   b. When he prepared the breakfast the doctor called the professor.

Controls

22. **LB** (Forward anaphora)
   a. When the doctor received the results he called the gentleman.
   b. When the mayor delivered the plans he answered the worker.
All subjects were pretrained on all vocabulary items prior to the actual testing. The subjects imitated 27 sentences in all, 9 on pronominal anaphora.

Results

Results on the imitation task in terms of amount of correct imitation showed that sensitivity to the PBD is involved in second language acquisition. As hypothesized, this principle does operate to significantly affect both the rate and pattern of second language acquisition. According to Analysis of Variance, Language Group was a significant main factor measured on both sentences with no anaphora, 18.-19. above, \((F (1, 28) = 20.17, p=.0001)\) and on sentences with pronominal anaphora, 20.-21. above, \((F (1, 28) = 16.03, p=.0004)\). Native speakers of Spanish where the PBD of the first language matched that of English, imitated the English complex sentences both with and without anaphora significantly more easily than speakers of Japanese where there is a mismatch in PBD. (It should be recalled here that these groups were equivalent on the general ESL test suggesting that this result was not merely due to a general depression of the Japanese group.) As can be seen from Table 1, Japanese speakers had a great deal of difficulty with these complex embedded sentence structures. The fact that groups differed significantly on these sentences both with and without anaphora, suggested that branching direction holds as a main factor in acquisition independent of directionality of anaphora.

However, this principle, sensitivity to branching direction, does appear to constrain second language acquisition of anaphora in particular. It can be seen in Figure 1 that forward pronominalized sentences are significantly easier than backward pronominalized sentences for Spanish speakers, while backward pronominalized sentences tend to be somewhat easier than forward pronominalized sentences for Japanese speakers, (although there was no significant statistical difference between forward and backward pronominalized sentences for the Japanese speakers). Thus, the pattern of acquisition of anaphora appears to differ depending upon the match or mismatch of the first language with the second. Directionality of anaphora was also shown to be a significant factor in an analysis of the control sentences which were left branching but had forward pronominal anaphora. As can be seen from the Spanish data in Table II for example, this control sentence type was substantially less difficult for Spanish than the backward pronominalized sentences which had a preposed subordinate clause identical in structure to that in our control sentences, but also backward anaphora. The Japanese data shows that these control sentences were the most difficult for the Japanese. This may have reflected a mismatch between native language preference for branching direction and directionality of anaphora.
Through an analysis of imitation errors made on anaphora, PBD was also found to affect second language acquisition of anaphora. The anaphora errors we consider here all maintained a 2 clause structure, but the speaker made some revision of the anaphoric relation. Group is again found to be a significant main effect when number of anaphora errors is analyzed, (F (1, 28) = 7.56, p=.01). A comparison of the means show that Japanese speakers made significantly more anaphora errors than the Spanish speakers on these structures, Japanese = .53 and Spanish = .16.

In addition, analyses of errors made by the Spanish and Japanese speakers showed different types of errors made by each group. For example, Spanish speakers often appeared to be able to make sense of the anaphora even when they had trouble with the specific anaphoric relation involved. In 23(a) a Spanish speaker appeared to have difficulty with the backward direction of the anaphora relation and thus converted the structure to a double pronoun structure. Japanese speakers on the other hand, as exemplified in 23(b), in imitating right branching sentences often gave only the first (main) clause without giving any of the right branching (subordinate) clause. Moreover, as can be seen from the examples in 23(c) or (d) when Japanese were able to produce some version of the right branching structure, they often did so in a manner which substantially denied or revised the anaphora relation. 

23. Examples of Errors

(a) Spanish:

Stimulus: When he prepared the breakfast the doctor called the professor (Backward Pronominal Anaphora)

Response: When he finished the breakfast he called to the professor.

(b) Japanese

Stimulus: The man introduced the policeman when he delivered the plans.

Response: The man introduced the policeman...

(c) Stimulus: The mayor questioned the president when he entered the room. (Forward Pronominal Anaphora)
Response: Mayor questioned the president... with the diplomat

(d) Stimulus: The man introduced the policeman when he delivered the plans.

Response: When the man introduced someone, the policeman run away.

In conclusion, both the rate and pattern of acquisition of complex sentence structures by both groups of second language learners has been found to be predicted in part by the match or mismatch of the branching direction of the first language to that of English. Data such as these confirm that sensitivity to the FBD of a language, demonstrated in first language acquisition, is also effective in second language acquisition. This suggests that this principle may be a component of the essential faculty for language acquisition.

These results have implications for the construction of a more general theory of language competence (such as proposed by Chomsky, 1980) and for issues concerned with specific language variations with this general language competence (e.g., Chomsky, 1980). Finally, these results may contribute to current study of second language acquisition, particularly with regard to assessing constructive and contrastive aspects of this acquisition process (e.g., Dulay and Burt, 1974).

FOOTNOTES


I thank Barbara Lust, John Carroll, James Gair, Carlos Piera, Wayne Harbert, and John Bowers for their helpful and insightful comments and discussions. Special thanks are also owed to Erik Beukennamp, Pat Marcus, and Ida Wolff and their teachers for allowing me to work with the students in their programs. Thanks are also given to Joanne Haberstader for her help with the tape transcriptions; to Yu-Chin Chien for her invaluable assistance with data analyzes and to Toshi Nakajima for his help with the translation of the Japanese vocabulary lists.

This paper was supported by a graduate research supplement from the Department of Modern Languages and Linguistics, and in part upon work supported by the National Science Foundation under grant number BNS-7825115.
2 Notably, not all languages instantiate a perfectly consistent branching direction (perhaps only very few, if any, actually do so perfectly.) Moreover, all languages appear to allow manipulations of even a basic branching direction, e.g., by pre- or postposing. Languages, however, appear to often allow a "general" characterization in terms of their branching direction over several major recursive devices. The precise designation of the set of 'major recursive devices' which allows determination of a PBD is an empirical issue both theoretically and empirically. In this research, languages are chosen for experimental purposes which are basically consistent in BD (e.g., Japanese, English, and Spanish).

3 In a standardized elicited imitation task, the experimenters orally presents, one by one, a series of randomized sentences to the subject who is asked to repeat each. First language acquisition studies have suggested that this task taps syntactic competence since the model sentence must be filtered through the speaker's comprehension and productive systems. (cf. Lust, B., Loveland, K., and Kornet, R., 1980).

4 Only those sentences which maintained the original two clause structure, did not alter in anyway the original anaphoric relationship and did not make any major lexical changes (e.g., substitution of non-synonymous NPs) were scored as correct.

5 Additional control sentences testing mere juxtaposition of 2 sentences without embedding also did not reveal this significant group difference.

6 As has been noted by Bowers (personal communication) some of the errors of Japanese speakers might be thought to have been due to Japanese speakers' expectations that anaphora such as in the stimulus sentences required a 'null' rather than pronominal anaphor. Results of a comparative study of imitation of sentences with null anaphora will be reported in the completed dissertation of which this study is a part (Flynn, in preparation).

BIBLIOGRAPHY


Lust, B., and Barazangi, H. Ms. The structure of coordination in first language acquisition of Syrian Arabic, Cornell University.


### TABLE I

**Analyses of Number Correct** (Score range 0-3)

**Rate - no anaphora (cf. sentences 21-22)**

Group: $F(1, 28) = 20.17$, $p = .0001$

<table>
<thead>
<tr>
<th></th>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese</td>
<td>0.4</td>
</tr>
<tr>
<td>Spanish</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Rate - with Pronominal Anaphora (cf. sentences 23-24)**

Group: $F(1, 28) = 16.03$, $p = .0004$

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese</td>
<td>0.83</td>
</tr>
<tr>
<td>Spanish</td>
<td>2.00</td>
</tr>
</tbody>
</table>

### TABLE II

**Control Sentence Analysis: Amount Correct**

<table>
<thead>
<tr>
<th></th>
<th>Forward Pronominalization</th>
<th>Backward Pronominalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td>2.13</td>
<td>1.19</td>
</tr>
<tr>
<td></td>
<td><strong>Control</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.53</td>
<td></td>
</tr>
<tr>
<td>Japanese</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forward Pronominalization</td>
<td>Backward Pronominalization</td>
</tr>
<tr>
<td></td>
<td>.73</td>
<td>.93</td>
</tr>
<tr>
<td></td>
<td><strong>Control</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.33</td>
<td></td>
</tr>
</tbody>
</table>
RESYLLABIFICATION

Steven Franks

0. As generative phonology grew more sophisticated, it became increasingly evident that it was impossible to do justice to any language's phonological system without incorporating some syllable-based generalizations into one's description.1 A purely segmental analysis is unable to characterize all the processes significant in getting from underlying morphophonemic representations to surface phonetic ones. In the recent literature a variety of attempts have been made to treat the organization of segments into units of syllable size or greater within an explicit framework.2 The crucial question: "Are there in general phonological rules which can be stated more appropriately in terms of the syllable...than in terms of segments," posed by Andersen (1969, p. 141) has been answered in the affirmative by many linguists (cf. fn.2). And, I believe, their arguments are convincing.

It is not my goal here to delimit the internal structure of the syllable or to describe precisely how syllable boundaries are determined. Instead, I shall argue that once we are provided with syllable boundaries the syllabicity of a given segment is predictable. It follows that the feature "syllabic" need not be represented in the lexicon, but may be assigned in the course of generating a surface form. However, there are a variety of competing strategies for syllabification and these conspire to condition the following alternations within the syllable: 1) a segment may be [+syllabic] in one instance but [-syllabic] in another, ii) a vowel may be syncopated or not, and iii) a syllable may find itself lacking a segment capable of serving as the syllabic peak, and thus requiring that a vocalic segment be inserted.3 These kinds of alternations usually involve syllabifying the string of segments differently. For the purposes of this paper, syllabification can be conceived of as corresponding to a set of well-formedness conditions on segmental organization, and the processes to be considered operate to make sequences of segments conform to these surface conditions. In other words, the purpose of phonological processes is to make underlying representations "pronounceable in a language L", and this often involves juggling syllable boundaries. This on-going reanalysis of the sound sequence can be called "resyllabification."

Where to place a syllable boundary (henceforth denoted by "$\)"), and indeed whether one can be uniquely placed at all, is not patently obvious. I believe that every language will have its own set of Syllable Structure Conditions (SSCs) that state which clusters are permissible. In addition, there are several general principles of syllabification that are either implicit or explicit in much of the
literature. Strong or productive morphological boundaries may dictate the position of $ in the phonological component. Morphological boundaries play a role in strictly phonetic processes only in so far as they can be translated into phonological boundaries, such as $. Why we need to posit $ in such boundary cases will become clear from the arguments for the interaction between vocalism and syllabification to follow. Syllable boundaries also precede the longest string of [+consonantal] segments capable of being syllable-initial according to the language's SSCs. This has been called the "principle of maximal onset." The corresponding "minimal coda" principle also figures widely in attempts to provide a heuristic for syllabification. Roughly speaking, a syllable with an initial consonant is unmarked and a syllable with a final consonant is marked. This provides us with a partial hierarchy of optimality of syllable structure, as crudely schematized in (1).

```
(1)
```

Of course, these two phonetic principles can be overridden by accentual factors, as well as the morphological considerations just mentioned. It is crucial to the present paper not that I be able to justify particular principles of syllabification, but that we accept the inevitability of syllable-boundary conditioned rules. Often it is simply the behavior of an item with respect to such a rule that provides the most convincing evidence for a given syllabification. How much of syllabification is universal and how much is a language specific parameter also need not be resolved in order to demonstrate its existence. In all likelihood, syllable boundaries themselves fall from the general way segments are organized into syllables—probably, by associating them with an abstract syllable node "$r" in a metrical tree.
but could become syllabic under special circumstances, as, for example, between obstruents. When vowels become nonsyllabic, they turn into glides; high vowels turn into the high glides [w] and [y]; nonhigh vowels into the nonhigh glides symbolized by [h]. (p. 354)

Chomsky and Halle utilize the major class features "sonorant", "syllabic", and "consonantal". However, given the presence of syllable boundaries and a way to determine the syllabic peak, [+syllabic] can be assigned by rule to the appropriate segments. In the framework I am advancing here, only obstruents are [-sonorant], and only vowels and glides are [-consonantal]. Instead of saying "vowels become glides" or "nonsyllabic sonorants become syllabic", I shall argue that [+syllabic] is associated with, or assigned to, the segment between two $s$ with highest sonority. This is, of course, provided that the segment is capable of serving as a syllabic nucleus in the language L.

This kind of approach is by no means new. In fact, it is implicit in most traditional discussions of Indo-European vocalism. The glides /l w/, the liquids /r l/, the nasals /n m/, and even the "laryngeals" /h₁ h₂ h₃/ all have syllabic variants. Furthermore, what segment will serve as the syllabic peak is perfectly predictable in terms of the sonority of the segments within the syllable. The "true" vowels /a e o/ are the primary candidates for the feature [+syllabic], followed by the glides, the nasals, the liquids, and the laryngeals, respectively. This hierarchy of sonority can most directly be expressed in a generative framework in the binary-branching tree of footnote 7. In Indo-European inflection root vowels alternate with a so-called "zero-grade." In a full-grade the [-consonantal] segment is naturally the highest in sonority, but in the zero-grade one of these resonants very often finds itself the syllabic peak. A few simple examples follow:

(2) (a) *prih₁x → Ved. prī-(ti) 'joy' *kruh₂ → OIr. crú 'blood'
(b) *srbh → Arm. arb - (i) 'I drank' *t₁h₂ → Ved. tul-(āya-ti) 'lifts'
(c) *sng₁ → Arm. ank-(ani-m) 'I fall' *pod - m → Gk. Πόδα 'foot' (acc.)
(d) *sh₁ → Lat. sa - (tu-s) 'sown'

(3) (a) *preh₁ → Skt. prāyah 'pleasure' *kreuh₂ → Ved. kravi - (t) 'raw meat'
(b) *srēbh - → Lith srēb-(ti) 'sip' (inf.) *telh₂ → Gk. Τέλον 'support'
(c) *seng₁ → Go. siga-(an) 'sink' *ulk₁ o-m → Gk. Λύκον 'wolf'
In (3) the resonants are consonantal since they are tautosyllabic with a true vowel, but in (2) the resonants are vocalized since they appear in syllables without anything else higher in sonority (i.e., a "vowel"). Whether to write "r" or "r", or "i" or "i" is an entirely predictable matter. Hence, for the purposes of describing the Indo-European alternations, syllabic is can be abstracted out of the segmental representation. The most sonorous element between two $ boundaries will be marked [+syllabic], and this relative sonority in turn follows from the intrinsic properties of the segments. In the binary-branching trees of footnote 7, the sister higher in sonority is marked "s", and the [+syllabic] segment in each syllable will be the one that is dominated solely by s nodes up to $.

2. The kind of strength hierarchy that has frequently been proposed as a primitive of phonological theory is often interpreted as some sort of meta-environment for phonological rules. There are rules that alter syllabic or metrical structure and thus refer crucially to the association lines between segments and higher levels of organization, but there also exist rules whose domain is exclusively the linear string of segments. This distinction must carefully be maintained (cf. Ingris, 1980). I argue here that in order to describe strictly segmental phenomena, it is sufficient to include $ in one's linear representations. I shall examine and re-analyze the data in one interesting article to exemplify the advantages of exploiting $.

A typical application of hierarchical information to condition P-rules appears in Zwicky (1972). Each of his rules can be rewritten in a more explanatory and concise fashion by making use of $ in the rule's structural description. Zwicky's rules are only superficially adequate because syllabification depends in part on the relative sonority of segments. Zwicky (p. 277) hypothesizes that the hierarchy in (4) "must be represented in phonological theory." 11

(4) Vowels Glides r l n m ŋ Fricatives Stops

He believes that rules are extended to apply to increasingly greater portions of this hierarchy in allegro speech. In other words, his rules can be "triggered...by speed of speech, style, fatigue" (p. 278) to apply to a greater stretch of the hierarchy in (4) than would be acceptable in careful speech.

An example of such a rule, applying to a limited stretch of the hierarchy in (4), is Slur (Zwicky's (7)).

(5) Slur:  ø /c ___ [r] [cons] ___ [l] [voc] ___ [n] [-stress]
Slur syncopates English words, deleting schwa followed by /r/, /l/, or /n/ before an unstressed vowel. Some words affected by Slur are given in (6) (from Zwicky's (8)).

(6) elaborate (adj), temperature, chocolate, leveling, reckoning, effeminate

Note that Slur typically deletes an immediately post-tonic schwa, and that it strengthens syllable onsets. Even among the words in (6) I find a slight differential as to Slur's applicability—the first three words are more readily subject to it than the last three.

In a description that permits syllable boundaries, the words in (6) can be shown to syncopate as in (7), where the relevant portions of these words are represented as having undergone some kind of resyllabification.

(7) ela$bo$rate → ela$brate tem$pe$ra$ture → tem$pra$ture cho$co$late → cho$clate le$ve$ling → lev$ling re$cko$ning → reck$ning effe$mi$nate → effem$nate

Slur might be revised to incorporate syllable boundary information as in (8):

(8) Slur: \( \frac{\text{r}}{\text{r}} \rightarrow \emptyset / \text{C} \quad \frac{\text{1}}{\text{1}} \)

The effect of Slur is to alter syllable structure and to cause resyllabification. Once the vowel is lost, the consonant is associated with the following syllable if possible, or the preceding one if not. This is the process of resyllabification. The derivations in (7) have the missing step of resyllabification made explicit in (9):

(9) ela$bo$rate → ela$b$rate → ela$brate re$cko$ning → re$ck$ning → reck$ning

The words are first syllabified in accordance with (1). No special accentual or morphological properties override this here, since the suffix -ing, although productive, is inflectionally bound to the root. Slur then applies. Resyllabification is now necessary, because /b/ and /k/ are too low on the sonority scale to be syllabic. As a working hypothesis, I suggest that all Ls permit only [+sonorant] segments (i.e., non-obstruents) to be syllabic, and that this is further restricted within individual languages. Russian, for example, only allows [-consonantal] segments as syllabic nuclei. These are all output conditions expressed at the surface systematic phonetic level. Likewise, the set of possible syllable-initial and syllable-final clusters must be stated here in terms of Syllable Structure Conditions
(SSCs). In this way, *$kn$ is excluded to give reck$ning$, whereas resyllabifying $ela$brate to $ela$brate (again, cf. (1)) is not.

If resyllabification is not possible, then the output will ceteris paribus be ill-formed. Some of Zwicky's "exceptions" fall from this principle. Rule (5) does not apply before clusters, such as in earnestly and development.12 If these are syllabified ear$nest$ly and de$vse$lop$ment it becomes obvious that the syllables containing $[\theta]$ are closed, and no amount of reassociating consonants will remedy this situation, since [stl] and [pm] are not viable syllable-initial clusters in English. Across strong boundaries, such as in counterintelligence, Slur cannot apply to produce coun$trin$elligence. This fact is a natural consequence of assuming Slur depends crucially on $\$, and that $\$ may replace strong morphological boundaries. By this I mean only those boundaries that demarcate word boundaries ("#") and certain productive derivational affixes ("="), but never inflectional ones. In general, it seems that the stronger the morphological boundary, the harder it is to resyllabify in a way that moves $\$. After further reflection, I do find that coun$trin$elligence is possible given the appropriate tempo, which far exceeds that of Slur's normal application (cf. fn. 12). Be that as it may, there is no way to syncopate counter$intelligence and maintain $\$ in the original boundary position. Ordinarily, specifying a following vowel, as Zwicky has done in (5), will guarantee that the resonant be syllable-initial and thus achieves the same effect as overtly including $\$ in the rule. Morphological boundary exception cases nearly differentiate between Rule (5) and Rule (8).

Zwicky's rule of Pre-stress Contraction, which operates on such forms as $spa$lice$\$ to produce $splice$$\$, is presented in (10) (Zwicky's (9)).

(10) Pre-stress Contraction:$\%\rightarrow \emptyset / \# C ______ C [\neg \text{cons} \newline \text{voc} \newline \text{stress}]$

Compare (10) with the alternative formulation in (11).

(11) Pre-stress Contraction':$\%\rightarrow \emptyset / C ______ \$\$

Note that "$\%$" stands for any stressed syllable, and is equivalent to $\$X^{*}[\text{+stress}] Y^{*} \$. As Zwicky (p. 284) points out, (10) fails to apply in such words as Decameron, revised, pedestrian, and deflation. This is easily accounted for in a theory making use of $\$, assuming [dk], [rv], [pd], and [dfl] are not valid syllable-initial clusters in English, and resyllabification will not take place. No segment within the first syllable will be [+syllabic], and such a "syllable" is ill-formed. Furthermore, only (11) can account for Zwicky's example coordinate, since the determining factor here is not a following CV, but that the unstressed syllable be open. Zwicky's analysis seems to be observationally adequate only because in the majority of cases CV is preceded by $\$. 
A final syncope rule proposed by Zwicky is VVR (Zwicky's (28)).

(12) VVR: \( \varepsilon \rightarrow \emptyset / \)

Rule (12) reduces a sequence VG\( \varepsilon \)R (where G = glide and R = resonant) to VGR. A typical example is the pronunciation of vowel with one syllable in many people's speech. In a framework incorporating \$, (12) can be subsumed under Slur' and collapsed with (8). The fact is that \( \varepsilon \) is not deleted unless it is immediately followed by \$. For example, in my speech (12) does not apply to the forms in (13).

(13) dire, flower, prior, payer, dial, Brian

If formulated as in (8), this result is to be expected. The reason is simply that the resonants belong to the same syllable as does the reduced vowel. However, under certain conditions—notably, those involving flexional suffixation—the resonants may be part of the following syllable and resyllabification is possible. In other words, \$ may shift and permit Rule ` (8) to apply in such a way that dialing can be pronounced with two or three syllables.

(14) flo\$w\$ring \rightarrow flo\$w\$ring \rightarrow flow\$ring
    di\$(j)\$ling \rightarrow di\$(j)\$ling \rightarrow di(j)\$ling

In (14) the glides have become associated with the initial syllables. The schwa is deleted in casual speech in open syllables. Collapsing VVR with Slur' has the added advantage that it accounts for syncope where the resyllabified segment need not be a glide, as in (15).

(15) múm\$b\$ling \rightarrow múm\$b\$ling \rightarrow múm\$bling

Note that the "C" in Rule (8) must now be able to refer to any [-syllabic] segment under this analysis.

Lastly, Zwicky proposes a rule Dentdel that deletes dentals after continuants (except /r/) in informal speech. It has the following form (Zwicky's (43)):

(16) Dentdel: \( \{t \} \rightarrow \emptyset / \)

Dentdel optionally deletes the last segment of the words in (17).

(17) soft, child, cold, hand, must

However, the relevant boundary is \$ and not \#. Word-final deletions are a subset of syllable-final deletions, which take place in the items listed in (18).
It seems obvious that the dental deletions in (17) and (18) are all governed by the same rule. Any theory which accounts for the optional loss of the [d] in child and childlike with different rules would be missing a true generalization about English, since both deletions result from the same phonetic process. Zwicky (p. 293) mentions that "Dentdel applies after the continuant obstruents [f] and [s], but not [v z ð z]." This is because English syllables rarely end in one of these consonants plus a dental. In fact, the only possibility for these clusters to arise is when they result from the affixation of the dental preterit (e.g., raved, raised, rouged, rushed), and these are maintained for external reasons of morphological recoverability.¹³ It is misleading to restrict the application of Dentdel, since it is perfectly capable of applying after any continuant. For example, if mashed is considered an adjective in the expression "mashed potatoes," I find it totally acceptable to drop the final [t] in fast speech. All I wish to claim by this is that $ is essential to condition such processes as syllable-final weakening and syllable-initial strengthening, whether or not they need to interact with resyllabification.

3. I have argued that a syllable which is unnecessary because it contains a minimal unstressed vowel and consonants which are happily associated with adjacent syllables may disappear through the action of resyllabification-oriented processes. By the same token, an underlying syllable that contains no segment capable of being [+syllabic] must in some way be restructured. This is an intuitively appealing way of dealing with phenomena where a vowel alternates with a so-called "zero." Such a situation is common in Russian, and dates from a series of changes which are in part relevant to the entire Slavic area.

In Late Common Slavic (LCS) the two short diffuse lax vowels /e/ and /ě/, reflexes of Indo-European /ī/ and /ǐ/, became unable to bear acute stress. These vowels, known as "jers," were ultimately reduced to zero in certain environments. Elsewhere, they were later lowered to become full vowels and fit into the different Slavic languages' systems in different ways. Havlíčk's Law, which basically states where the jers are in "weak" position and fated to be lost, is roughly as follows:

(19) In a succession of syllables containing exclusively /e/ and /ě/, the odd-numbered syllables counting from the end are in weak position.

In other words, the jers were lost in final position, which made an immediately preceding jer strong. A typical example is (20):

(20) *sǐnə >son 'sleep' (nom.)
    *sǐnəmɨ >snom 'sleep' (instr.)
This may be conceived of as involving some kind of "compensatory lengthening" (but cf. Chene and Anderson (1979)), and indeed the loss of the jer is often concomitant with quantitative and subsequent qualitative changes of a preceding non-jer vowel as well. The result is a synchronic alternation between a full vowel and no vowel at all.

However, there are numerous examples that did not develop in the expected way. It is true that we rarely find root-internal alternations in Contemporary Standard Russian (CSR), and exceptions as in (21) can be thought of as owing to "analogy" in that the vocalism has been generalized throughout the paradigm.

(21) \*krjŠék > krošek 'crumb' (GEN)
    \*krjška > kroška 'crumb' (nom.)

Other items cannot be so simply explained away. The LCS words in (22) did not follow (19) on their way to CSR.

(22) \*nŋ > no 'but'
    \*snŋxa > snoxa 'step-daughter' (nom.)
    \*tška > toska 'anguish' (nom.)

The jers in these words were retained when they should have been dropped. Numerous instances like these two, or where a jer was dropped when it should have been retained, or a vowel arose where there was no jer originally, have been pointed out. Ordinarily, these exceptions have been "explained by ad hoc solutions, involving stress and analogical levelling" (Isačenko, 1970, p. 73). However, the sheer abundance of digressions from Havlík's Law argues for the existence of a more explanatory solution.

The most comprehensive and insightful study of the jer-shift is due to Isačenko (1970). He systematically analyzed and catalogued exceptions to Havlík's Law in order to discover what common sources they may have had. In addition, Isačenko emphasized the "deliberate intervention by grammarians" (p. 82) in introducing and canonizing Church Slavonicisms in Russian. For example, all the words that end in an obstruent plus resonant cluster in CSR have variants (be they literary, colloquial, or dialectal) with a vowel.

(23) xrabr : xoróber (or xorobër) 'brave' (masc. short form)
    ostr : ostër 'sharp' (masc. short form)

Even where the Slavonic form has "won out" and been adopted for every day use in the standard language, a vowel usually separates the obstruent from the resonant phonetically, as in iskr [iskɔr]
'spark' (GEN) or igl [igal] 'needle' (GEN). Lastly, Isačenko called attention to a "period of trial and error" ending around 1500 with the establishment of "standard word forms" where multiple vowel-zero alternations where eliminated. In CSR these remain in inflection only across prefix boundaries, as in (24).

(24) sэæg : soæglá 'burnt up' (masc : fem)
    v rot : vo rtu 'in (the) mouth' (acc : loc)

In (35), when the problem is discussed from a syllabic point of view, it will become evident why the situation in (24) persists.

Isačenko deals with the synchronic alternations by positing a dozen-odd rules which informally approximate the conditions governing the development of the jers. He maintains jers in underlying representations and has rules operate to delete them or coalesce them with /e/ and /o/ everywhere, so that they never appear on the surface. In fact, all the analyses of vowel-zero alternations in CSR I have come across assume "underlying jers" in one way or another. I will look at two of them to convince the reader that the data do not warrant as abstract a solution as the absolute neutralization one generally adopted.

Lightner's synchronic generative phonological studies are infamous for their unrivalled recapitulation of historical change, and his investigation of vowel-zero alternations in CSR is no exception. Lightner (1972, 1974) assumes that the root vowels in (25) and (26) must be different, analyzes them as underlying /ʊ/ and /ɨ/ respectively in (26), and then proposes the ordered rules (27) and (28) to get rid of the /ʊ/ and /ɨ/ everywhere.

(25) pot : pota 'sweat' (nom : gen) and klèn : klëna 'maple' (nom : gen)
(26) rot : rta 'mouth' (nom : gen) and lèn : l'na 'flax' (nom : gen)
(27) \{ʊ,ɨ\} → \{ʊ,ɨ\}
(28) \{ʊ,ɨ\} → \{o, e\}

This is embedded in a complex vowel system of eight vowel phonemes and two diphthongs. Rules (27) and (28) operate in accordance with a universal constraint that "stressed vowels may not be dropped" (Lightner, 1974, p. 79) and a rule of Stress Retraction (SR) that retracts stress in unspecified contexts (but apparently is functional whenever it turns out that an underlying stressed vowel is to be dropped!). The combined effect of these rules can be demonstrated by deriving the nominative and genitive forms
of the end-stressed and stem-stressed alternatives of the word mox 'moss'.

(29) UR: mūx + u(nom) mūx + a(gen) mūx + ú(nom) mūx + á(gen)
     SR: _______ _______ mūx + u _______
     (33): mūx + φ _______ mūx + φ mōx + á
     (34): mōx mōxa mōx mxá

It turns out that SR applies exactly where a "zero-ending" is the morphological marker, which for nouns means just in case /ū/ is the masc nom ending, or the fem/neut GEN ending, but not the neut nom. For example, stress would be assigned to the ending of grēx 'sin' (LCS grēx), be it /φ/ or /ū/, and afterwards retracted, in the first case because otherwise *grēx would be stressless, and in the second to avoid generating *grēx. Moreover, an ordering paradox results where words have more than one underlying jer. Consider the GEN form igr 'game' from underlying /īgūrū/ (the first /ū/ is necessary to account for igórnyj 'gaming' (adj)), which must be marked to undergo SR in the plural. SR cannot apply before (27) and (28), otherwise *igór results, but it must apply before dropping (to avoid *moxo) and lowering (to avoid *moxo) in (29).

Worth (1967a, 1967b, 1968, 1978) has devoted much effort to describing the vowel-zero alternations existing in CSR. He is primarily concerned with being able to account for alternations in derivationally-related words in a unitary framework, and is therefore forced to construct a proliferation of abstract entities. The vowel-zero morphophoneme {z} has three possible allomorphs: zero (/φ/), a vowel (/V/), or the flexional vowel-zero morphophoneme (/#/). This last is tantamount to Lightner's underlying jers. By way of summarizing Worth's arguments, the following table of rewrite rules may be constructed:

(30) Derivational rules
     {z}  ↩ Flexional rules
     /φ/   → [φ]  everywhere
     /#/   → ([φ]/________) C₀ V
     /V/   → ([V]/________) everywhere else
     [V/   → everywhere

     Now let us examine the contrasting cases, which Worth believes to justify the acceptance of such a cumbersome theoretical framework.
The contrasts in (31) suffice to cause Worth to conclude that any grammar of CSR must include /θ/. By invoking similar reasoning he establishes a need for derivational {%. Such an analysis fails to recognize that there are storable conditioning factors in each of these alternations. In (31a) and (31b) it is syllable structure (*igrka and *čelnka are not possible Russian words) and in (31d) it is stress (*solovejá is not likely; cf. however kolejá 'track' with an underlying full vowel). (31e) and (31f) both indicate that a syllable tends not to terminate in a voiceless obstruent plus a (voiced) sonorant. (31c) suggests no reasonable phonological solution within Worth's framework. 17

4. The problem can be solved by rejecting underlying /θ/ and {%). Instead, an underlying vowel is opposed to the lack of one. A vowel is inserted by Rule (32) whenever a syllable contains no segment capable of being realized as [+syllabic].

(32)  
\[ \emptyset \rightarrow \begin{array}{c}
-\text{high} \\
-\text{low} \\
+\text{sonorant} \\
-\text{consonantal}
\end{array} /\text{SC}_0 \longrightarrow C\$ \\
\text{(to be revised)}

The quality of the inserted vowel is basically /o/ (cf. Townsend, (1968) p. 69). In accordance with independently motivated rules of vowel reduction, it becomes [i] after a palatalized consonant when unstressed. Before a palatalized consonant, /j/ or /c/, the inserted vowel is /e/, except after low tonality velar consonants. This is a completely natural assimilation of the surrounding consonants' feature of high tonality. Otherwise, the vowel is only free to assimilate and be realized as [i] if it is unstressed. Since /e/ and /o/ here are in "complementary distribution" and therefore predictable, we can consider the vowel inserted by a rule which must resemble (32).

By this means we can account for the examples in (31). Granted, the diachronic explanations for these forms will involve such considerations as just mentioned, but in our synchronic analyses a vowel will be inserted in all the forms with slashes. In (31a) the suffix =k- contrasts with -ok-, where the latter is deverbative and denotes people performing the action of the verb (cf. edók E 'eater'). In (31b) the vowel could not be
deleted because /n/ does not function as a syllabic nucleus in Russian, and the lexical entries /plat=k/- and /čelno:k/- result. Likewise, in (3lc) we may oppose the entry /kaš1/- to /skob’e1'/-. An [e] is inserted into the syllabified form /škaššl’s/- to get /škaššel’s'/-. This is unmotivated in oblique forms, such as genitive /škaššl’s'a$/. (3ld) is the same in that a syllable sj$ is impossible.18 Concerning (3le) and (3lf) let me note that, although these pairs may be differentiated by prohibiting /kl$/ and /tl$/-, but permitting /gl$/ and /dl$/-, a phonetic vowel does appear in [pödøl] and [iɡøl]. Compare also the nominative and genitive sets [smisøl] : [smisla] 'sense', [n øtur’l’izøm] : [n øtur’l’izma] 'naturalism', and [r’itøm] : [r’itma] 'rhythm'. The contrived and non-Russian nature of these clusters as discussed by Isačenko should also be kept in mind.

I have little to say about Worth's efforts to preserve derivational integrity, since I believe the derivational rules relating /%/ to its three allomorphs cannot be lumped together with the phonology. The fact that the related verb skobil’t 'to shave (wood)' exists does not mean skobel' cannot have an underlying vowel. They are not generated from a single stem, but learned separately. Of course, the generalization can be made that a reduced vowel is more likely to be lost if immediately followed by a stressed vowel with high tonality, particularly the diffuse /i/-. However, whether or not a particular lexical item will have a vowel is idiosyncratic (e.g., lob : lba 'forehead', indicating underlying /lb/, loses its vowel in derivation only if the suffix begins with stressed /i/). Once a speaker knows an underlying V is absent, he is able to insert one under the correct conditions. Idiosyncratic behavior of isolated lexical items is not sufficient justification for disregarding a multitude of systematic alternations.

Returning to Lightner's derivation of móxa and mxá in (29), we see that the two possible stems /móx/- and /mx/- were generalized after jer-loss. The stressed root jer was never deleted and came to be reanalyzed as /o/, whereas the unstressed one is absent in synchronic URs, since its appearance is predictable on the basis of syllable structure. The competing forms are syllabified in accordance with (1) and the SSCs of Russian, which permit $mx$. Compare (33) with (29).

(33) UR:  mox  mox-a  mx  mx-a
Syllabify:  $mox$  $moxxa$  $mx$  $mxxa$
Assign [+syllabic]:  $mqx$  $mqxa$  $mxq$  $mxixa$
(32):  $mqx$  $mqxa$  $mxq$

I have intentionally ignored the question of whether stress should be placed in underlying forms or is assignable by rule. Note
that insertion does not predict that *moxá is impossible, whereas a deletion analysis would. Bi-syllabic end-stressed forms in -á do exist when the root vowel was not a jer, as in noža 'knife' (gen), konja /kon'jà/ 'horse' (gen), žena 'wife' (nom), vola 'ox' (gen), and pera 'feather, quill' (gen). Each of these can in theory be opposed to a form lacking an underlying vowel in a synchronic description of Russian (although /$n/ and /$n/ would be broken up by an inserted V).

The pairs in (34) are representative of further cases where flexional vowel-zero alternations may arise. Note that /C/ is orthographically "Cj" before "a".

(34) (a) lomć':lomtja 'chunk' kozćl:kozla 'goat'
kovćr:kovra 'carpet' ugoł:ugla 'corner'
stebe'l:stebija 'stalk' uzel:uzla 'knot'
ćexol:ćexla 'cover' ogon:ognja 'fire'
(b) steklo:stekol 'glass' stat'ja:statej 'article'
sedlo:sédel 'saddle' marka:marok 'stamp'
(c) čej:č'ja 'whose' ves':vjesja 'all'

The roots of all these words lack the underlined vowel. In (34a) and (34c) a vowel is inserted into the masc nom, whereas in (34b) it is in the fem/neut GEN. In other words, a vowel appears whenever an impossible syllable would result, and this situation arises when a word terminates in a zero-ending (since these are all non-vocalic!). A Russian syllable cannot ordinarily end in any of the would-be clusters in (34), except for certain morphologically-governed exceptions. The one example which should be permissible in (34) is *mark, which actually involves a strong boundary before the suffixal /k/ and will be discussed shortly. A vowel alternates with the lack of a vowel in all the forms of (34). The vowel appears when no V immediately follows the last C, i.e., at the end of the word.

Let us consider the examples in (24) in light of this approach. The derivation proceeds roughly as in (35). Irrelevant morphological rules, such as the deletion of final preterit /l/ in non-suffixed verb stems, have been factored out.

(35) 

<table>
<thead>
<tr>
<th>UR: s$\tilde{z}g</th>
<th>s$\tilde{z}g-l-a</th>
<th>v$rt</th>
<th>v$rt-u</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syllabify: $s$$zg$</td>
<td>$s$$zg$ia$</td>
<td>$v$$rt$</td>
<td>$v$$rtu$</td>
</tr>
<tr>
<td>Assign [+syllabic]:</td>
<td>$s$$zgla$</td>
<td></td>
<td>$v$$rtu$</td>
</tr>
<tr>
<td>(32): $s$$\tilde{z}g$</td>
<td>$s$$p$$\tilde{z}gla$</td>
<td>$v$$rot$</td>
<td>$v$$rotu$</td>
</tr>
<tr>
<td>Syllabify: $s$$zg$</td>
<td>$s$$p$$zgla$</td>
<td>$v$$rot$</td>
<td>$v$$rotu$</td>
</tr>
</tbody>
</table>
Note that (32) must be slightly revised to (36) to ensure that a /SC$/$ syllable becomes CV and not VC.

\[(36) \emptyset \rightarrow V/SC_0(C)$\]

Ultimately, a more appropriate formalism for capturing syllable-based generalizations should be devised. The metrical tree structures mentioned seem a probable candidate. For the present, however, what is crucial to note is that strong boundaries ("#" and "=") are replaced by $. The morphologically-motivated alternation is a measure of the psychological reality of the morphological boundary.

This has interesting consequences for different prefixes and suffixes, since as the productivity of the affix diminishes, so should the likelihood of an alternation. Klagstad, whose 1954 dissertation remains the most comprehensive study of vowel-zero alternations in CSR, drew attention to the fact that there is a varying probability for different realizations of what he called the "zero-phoneme" /\emptyset/. Namely, "maximum probability of a vowel-zero was found to exist for the preverbs $s\#$, $v\#$, $iz\#$, $ob\#$, $ot\#$, $pod\#$, $raz\#$, $vz\#$, and $nad\#$, and a maximum probability of zero was found to exist for the two unproductive preverbs vo$\#$ and n'$iz\#" (p. 5). When affixes are not recognized as such, speakers tend to reanalyze and lose the boundaries which categorize them. For this reason, morphological productivity of derivational affixes correlates with the predictability of phonologically-based vowel-zero alternations. As a replacement for a strong morphological boundary separating certain productive affixes from radicals, $ intervenes between two Cs, even if these Cs may in principle act as a tautosyllabic cluster. This conditions the insertion of a V according to (36). Thus raz/bit' 'break' (inf) is syllabified /$raz$b'it'S/. When conjugated, the syllable-initial cluster /h'j/ is broken up by $, producing /$raz$b'$jut$/,$18 This conditions the insertion of an /o/ to obtain third person plural present razob'jut. Subsequent re-

Syllabification rules may later alter the position of $ to create a more desirable syllable structure. Thus, variants like iz r$ta$izo rta 'from (the) mouth' arise, where resyllabification allows VC$GCV$ to become VS$CVG$CV$. In the latter case, an additional $ is inserted between the /r/ and the /t/ of /$iz$rt$ta$/, which causes /o/ to be inserted in the environment $\_\_C$, and eventually produces [.i.z$\_\_r.ta$].$20
Just as unproductive affixes are not regarded as such, stem segments that coincide with productive affixes may behave as if they were affixes themselves. Such typically diminutive nominal suffixes as -k- and -c- are consistent in this respect. These are ordinarily perceived as suffixal and thus an alternation is conditioned (note, however, the exceptions [-Slavic, -Russian] prínc and [+Slavic, -Russian] láška 'caress'). On the other hand, the behavior of an extinct suffix, such as +b-, becomes totally predictable on phonetic grounds. A vowel is inserted to make the word pronounceable only when an impossible cluster would otherwise arise. Compare the GEN forms svádeb 'weddings' and práš'b 'requests' (where suffixal /b/ functions like any other /b/, as in the GEN ízš 'huts' which was ízob with an etymological jerk; cf. LCS íst'bš).

The word-final /k/ is analyzed by Russian speakers as suffixal whenever possible. Recall (34b)'s már'ka, an eighteenth century loanword from German, which has its GEN már'o'k with an inserted vowel even though there is neither phonetic nor historical reason not to expect *mark. Forms such as vosk 'wax' and blesk 'shine' are not excluded. Speakers know these /k/s are not suffixal because they would then be preceded by /o/ or /e/. Compare the differing treatments of the borrowed words park and pár'ka. Only in the latter word does $ replace the boundary the speaker assumes to precede /k/.

Townsend (1968, fn. p. 196) comments that "a somewhat special status for diminutives...is suggested" by the lack of neutralization of the palatalized-non-palatalized opposition before diminutive /k/. Compare, for example, /pšola/:/pšolka/ 'bee' and /kastr'ul'ka/:/kastr'ul'ka/ 'pot', where /l/ and /l'/ would ordinarily neutralize to /l'/. This process is blocked by other strong boundaries, such as the word boundary /#/ (e.g., čítal knigu 'read (a) book'). The "special status for diminutives" indicated is that diminutive formation with -k- is so productive that a boundary is posited before stem-final /k/ wherever possible. Since this boundary is assumed to be present a V is inserted to remedy the /$k$/ syllable which arises when there is a zero-ending. This analysis requires that the opposition should be maintained even if /k/ does not have diminutive force. The prediction is borne out by such words as liberal'ka (feminine of liberal), čítal'ka and pól'ka (room names from the past tense forms čítať 'read' and pôlať 'watered'), where the /l/ is maintained, as opposed to lar'bš/k 'stall' (from larš 'chest') and sin'/ka 'blueming' (from sinš 'blueness'), where the palatalized liquid is maintained.

Implicit in favoring an insertion analysis over deletion is the claim that what was historically anaptyxis has come
to be reanalyzed as epenthesis. Thus Rule (36) can insert a vowel even when there never was an etymological jer, as in mar/ka or the native Slavic og/o/n 'fire'. If the /o/ were deleted in kus/o/k:kus/ka 'piece', I could see no way of blocking it in sedok:sedoka 'horseman'. It is the considerable variation in the appearance of an inter-consonantal vowel in Russian derivation that makes such scholars as Worth conclude that the vowel is anaptyctic. This is because derivation is a collection of extinct phonological rules. After the fall of the jers the original situation became obscured and was no longer recoverable to native speakers. This confusion characterizes Isačenko's "period of trial and error". Eventually, everything was reanalyzed in terms of vowel insertion.21 The fact that the words in (37) are related to those in (34) does not mean that a vowel is deleted (or not inserted) in (37a) and a vowel is inserted (or not deleted) in (37b).

(37) (a) lomtik (dim) nič'ja 'tie (game)'
    steblistyj (adj) stëklyško (dim)
(b) lomotnyj (adj) ničejnyj (adj)
    stebelčatyj (adj) stekol'sčik 'glazier'

Historically the jers in the (b) words could not be deleted because of stress considerations and/or because syncope would result in unwieldy clusters. However, such arguments cannot explain the synchronic lack of deletion in the other derived forms in (38).

(38) kamenistyj 'stoney' studenistyj 'cold'
    nikelirovat' 'to plate with nickel' modelistka
    'model maker' (fem)

The idiosyncracy of such forms can only be accounted for in the lexicon, where derived words are represented separately.

5. This paper was written under the assumption that the phonological component serves to render underlying representations "well-formed or pronounceable." One of the most essential aspects of this is that the string of segments be organized at least into syllable-sized units, and that each of these units have an appropriate peak of sonority. Syllabification processes contrive to make this possible. In putting so much weight on surface-oriented processes I have rejected certain powerful abstractions such as imaginary underlying segments. Instead, I believe speakers obey a sort of "weakest hypothesis" principle, according to which, when a choice is available, they analyze their language in such a way as to posit the least
abstract structure in confronting and organizing the forms they encounter (cf. Dell (1981) for a recent attempt to characterize learning strategies in terms of inclusion). This principle makes substantive and testable predictions about how speakers will deal with new forms whenever they may be exposed to them.

The psychological and phonotactic reality of the syllable (cf. Čistovič and Koževnikov, 1965) is consistent with an approach where speakers must impose syllable structure on underlying representations in the course of generating well-formed systematic phonetic sequences. The string of segments is resyllabified until it can be made to conform with the language's constraints on surface syllable structure. In the case of English vowel syncope rapid speech motivates resyllabification, whereas in Slavic a pervasive historical change lead to massive resyllabification. New closed syllables and clusters arose, as did numerous alternations in nominal paradigms between a stem vowel plus a zero- (or consonantal) ending and no stem vowel plus a vocalic ending. Concomitant with the loss of a jer, the consonants flanking it were associated with an adjacent syllable if possible. If this resyllabification defied the language's SSCs, an epenthetic vowel may be inserted to serve as the syllabic nucleus.

Phonological rules must consider at least syllable boundary information. Segmental rules are both constrained and motivated by syllabification principles. Syllabification principles determine whether a given segment will appear as [+syllabic] or [-syllabic] in Indo-European, whether a segment is deletable in English, and whether an epenthetic vowel is necessary in Russian. I have argued that an approach that admits notions of syllabification can provide a more explanatory solution to certain problems in segmental phonology. Syllabification, although it may derive from metrical structure, is relevant to rules operating on segmental strings. This raises the open question of how it is ultimately to be made explicit. If nothing else, I hope the reader has become convinced of the need to address it.

Notes

1 This paper is an initial attempt to rework some of the ideas formulated in Franks (1977). Portions of the discussion come directly from this work. The original study owes much to the supervision of Jim Dunn and Charles Townsend.
I also wish to thank John Bowers, Julie Herschensohn, and Carlos Piera for their suggestions toward revising an earlier draft, and Kathy Stobnicke for her preparation of the camera-ready manuscript.

2Kohler (1966) sets off the discussion by arguing that the concept of "syllable" is unnecessary. Later theoreticians of language are more receptive to adopting some notion of syllable. The following references were found useful: Hooper (1972), Vennemann (1972), Yen (1973), Jones (1976), and Kahn (1976). More recently those of fn. 7, as well as Vergnaud, Halle, et al. (1978), figure prominently in discussions of the syllable.

3Carlos Piera has pointed out to me that all three of these phenomena have been recently discussed for various languages. In particular, alternations between plus and minus syllabic are argued for by Jonathan Kaye in his NELS XI talk, Elisabeth Selkirk (1978) analyzed French "mute" e syncope, and Hagit Borer uses syllables to condition vowel-insertion in Hebrew in an MIT Working Papers article.

4I am following the distinction between rules and processes made by Stampe (1973), and catalogued in Cearley (1974, p. 32) and Hooper (1975, pp. 544-545).

5See Bell (1972) for a discussion of the various procedures used to syllabify strings of segments.

6As an example of how accentual factors may affect syllabification, consider Vennemann's (1972) argument that in German Lischling, $ is inserted between the /b/ and the /l/ because of the secondary stress on the final syllable, as opposed to the verb form lise$bte. Consequently, syllable-final devoicing is possible only in the first word.

7In recent work stemming from Kahn (1976) syllabification is represented in terms of trees. McCarthy (1976, 1977) augments this framework to permit sub-branching, and Kiparsky (1979) provides for the ranking of branches in terms of sonority ("s" being more sonorous than "w"). In view of these new mechanisms for representing metrical phenomena, I assume that the position of $ is derivable from abstract trees. As an example consider the Russian word golosovat' 'to vote', analyzable as in (i), or in the degenerate structures (ii) and (iii):
Syllable boundaries thus fall independently from phonological theory, and phonetic rules (cf. $\text{a} \rightarrow \emptyset$ in fn. 12) are once again context-free. The surface alternations can be considered "automatic" in the structuralist sense that the rules will be constrained by surface phonotactics alone (enriched by metrical trees).

A problem arises here in that [+consonantal, +sonorant] segments are treated as [-syllabic] if possible. (An example of when it may not be possible is illustrated by Serbo-Croatian $\text{gr}^\text{s}o\text{s}ce$ 'little throat', where the [o] is a syllabic realization of underlying /l/. /l/ is less sonorous than /t/. However, even this has a popular variant resyllabified as $\text{gr}^\text{o}s\text{ce}$.) Sequences such as CVR are not ordinarily syllabified $\text{CVS}\text{R}$ even if the resonant is a glide, liquid, or nasal having a syllabic alternant in L. One tentative solution to this involves revising the framework to ensure that true vowels (i.e., [+consonantal, +sonorant]) are marked [+syllabic] in lexical entries. Resonants in their vicinity will then be associated with them if possible, and being autosyllabic with a segment marked [+syllabic], must be marked [-syllabic] themselves.

In citing case forms, UPPER CASE letters denote plurals, and lower case singulars. My statements regarding Indo-European vowels and the examples cited are due to Jay Jasanoff (class notes). In using the term "resonant" I am making no claim as to the phonetic nature of the "laryngeals". It is indeed possible that they did not alternate with [+syllabic] segments themselves, but conditioned the insertion of an epenthetic schwa (like the Slavic situation to be discussed), which was later colored by the particular laryngeal that followed it.

Formulations involving strength hierarchies can be found in, e.g., Jespersen (1923) and Saussure (1966), or more recently in the natural phonology frameworks of Stampe, Vennemann, Hooper and others. See also Foley (1972) for a meta-rule approach to phonological change.
Zwicky offers no special justification for adopting the particular hierarchy in (4).

I assume the rather modest burden of illustrating the reappearance of this sequence in English, without attempting to locate it within a ramified theory, without attempting to produce external explanations for the membership and arrangement of this class, and without attempting seriously to relate my remarks to current discussions of feature representations and markedness (p. 277).

John Bowers (personal communication) has suggested the resyllabification /de$v elp$ment/ as a potential syncopation. Indeed, in fast enough speech, where it becomes more important to have only three syllables than to avoid a heavy coda, I find such a form perfectly acceptable. This implies that deletion of unstressed schwa in English is a general phonetic process constrained by external conditions which may involve such diverse things as recoverability (phonological and morphological), the availability of a possible resyllabification, and tempo and style of speech. The next logical step is to posit "free" optional phonetic rules, such as "$\varepsilon \rightarrow \emptyset$", that obey as yet unformulated principles of phonotactics. We have now gone full circle, since context-free rules don't even refer to $. All unstressed schwas will be deleted, but only those outputs which can be properly syllabified will be well-formed. This is parallel to increasing the power of the interpretive component to reduce transformations to movement in syntax, and likewise exhibits a filtering function.

Note that Dentdel is more likely to apply with strong verbs, and it is precisely these verbs in which the preterit dental provides redundant information. I find the [d] much more easy to drop in told than in rolled.

Neo-acute stress results from the loss of a following jer. Russian /θ/, which comes from /o/ (but not /ɛ/) in this position, and which has various phonetic forms in the dialects, is an example of jer-loss triggering compensatory lengthening. Also note that Ukrainian orthographic "ì" comes from /e/ and /o/ (but not /ɨ/ and /ɛ/) in a new closed syllable.
No doubt, an answer may be sought by proposing that dropping and lowering apply cyclically. Lightner (1974) encounters similar problems and suggests that either vowels to be dropped somehow be characterized as voiceless (a diagnostic use of a phonological feature), or else that the rules governing dropping and lowering are global.

Following Townsend (1968), flexional vowel-zero is indicated by a slash in transcription, and a mobile vowel is correspondingly enclosed in slashes. "E" denotes end-stress; stem-stress may otherwise be assumed.

Worth (1978) eventually recants and advances the view "that...it is possible to predict almost all vowel/zero alternations in CSR without recourse to underlying jer-like segments...by rules appealing to independently motivated morphological and phonological information" (p. 360).

My approach should predict nom *solovê, since syllabic /j/ = [i] (cf. pojêdú 'I will go' and idú 'I am going'). I believe the absence of this form is morphologically motivated, since it would not fit into any existing paradigm. Note, however, similar phenomena in Belo-Russian, where [v] alternates with [u] and [u]. The infinitive vic' 'weave' has a first person singular form uju (cf. Russian vju) syllabified [u.ju] and this has a prefixed version sauju syllabified [.saJu.jú]. In other words, a single phoneme may be realized as syllabic [u], non-syllabic [v], or the second element of the diphthong [au].

It is not clear why this should happen, since b'jut 'beats' exists. Perhaps it is a matter of opposing the present to other forms. Note that the [j] is simply a non-syllabic /i/ in the same syllable as another vowel. The infinitival ending -t is consonantal, the third person plural one -ut is vocalic.

John Bowers has pointed out to me that the syllabification /iz$ro$tá/ allows for vowel epenthesis to generate *iz$ro$tá. I also note that my approach forces the insertion of $ between would otherwise be tautosyllabic consonants in analyzing Russian prefixes and prepositions. In addition, the syllable boundaries are phonetically shifted from their original morphologically motivated positions. In purely descriptive terms, it looks as if the final consonant of the prefix/preposition in, e.g., raz/o/b'jút, iz/o/rtá, ob/o/mné 'about me' and ob/o/vseм 'about everything' is simply being separated from the rest of the stem if that stem begins with a consonant cluster. I have not yet arrived at a satisfactory way to express this generalization.
For a closer look at how this process was extended to other parts of speech and is working in Slavic in general, see Franks (1977, Chapter 5).

REFERENCES


Bruck, A., R. Fox & Galy, eds. (1974), Papers from the Parasession on Natural Phonology, Chicago: CLS.


Chene, B. de & S. Anderson (1979), "Compensatory lengthening," Lg 55, 505-535.


Kiparsky, P. (1979), "Metrical structure assignment is cyclic", LI 10, 421-441.


SUBJECTS, OBJECTS, AND VERB MORPHOLOGY IN MODERN ARAMAIC*

Robert D. Hoberman

1. The problem

The following two verbs contain identical pronominal suffixes and have indistinguishable tense, mood, and aspect value:

(1) a. qamšam? - a - li
    heard 3fs 1s
    U    A    L

   'She heard me.'

b. šmi? - a - li
    heard 3fs 1s
    P    A    L

   'I heard her.'

Separate subject and object pronouns are not generally required, and so each of these verbs constitutes a full sentence. The two have different stems (labeled U and E), and, as the glosses suggest, the semantic relations of the pronouns to the verb in the two sentences are reversed: a 'she' is hearer in la, heard in lb, while li 'I' is heard in la, hearer in lb. The relationship is inflectional, and completely productive and predictable. Analogous pairs exist for every verb in the language. The object of this paper will be to determine how a grammar should represent these facts. Some rule or rules of the language must be sensitive to the distinction between the U and the P stems; the question is what this rule is and where it is located in the semantics, pragmatics, syntax, or morphology of Aramaic.

A fundamental fact is that the distribution of suffixes after the two stems is identical. For each gender/number/person combination there exist two different suffixes, one belonging to the A set, the other to the L set. An A-set suffix always precedes an L-set suffix; thus, a is the A-set third person feminine singular form, li is the L-set first person singular form. A past tense marker wa may be inserted between the two pronoun positions:

(2) a. qamšam? - á - wa - li
    heard 3fs PAST 1s
    U    A    L

   'She had heard me'

b. šmi? - á - wa - li
    heard 3fs PAST 1s
    P    A    L

   'I had heard her.'
Because the patterning of the suffixes is exactly the same with the two stems, we want to identify the corresponding suffixes of U and P stems, and find a motivated way of treating the reversal of the meaning-to-form correspondence.

Agents of intransitive verbs are marked by the same pronominal affixes as those of transitive verbs. With the U stem\(^2\) the agent is indicated by an A-set suffix, with the P stem by an L-set suffix:

\[(3)\]

\[\begin{align*}
\text{a. } \underline{\text{gdamx}} & \ - \underline{\text{in}} & \text{U} & \ A & \text{'}I \ go \ to \ sleep' \\
\text{b. } \underline{\text{*gdamix}} & \ - \underline{\text{li}} & \text{U} & \ L \\
\text{c. } \underline{\text{*d}mix} & \ - \underline{\text{in}} & \text{P} & \ A \\
\text{d. } \underline{\text{d}mix} & \ - \underline{\text{li}} & \text{P} & \ L & \text{'}I \ went \ to \ sleep' 
\end{align*}\]

Notice that since the agent is treated in the same way with intransitive verbs as it is with transitives, this is not a case of split ergativity. Part of the problem for the analysis is to rule out 3b and 3c with the grammatical machinery to be developed.

In older stages of Aramaic the P stem was a passive participle. The A set of suffixes was originally the nominative set of pronouns, and the L forms were the oblique pronouns, at first limited to indirect objects, then also direct objects, and now, as will be shown below, with the P stem the L-set suffixes mark surface subjects.

Compare these sentences, containing full lexical NPs:

\[(4)\]

\[\begin{align*}
\text{a. } \underline{\text{e \ baxta \ k}\&am?\&a-a-\text{lu \ anna \ gure}} & \text{the \ woman \ hear-3fs-3p \ these \ men} & \text{U} & \ A & \ L \\
\text{'The \ woman \ hears \ these \ men'} \\
\text{b. } \underline{\text{e \ baxta \ } \&\&\text{mi?-i-la \ anna \ gure}} & \text{heard-3p-3fs} & \text{P} & \ A & \ L \\
\text{'The \ woman \ heard \ these \ men'}
\end{align*}\]

It will be shown that in both sentences 4a and 4b anna gure 'these men' is the direct object and e baxta 'the woman' is the subject. This will be done in two steps. First, in section 2, texts distinguishing subjects from objects will be
applied, showing that the L suffix of a P stem shares subject properties with the A suffix of a U stem, and likewise the A suffix of a P and the L suffix of a U share direct object properties. Second, because A and L suffixes can also index indirect objects, subjects and direct objects on the one hand will be distinguished from indirect objects on the other. This will be done in section 3. Thus it will be shown that both $^4_{lb}$ and $^4_{hb}$ are simple transitive active sentences, each with a subject (marked by A and L respectively) and a direct object (marked by L and A, respectively). In order to make it easier to follow the arguments in this paper we will use mnemonic terms justified by the conclusions just stated. The term subject suffixes refers to A-set suffixes attached to a U stem and L suffixes attached to a P stem; (direct) object suffixes are the converse pair: L after a U stem and A after a P stem.

2. Tests for subjecthood and direct-object-hood

Syntactic behavior properties. Several of the syntactic processes which refer crucially to subject or object cannot contribute to the analysis of our problem. The passive constructions which exist in the dialect use separate stems entirely distinct from U and P; since the distinction between U and P is thus obliterated, Passivization cannot be used to test the grammatical relations of the noun phrases we are interested in. Likewise imperatives use a separate stem, indifferent to the opposition of U and P.

Reflexive formation, on the other hand, does distinguish subjects from objects with the two stems. A reflexive pronoun agrees in gender, number, and person with a coreferential subject, and this will be indexed by the subject suffixes. The following sentences contain oblique reflexives:

\[(5)\]

\[a. \text{ ani gommahl \ - i -le kiz gyan-u}\]

\[\begin{array}{llllll}
  \text{they took} & (3d) & 3ms & \text{chez selfp} \\
  \text{U} & \text{A} & \text{L}
\end{array}\]

'\text{They took him home with them(selves)}'

\[b. \text{ halifid gyan-e mzubn \ - a - le}\]

\[\begin{array}{llll}
  \text{suit-of} & \text{self3ms} & \text{sold} & 3fs (3ms) \\
  \text{P} & \text{A} & \text{L}
\end{array}\]

'\text{He sold his (own) suit}''

In each sentence, the agreeing gender/number/person markers are circled. In 5a, with a verb in its U stem, the reflexive word agrees with the A suffix, indexing the subject, ani 'they'. In 5b, with a P stem, the subject marker, with which the reflexive
agrees, is the L-set suffix e 'he'. In each case, the agreeing verb suffix marks the subject.

When the reflexive pronoun itself is a direct object, it triggers Definite Direct Object Copying (discussed below). The reflexive word behaves as a definite feminine singular noun, so a third person feminine singular object suffix is created--L after the U stem, A after the P stem:

\[(6)\]
\[
\begin{align*}
&\text{a. mandi - n - na gyan-i kisle ?} \\
&\text{U A L}
\end{align*}
\]
'should I throw myself on his mercy?'

\[
\begin{align*}
&\text{b. qitl - a - le gyan-e} \\
&\text{P A L}
\end{align*}
\]
'He killed himself'

\[
\begin{align*}
&\text{c. b idaa gyan-i ?wid - a - li gyan-i ?an?i} \\
&\text{P A L}
\end{align*}
\]
'by my own hands I made myself poor'

The verb in 6a is in the subjunctive, one of the U-stem forms; the subject suffix, with which the reflexive word agrees, is the A suffix, and the third person feminine singular object suffix is from the L set. In 6b and 6c the reverse is true: the subject suffix is the L-set one, and the object suffix is from the A set.

A number of verbs take obligatory reflexive objects. One is 'to flee', literally to 'to run oneself'. The same behavior holds here too:

\[(7)\]
\[
\begin{align*}
&\text{a. g?ariq - ? - la gyan-e} \\
&\text{U A L}
\end{align*}
\]
'He flees'

\[
\begin{align*}
&\text{b. ?riq - a - le gyan-e} \\
&\text{P A L}
\end{align*}
\]
'He fled'

(Notice that the third person masculine singular element of the A set is zero.)

Coding Properties: Word Order. Word order primarily reflects discourse structure, and not grammatical relations. While there is a tendency toward SVO order, other orders occur freely. Therefore word order does not furnish a test for gramma-
tical relations.

Case marking. Subject and object nouns are not marked for case. However all pronouns are case-marked. There is a set of free-word subject pronouns which are present only when there is some kind of emphasis on the pronoun, such as when it is in contrast to some other noun phrase, or when it is one conjunct of a conjoined subject NP.

Otherwise, subject pronouns do not appear as free words, but are reflected in the pronominal suffixes on the verbs. When subject pronouns are present, they are found to agree with the A suffix of a U stem verb, while with the P stem they agree with the L suffix.3

There is a set of object pronouns that almost never occur in every-day language, but are found in a highly formal style used in translations from Hebrew of religious literature. Though people can produce them, they are not a part of every-day language. They are used with any frequency only for objects of P stem verbs, and are found instead of the A-set suffixes.

Thus, in this stylized language, 8a might be found instead of the more colloquial 8b:

(8) a. šqil – lu aleni 'They took us'
     took 3p OBJ-1p
     P L

   b. šqil – ax – lu 'They took us'
     took 1p 3p
     P A L

In 8a the word aleni 'us' replaces the A suffix ax found in 8b. In the present tense, with the U stem, this replacement is much less acceptable. Occasionally, in a flurry of alternative paraphrases requested by the linguist, a speaker will accept or produce a sentence like 9a instead of the normal 9b with incorporated object suffix:

(9) a. atta pṣaql – i aleni bit ševi 'Now they will take us hostage'
     now take 3p OBJ-1p in captivity
     U A

   b. atta pṣaql – i – lan bit ševi
     take 3p 1p
     U A L

This is a difference, then, between the syntactic capabilities of the A-suffix object of the P stem and the L-suffix object of the U stem: it is much more acceptable for the former to be replaced by the free word object pronoun. Nevertheless, when
the issue is forced and the independent object pronoun is used with the U stem, as in 9a, it is the L-set which is replaced. That is, free object pronouns replace direct object suffixes: A suffixes of P stems and L suffixes of U stems.

Agreement. Direct object pronoun suffixes arise when the object is a pronoun and is incorporated into the verbal word. But there is another way in which the same pronominal suffixes arise. There is a rule of Definite Direct Object Copying (DDOC), which has the effect, if the direct object is definite, of affixing to the verb a pronominal suffix agreeing with the object in gender and number:

(10) a. kšam? - i baxter 'They hear a woman'
    hear 3p woman
    U  A

b. kšam? - i-la baxter 'They hear a woman'
    hear 3p 3fs woman
    U  A  L

With the P stem, the same rule applies. Here, though, an A-set pronoun is affixed—in 11b it is a 'her':

(11) a. šme? - lu baxter 'They heard a woman'
    heard 3p woman
    P  L

b. šmi? - a - lu baxter 'They heard the woman'
    heard 3fs 3p woman
    P  A  L

Thus, the same factor—definiteness—which conditions the presence of the L suffix with the U stem conditions the presence of the A suffix with the P stem.

In all cases, the suffixes that are the result of DDOC are identical in form to the suffixes which are themselves incorporated pronominal direct objects. For example, the verbal words in 10 and 11 could each, by themselves, form a complete clause, so that the following paradigms exist:

(12) U-stem present

a. kšam? - i 'They hear'
    hear 3p
    U  A

b. kšam? - i baxter 'They hear a woman'
    woman
c. $kšam?-i-la$
   \[
   \begin{array}{c}
   3p \quad 3fs \\
   U \quad A \quad L
   \end{array}
   \]
   'They hear her'

d. $kšam?-i-la$ baxta
   'They hear the woman'

(13) P-stem preterite

a. $šme?-lu$
   \[
   \begin{array}{c}
   \text{heard-3p} \\
   P \quad L
   \end{array}
   \]
   'They heard'

b. $šme?-lu$ baxta
   woman
   'They heard a woman'

c. $šmi?-a-lu$
   \[
   \begin{array}{c}
   \text{heard-3fs-3p} \\
   P \quad A \quad L
   \end{array}
   \]
   'They heard her'

d. $šmi?-a-lu$ baxta
   'They heard the woman'

Examples 12c and 13c have incorporated pronoun objects, and examples 12d and 13d show the results of DDOC.

Are the suffixes created by DDOC simply pronominal copies of the direct object, incorporated into the verb in the same way as all pronominal objects are incorporated? There is one case in which the parallel distribution does not hold. This is the U-stem past tense mentioned at the beginning of this paper (1a, 2a). It is synonymous with the corresponding P-stem preterite forms, but severe restrictions on its occurrence hold, as this paradigm shows:

(14) U-stem past

a. *$gamšam?-i$
   'They heard'

b. *$gamšam?-i$ baxta
   'They heard a woman'

c. $gamšam?-i-la$
   'They heard her'

d. *$gamšam?-i-la$ baxta
   'They heard the woman'

The U-stem past tense occurs only with an incorporated pronoun object, as in 14c, and not even the identical form created by DDOC (14d) is found in natural speech. Of course, if the full noun phrase is a right-dislocation or afterthought, a structure similar to 14d arises:
(15) \textit{gam\textasciitilde sam?ila, e baxta} \quad 'They heard her, this woman' \\
If the mechanism of DDOC is simply to create a pronominal copy of the definite direct object, to be incorporated into the verb by the same rule that incorporates pronoun objects, then the grammar must contain an additional mechanism to rule out the U-stem past tense form unless it contains an incorporated direct object pronoun. As I have stated this, it is a global rule, since the origin of the pronoun, in incorporation or DDOC, is not visible in its form. The correct treatment would seem to be to restrict the rule of DDOC from applying to the U-preterite, thus preventing \textit{14a} from arising, and to have a filter rule out the U preterite when it contains no direct object suffix, as in \textit{14a} and \textit{b}. Separating the restrictions on this structure into two mechanisms is borne out by the fact that the closely related dialect of Zakho has the filter but not the restriction on DDOC: \textit{14a} and \textit{b} and ruled out, but \textit{14d} occurs as well as \textit{14c}. \\
Subject Agreement. With one exception, to be treated in sec.4, Subject Agreement is obligatory with all verb forms. That is to say, with the U stem there is always affixed a member of the A set of suffixes, and with the P stem a member of the L set, coreferential with the noun or pronoun which is the subject of the clause.

3. Tests for Indirect-Object-Hood

The tests discussed in section 2 have distinguished subjects from direct objects, and have shown that A suffixes of the P stem share object properties with L suffixes of the U stem, and vice versa for subject properties. \\
But the same suffixes can represent indirect objects, too: the A set, with the P stem, and the L set with either stem. However, there are syntactic tests that distinguish between direct and indirect objects, and between dative \textit{Ld} (\textit{Ld}) and subject/object \textit{L} (\textit{Ls}), which has appeared in all the examples given above. These tests show that \textit{Ls} or the noun phrases that agree with it are subjects or objects, not indirect objects. (Note that the word \textit{pare} 'money' is grammatically plural.)

(I) Full indirect object NPs are marked with the preposition \textit{ta} 'to', while subject and object NPs are unmarked for case:

(16) \textit{babi hiw-i-le pare ta yinmi} \\
\textit{my-father gave-3p-3ms money to my-mother} \\
\textit{P A L} \\
'\textit{My father gave the money to my mother}'
(II) Indirect object pronouns, too, may appear as objects of the preposition (in its bound forms ταλ- or ταθ-):

(17) babi hiw-i-le pare τala
    'My father gave the money to her'

Subject and object pronouns, when they appear as independent words (as opposed to suffixes bound to verb stems) have the differently case-marked forms discussed in section 2, for example aya 'she' (subjective), ala 'her' (objective).

(III) Lq never cooccurs with a coreferent full NP (except in dislocation constructions, when the NP is not case-marked, as was pointed out by Givón (1976:165))

(18) a. gyaw-in-na pare
    give-lms-3fs money
    U A L
    'I give her money'

b. *gyaw-in-na pare ta yimmi
    to my mother
    'I give money to my mother'

c. yimmi, gyaw-in-na pare
    'My mother, I give her money'

Compare the following two sentences, paraphrases of each other, spoken moments apart by the same speaker describing the same situation. In the first, the object is not dislocated but merely fronted, and marked with the preposition ταλ- 'to', and no coreferential L suffix is present:

(19) a. ταλε gyawil-Ø-wa gu τυρα
    to-him give-3ms-PAST in mountain
    U A
    'Him [his father] would assign [to work] on the mountain'

b. awa gyawil-Ø-wa-le gu kepe, gu τυρα
    he give-3ms-PAST-3ms in rocks in mountain
    U A L

The same is true in the P stem. An Lq suffix cannot cooccur with a full, case-marked indirect object:
(20) hiw-î-li-la pare (*ta yimmi)
gave-3p-1s-3fs
P A L L
'I gave the money to my mother'

Of course L̄₃₀ does cooccur with full NP subjects and objects, either by Subject Agreement or by Definite Direct Object Copying.

(IV) With at least one verb, in its P-stem forms, representation of an incorporated indirect object varies freely between L₄ and A suffixes:

(21) a. hû-le-li pare 'He gave me money'
gave-3ms-1s money
P L L

b. hiw-in-ne pare 'he gave me money'
gave-lms-3ms
P A L

The direct object, the thing given, is indexed by A-set suffixes (since this is the P stem), and never appears indexed by L suffixes:

(22) a. *hû-le-lu pare tali 'He gave the money to me'
gave-3ms-3p to-me

b. hiw-i-le pare tali 'he gave the money to me'
gave-3p-3ms
P A L

Nor do L-set suffixes, indexing subjects, alternate with A-set forms:

(23) a. *hiw-a-li pare 'she gave me money'
gave-3fs-1s
P A L

b. hû-la-li pare 'she gave me money'
gave-3fs-1s
P L L

(Note that 23a is o.k. in the sense 'I gave her money'.)
Likewise, with Definite Direct Object Copying:
(24) a. hú-la-lu pare taqi
give-3fs-3p to-me
to me' P L L
b. *hiv-a-lu pare taqi
give-3fs-3p to me'
P A L

With one-argument verbs, too, subject L does not alternate with A:

(25) a. dmix-la
sleep-3fs
P L
b. *dmix-a
sleep-3fs
P A

4. A rule-ordering solution

It will be helpful at this point to summarize the results of the preceding sections. In section 2 it was shown that the A suffix of one stem and the L suffix of the other stem share the same grammatical properties, whether those of subjects or those of direct objects. In section 3 it was shown that the subject and direct object suffixes are distinct in their syntactic behavior from the homonymous indirect object suffixes. Consider again the following sentences (repeating 4a, b):

(26) a. e baxta kšam?-a-lu anna gure
the woman hear-3fs-3p these men
U A L
'The woman hears these men'
b. e baxta źmi?-i-la anna gure
heard-3p-3fs
P A L
'The woman heard these men'

The tests given in section 3 can prove that neither e baxta nor anna gure is an indirect object, in either sentence. The tests in section 2 shown that in both sentences e baxta is the subject and anna gure the direct object.

The discussion so far would lead us to expect identical syntactic behavior from the A suffix of a U stem and the L suffix of a P stem (subject suffixes). Likewise, the object
suffixes of the two stems should behave identically. If this is so, then the same rules of agreement, incorporation, and DDOC operate on both stems. But there are in fact differences in syntactic behavior. For this reason, we will entertain the possibility that one or more of those syntactic rules is actually two rules—for example, Subject-Agreement-U and Subject-Agreement-P. In that case, the different order of subject and object suffixes following the two kinds of stems can be accounted for by different ordering of the two agreement rules relative to other syntactic rules.

One difference has been mentioned already: direct object pronouns can be represented by the independent accusative pronouns instead of the more usual verb suffixes far more acceptably and frequently with the P stem (where it produces the otherwise general pronominal order SUBJECT—OBJECT) than with the U stem (where it does not change order).

The other difference in behavior relates to Subject Agreement. While the U-stem verb always agrees with its subject, the P stem can appear without the L suffix which is normally present indexing the subject. (Lack of agreement is much less frequent, in a text, than agreement.) Thus, the following sentence was part of a narrative in which the speaker told of being searched by border guards who often confiscated personal property from those they searched:

(27) itwa  zi  tabbaʃat bid idi,  min  idi
     there-was also ring(f) on my-hand from my-hand

şlip-a,  gimri  rábəela
     drew 3fs  they-say big-is(f)
     P  A

'There was also a ring on my hand; they drew it from my hand; they said, It's big.'

They word ʃlipa (P-A) 'drew it' has no suffix indexing the agent compare ʃlipalu (P-A-L) 'they drew it'. The ring, mentioned first in this sentence, is what the sentence is about, while the listener knows who is conducting the search.

The distribution of the P-A construction is highly restricted, and most of the tests for grammatical relations cannot be applied. As with passives, there is usually no agent NP in the clause. However when such an NP is found, it is not marked oblique, as agents of passives are in the language. For this reason, I assume that the P-A structure is not a passive, but is an active sentence lacking subject agreement, though more evidence must be collected to prove this. In all the instances of this construction that have been found in
natural speech the agent is interpretable as third person plural, and only with third plural agents would speakers of the language accept such sentences.

Thus the construction P-A without an agent marker is like a passive in that the patient is what the sentence is telling about while the agent is played down. It is unlike true passives in the language in that an agent NP is not marked as oblique, as it is with passives, and in that agents are (usually or always) third person plural. It thus is sometimes a way of expressing an unspecified agent, sometimes a form of anaphoric reduction of a specified agent NP.

Let us assume that there are two distinct rules of subject agreement. One, Subject-Agreement-P, applies only to P-stem verbs, and is restricted according to the discourse conditions discussed above. It is distinct from Subject-Agreement-U, which applies to the U stem, without the discourse restrictions. Then the order of pronominal suffixes can be accounted for by the following extrinsic rule ordering:

Subject-Agreement-U

DDOC and Incorporation

Subject-Agreement-P

This solution is unsatisfying for two reasons. The first is that the rule ordering is an ad hoc syntactic device to account for morphological facts; no syntactic phenomena corroborate this ordering of syntactic rules. The other reason is that the position of the past marker wa (as in examples 2a and b) remains unaccounted for. If suffix order is to be accounted for by the order of application of syntactic rules, then wa must be attached before DDOC and Incorporation for the U stem, but after DDOC and Incorporation for the P stem. Thus the rule ordering is:

Subject-Agreement-U

wa-Placement-U

DDOC and Incorporation

wa-Placement-P

Subject-Agreement-P

Again, there are no syntactic facts to corroborate this split into two wa-Placement rules and this ordering.
In the next section I will propose a purely morphological solution to the problem of suffix order. While it is not the only conceivable way in which the morphology could be stated, it has the advantage of being an explicitly formulated, testable mechanism.

5. A morphological solution

The goal set in the beginning of this paper was to find a motivated way of treating the reversal of the meaning-form correspondence of the A and L suffixes, while taking into account the identity of the suffixes and of their order, regardless of stem. In the light of the results of sections 2 and 3, this means the following:

(28) \[ U \quad \text{SUBJ} \quad \text{OBJ} \]

\[ \text{STEM} - \quad A \quad -(\text{PAST})- \quad L \]

\[ P \quad \text{OBJ} \quad \text{SUBJ} \]

I suggest that there is a purely morphological rule exchanging the pronominal elements attached to the P stem,\(^5\) at a stage of derivation in which they are represented by bundles of features, not yet assigned either phonological shape or linear position. This would not have any syntactic effect, applying after all associated syntactic rules. Here I am following an analysis given by Stephen R. Anderson (1977) for a similar phenomenon, the 'inverse' forms of Potawatomi.

In Anderson's theory an inflectable word is associated with a morphosyntactic representation, consisting of a complex of features, hierarchically arranged. For example, the morphosyntactic representation of sentence 1a is essentially as in 29:

(29) \[
\begin{array}{c}
\text{past} \\
\text{3rd person} \\
\text{feminine} \\
\text{[singular]} \\
\text{1st person} \\
\text{[singular]}
\end{array}
\]

The inner set of features, past, third person, feminine, singular, indicates the tense of the verb and the person, gender, and number of the subject, 'she'. (Of course tense
is really much more complex than this.) The outer set of features represents the direct object, 'me'. Morphological spelling rules create the phonological shape of the word with its affixes. These rules are triggered by features, or combinations of features, and create the various affixes and stem changes that represent morphological categories. Furthermore, the morphological rules may effect changes in the morphosyntactic representation itself.

A verb stem, which might already have features of tense and aspect, acquires the additional pronominal features of gender, number, person through syntactic operations such as agreement rules and pronoun incorporations. How does the hierarchical structure arise? In Aramaic, the rule of Subject Agreement applies before the rule of Object Pronoun Incorporation. Object Pronoun Incorporation then adds features of person, gender, and number to a complex which already contains such features. Whenever such duplication occurs, the rules are governed by a general principle which Anderson has proposed: the new features do not enter the same complex as the old ones, 'but rather ... a new layer of structure is [automatically] created' (1977:21-22). This creates the morphosyntactic structure in 8, which is associated with the form in 1a.

The P-stem form which is synonymous with 1a is šmi?-in-na (heard-1ms-3fs) 'she heard me'. The morphosyntactic structure underlying this is identical to the one which underlies 1a, i.e. it is 29. But to derive the P-stem form, the flipping rule given in 30 applies, interchanging the hierarchical status of the subject and object features:

\[
\begin{align*}
(30) & \left[ \begin{array}{c}
\text{X} \\
\text{person} \\
\text{number} \\
\text{gender}
\end{array} \right] \\
\Rightarrow & \left[ \begin{array}{c}
1 \\
2
\end{array} \right]
\end{align*}
\]

This puts the object features, factor 2, on the innermost level, and the subject features, 1, on the outer level. The morphological spelling rules which follow will create an A suffix for the inner features, but these now belong to the object, and an L suffix for the outer features, indexing the subject.

The inversion rule must be revised somewhat to handle the intransitive P-stem forms, such as 3d. Here, since there is only one pronoun, the form starts out with only one set of features, with no hierarchical bracketing, as in 31, and the rule will have to create hierarchical structure, producing 32:
No A-set suffix will be produced, since there are no features on the inner level, while the subject features, which are now on the outer level, will appear as the L-set suffix li 'I'.

The discourse condition on subject agreement with the P-stem can now be stated as a restriction on the morphological rule which spells the features [third person, plural] as lu.

Generative phonologists have always assumed the phonological bracketing, which governs the cyclical application of phonological rules, is in general determined by syntactic structure. This is feasible since both syntactic structure and phonology are linearly arranged. But in Anderson's theory of inflectional morphology, syntax and phonology do not have an interface, but are mediated by morphosyntactic structure, which is hierarchically arranged, not linearly. Anderson makes no suggestion as to how morphosyntactic hierarchy relates to phonological structure, but I propose that morphosyntactic bracketing is directly reflected by phonological bracketing. According to this, some of the forms given at the beginning of this paper will have the following phonological structures:

(33) a. [[qam-šam?-ā]-li] (=1a)
    b. [[šmi?-ā]-li] (=1b)
    c. [[qam-šam?-ā]-wa-li] (=2a)
    d. [[šmi?-ā]-wa-li] (=2b)
    e. [g-dámx-in] (=3a)
    f. [[dámfx]-li] (=3d)

A-set suffixes, whether they index subjects or objects, are inside the inner brackets, while L-set suffixes are always outside, even if no other suffix is present, as in 33f. At least two independent phonological phenomena, involving stress and vowel length, support this bracketing.
6. A historical note

In its earliest period the P–A–L structure was an inversion construction: the underlying subject was the surface indirect object, marked with the preposition l 'to'. This preposition with its pronominal objects is what became the modern L suffixes. (Agents of passives in early Aramaic were marked with the preposition min 'from'.) The underlying direct object was surface subject, showing agreement with the A suffix. In time this structure was reanalyzed as active, as has been shown in sections 2 and 3 above. There are only two modern reflexes of the structure's former status as an inversion. One is the flipped syntactic function of the pronominal suffixes, for which I have offered the morphological mechanism in section 5. The other is the discourse restriction on Subject Agreement, discussed in section 4. These facts provide an illustration of Givón's (1971:413) maxim, 'Today's morphology is yesterday's syntax'. They also support the thesis of Cole, Harbert, Hermon, and Sridhar (1980), that when a noun phrase acquires subject properties, it first acquires the behavioral properties of subjects and then the coding properties. The NP indexed by the L suffix of a P-stem verb has all the behavioral properties of subjects, but it lacks, in some circumstances, the coding property of subject-verb agreement. In fact, there are few relevant subject behavioral properties, since the language has no processes corresponding to Raising or Coreferential Complement Noun Deletion. Subjects in the language are just not very subject-like.
FOOTNOTES

*The dialect examined here is the spoken language of the Jews of Amedya (al-ṣīmādiyā), Iraq: Kurdistan. The simplified transcription of Aramaic used disregards certain significant phonological features, including vowel length. Word stress is on the penultimate syllable unless indicated otherwise.

This study represents work in progress toward a Ph.D. dissertation for the University of Chicago. The field work on which this study is based was supported by a fellowship from the Social Science Research Council. I would like to thank Carol Rosen for detailed, extensive discussion which has helped greatly to clarify this paper.

1 The labels U and P stand for 'unmarked' and 'preterite'. The U stem occurs with different prefixes as a present, past, or future, and without a prefix as a subjunctive. P-stem forms are all past indicative. The labels A and L are arbitrary, though all of the L-set suffixes begin with л in their basic forms.

2 The past tense built on the U stem, exemplified in 1a and 2a, has certain syntactic restrictions which will be considered later in this paper. In order to bypass these restrictions for the time being, the examples will be taken from the present, future, and subjunctive forms which have the same base as the U-past, but different tense-marking prefixes. The grammatical relations of the pronoun sets are the same for all the U-stem tenses, and can legitimately be contrasted with those of the P-stem past.

3 I know of a couple of instances in which the subject pronouns are used for a highly emphatic and contrastive direct object. This sentence is from a piece of oral literature in a rather archaic, poetic style, and highly emotional in tone:

qtol ana mgebra
kill I instead-of-her
'Kill me instead of her' (Sabar 1976:160)

It would be much more normal to say qtol-li rather than qtol ana 'kill me'. This use of the independent pronoun for an object is so exceptional that it does not falsify the general rule that pronouns are marked for case, including the subjective set.
The precise circumstances under which DDOC applies remain to be examined. Sometimes an indefinite, but specified (previously mentioned and referential) direct object is copied, and sometimes the rule fails to apply where expected. The point to be made here is only that it applies uniformly to the two stems.

The reason I assume it is P forms which have undergone the change and not U forms is that three other verb stems in the language have the same order of affixes as U; no other stems are analogous to P.

Kutscher (1969) has shown that this was a calque on a Persian construction, and entered Aramaic in the fifth pre-Christian century.
REFERENCES


GENITIVE INITIAL SENTENCES AND QUANTIFICATION IN RUSSIAN

RICHARD C. HOUSE

1.0 Introduction. This paper argues that Russian has a separate syntactic sentence type, lacking a surface syntactic subject, whose function is to communicate information about quantification in certain discourse contexts.

The surface syntax of Genitive Initial Sentences (GIS) has been described in the literature along two differing lines. In section 3 I describe what I term the 'derived reordering' view. Section 4 deals with the 'quantificational predicate' approach, which I shall argue for on syntactic grounds.

For the purposes of comparison, Negated Existential Sentences (NES) as described by Babby (1980a) are also considered. The surface syntax of GIS and NES are demonstrated to be similar.

Section 6 contains a discussion of Theme-Rheme structure, concentrating on the 'old-new' distinction in discourse. A number of GIS examples are then given with contexts to show that the genitive NP is old information, while the quantity predicated by the quantifier is new.

Two alternative solutions to the syntactic description of GIS are proposed. The possibility that GIS are Topic-Comment structures with a syntactic TOP node as in Gundel (1977) is considered. However, I argue instead for a description which posits an underlying Subject-Verb structure for GIS similar to that of NES as described by Babby (1980a).

The discourse based semantic structures of GIS and NES are then compared and it is argued that the mechanism responsible for marking the genitive NP in GIS is unlike 'scope of negation' as described by Babby for NES. 'Scope of negation' involves the grouping of subject and predicate together in the Rheme of NES. GIS, however, have a separate Theme (genitive NP) and Rheme (quantificational predicate). A major conclusion based upon this comparison of GIS and NES is that some NES are in fact GIS which predicated zero quantity.

2.0 The sentence type: introductory taxonomy.
Examples of GIS are found in sentences 1 through 6 below.
1 Vina bylo malo.
wine-gn.sg. be-past-neut. little
There was little wine.

2 Tak ix slućaev bylo dva.
such occurrences-gn.pl. be-past-neut. two
There were two such occurrences.

3 Narodu - gibel'.
people-gn.sg. be(zero pres.) a lot-nom.sg.f.
There are a lot of people.

4 Vody v reke okazalos' po koleno.
water-gn.sg. in river turn out-past-neut. up to knee
The water in the river turned out to be up to the knees.

5 Kavalerev-to u nas - odin, drugoj-
cavalier-gn.pl. to us be(zero pres.) one, second-
občelsja.
it's counted
We had few cavaliers to speak of.

6 Radistov rabotalo troe.
radio operators-gn.pl. work-past-neut. threesome
There were three radio operators working.

The first element in each GIS is a NP marked genitive, plural if a count noun and singular if a mass noun.

2.1 The verb form. In sentences such as 1 through 6 the verbal element may be:
a) the copular byt' as in 1 and 2, including its zero present tense form as in 3 and 5,
b) any of a number of frequently used alternate copula verbs, such as okazat'sja, as in 4,
c) any other verb which has been desemantized to the point of having a minimum of emphasis on the action usually denoted by the lexical item. Sentence 6 is an example. Here the sense of 'work' is that the operators in question 'were employed there', that they 'were present'. This sentence might be followed by one such as 7.

7 No, kogda ja prisel, toliko odin rabotal.
masc. past-masc.
But, when I arrived, only one was working.
That is, the other two were sitting around doing nothing, were merely 'there'. The sense of 6, then, is really 'There were radio operators there and they were three in number'. More will be said on this subject in section 5.1 below.

The verb is in the 3rd singular neuter form, which is the form to which Russian resorts for non-agreement when there is no
grammatical (nominative) subject present. This has led many Soviet linguists to class such sentences as *bezličnoe* ('impersonal').

2.2 The quantifying element (Q-element) can have a number of realizations.
1) cardinal numbers as in sentence 2.
2) collective numbers as in 6.
3) Q-adverbs such as *mnogo* 'much,many', or *malo* 'little, few', as in sentence 1.
4) nouns with a Q-lexical meaning such as *tolpa* 'crowd'.
5) idioms. a) nominative nouns which have a quantificational meaning only when used in this position in a GIS. (The lexical item *gibel* in sentence 3 has the meaning of 'ruin, destruction, loss' when not used in this type of sentence.)
   b) prepositional phrases which, when used in GIS, have a distinctly quantificational meaning (cf. *po koleno*, with a meaning closer to 'knee deep', in sentence 4.), c) complete sentences such as *kot naplakal*, literally 'A cat shed a tear', but here used with a meaning more like 'nothing to shake a stick at', i.e. 'very few'. Sentence 5 contains another such example. These are discussed further in sections 4.3 and 4.4.

3.0 'Derived reordering'. This analysis of GIS is implicit in portions of the presentations found in the Academy Grammar, Šaxmatov (1941), Švedova (1970), and Peškovskij (1956). The 'derived reordering' view holds that sentences such as 1 above have their source in sentences like 1' below.

1' *Bylo [malo vina]*.
   be-past-neut. little-adv. wine-gn.sg.
   There was a small amount of wine.

Here, the bracketed items are considered as a subject NP, with the verb form showing neuter singular agreement as is normal with a NP containing a quantifier. Movement of the genitive noun (here *vina*) to the head of the sentence yields the GIS type under discussion. This treatment is an attempt to reconcile the subject-like nature and position of the genitive NP with the apparent lack of verb agreement in GIS.

4.0 'Quantificational Predicate'. This view is subscribed to wholly or in part by a number of linguists. Normal subject-copula-predicate nominative/predicate adjective constructions behave like other sentences in Russian, having nominative case marking on the subject NP and verb agreement. Such constructions usually have the subject NP first, as in examples 8-11 below.
8 Noć byla temnaja.
The night was dark.

9 Monterey - nadežnye.
mechanic-nom.pl. be(zero pres.) reliable-nom.pl.
The mechanics are reliable.

10 Podobnye slučai - mnogočislenny.
similar cases-nom.pl. be(zero pres.) numerous-nom.pl.
Similar cases are numerous.

11 Ivan - student.
Ivan-nom.sg. be(zero pres.) student-nom.sg.
Ivan is a student.

Kamynina (1961:22), Ivanova (1973:101), and Mrázek (1973:118) make the claim that, in spite of the lack of nominative case marking on the noun and the absence of verb agreement, GIS are semantic, and even syntactic, analogs of sentences such as 8-11. That is, the initial NP's are genitive subjects and the quantifier with the copula is acting as a predicate.

4.1 'Quantificational Predicate'; syntactic arguments.
In order to make their largely semantic comparison of GIS and predicate adjective sentences more compelling, the authors marshal a number of convincing arguments to demonstrate that the genitive ('subject') NP does not originate as a member of the same syntactic constituent as the quantifier. Due to the lack of any verb agreement with the quantifier, and to the semantic parallels with predicate adjectives, these authors usually finish by designating the quantifier as some form of predicate complement.

4.2 The first and most important piece of syntactic evidence concerning the constituency of the genitive NP deals with what I shall call '2,3,4 governance'. In addition to the authors listed in section 4.0 above, Gvozdev (1961) and Crockett (1976) discuss this phenomenon as outlined below.

A curious quirk of Russian is that the numbers 2,3,4 govern a genitive singular noun when used within a NP. The numbers 5 and beyond govern the genitive plural. Thus, one has the state of affairs found in 12 below.

12 [dva professora] but [pjet' professorov]
two professor-gn.sg. five professor-gn.pl.
two professors five professors

As Kamynina (1961:21) points out, this governance does not obtain in GIS. Consider sentence 2, repeated below as 13, which has a sentence initial NP in the genitive plural, even though the quantifier dva 'two' usually controls a singular form.
13 Takix slučaev bylo dva.
such occurrences-gn.pl. be-past-neut. two
There were two such occurrences.

If one compares the case forms of 13 with those of 14
below, it is easy to argue that 14b cannot be derived from 14a
merely by preposing the genitive noun. Instead, one must view
the two elements, genitive NP and quantifier, as being separate
constituents. A simple reordering would result in the ungram-
matical 14c.

14a Byli dve knigi.
be-past-pl. two book-gn.sg.f.
There were two books.

b Knig bylo dve.
book-gn.pl. be-past-neut. two
The books were two(in number).

4.3 There is, in addition to the lack of '2,3,4 governance',
another, lexico-syntactic, argument which suggests that the quant-
ifier is a separate constituent. Ivanova (1973:98) points out
that many of the quantificational elements used in GIS do not
appear as quantifiers in other constructions. (e.g. within a NP)
Though she does not pursue this line of thought, there are inter-
esting insights to be gained from it. The word 'gibel', for
instance, has two meanings depending upon the construction into
which it is inserted. As a quantifier in GIS it has the meaning
'a lot', as in sentence 3. However, this is conditioned here by
its appearance in the GIS construction. When one uses 'gibel'
in a NP, as in 15 below, native informants insist on the lexical
meaning of 'loss, destruction'.

the destruction of the German army gen.
*a lot/many

4.4 Kamynina (1961:22) notes that there are also entire idi-
omatic phrases which have quantificational meaning and are found
exclusively in GIS. Consider sentence 16, in which 'kot naplakal,
literally 'A cat shed a tear', has the meaning of 'nothing to
shake a stick at'. If one were to produce the NP in 17, attempt-
ing to use this idiom in a NP position such as a Dative Phrase,
it would be ungrammatical.
16  Deneg u nego - kot naplakal.
    money-gn.pl. to him be(z-ro pres.) nothing to shake
    a stick at
    The money he had was nothing to shake a stick at.

17 [kot naplakal  den'gam]dat.pl.
    nothing to shake a stick at money-dat.pl.
*nothing to shake a stick at money

4.5 One variant of GIS which has not been considered thus far is
that involving an apparently transitive sentence structure.
Popov (1974:118) gives a good pair of examples which he says
provide added argumentation for the 'derived reordering' view.

18a  Deneg ja brosil mnogo.
      money-gn.pl. I squander-past.masc. much
      Of money I squandered.

     b Ja brosil  [mnogo deneg].
      I squander-past-masc. much money-gn.pl.
      I squandered a lot of money.

He argues that the description of Russian would be simpler if
one were to view 18a as deriving from 18b, just as (he claims)
l is derived from l'. However, the argument against the possibil-
ity of using idiomatic predicate quantifiers within NP's cited
immediately above applies to sentences like 18a/b as well.
Consider 19a/b below.

19a  Professorov ja videl kot naplakal.
      professor-gn.pl. I see-past-masc. nothing to shake
      a stick at
      Professors I didn't see many of.

     b *Ja videl [kot naplakal professorov].acc.

Sentence 19b, syntactically analogous to 18b which has a quantifier
in what is superficially the direct object NP, turns out to be
ungrammatical. As noted above in section 4.4, the idiom kot
naplakal occurs only in GIS type constructions. This, and the
fact that '2,3,4 governance' also fails to apply in sentences
like 18a and 19a, makes it clear that the quantifier and the
genitive NP do not originate in the same constituent in
'transitive' GIS. Thus, Popov's seemingly convincing argument
is substantially reduced.

4.6 The evidence in the preceding sections establishes that the
genitive NP in GIS is a separate constituent. However, since
this NP does not control verb agreement, it cannot be syntactic
subject. A comparison with sentences 8-11 which have nominative
subjects, on the other hand, suggests that this NP is at least
logical subject. Mrázek (1973:118) singles out sentences like
10 which have a predicate adjective with quantificational meaning.
He notes that a GIS containing a quantifier such as 10' below is
equivalent in meaning to 10.

10' Podobnych slučáev - mnogo.
similar cases be(zero pres.) many
Similar cases are many (in number).

An adequate description of GIS, then, must take into account
both the logical subjecthood of the genitive NP and the lack of
Subject-Verb agreement in surface syntax.

5.0 GIS and NES - a syntactic comparison.

5.1 GIS and NES have two obvious points of similarity. The
first is the use of an 'impersonal' verb form. The fact that
many, if not all, of the copular and 'desemanticized' verbs
available to NES are also used in GIS makes this coincidence
quite striking. Consider the verbs in the following NES
example, taken from chapter one of Babby (1980):

20 V supen
in soup neg 
  okazalo's 'turned up'
  obnaruživalo's 'was discovered'
  soderžalo's 'was contained'
  popalo's 'turned up'
  plašalo 'floated'
  vstretilo's 'was met'
  nasalo's 'was found'
  bylo 'was'

[nikakogo mjasal]
any-gn.sg. mean-gn.sg.
There wasn't any meat(at all) in the soup.

5.2 The second, and in many ways more obvious, parallel is the
presence in both sentence types of a genitive NP. Jakobson
(1971:38) points out that the genitive case usually denotes the
extent of a noun's involvement in an utterance. Babby (1980a:
78) observes further that 'negation and quantification are
"operators" that have essentially the same function . . .'
A quantifier signals the number of referents, e.g. 'five', or
'many'. Negation signals that there are no referents. This
'zero participation', as Babby terms it, makes it perfectly
sensible that NP's in the 'scope of negation', as well as those
in the 'scope of quantification', are both marked with the
genitive case. Chvany (1975:133-134) also contains a short
discussion of negative sentences, saying that 'whatever its
origin, NEG is intuitively relatable to quantifiers, just as
"zero", "null", or "none" are in some sense quantifiers'.


5.3.1 Several other linguists have noted the apparent similarity between GIS and NES. Kostinskij (1969:51) contains such a discussion, and Mrázek (1973:118) also considers this. Before comparing NES and GIS further, however, we should examine NES a bit more closely.

5.3.2 Soviet classifications say that NES have a 'genitive subject'. Babby (1980a:chapter 2) contains a thorough analysis of the potential 'subjecthood' of the genitive NP in NES. Noting the lack of Subject-Verb agreement, the fact that the entire NP is genitive, and a number of syntactic tests involving relative clauses, he establishes that such NP's cannot be considered as surface subjects. Like the Soviet authors, however, he recognizes that the genitive NP in NES corresponds to the nominative NP in an Affirmative Existential Sentence (AES). It is, therefore, the logical subject.

Babyy suggests one strong argument that the genitive NP in NES serves as subject: the selectional restrictions between the noun in subject position and the verb in AES remain the same in NES. It is evident, therefore, that a description of such sentences must capture the Subject-Verb selectional restrictions, while at the same time accounting for the genitive NP in NES and the nominative NP in AES.

Babyy's solution to this dilemma involves placing the NP in question, unmarked for case, in a base representation such that its occurrence as subject of an AES will result in it being marked nominative, while its occurrence as subject of a NES in which it is in the 'scope of negation' will result in genitive case marking.

5.4 Thus far we have considered three major properties of NES which show striking parallels with those of GIS.

i) GIS are 'impersonal' in nature. That is, since there is no surface subject with nominative case marking, Subject-Verb agreement fails to occur.

ii) GIS verbs, when not copular, are 'desemanticized' lexical items, just as those in NES.

iii) The genitive NP is logical subject.

This third parallel was suggested by the similarity in meaning of sentences such as 10 and 10'. However, an additional argument can now be advanced to justify this point further. As with NES, there are Subject-Verb selectional restrictions evident in GIS. Consider sentence 21.

21 Fil'mov pro уголовников idet u nas
film-gn.pl. about criminals go-pres.-sg. with us
There are rather many films about criminals being
čto-to mnogovato. somehow rather many
shown in our country.
The idiom for 'a film is showing' in Russian is *идет фильм*, literally 'a film is going'. The GIS sentence preserves this selection restriction.

6.0 GIS in discourse; Theme-Rheme considerations.

6.1 Some Soviet linguists see GIS and corresponding non-GIS as differing only with respect to Theme-Rheme Structure: a difference in Theme-Rheme Structure conditions a difference in word order, as happens elsewhere in Russian. But, as we have seen, GIS, e.g. sentence 1, and non-GIS, e.g. sentence 1', differ in syntactic structure as well, and are therefore not merely variant word orders of the same construction.

6.2.1 Adamec (1966) provides one of the better treatments of Theme-Rheme Structure in general, then turns his eye upon word order in Russian as a specific example. The essential definition of 'Theme' boils down to 'that which the speaker intends to talk about'; 'Rheme' is 'that which the speaker intends to say about the Theme'. Adamec also points out that one must consider the opposition of 'old' or 'given' versus 'new'. The fact that 'old' usually aligns with 'Theme' and 'new' with 'Rheme' is pointed out, though it is also made clear that this is not an absolute correspondence.

6.2.2 In order to see how the foregoing discussion affects the study of GIS, consider the examples given below. An English gloss will be given, with the relevant genitive NP's underlined once in the Russian data, the quantifiers twice.

22 A-Doma Mar'ja Petrovna?
   B-Kotoraja? *ix v kvartire četyre štuki.*
   A-V komnate nomer tri.  
   B-V komnate nomer tri *ix dve.*

A-Is Maria Petrovna home?
B-Which one? In the apartment there are four.
A-The one who lives in room three.
B-In room three there are two of them.

23 Pered smert'ju Klavdija Ivanovna otkrylas' mne, čto v ee dome, v Stargorode, v odnom iz gostinyx stul'ev (ix vsego dvenadcat') zaprjadny ee bril'janty.

Before her death Kladia Ivanovna revealed to me that in her house in Stargorod, in one of the living room chairs (they were twelve in all) her jewels were hidden.

24 Primer nesootvetstvija pervogo tipa daet glagol PROMAXNUT'SJA. Ėtot glagol opisyvaet situaciju
s četyr'mja aktantami (ili, po krajnej mere, s tremja-
esli ne učityvat' fakul'tativnoe orudie). Odnako, 
sintaksiceskich aktantov u PROMAXNUT'SJA – ne četvr
i ne tri, a tolo'ko odin.

An example of the non-correspondence of the first type
is offered by the verb PROMAXNUT'SJA. This verb
describes a situation with four actants (or, at least,
with three--if one doesn't count the optional instru-
mental). However, the syntactic actants for PROMAX-
NUT'SJA are not four, nor three, but only one.

If the contexts of each example are considered, it is
evident that the entity referred to by the genitive NP has
either been mentioned before, or is implied by the situation,
physical or linguistic.

In 22 a pronoun is used to refer to the class of women
with the first name and patronymic of Maria Petrovna.

In 23 a parenthetic statement contains a genitive pro-
noun referring back to the main statement.

In 24 the author repeats the lexical item 'aktant' for
reference.

What is evident from the foregoing is that the genitive NP
is 'old' (Theme), while the predicate quantifier is 'new'
(Rheme).

7.0 GIS – Genitive Topic or Genitive Subject?

7.1 At the end of section 5 the structural characteristics of
GIS were enumerated. In terms of surface syntax GIS are subject-
less, yet the genitive NP is a logical subject. Given the dis-
course considerations discussed in section 6, one might attempt
to utilize a structural description which would incorporate
both syntax and semantics. Such an analysis is suggested by
the approach found in Gundel (1977). Gundel considers Theme-
Rheme semantic partitioning to coincide with a syntactic
separation of Topic and Comment, respectively. One might,
therefore, choose to represent GIS as in 25 below.
The derivational history of the sentence starting from this deep structure would involve marking TOP genitive just in case the VP contains a QP, and deleting the NP subject due to lexical identity, thus precluding Subject-Verb agreement.

However, a sentence such as 26 below inescapably suggests that the genitive NP in GIS's is in fact a part of the structure of the sentence containing the quantifier.

26  Ešelony,  ix  segodnja
troop train-nom.pl. they-gn.pl. today
Troop trains, today they have only
bylo  vsego dva.
be-past-neut. only two
been two in all.

That is, sentence 26 has a Topic NP in the nominative (Ešelony) separated from a sentential Comment in which the lexically identical subject is represented by a pronoun (ix) in the genitive. The ungrammatical sentence 26' below, in which the Topic node is marked genitive, is further evidence that the analysis for 25 given above is incorrect.

26'  *Ešelono(gn.pl.), oni(nom.pl.) segodnja
 { bylo(neut.) vsego dva.
 { byli(pl.)

7.2 A transformationally oriented solution to the dilemma of labeling the constituent containing the genitive NP is to assign GIS's a deep structure analogous to that found in Babby (1980a), i.e. a basic subject-predicate configuration, as in 27 below. The lexical items are again those of 13, as in 25.
The rules of the grammar of Russian would mark the subject NP genitive just in case there was a QP in the VP, yielding sentence 13 with no verb agreement due to the strict nature of Russian surface syntax which allows no agreement with a non-nominative NP.

7.3 It is clear that the analysis favored here is that of section 7.2 above in which the genitive NP appears in underlying structure as subject. The one element of the analysis left unspecified thus far is that of just exactly how and why the subject NP is marked genitive. In section 8 I will demonstrate that, although GIS and NES have similar surface syntax, the mechanisms for marking the subject genitive must differ. I will also suggest that some sentences which Baby has hitherto classified as NES may in fact be GIS's which communicate zero quantity.

8.0 GIS and NES reexamined in the light of discourse function.

8.1 Baby (1980a:111-112) has proposed a rule marking subject NP's genitive if they are in the 'scope of negation'. We can propose a similar rule for GIS marking subject NP's genitive in the 'scope of quantification'. First, however, let us consider 'scope of negation' further.

As Baby (1980a:chapter 3) demonstrates, the 'scope of negation' in NES is actually the 'scope of assertion'. In other words, the subject NP (whether nominative or genitive) belongs to the asserted part of the sentence (Rheme) along with the verb. In non-existential sentences, on the other hand, 'the subject NP does not belong to the asserted part of the sentence; it is often, but not obligatorily, interpreted as carrying an existential presupposition. The subject of a declarative [non-existential] sentence can accordingly be said to fall outside of the sentence's 'scope of assertion.' As the contextual examples given above in section 6.2.2 demonstrate, it is
exactly this last state of affairs which obtains with GIS. This means that any rule concerning 'scope of quantification' will necessarily have to relate a predicate within the Rheme with a NP subject which is outside the Rheme. It is clear, then, that 'scope of quantification' is not bound to Theme-Rheme Structure in the same way that 'scope of negation' is.

8.2 As Babby points out (1980a:115), NES may have either verb-subject or subject verb word order. He describes the difference in word order in terms of the 'old-new' opposition, which he says can exist within the Rheme of NES's. Nevertheless, the fact that some NES's have subject-verb word order, just as GIS's do in our analysis, might lead us to suspect some connection between these 'NES's' and GIS's. In fact, we can argue that these 'NES' sentences with subject-verb word order are actually instances of GIS's expressing a zero quantity.

Note the following examples, in which a GIS is conjoined with a 'NES' sentence. Chvany's example is particularly interesting, since the NP in the GIS clause is gapped out in the 'NES' clause to which it is conjoined.

28  Bogatstvo  bylo  propast'  i
      wealth-gn.sg. be-past-neut. a lot and
      konca  im  ne vidno
      end-gn.pl. them-dat.pl. not visible-neut.
      the end(of the riches) for them was not
      bylo.
      be-past-neut.
      visible.

29  Gvozdej  tridcat'  a
      nail-gn.pl. thirty but
      The nails were 30, but
      surupov  ne xvataet.
      screw-gn.pl. not suffice-pres-3rd.sg.
      the screws were not sufficient.
      (Crockett, 1976:133)

30  Xlebu/narodu  budet  malo,
      bread/people-gn.sg. be-fut.-3rdsg. little
      The bread/people will be little/few,
ili sovsem ne budet.
or completely not be-fut.-3rd.sg.
or will be completely non-existent.

(Chvany, 1975:113)

In the linguistic context, the genitive NP's in the second clause of these sentences represent items which have what Babby terms an 'existential presupposition'. The purpose of this second clause is to state that the NP's actually have a null quantity.

8.3 The fact that some 'NES's' are in fact 'negative GIS' only serves to heighten the contrast between Babby's all Rheme NES (verb-subject word order) and our GIS in terms of Theme-Rheme partitioning. We are still, therefore, on the horns of a dilemma. While the syntactic parallels of GIS and NES make some form of 'scope of quantification' appear to be a viable mechanism for triggering genitive subject marking, the 'existential presupposition' and declarative nature of GIS make it obvious that, though both involve the genitive case, 'scope of quantification' in GIS is not at all equivalent to 'scope of negation (assertion)' in NES.

Further consideration of the predicative nature of the quantifier in GIS points toward a slightly different motivation for the genitive marking on the NP subject.

First, there are some lexical verbs in Russian, such as xvataf 'suffice', used in sentence 29 above, which demand a genitive subject. Consider also sentence 31 below.

31 Del xvataet.
affairs-gn.pl. suffice-pres.-3rd.sg.
There are enough things (to do).

Raspopov (1971:89-90) cites this example as well as 32 below, in which the genitive adds the sense of quantity to the utterance.

32 Narodu pribyvaet.
people-gn.sg. arrive-pres.3rdsg.
The people increase(in number).

Babby (1980a:chapter 4), using a number of minimal pairs, including one from Jakobson (1971:39) given below as 33, demonstrates that the occurrence of a NP in the genitive case as the subject of an affirmative intransitive sentence allows the speaker to focus on
the quantity of referents involved in the predication.

33a Ljudej sobralos'.
   people-gn.pl. gather-past-neut.
   (What a lot of) people gathered!

b Ljudi sobralis'.
   people-nom.pl. gather-past-pl.
   People gathered.

Note that the b sentence, with nominative case marking and Subject-Verb agreement, is neutral with respect to the quantity of people.

The point being made here, then, is that the genitive marking on the NP subject is used when the utterance predicates quantity, whether with a lexical verb or in a GIS construction. We are now in the position to make the following statement:

34 When an intransitive sentence involves focusing on the quantity of referents in the subject NP, the subject NP will be marked genitive.

The fact that many lexical items such as sobrat'sja admit either focus or lack of focus on quantity in the subject should not surprise us any more than the fact that lexically quantificational verbs such as xvatat' and all manner of quantifiers in GIS require the genitive. After all, the purpose of items such as xvatat', as well as the quantifiers in GIS, is exclusively one of predicating the quantity of referents of the subject NP. Such items will only be used in utterances intended for focus on quantity, hence require the genitive marking on their subjects. Statement 34, then, represents what has been referred to earlier as 'scope of quantification'.

9.0 To sum up, this essay is an attempt to show that sentences such as 1 are not 'derived reorderings' of those such as 1'. The lack of '2,3,4 governance' and the idiomatic nature of the quantifiers in GIS establish that the genitive NP and the quantifier must originate in two distinct constituents. GIS represent a separate sentence type which, from the standpoint of surface syntax, are 'impersonal', having many features in common with sentences containing lexical verbs which take a 'genitive subject', as well as with NES. Unlike NES, however, GIS have a bipartite Theme-plus-Rheme structure and the genitive
marking on the subject NP results from focusing on the quantity of its referents as predicated by the quantifier. Finally, many, though by no means all, NES are in fact GIS which predicate zero quantity.

FOOTNOTES

* I owe an initial dept of gratitude to Leonard Babby for suggesting this topic to me. I am also grateful to Wayne Harbert, and particularly to Wayles Browne for guiding me through successive stages of revision. Maria Rubinova and Alexander Nakhirnovsky spent a great deal of time with me verifying the grammaticality of the sentences given herein as examples.

1 Skoblikova (1959) considers this and other examples of such verbs, e.g. imet'sja 'to be, be present', stanovit'sja 'to (begin to) be'.

2 Babby (1980a:10) notes that 'verbs denoting concrete action are regularly "desemanticized" in NES and turn into stative synonyms of the verb byt'.

3 Vinogradov (1947:315) has noted that such nouns 'show a weakening of their objective meaning'.

4 Babby (1980a:47) also notes that such quantifiers developed from lexical nouns. Cf., in addition, Popov (1974:104) who gives further examples of such lexical items, though he interprets them not as quantifiers, but as ordinary nouns.

5 The majority of authors surveyed also discuss this phenomenon, but do not pursue the particular argumentation given here.

6 In fact, I would argue that a sentence such as 18a contains two propositions: 'I squandered money' and 'The money was a lot'. The second of these is a GIS when realized separately in Russian. Zolotova (1978:149) and Crockett (1976:327-329) suggest similar analyses. The fact that GIS can be established as a viable sentence type predating quantification (cf. sec.8.3) makes this approach to 'transitive' GIS a promising one.
A thorough presentation of this approach can be found in Babby (1980b).

Cf., for example, Švedova (1970:561;601). The Academy Grammar (1954:II.2.37) also suggests this by noting a different sentence intonation between GIS and non-GIS. However, the 'pause' noted in the Grammar also foreshadows the problem of constituency being discussed here.

See also Zolotova (1978:145) who points out that different Theme-Rheme Structures are normally achieved by re-ordering sentence constituents, not by breaking up an individual constituent such as the subject NP malo vina in 1'. Ivanova (1973:99) makes the same point, though she considers intonation rather than reordering.

REFERENCES


Ivanova, V.F. 1973. Modeli količestvennyx predloženij
(K voprosu o tipologii prostogo predloženija). Russkij
jazyk v škole.

Jakobson, Roman. 1971. Beitrag zur allgemeinen Kasuslehre:
Gesamtbedeutungen der russischen Kasus. Selected Writings.
II. The Hague: Mouton.

Kamynina, A.A. 1961. K voprosu o predloženijax s količest-
vennymi slovami v sostave glavnxh členov predloženija.
Russkij jazyk v škole. 2.

Kostinskij, Ju. M. 1969. Podležaščee-v roditel'nom padaže?
Russkaja reč'. 6.

dvuxbazisnymi strukturami. Československá rusistika. 3.

Moscow.

Popov, A.S. 1974. Predloženija s raz"edinennymi količest-
venno-imennymi sočetanijami i numerativnye podležašcie
v sovremennom russkom literaturnom jazyke. Voprosy
leksik i grammatiki russkogo jazyka. Perm'.

Raspopov, I.P. 1971. K interpretatsi sintaksičeskix konstruk-
cij tipa 'Rebja u nee bylo četvero'. Russkij jazyk v
škole. 5.

Šaxmatov, A.A. 1941. Sintaksis russkogo jazyka. The Hague:
Mouton.

Skoblikova, E.S. 1959. Forma skazuemogo pri podležašcem
vyrazennom količestvenno-imennym sočetaniem. Voprosy
kul'tury reči. II. Moscow.

Švedova, N. 1970. Grammatika sovremennogo russkogo litera-
turnogo jazyka. Moscow.

Vinogradov, V.V. 1947. Russkij jazyk (grammatičeskoe učenie
o slove). Moscow.

Zolotova, G.A. 1978. O roli semantiki v aktualiom členenii
predloženija. Russkij jazyk (Vinogradovskie čtenija
A Metrical Analysis of Umlaut

Susan McCormick
Cornell University

The purpose of this paper is to examine the phonological process known as umlaut in light of recent developments in the theory of metrical phonology. A number of analysts working within this framework assert that standard generative phonology has been unable to provide workable insights into the interaction of prosodic structures with other phonological units. Metrical analysis, discussed by Liberman (1975), Liberman and Prince (1977), and elaborated on by, among others, Kiparsky (1979), and Selkirk (1980), has been presented as a viable means of representing the relationship between such things as stress and rhythm, and other phonological processes. The intention here is to show that, in fact, the only adequate description of umlaut must refer to the types of hierarchical structures and prosodic categories that have been proposed within the metrical theory. It will be argued that this approach allows certain distinctions in prominence patterning that a standard generative approach does not, and that these distinctions are necessary for a satisfactory account of umlaut.

1. Umlaut is generally understood as an assimilation in one or more features of one vowel to a vowel in an adjacent syllable. The most visible example of this type of assimilation is found in the Germanic group, where all languages except Gothic show evidence of umlaut. Old and Modern Icelandic will serve to illustrate this. In Old Icelandic an unrounded vowel was rounded before an original u in the immediately following syllable; in the modern language, only a assimilates to a following u. Examples of u-umlaut are given in (1):

(1) OIce. kalla 'call' ~ köllom (< -um) l pl. pres.
    át 'ate' ~ ötm ( < -um) l pl. past
    roa 'row' ~ rôru 3 pl. past

    MIce. fata 'pail' ~ fôtu oblique sg.
    stað 'place' acc. sg. ~ stôðum dat. pl.
    (ô =low, back, rounded)

The examples in (1) are instances of a partial assimilation that proceeds leftward or regressively. Although partial assimilation is generally the rule in Germanic, there are cases of total assimilation as well. With regard to the direction of assimilation, the regressive nature of u-umlaut in Icelandic does not appear to be characteristic of umlaut in general. That is, although we find only regressive umlaut in the Germanic languages, there are examples
of progressive umlaut outside of this group. For instance, the
direction of umlaut assimilation in Sinhalese is predominantly
regressive, but there is also evidence that a rule of progressive
umlaut was operative at one time, as (2) illustrates:

(2) Sinh. sevel. 'moss' cf. Pali sevāla
    poho 'quarter of a lunar month' cf. Pali upōsatha
    dōlos 'twelve' < *dōlasa

Umlaut, then, may be considered bi-directional.

Another point important to this discussion concerns the much-
recognized role of prominence patterns in the operation of umlaut
in Germanic. In almost all grammars of the older Germanic dialects,
discussions of umlaut refer to "accented" vs. "unaccented" or
"stressed" vs. "unstressed" position. In all cases the assimila-
ting vowel is prominent (accented, stressed), and the vowel that
is being assimilated to is non-prominent (unaccented, unstressed).
At the same time, the Germanic group is characterized as having,
in traditional terms, a strong expiratory stress accent, where
non-prominent syllables are reduced relative to prominent ones.
What this means for a description of umlaut is that non-prominent,
reducing vowels are serving as the conditioning for the assimilation
of prominent full vowels. Of course, at the stage where umlaut
is operative, non-prominent vowels do not reduce fully. Rather,
we see that the inventory of vowels that may occur in non-pro-
minent position is much smaller than that occurring in prominent
position and that these reduce to an even greater degree in later
stages of the language.

The correlation of prominence position and prominence type
(i.e. "strong expiratory stress") with the occurrence of umlaut
does not appear to be specific to Germanic. In languages with
umlaut, where one vowel assimilates to another (as opposed to
vowel harmony, where the assimilation rule may, and generally
does, refer to more than two vocalic segments), assimilation
proceeds from the non-prominent to the prominent vowel. These
languages are also characteristically similar to Germanic in
prominence type, i.e. non-prominent syllables experience reduction.
Included among these are languages of the Celtic group, such as
Irish and Welsh, for example, and Sinhalese. In both Old Irish and
Welsh, a-umlaut specifies the lowering of i and u before a (and in
Irish, o); in Sinhalese, vowels are fronted before i. Examples
are given in (3):

(3) OIr    fedo, gen. of fiadh 'wood'
    betho/betha, gen. of bith 'world'

    Welsh    gwên (fem. adj.) ~ gwŷn (y < i)
Sinh pāni 'sweets' cf. Pali phāṇīta
bim 'earth; ground' cf. Pali bhūmī
diena 'boat; canoe' cf. Pali dōṇī

In these cases as well, then, umlaut represents the assimilation
of a prominent vowel to an adjacent non-prominent vowel, and
occurs in languages where non-prominent vowels systematically
reduce.¹

2. The representation of umlaut in standard generative phonology
has generally taken the form of that in (4):²

(4) a) progressive

\[
\begin{align*}
V & \longrightarrow [\alpha_F] / [\alpha_F] \\
\beta_F & \longrightarrow [\alpha_F] / [\alpha_F] \\
C_0 & \longrightarrow [V]
\end{align*}
\]

b) regressive

\[
\begin{align*}
V & \longrightarrow [\alpha_F] / [\alpha_F] \\
\beta_F & \longrightarrow [\alpha_F] / [\alpha_F] \\
C_0 & \longrightarrow [V]
\end{align*}
\]

(4) states that a vowel assimilates to a vowel in the immediately
preceding or following syllable. If we wish to express the fact
that a prominent vowel undergoes the rule and a non-prominent
vowel serves as environment, we can utilize the feature [+stress],
marking the input segment [+stress], and the conditioning vowel
[−stress]. The question immediately arises, however, as to
whether this apparatus is sufficient to correctly generalize about
umlaut. A rule like (4a) or (4b), with both vowels marked for
[+stress], makes an accurate statement about assimilation and
prominence relations for umlaut. What it fails to do, however,
is make any prediction about the type of language that may
experience a process of umlaut. Because it is generally the case
that a language has some means of indicating prominent vs. non-
prominent position, rule (4) could theoretically be a rule in any
grammar. The fact is, however, that rules like (4) appear to be
restricted to languages that show vowel reduction.

3. The standard generative approach to issues such as the
treatment of stress in English has been discussed in recent years
by, among others, Liberman and Prince (1977; hereafter L & P).
Reviewing the SPE analysis of cyclic stress assignment, L & P
suggest replacing the n-ary approach to stress with one that
utilizes hierarchical structure for suprasegmentals. For them,
relative prominence derives from the constituent structure of a
binary-branching metrical tree, together with strong/weak
designations of the sister nodes that make up the tree. Whereas
with the standard analysis relative prominence was expressed in
terms of a multivalued scale, as in eg. dēw covered lawn, an L & P
analysis would define these same relations hierarchically:

(5)

```
   w
  / \  
 S    W
  \  /  
  dew covered lawn
```

L & P maintain a rule of stress assignment, formulating the following for English:

(6) \[ V \longrightarrow [+stress] / \quad \quad \quad C_0(\tilde{V}(C))(\tilde{V}_C)_0\# \]

(6) is an iterative rule. With each application, stress is assigned and metrical structure is simultaneously built; (6) applies from right to left, forming a left-branching structure. In addition to this, there is a process that L & P refer to as "deforestation" that applies before the operation of any rules in a cycle. "Deforestation" has the effect of erasing all prosodic structure built in the previous cycle, leaving only [+stress] values behind. After "deforestation", the stress rule may then apply on that cycle, assigning stress and building metrical structure. Strong/weak designations are gotten through the Lexical Category Prominence Rule (LCPR), stated in (7):

(7) LCPR: In the configuration \([N_1 N_2]\), \(N_2\) is strong if it branches.

The following is a sample derivation:

(8) a) \([[[\text{or in}_N \text{ al}_A] \text{ it } y_N]\]

```
cycle 1:

```

```
   w
  / \  
 S    W
  \  /  
  + - -
```

After each cycle, "deforestation" erases metrical structure, leaving only [+stress] values. The stress rule then reapplies:

b) Cycle 2:

Deforestation:
```
   + - - -
```
c) Cycle 3:
Deforestation:

After the third and final cycle, an independent rule of English destressing applies to destress the first syllable. The result is (8d):

d)

Justification for assigning [+stress] by rule is found in pairs like balloon vs. raccoon. In both cases, the second syllable is strong and the first syllable, weak:

(9)

Although the stress relations within the two words are the same, it is clear that the first syllable of balloon is unstressed, whereas that of raccoon bears a weaker, secondary stress. L & P account for this by assigning the secondarily stressed syllable a value of [+stress]. Thus, both are still weak relative to a strong
second syllable, but are differentiated from one another at the same time:

\[(10)\]

```
\[\begin{array}{c}
  \text{w} \\
  \text{s} \\
  \text{ba} \\
  + \\
  \text{lloon}
\end{array}\quad \begin{array}{c}
  \text{w} \\
  \text{s} \\
  \text{ra} \\
  + \\
  \text{coon}
\end{array}\]
```

L & P refer to the binary structure whose terminal nodes are marked [+stress] and [-stress] as a foot. The designation of foot is purely derivative and has no status as a formal category in their analysis.

The implications of a metrical approach for an analysis of umlaut are clear. The standard theory was unable to characterize umlaut as a rule involving prominent vs. reducing non-prominent syllables. With a theory that provides for a hierarchical organization of prosodic structure, this is possible. One can say that umlaut is a vowel-vowel assimilation rule where the vowel that is assimilating is strong prosodically and marked [+stress]. The conditioning vowel, marked weak and [-stress], would be in a position to reduce. Since umlaut only involves two vowels, the binary nature of metrical trees would allow a neat statement of the domain of umlaut as the foot.

4. The maintenance of a stress rule has been questioned in a number of approaches that agree in principle with the basic assertions of the L & P model. Both Prince (1980) and Selkirk (1980), for instance, argue against using the feature [†stress], saying that the effect of a rule assigning stress can be achieved by means of prosodic categories, specifically the foot. In fact, it is argued, the foot as a distinct category is desirable for a more explanatory statement of phonological processes. For an analysis of umlaut, we will basically be concerned with Selkirk's proposals.

Selkirk's analysis entails doing away with the feature [†stress] and accepting the categories syllable (Φ), stress foot (Ξ), and prosodic word (ω) as basic to metrical structure. The examples that motivated the use of a stress rule in English for L & P are now described in terms of foot structure: the occurrence of the category foot implies a sequence of syllables where one syllable is stressed and all others are unstressed. In a case where Ξ branches to a single Φ, the Φ always bears stress. This revised notion of the foot is seen in the structures in (11), where the difference is stress relations in the pair balloon vs. raccoon is viewed as different expansions of Ξ:
(11) a) \[ \Sigma \]
\[ \omega \]
\[ \triangleright \]
\[ \triangleleft \]
\[ \Sigma_{\omega} \]
\[ \Sigma_{\alpha} \]
\[ \text{ba} \]
\[ \text{llooln} \]

b) \[ \Sigma_{\omega} \]
\[ \omega \]
\[ \triangleright \]
\[ \triangleleft \]
\[ \Sigma_{\alpha} \]
\[ \Sigma_{\alpha} \]
\[ \text{ra} \]
\[ \text{coocon} \]

In (11b), the first syllable is weak and the second strong, but both serve as the single expansions of different feet; they are themselves feet. A syllable that is a \( \Sigma \) can be weak but not reduced. Thus, we get a secondary stress on the first syllable of \text{raccoon}. With \text{balloon} in (11a), however, the two syllables comprise one foot; a weak syllable contained within a \( \Sigma \) is non-prominent. In \text{balloon}, therefore, the first syllable is non-prominent or reduced. Where \text{L & P} use the LCPR to assign s/v relations, Selkirk proposes prododic well-formedness conditions specifying how well-formed syllables, stress feet, and prosodic words are constituted. In her model, the LCPR stipulates relations above the level of the foot. The possible shapes of stress feet, on the other hand, are given by separate prominence principles.

It will be recalled that umlaut is the assimilation of a prominent vowel to an adjacent non-prominent vowel in one or more features. Given the theory of \text{L & P}, umlaut would operate in a language that either has a stress rule, such that the opposition secondarily-prominent vs. non-prominent is expressed, or in a language where the designation \text{weak} always refers to non-prominent. In all of the languages that I have examined that have rules of umlaut, there is a secondarily-prominent vs. non-prominent opposition. It can be assumed, then, at least for the languages surveyed, that for \text{L & P} umlaut would occur in languages with stress rules. With Selkirk's analysis, the correlation of umlaut with the presence of vowel reduction is expressed in a much different way. For her, a language that underwent umlaut would be one in which the structure in (11a) is a possible foot. Selkirk refers to this type of correlation in terms of syllable- and stress-timing, suggesting that

"syllable-timed languages, such as French, are those in which the \( \Sigma \) is essentially monosyllabic, which means that each syllable (\( =\Sigma \)) emerges as somewhat prominent....Stress-timed languages, on the other hand, are those in which the predominance of polysyllabic feet makes for a systematic difference in prominence among syllables in sequence, the weak syllable(s) in the foot taking a back seat to the strong." (p. 578) Her point here is roughly analogous to the one made in this paper regarding language types. The parallel with syllable- and stress-timing is, for reasons not directly pertinent to the subject at hand, not completely feasible. This point will be discussed further in McCormick (forthcoming).
It is clear, however, that given the option between saying that only some languages have stress rules and some languages have different foot structures, the latter is more desirable in terms of general claims about phonological systems.

Motivation for formally positing a category \( \Sigma \) is found as well in the ability of the category to serve as the domain for rule operation. Because the domain for umlaut is exactly what Selkirk refers to as a possible foot in the languages that have this type of assimilation, umlaut gives good supporting evidence for \( \Sigma \) in metrical structure. For instance, suppose a foot type like that in (12) is proposed for Icelandic:

(12)

It is assumed here with Selkirk, that prosodic structure is defined from the outset in a phonological derivation.

The form \( \text{stöðum} \), dat. pl. of \( \text{stöð} \) 'place', then, has an underlying form \( \text{stöð-um} \) and is metrically a foot:

(13)

The rule of umlaut will specify regressive assimilation, the domain for the operation of the rule being \( \Sigma \):

(14)

Reference to [±stress] is no longer necessary because these relations are now defined hierarchically. At the same time, the direction of assimilation depends upon the possible configurations of \( \Sigma \) in the language in question and in this way is completely predictable. Because \( \Sigma \) is solely left-branching in Icelandic, that is, the strong syllable is always on the left, regressive assimilation is expected. For the same reason, it is not necessary to further specify the domain of umlaut in Icelandic, i.e. we need not refer to strong and weak positions, because the strong segment will always be on the left. If this is the only possible configuration, a regressive rule of umlaut cannot specify anything but the assimilation of a segment in a strong position to one in a weak position. Similarly, in a language with a right-branching \( \Sigma \) as a foot structure, progressive umlaut would specify the assimilation of a strong vowel in the righthand position to the weak
segment to its left:

(15) a) $\Sigma$

\[ \Sigma \rightarrow [\alpha F] / [\alpha F] C \]

b) $V \rightarrow [\alpha F] / [\alpha F] C$

In a language where both foot types are possible, that is, a language with both left- and right-branching feet, the domain of umlaut would have to include specification of strong and weak positions. In any case, it is possible within a metrical framework to generalize about the direction of umlaut as moving from $w$ to $s$. With rules alone this is not self-evident.

It can thus be said that the syllabic nature of umlaut is referred to in terms of relationships among syllables, whereas the segmental nature is shown by a segmental rule referring to linear order, i.e. the notion of umlaut as a prominent vowel/ non-prominent vowel assimilation is seen in metrical structure. The specific feature assimilation is specified by a phonological rule.

Selkirk introduces as well what she terms "the stress super-foot". For instance, America is assigned the following configuration:

(16)

Because reduced syllables are seen to be the weak members of feet, a sequence of two reduced syllables, i.e. two weak syllables in a foot, cannot be represented identically in a binary-branching tree. The superfoot, $\Sigma'$, allows both -ri- and -ca to maintain a weak designation and at the same time be dominated by the same $\Sigma$ node.

Umlaut gives no evidence for $\Sigma'$ because its domain can in all cases be stated in terms of $\Sigma$. There are, however, other syllabolically-based processes occurring in languages that show reduction that appear to have a three (or more) syllable foot as domain. For instance, assimilation of a non-prominent vowel to another non-prominent vowel occurs in Old Irish, as in -epiu /ep'ur/ 'I say' $< \#ep'uru < \#ep'iru$. 
5. In conclusion, it has been shown that umlaut, as a vowel-vowel assimilation, is a process that involves not only the segmental level, but the syllabic level as well. Because it occurs in languages that characteristically have "strong stress accent" with concomitant reduction of non-prominent syllables, a purely linear statement of umlaut utilizing a feature of stress is untenable. Rather, a metrical treatment that provides for a hierarchical organization of prosodic structure more adequately generalizes about both the type of language system that admits umlaut, and the domain of the rule. At the same time, the foot as a formal category serves well to describe the domain of umlaut in a non-arbitrary fashion. We have thus, it is hoped, provided evidence for both the general outline of metrical theory, and the refinements introduced by analysts such as Selkirk (1980).

NOTES

*I would like to thank Wayne Harbert, Julia Herschensohn, John Bowers, and most especially Frans van Coetsem for their valuable comments.

1In the majority of cases the stipulation "prominent position" coincides with status as root syllable. In view of this, it is possible to state umlaut as an assimilation that proceeds toward the root. The fact that in all cases the conditioning vowel reduces, however, supports the view of umlaut as a substantially compensatory process that is distinctively prominence-determined. Since in the languages in which umlaut occurs, a shift in prominence position from one syllable to another within a word results in a reanalysis of the newly prominent syllable as the root syllable, it is impossible to dissociate the designations "prominent" and "root". Because of this, the telling case of assimilation of a prominent non-root vowel does not occur. In spite of this, the correlation of prominence-type with occurrence of umlaut points to prominence as the relevant factor in umlaut.

2For this, compare, for example, Anderson's (1972) treatment of Icelandic umlaut.

3Frans van Coetsem has suggested to me that the different metrical structures of pairs like balloon and raccoon could derive from constraints on possible consonant clusters in English. That is, the reduction of the first syllable would be more expected in balloon than in raccoon because bl- is an allowable initial cluster, whereas rk- is not. This being the case, a metrical structure would still have to be assigned that would indicate the difference in prominence between the first syllables of the words. There are, though, similar pairs in English, eg. torment vs. torrent, where a syllable structure argument could not apply.
Secondary prominence is assigned to compound forms in Germanic. This coincides with the status of root vowels as prominent, and non-root vowels as non-prominent. In a compound, where both syllables have root status, both are prominent, one with primary and the other with secondary prominence.

5. There are no examples of umlaut occurring between non-adjacent syllables. That is, a prominent vowel does not assimilate to a non-prominent vowel if another syllable intervenes.

REFERENCES


Kiparsky, Paul (1979) "Metrical Structure Assignment is Cyclic", Linguistic Inquiry 10, 421-441.


McCormick, S. (forthcoming) "Umlaut and Vowel Harmony: Evidence for a Typology of Accent".

Noreen, A. (1903) Altislandische und Altnorwegische Grammatik, Max Niemeyer Verlag, Halle.


ON NULL SUBJECTS

Margarita Suñer
Cornell University

0. The euphoria and refreshing outlook that TG brought to the study of language in the 60's led many an enthusiastic linguist to cast whatever language was under scrutiny into the English mold. It is only comparatively recently that some contemporary theoretical linguists have come to realize that there are other languages besides English worthy of in-depth investigation. Furthermore, although it is reasonable to assume that languages (or more accurately grammars) share some common core which explains the human capacity for language, it is also true that languages do indeed differ. Of late, some very interesting papers have been devoted to determining possible parameters along which these differences might be explained.⁷ Presently I would like to concentrate on some Spanish data in the hope that their explanation will advance the study of the properties of "missing elements" and consequently offer us insights on one of the parameters that differentiate languages.

Spanish is one of the major languages of the Romance group which allows for subjectless sentences in outer structure. The question that needs to be posited is whether these sentences are subjectless at any other level of analysis. In particular, I shall concentrate on the type of sentences illustrated in (1) through (5) and present evidence that will lead us to the proper identification of the ∆'s.

(1) ∆ comen a las diez. eat (3 pl) at ten 'They eat at ten.'

(2) Paco quiere ∆ comer. 'Paco wants (3 sg) to eat.'

(3) ∆ habfa mucha gente. existed (3 sg) many people 'There were many people.'

(4) ∆ Se castiga a los criminales. 'Se' punishes (3 sg) the criminals. 'Criminals are punished.'
(5)  \(\Delta\) apareció un hombre.
    appeared (3 sg) a man
    'A man appeared.'

The structure of this paper is as follows: In Section 1, sentences (1) and (2) are examined and the identity of their \(\Delta\)'s is established. The same procedure is pursued in Section 2 with respect to sentences (3) and (4), and in Section 3 regarding sentence (5). Section 4 provides us with a summary of the results arrived at as well as a comparison of the differences and similarities among PRO, \([_{NP}e]\), and \(\emptyset\). It also includes some speculations about PRO government and the \([\pm\text{ obligatory subject}]\) parameter.

1. To my knowledge, one of the first to examine null subject languages within the EST framework was Taraldsen (1978). In essence he maintains that null subjects in the Romance languages are nominative null anaphors—i.e., \([_{NP}e]\)—which are bound in S' by subject-verb agreement. 3 By positing null subjects as empty NPs Taraldsen claims that he does away with the Subject Pronoun Drop rule. Under this hypothesis, then, the Spanish sentence (1) would be base-generated with a terminally null subject NP:

(6) \([_{NP}e]\) comen_i a las diez.

where \(i\) captures the coindexing properties of AG(reement). What I would like to show is that such an analysis cannot be maintained and that the \(\Delta\) of sentence (1) should be identified with PRO and not with a base-generated null anaphor.

In the first place, postulating null subjects in structures like (1) erases certain parallelisms in behavior between matrix and embedded missing subject elements. To illustrate this point, allow me to expand on the rule of Subject-Verb Agreement (SVA). Traditionally, this rule has been thought of as a rule which copies the relevant features from the subject NP onto the verb. This becomes evident in the following paradigm where person and number features are present both in the subject and the verb: 4

(7) a. (yo) llegué.  'I arrived'
    [\(+\text{ 1st}\) ] [\(+\text{ 1st}\) ]
    [+ sg ] [+ sg ]

b. (Tú) llegaste.  'You (sg) arrived.'
    [\(+\text{ 2nd}\) ] [\(+\text{ 2nd}\) ]
    [+ sg ] [+ sg ]
c. (Él) llegó 'he arrived.'

\[
\begin{array}{c|c}
1^\text{st} & 1^\text{st} \\
2^\text{nd} & 2^\text{nd} \\
+sg & +sg
\end{array}
\]

d. (Nosotros) llegamos 'we arrived'

\[
\begin{array}{c|c}
+1^\text{st} & +1^\text{st} \\
- sg & -sg
\end{array}
\]

e. (vosotros) llegasteis 'you (pl) arrived'

\[
\begin{array}{c|c}
+2^\text{nd} & +2^\text{nd} \\
- sg & -sg
\end{array}
\]

f. (Ellos) llegaron 'they (masc) arrived'

\[
\begin{array}{c|c}
-1^\text{st} & -1^\text{st} \\
-2^\text{nd} & -2^\text{nd} \\
- sg & -sg
\end{array}
\]

Furthermore, note that at times even the inherent feature of grammatical gender becomes relevant, since it manifests itself in predicative adjectives.5

(8) a. (ellos) son altos. '(they) are tall (m, pl)'

\[
\begin{array}{c|c}
-1^\text{st} & -1^\text{st} \\
-2^\text{nd} & -2^\text{nd} \\
+ sg & + masc
\end{array}
\]

b. (Ellas) son altas. '(they) are tall (f, pl)'

\[
\begin{array}{c|c}
-1^\text{st} & -1^\text{st} \\
-2^\text{nd} & -2^\text{nd} \\
- sg & -masc
\end{array}
\]

(9) a. (PRO) Está abierto6 '(it) is open (m, sg)'

\[
\begin{array}{c|c}
-1^\text{st} & -1^\text{st} \\
-2^\text{nd} & -2^\text{nd} \\
+ sg & + masc
\end{array}
\]

(cf. El libro está abierto. 'The book is open.')</b

b. (PRO) Está abierta. '(it) is open (f, sg)'

\[
\begin{array}{c|c}
-1^\text{st} & -1^\text{st} \\
-2^\text{nd} & -2^\text{nd} \\
+ sg & + fem
\end{array}
\]
(cf. La tienda está abierta. 'The shop is open."

The examples in (7), (8) and (9) make it clear that the subject position has to be occupied by a pronominal—either one with phonetic matrix (i.e., pronoun) or one without phonetic matrix (i.e., PRO)—since this position contains features which are crucial to the grammaticality and interpretation of these sentences.7

Observe that this "feature launching" characteristic of subjects is not exclusive to matrix subjects; infinitival subjects behave similarly with respect to their agreement with predicative adjectives:

(10) a. (Paco/él) quiere Δ ser alto.
   \[ + \text{masc} \]
   \[ + \text{sg} \]
   'Paco/he wants to be tall (masc., sg).'

b. (Las niñas/ellas) quieren Δ ser altas.
   \[ - \text{masc} \]
   \[ - \text{sg} \]
   'The girls/they (fem., pl) want to be tall (f, pl).'

In order to capture the parallel behavior of matrix and infinitival subjects, it seems reasonable to hypothesize that the same element should be responsible for the same facts. If we were to accept Taraldsen's analysis and postulate that the underlying subject of (6) is \[ {_{NP}e} \], then we should expect that the \( \triangle \)'s in (10) also be \[ {_{NP}e} \]. Nevertheless, on the assumption that the Empty Category Principle (11) is a valid principle of grammars, a structure such as that in (12) would be discarded because \[ {_{NP}e} \] is not governed.

(11) ECP: \[ {_{NP}e} \] must be governed

(12) Paco quiere \[ {_{NP}e} \] ser alto.

Therefore, we are forced to conclude that the embedded \( \triangle \)'s in (10) are PRO's. However, notice that now we have \[ {_{NP}e} \] as the subject of (6) (and (7), (8), and (9)), but PRO as the subject of (10). This analysis is counterintuitive, because it postulates two different entities depending on whether we are dealing with a finite (cf (6) and (7) through (9)) or a non-finite clause (cf (10)), despite the fact that these entities act in the same manner with respect to the assignment of the features of number and gender to predicative adjectives (compare (8) and (9) with (10)).
Consequently, let us assume that all these sentences have PRO as subject. This in turn implies that the $\Delta$'s in both (1) and (2) must be PRO. Refusal to accept this conclusion would lead us to missed generalizations regarding the "feature launching" property of these PRO subjects. As a corollary, the argumentation indicates that, contrary to Taraldsen's claim, Spanish needs a Subject Pronoun Drop rule. The discussion of the theoretical implications of having a governed PRO in the subject position of finite clauses will be delayed until Section 4.

Another argument which supports the postulation of PRO as the missing subject element of tensed clauses can be brought forth. Notice that when sentence (1) is embedded under a matrix clause, the missing element can be disjoint in reference with the matrix subject (cf (13a)), although this is not necessarily the case (cf (13b)).

\[
\text{(13) a. Los hombres} \, \_i \, \text{dicen que} \, \Delta \, \_j \, \text{comen a las diez.} \\
\text{b. Los hombres} \, \_i \, \text{dicen que} \, \Delta \, \_i \, \text{comen a las diez.} \\
\text{'The men say that (they) eat at ten.'}
\]

Since the interpretation of pronominals as being [+ coreferential] takes place at the level of Logical Form (LF), it follows that PRO needs to be present at this stage. Consequently, the deltas in (13) must be identified with PRO.

2. Having established that the $\Delta$'s in (1) and (2) have to be PRO, we can turn to sentences (3) and (4):

\[
\text{(3) } \Delta \, \text{había mucha gente.} \\
\text{existed (3 sg) many people} \\
\text{'There were many people.'}
\]

\[
\text{(4) } \Delta \, \text{se castiga a los criminales.} \\
\text{'se' punishes (3 sg) the criminals} \\
\text{'Criminals are punished.'}
\]

Both (3) and (4) are considered to be impersonal sentences. (3) is an instance of impersonal haber 'there-to-be', while (4) is an example of impersonal se sentence. Perhaps the main characteristic of these sentences is that their verbs invariably appear in the third person singular form (in standard Spanish). I shall explore in turn three logical alternatives for the identity of $\Delta$. In other words, I shall investigate whether the missing element is (i) PRO, (ii) $\_i^{NP}$, or (iii) $\emptyset$. 
2.1 $\Delta \text{=PRO.}$ Within this alternative the underlying structures of (3) and (4) would be (14) and (15) respectively:

(14) PRO había mucha gente.

(15) PRO se castiga a los criminales.\textsuperscript{12}

At this point one might wonder about the feature composition of this PRO element. Note that although both sentences have traditionally been regarded as impersonal sentences, PRO cannot have the same collection of features in both instances. Aside from the fact that they require a third person singular form in the verb, they necessarily differ in that PRO in (14) would never refer to humans while PRO in (15) would need to have the feature [+human], since impersonal se sentences always depict an act (or state or process) characteristic of human beings.\textsuperscript{13} Additionally PRO in (15) needs to be totally unspecified in its reference allowing the sentence to be interpreted as a general statement that draws attention to the action itself, rather than ascribing the action to some unspecified subject entity (cf. Roldán, 1971).\textsuperscript{14} Another characteristic of this subject PRO is that, despite the singular verb form, it can actually cooccur with verbs which demand a non-singular interpretation:

    'se' converged towards Washington
    (cf. *Paco convirgió en Washington)

    b. Se siguió llegando hasta medianoche.
    'se' continued arriving until midnight.
    (cf. *Paco siguió llegando hasta...)

    c. Se rodeó la fortaleza.
    'se' surrounded the fortress
    (cf. *Paco rodeó la fortaleza.)

One more trait of the PRO's in these impersonal sentences is that they never enter into coreferential relationship with other subject NP's, even when these are also third person singular:

(17) \begin{align*}
    \text{Paco}_i & \quad \text{\quad dijo que \quad PRO}_{i/j} \quad \text{había mucha gente.} \\
    \text{él} & \quad \text{\quad PRO}_{i} \\
    \text{Paco} & \quad \text{\quad said that there-were many people.} \\
    \text{he} & \quad \text{\quad PRO}
\end{align*}
(18) \[ \begin{array}{l}
\text{Paco}_i \\
\text{é1}_i \\
\text{PRO}_i \\
\text{Paco} \\
\text{he} \\
\text{PRO} \\
\end{array} \] dijó que \text{PRO}_i \text{ se castiga a los criminales} \]

said that criminals are punished.

And, although it might be argued that (17) makes sense on the assumption that the embedded PRO has the feature [-human], it is not simple to explain away the non-coreferentiality of (18), since in this case both subjects supposedly share the feature [+human].

Whereas these impersonal sentences cannot enter into infinitival complements under an Equi verb--be it subject or object control--(cf (19) and (20)),\(^{15}\) they may appear as embedded infinitivals under the verbs traditionally considered Raising verbs (cf (21)).

(19) a. *Paco cree haber mucha gente.  (subject control) Paco believes there-to-be many people.

b. *Paco mandó haber mucha gente.\(^{16}\) (object control) Paco ordered there-to-be many people.

(20) a. *Paco cree castigarse a los criminales Paco believes 'se'-to-punish the criminals.

b. *Paco mandó castigarse a los criminales.\(^{17}\) Paco ordered se-to-punish the criminals.

(21) a. Debe \[ \begin{array}{l}
Puede \\
Empieza a \\
\end{array} \]

\[ \text{haber mucha gente.} \]

\[ \begin{array}{l}
\text{'There} \\
\text{(must} \\
\text{can/may} \\
\text{begins to} \\
\end{array} \]

\[ \text{be many people.'} \]

b. Debe \[ \begin{array}{l}
Puede \\
Empieza a \\
\end{array} \]

\[ \text{castigarse a los criminales.} \]

\[ \begin{array}{l}
\text{'Criminals} \\
\text{(must} \\
\text{can/may} \\
\text{begin to} \\
\end{array} \]

\[ \text{be punished.'} \]
No doubt the grammaticality of (21) is due to the fact that Raising verbs do not place any conditions on their embedded subjects.

Recalling that we have tentatively identified the $\Delta$ of impersonal sentences with PRO, why should it be that these sentences cannot take an infinitival form when embedded under an Equi verb but are grammatical under a Raising verb? An explanation for this fact can be hypothesized as follows: Equi verbs impose conditions on the subjects of the embedded infinitives, the minimal requirement being that the infinitives must have a PRO subject.\textsuperscript{19} If this assumption is correct, and if we were to maintain that the missing element of impersonal sentences is PRO, there would be no principled way to exclude the ungrammatical examples in (19) and (20) while at the same time explaining the grammaticality of those in (21). Consequently, $\Delta$ must not be PRO in (3) and (4).

On the assumption that PRO cannot be governed when it is the subject of an infinitive, we find confirming evidence for the non-identity of $\Delta$ with PRO in impersonal se sentences. Compare (22) with (23):

\begin{verbatim}
(22) *Quiere
    *Mandó
     PRO castigarse a los criminales.
     'He \{wants ordered\} 'se'-to-punish the criminals.'

gh (23) Quiere
    mandó
     PRO castigar a los criminales.
     'He \{wants ordered\} to punish the criminals.'
\end{verbatim}

What is the explanation for the ungrammaticality of (22)? Assume that clitics can argument-bind a NP,\textsuperscript{20} and combine this fact with our hypothesis that control verbs require that their embedded infinitives have a PRO subject, the examples in (22) are ungrammatical because PRO is bound by the clitic se. Schematically:

\begin{equation}
(24)\text{matrix V}\quad \text{PRO infinitive + se}
\end{equation}

Instead, the sentences in (23) are grammatical, because in this case PRO is free, since there is no argument which can bind it. Thus, examples such as those in (22) crucially reassert our conclusion that impersonal sentences cannot have PRO as their missing element. More evidence of this will be given in 2.3.

2.2 $\Delta=[_{NP}e]$. Now let us assume that $\Delta$ is $[_{NP}e]$. In tensed
clauses this will not create any problems because [\[NP^e\]] is properly
governed due to the fact that it is coindexed with the verbal in-
flection (Chomsky, 1979). The deciding data will again be found
in embedded infinitives. If the non-surface structures of Equi
and Raising verbs were (25) and (26) respectively:

(25) a. Paco mandó [\[NP^e\]] castigarse a los criminales.]
    b. Paco mandó [\[NP^e\]] haber mucha gente.

(26) a. [\[NP^e\]] castigarse a los criminales] debe
    b. [\[NP^e\]] haber mucha gente] debe

only (25a) and (26a) should render grammatical sentences, because
impersonal se could supposedly bind [\[NP^e\]]. On the other hand,
(25b) and (26b) should be ungrammatical because they are in
violation of the Empty Category Principle since there is nothing
in these sentences which could govern the empty NP.

Nevertheless, as already discussed, this is not the way the
grammaticality judgments filter through. While the examples
derived from (25) are ungrammatical (see (19) and (20)), those
derived from (26) produce perfectly grammatical sentences (see
(21)). Hence, it must be the case that the deltas in (3) and
(4) cannot be identified with [\[NP^e\]].

2.3 \[\Delta = \emptyset\]. Since we have already rejected both PRO and [\[NP^e\]] as
possible identifications for the \[\Delta\] of impersonal sentences;
only one alternative remains: \[\Delta\] must be \[\emptyset\]--ie, absolutely
nothing. This would imply that Spanish needs the following PS
rule (details aside):

(27) S \[\rightarrow\] (NP) INFL VP

The environments in which the subject NP will equal \[\emptyset\] will be
rather limited. Only impersonal constructions--like impersonal
haber and hacer, and impersonal se-- will render grammatical
sentences in the total absence of a syntactic subject. Note that
(27) provides for the total parallelism between matrix and embed-
ed sentences: both types have the potential for being totally
devoid of subject.

An apparent counterargument to identifying \[\Delta\] with \[\emptyset\] may be
presented by using Subject-Verb Agreement. But notice that the
type of sentences under discussion invariably takes a third person singular verb form (in standard Spanish).\textsuperscript{24} Therefore, verb agreement does not constitute an insurmountable problem since it can be argued that in the absence of a subject NP, but whenever tense is chosen, the verb adopts the unmarked person and number form—i.e., the third person singular form.

There are several advantages to identifying the $\Delta$'s in (3) and (4) with $\emptyset$. In the first place, it explains why these sentences cannot take an infinitive form under a control verb: since they are completely subjectless, they do not fulfill the condition required by these verbs, namely, they fail to provide a PRO subject for the infinitive.\textsuperscript{25} Furthermore, this alternative provides a satisfactory answer to the compatibility of these infinitive sentences with Raising verbs: since these verbs do not make any demands on the subjects of the infinitives (it is a well-known fact that they do not establish any selectional restrictions or conditions on referentiality), there is no reason why they should not cooccur with a subjectless infinitive. The proposed non-surface structure would therefore be (28) (details omitted):

\[ \text{(28)} \]

\[
\begin{array}{c}
\text{S} \\
\text{NP} \\
\text{S} \\
\text{VP} \\
\text{V} \\
\text{NP}
\end{array}
\]

\[
\begin{array}{c}
\text{castigar} \\
\text{haber} \\
\text{\textit{\textcircled{\Delta}} los criminales} \\
\text{muchas gentes}
\end{array}
\]

\[
\begin{array}{c}
\text{debe} \\
\text{puede} \\
\text{empieza a}
\end{array}
\]

which after Raising\textsuperscript{26} has applied will give us the grammatical sentences in (21). This analysis provides a principled way of explaining the traditional statement "the infinitives and present participles of impersonal verbs communicate their impersonal effect to whatever verbs they depend upon." (Ramsey, 1956:394).

There are further benefits reaped by this proposal. It is a well-known fact of Spanish that sequences of two \textit{se}'s are ungrammat-
ichal. First, on the assumption that impersonal se sentences are syntactically subjectless, we can account for the ungrammaticality of sequences of impersonal se and reflexive se:

(29) *Se se arrepintió al instante.
    'se' himself repented instantly

Since reflexives require an antecedent within their own clause, or more precisely, since Spanish reflexives need to be coreferent with the the subject argument, this anaphoric relationship cannot take place precisely because there is absolutely nothing in subject position. Notice that if we were to posit PRO or even [NP,e] in subject position, we would be at a loss for an explanation of the ungrammaticality of (29).27

Secondly, the total absence of a subject NP also explains the ungrammaticality of the examples in (30):

(30) a. *Se trata bien { uno al otro.
            unos a los otros.
    'Se' treats well each other

    b. *Se ató { uno al otro.
            unos a los otros.
    'Se' tied each other

    c. *Se vive bien cerca { uno del otro.
            unos de los otros.
    'Se' lives well close to each other.

The sentences are ungrammatical because the lexical anaphor uno al otro (and its variants) is not bound to an antecedent. Again, observe that if PRO were posited in subject position, there would be no principled way to block these sentences.28

Moreover, the absence of a subject argument does not hinder the interpretation of impersonal se sentences in LF provided we posit the following interpretive rule:

(31) Interpret se as impersonal in the absence of [NP, S]29

Thus, not only do our arguments support the hypothesis that impersonal sentences have absolutely no subject, but also that it is possible to write the very simple and elegant rule (31) to correctly interpret this type of sentence.
Furthermore, our proposal has an advantage over that of Taraldsen's. As already pointed out (Section I), he postulates \( \text{NP}_e \) for null subjects. This move obliges him to claim that these null anaphors are interpreted as definite pronouns in LF so that the sentences are not ruled out as independent clauses because of being open sentences "and as such unfit for main clause and sentential complement status" (Taraldsen, 1978:12). But recall that there is nothing "definite" in impersonal \( \text{se} \) sentences; on the contrary, they are highly indeterminate in nature. Therefore, this definite pronoun interpretation would only be an artifact of the theory to save Taraldsen's hypothesis.

As a matter of fact, rule (31) might very well be just a sub-case of a more general rule which would interpret impersonal sentences in general:

\[(32) \] Interpret \( S \) as impersonal in the absence of \( \text{NP}, S \).

Moreover, the interpretation of gerundive phrases provides us with an additional argument which can be used both to prove the absence of \( \text{NP}, S \) for impersonal \( \text{haber} \) and \( \text{se} \) sentences, and to support the postulation of PRO for sentences like those in (1) and (2). I assume that \( \text{haber} \) and \( \text{ver} \) enter into the subcategorization frame \( +[V \text{ NP } S] \) (cf. See Suñér 1981, especially Chapter I 2.2.2.2, and Suñér, 1978).

\[(33) \] Había unos chicos \( \text{PRO} \) leyendo en el parque].
there-were some kids reading in the park

\[(34) \] Se veía a unos chicos \( \text{PRO} \) leyendo en el parque].
'se' saw some kids reading in the park

The gerundive phrases in (33) and (34) offer ambiguous adjectival and adverbial interpretations. In the former case they represent the \( S \) element of a relative clause (35); in the latter, they are instances of \( S \) complements (36). Regardless of the structure of these gerundives the embedded PRO can only be coreferential with the direct object NP.

\[(35) \] Había \( \text{Se veía} \) \( \text{NP} \) \( \text{unos chicos}_1 \) \( \text{PRO}_1 \) leyendo...]

\[(36) \] Había \( \text{Se veía} \) \( \text{NP} \) \( \text{unos chicos}_1 \) \( \text{PRO}_1 \) leyendo...]

On the other hand, sentence (37) is three-way ambiguous. The
gerundive can have the structure found in (35) and (36) with PRO and unos chicos coreferential, yet additionally it can be defined as an S complement in which the embedded PRO is coreferential with the matrix PRO and not with unos chicos (38).

(37) PRO veía a unos chicos [S PRO leyendo en el parque].
     saw some kids reading in the park

(38) PRO_i veía a unos chicos [S PRO_i leyendo...]

This third reading is available to (37)—but not to (33) and (34) precisely because (37) as opposed to (33) and (34) has a noun phrase subject.

As should be obvious by now, the discussion supports our conclusion that sentences (3) and (4) have absolutely nothing in subject position. Therefore, the question, 'what is the missing element in (3) and (4)?' should be answered with 'there is no missing element.' 30, 31

3. Finally, we are left with the proper identification of the Δ in (5):

(5) Δ apareció un hombre.
     appeared (3 sg) a man

(5) is a presentential sentence which asserts the appearance of the referent of the NP subject (in this case un hombre) in the world of discourse. The NP un hombre has been moved to postverbal position by a Subject Postposing rule. 32 This movement rule leaves behind a trace in accordance with the principles of trace theory. Hence, the S-structure of (5) is (39):

(39) [NP_i e] apareció un hombre_i

in which the trace is coindexed with the moved NP by virtue of the movement rule itself. However, notice that this is an unorthodox trace in the sense that it precedes its "antecedent", and thus it is not properly preceded and c-commanded by this antecedent. Despite this, [NP_i e] is properly bound because recall that Spanish is one of the Romance languages which can bind an empty element in subject position through verbal inflection (cf. Suñer, 1981; Chomsky, 1979, among others). Therefore, the trace in subject position will be fully specified as follows:

(40) [NP_i, e] apareció_j un hombre_i
That is to say, the trace is coindexed both with the postposed subject and with AG(reement). Observe that the fact that the trace precedes its coindexed NP does not hinder either Case assignment or Subject-verb agreement. The postposed NP will receive Nominative Case regardless of its position because lexical NPs inherit Case from their trace by a general convention on Case assignment. And Subject verb agreement can be established between the Nominative NP and the verb, regardless of the position of the NP. In conclusion, the missing element in (5) has to be \([_{NP}^e_i/j]\), i.e., trace.

4. Conclusion. We have succeeded in our goal of identifying the \(\Delta\) 's of sentences (1) through (5). Although all of these \(\Delta\) 's are completely null in outer structure, they are not identical otherwise. The results we arrived at are the following:

\[(41) \text{PRO}_j \text{comen}_j \text{a las diez.}\]
\[(42) \text{Paco quiere PRO comer.}\]
\[(43) \emptyset \text{Había mucha gente.}\]
\[(44) \emptyset \text{Se castiga a los criminales.}\]
\[(45) \lambda_{NP_{i/j}} \text{apareció}_j \text{un hombre}_i.\]

That the evidence has forced us to conclude that there are three types of null elements should not distress us; on the contrary, their different identities are corroborated by differences in behavior. For example, an advantage of positing distinct entities for the \(\Delta\) 's of (41) and (42) as opposed to those in (43) and (44) lies in the fact that only \(\emptyset\) is exclusive to non-paradigmatic sentences in the sense that impersonal sentences appear exclusively with the third person verbal form. Moreover, it is just when the \([_{NP}, S]\) equals \(\emptyset\) that Verb-Object agreement may take place (see note 24).

Furthermore, PRO differs from trace in that the latter must have an "antecedent" while the former may have one (cf. (42)) but need not (cf. (41) and (46)):

\[(46) \emptyset \text{Se oía PRO cantar afuera.}\]
\[\text{"Se" heard to-sing outside}\]
\[\text{"Singing was heard outside."}\]

Another difference pointed out by Chomsky (1979) is that while in
the relationship NP–PRO each has an independent thematic role (in Gruber's 1970 and Jackendoff's 1972 sense), trace and the
"cedent" are associated with only one thematic role since the NP
inherits its role from its trace (compare (42) to (45)).35

There is another contrast which concerns trace and PRO which
I would like to explore. This contrast has to do with the behavior
of these elements in Spanish as opposed to English. If correct,
my analysis will show that it cannot be the case that universal
theory mandates that PRO has to be ungoverned in every position
(Chomsky, 1979, 1980). The result will be that this dictum will
need to be relegated to a language specific parameter fixed
through experience, and more likely reducible to other facts. We
should now consider these facts. It appears to be true that a
trace is always governed in both Spanish and English. On the
other hand, PRO behaves differently in these languages. In
English, PRO is never governed or Case-marked (Chomsky, 1979,
1980). But in Spanish PRO can be [+ governed] in direct correla-
tion with [+ tense]. In other words, PRO is not governed in non-
finite clauses but governed in finite clauses36 as shown by
sentences (42) and (41) respectively. Furthermore, the rule
which deletes PRO cannot operate until after LF because of the
proper interpretation of this element:37

(47) Las niñas dijeron que PRO llegará temprano.
The girls said that they would arrive early.

which in turn means that PRO must still be Case-marked at this
level of analysis. In this respect, PRO becomes totally parallel
to trace: recall that traces can be Case-marked (in which case
they are variables, as in WH-movement), or not (as in NP move-
ment); PRO also can be Case-marked or not, depending on whether
it is in the environment of tense or not.

This parallel behavior of PRO and trace is confirmed upon
examining the positions in which these elements may appear. Each
can appear in subject position of a tensed clause as well as
subject of an infinitive. For PRO see (41) and (42), and for
trace see (45) and (48) below:

(48) a. ¿Quién dijo que e había venido?
    who said(you) that had come
    'Who did you say that had come?'

    b. Paco parece e haber salido.
Paco seems to have left.
The last question that I would like to consider is the following: can the different behavior of PRO in Spanish and English be ascribed to any other facts about these languages? I think it can. English requires that every sentence have a subject. Moreover, these subjects need to have phonetic matrices in finite clauses (and one result of this is that the language makes use of the so-called "dummy" subjects, it and there). In contrast, Spanish has never had this requirement, and therefore, null subjects are allowed not only in outer structure (cf. (41)) but also in underlying structure (cf. (43) and (44)). And PRO is one of these null subjects.

Moreover, observe that the lack of a subject requirement let Spanish develop the full range of possibilities (i.e., PRO, $[N_P^e]$, and $\emptyset$) in both finite and non-finite clauses, so that clauses behave alike with regard to "missing elements."

To sum up, there are three kinds of null subjects in Spanish: PRO, $[N_P^e]$ and $\emptyset$. Each of these missing elements has distinct properties of its own and each may appear in both finite and infinitival clauses. Both PRO and trace can be [+ Case]. It is hypothesized in this paper that the fact that PRO is governed in Spanish tensed clauses is a logical consequence of the lack of a subject requirement in this language. Therefore, [+ obligatory subject] is one of the significant parameters along which languages may vary. PRO government is but one of the corollaries of the [- obligatory subject] end of the parameter.

ACKNOWLEDGMENTS

My thanks go to John Goldsmith, Wayne Harbert, Julie Herschensohn and Carlos Piera who because of their questions obliged me to clarify my arguments. All errors remain my own.

NOTES


2 a is the accusative marker known as "personal a".
That verbal inflection has binding properties is the same conclusion I arrived at independently in my 1981 study.

See also Chomsky (1979), and Pesetsky (1979-80). Chomsky speculates that even if a language has AG(reement), it is still necessary to know whether AG has indexing properties or not. As opposed to Spanish, INFL(ection) in English can not bind precisely because AG does not index (where INFL → Tn AG). Therefore, English cannot have empty subjects.

Parentheses around the subject NP means that the sentence is grammatical without this argument in outer structure.

Gender is also evidenced in past participles that behave like adjectives (see examples in (9) also):

(i) Los libros fueron encuadernados en cuero.

+ masc - sg - 2nd - 1st

'The books were bound in leather.'

Although Spanish does not show gender in the verbal inflection, the possibility that other languages manifest it is not ruled out.

It is a fact of Spanish that under normal circumstances, subject pronouns do not stand for "things"; to put it differently, Spanish does not have a pronoun equivalent to English it or they [-animate].

Notice that pronoun and PRO differ only with respect to a "pronounceable shape" (i.e., phonetic matrix). Both elements share number, person, and gender features (and perhaps others not pertinent to the present discussion). Taraldsen's [\(\text{NP}^e\)] hypothesis is incompatible with Chomsky's (1979) matching conception of SVA; [\(\text{NP}^e\)] supposedly has no features, therefore, the sentences will be discarded because the subject and AG will not match in features.

"Feature launching" is taken in the sense that from PRO these features are copied onto the verb inflection and even onto predicative adjectives. I prefer this more traditional approach to SVA to Chomsky's Pisa proposal for a number of reasons which I will not elaborate here.
Strictly speaking, Taraldsen made this claim for Italian. Assuming that deletion rules cannot delete elements which have a phonetic matrix, the rule under discussion should be more accurately re-baptized as Subject PRO drop. This rule might be just a subcase of a much more general rule of PRO-Drop which in turn could be part of the "avoid-pronoun principle" mentioned in Chomsky (1979).

Of course, my analysis also implies that PRO will receive Nominative Case on the assumption that Case is assigned at S-structure. Chomsky (1979) maintains that the theory demands that PRO be ungoverned (i.e., non-Case marked at the level of LF). He speculates that it is possible to have a Case-marked PRO as long as the Delete-pronoun rule applies to it before LF. His rule says:

\[(63) \text{PRO}_i \Rightarrow (\text{NP}_i \ e) \quad (\text{page 49})\]

i.e., PRO loses its features but keeps its index. Chomsky elaborates "Remember that the theory says that PRO cannot be governed, i.e., case-marked at LF, but of course there's nothing to stop PRO from being governed and case-marked previously: you could have a base-generated PRO which is governed and gets case and then undergoes the delete-pronoun rule so that by the time it gets to LF it is not PRO anymore." (ibid:49).

Although this hypothesis allows for the proper interpretation of pronominals, it raises questions as to the place of deletion rules in the organization of the grammar. It has generally been assumed that deletion rules belong to the left-hand branch of the grammar because null elements play a role in semantic interpretation (Chomsky and Lasnik, 1977). If so, (63) could have no bearing on LF because LF is on the right-side of the grammar.

That the arguments \textit{mucho gente} 'many people', and \textit{los criminales} 'the criminals' function as direct objects can be shown by 'replacing' these arguments with the corresponding object clitics.

\[(i) \quad --\text{¿Había} \quad \text{mucho gente en la fiesta?} \quad \text{were-there many people at the party?}\]

\[\quad --\text{Seguro que la había.} \quad \text{sure that her there-was} \quad \text{'Sure that there-were.'}\]
(ii) --¿Se castiga a los criminales aquí?
'Se' punishes the criminals here?

Seguro que se los castiga.
sure that 'se' them (masc. pl) punishes
'Sure that one punishes them.'

12 That the clitic se is part of the VP and not in subject position can be shown by the location of no and other adverbs relative to the se:

(i) *Se no nada aquí.
No se nada aquí.
not 'se' swim here
'No swimming allowed here.'
(cf. Paco no nada aquí.
'Paco doesn't swim here.'

(ii) *Se diariamente cena a las 8.
Diariamente se cena a las 8
Daily 'se' dines at 8.
'Daily dinner is at 8.'
(cf. Paco diariamente cena a las 8.
Paco daily dines at 8.)

13 In other words, the verb must be one which can take [+human] subjects. Therefore, from the grammaticality of (15) we can predict the existence of a parallel sentence without the se but with a human NP subject, such as:

(i) Paco castiga a los criminales.
'Paco punishes (the) criminals.'

Moreover, since we know that verbs such as fluir 'to flow', or granizar 'to hail' cannot depict human activities, we can anticipate the ungrammaticality of the following sentences:

(ii) *Se fluye.
(cf. *Paco fluye
Paco flows)

(iii) *Se graniza.
(cf. *Paco graniza
Paco hails)

These facts can be captured very adequately by means of an
implicational rule like the following:

\[ \text{S} \quad \text{NP} \quad \text{V} \ldots \Rightarrow \text{S} \quad [\text{VP} \quad \text{Se} \quad \text{V} \ldots ] \]
\[ [+\text{human}] \quad [+\text{impers}] \]

14 Another impersonal se peculiarity pointed out by Roldán is that this se cooccurs only with masculine gender:

Se es \{ famoso (masc sg) \} o no se es, no hay término medio.
\{*famosa (fem sg) \}
'People are either famous or not famous, there is no in-between.'

15 This can be construed as a partial consequence of the inability of impersonal sentences to enter into coreferential relationships (cf. (17) and (18)). Nevertheless, this reasoning provides us with an incomplete explanation because it does not explain why sentences like (19b) and (20b) are ungrammatical, since a verb like mandar 'to order' requires that the one who orders be distinct from the one who carries out the order.

16 Cf. the grammatical sentences:

(i) Paco cree estar enfermo.
Paco believes to-be sick.

(ii) Paco mandó (a José) terminar el trabajo.
Paco ordered (José) to-finish the job.

Since the argument represented by José in (ii) is optional, I take the subcategorization of verbs like mandar to be [+ ____ (NP) S]. If the optional NP argument is not there, the subject of the lower clause is interpreted as unspecified or arbitrary. The alternative that José is raised to matrix object position is somewhat discredited by the existence of sentences such as (iii) since the direct object clitic lo needs to be part of the matrix.

(iii) Paco lo mandó (a José) terminar el trabajo.
Paco lo mandó terminar el trabajo (a José)
Paco to-him ordered (José) to-finish the job.

Note that the English glosses for (19a) and (19b) render grammatical (though maybe stylistically odd) sentences.

17 This sentence is grammatical (although rather nonsensical) on the interpretation 'Paco ordered the criminals to punish
themselves' in which case we would be dealing with a reflexive se (bound to the underlying embedded subject los criminales), and not the impersonal one.

18 As the discussion progresses it will become evident that what is raised in (21) is not the subject argument but the embedded clause.

19 I do not want to claim that the subjects of Equi verbs must necessarily be identical (or interpreted as having the same referent) because of the existence of impersonal sentences such as the following:

Se quiere PRO castigar a los criminales.
'Se' wants PRO to-punish the criminals

where the subjects would be identical only if the matrix subject is PRO, something which we are in the process of challenging.

20 This is in essence an extension of what has always been maintained for reflexive clitics. These clitics require a subject NP as their antecedent, i.e., the reflexive clitic argument binds the subject NP.

21 Because government involves the notion of c-command, the proper structure of the embedded clause in (25a) should probably be [\[NP e\] se castigar a los criminales]. A later rule could move the clitic to postverbal position in the absence of tense.

22 It could be argued that since the ECP most likely operates at the level of LF, Raising should have already operated in (26). This would mean that we would raise an empty NP from the embedded subject position to the matrix subject position. The two empty NP's would be coindexed by convention and the lower \[NP e\] would be governed.

\[NP e\] debe \[\[NP e\] haber much gente\]

\[NP_i\]

\[NP_i\]

It seems an artifact of the theory to allow movement and coindexing of empty nodes. Moreover, the possibility of se binding remains open; therefore, the prediction is that (25a) should be grammatical which it is not.

23 Impersonal hacer 'to do, make' works very much like
 impersonal haber:

(i) Hace mucho frío.
    makes (3 sg) much cold
    'It is very cold.'

(ii) ¿Hace mucho frío?
    ¿Sí, lo hace.
    Yes, it (accus) makes
    'Yes, it is.'

Moreover, if it is assumed that impersonal sentences are subjectless, it becomes possible to formulate a very simple rule of Verb-Object agreement that will account for the following sentences:

(i) Habían muchas personas.
    there-were many persons

(ii) Hacen frío y viento.
    there-make cold and windy.

(iii) Se buscan tres intérpretes.
    'se' look for(3 pl) three interpreters
    'Three interpreters are being sought.'

The rule could roughly say: Verb-object agreement may take place in the absence of a subject. (This object must look like a subject in the sense that it must be prepositionless and that it cannot be an object clitic).

Notice that if one were to maintain that the postverbal arguments in the above sentences are subject NP's, one would be at a loss to explain the impossibility of their being embedded under a subject control verb while preserving their impersonal interpretation.

(iv) *Muchas personas quieren haber en la fiesta.
    many people want (3 pl) to-there-be at the party

(v) *Tres intérpretes desean buscarse.
    three interpreters wish (3 pl) to-be-sought.

Recall that identity of matrix controller and embedded subject does not appear to be a necessary condition in Spanish (see note 19).
If we identify this process with Raising, it will have to be either S- or VP-Raising (as opposed to Subject Raising).

Observe that a filter which would simply state that two se's in a sequence are ungrammatical (something like *[se se]*) would not do because of sentences like:

A1 afeitarse se cortó.
when shaving–himself himself cut
'When shaving (himself) he cut himself.'

Recall that impersonal se sentences can be interpreted as referring to [-singular] events (cf. (16)). Therefore, the plurality demanded by the Spanish equivalents of 'each other' should not be a problem.

It should be obvious that the latter two arguments constitute evidence against identifying the missing element of impersonal sentences with PRO.

This interpretive rule might need to be refined to include some reference to human; see note 13.

I cannot resist pointing out that I have always maintained that Spanish has syntactically subjectless sentences (for example, see Suñér, 1974). Recent developments of the theory help to confirm my original hypothesis.

Of course, the positing of a PS rule like (27), together with the interpretive rule (32), leaves the door open to the possibility of strictly subcategorizing NP subjects (cf. Suñér, 1978).

Notice that the postulation of base-generated subjectless sentences does not necessarily imply that these sentences are VP's. Since the rule says S → (NP) INFL VP, subjectless sentences are nevertheless sentences.

Note that among impersonal sentences I have considered impersonal se sentences and sentences with impersonal haber and hacer. I have purposely left weather verbs aside (lluvia 'to rain', granizar 'to hail', etc.) because they do not pattern exactly as the sentences considered in the text. For example, weather verbs do not appear embedded under control verbs (i) yet they do occur embedded under raising verbs (ii), they also co-occur with perception verbs and the causative hacer 'to cause' (iii), contrary to
what happens with impersonal sentences (iv):

(i) *Paco mandó llover.
Paco ordered to-rain.

*Paco prefirió llover.
Paco prefers to-rain.

(ii) Puede llover.
It can to-rain.

Comenzó a llover.
it-started to-rain.

(iii) Los hombres de ciencia vieron/hicieron llover.
The scientists saw /caused to-rain

(iv) *Los hombres de ciencia vieron/hicieron

\[
\begin{align*}
\text{haber muchos} & \text{ gente.} \\
\text{hacer viento.} & \\
\text{trabajar muy bien.} &
\end{align*}
\]

The scientists saw/cause

\[
\begin{align*}
\text{there-to-be many people} & \\
\text{to-be windy} & \\
\text{'se'-to-work very well} &
\end{align*}
\]

Alas, I have no immediate explanation for the patterning of the data in (iii) and (iv).


33 That the postposed subject is Nominative becomes evident when using a pronominal subject NP. If the NP were Objective, a personal a would be required.

Apareció él/ella.
appeared (3 sg) he/she 'He/she appeared.'

Using a slightly different framework from the one assumed in this paper, Jaeggli (1980) maintains that our sentence (5) is base generated with its subject in post-verbal position. This outcome derives from the claim that intransitive verbs which enter
into presentational constructions do not assign a thematic role to the [NP, S] position but rather that these verbs assign θ role to the element in [NP, VP]. This treatment presupposes that presentationalism is constrained by lexical properties of verbs. In Suñer (1981, especially Chapter II), I show that presentation-

alism can only be determined when taking into account the total discou

Therefore, it would be hopeless to try to subdivide intransitive verbs in Spanish into those which do and do not assign a θ role to [NP, S] since practically any intransitively used verb can enter into a presentational sentence (cf. Hatcher, 1956).

Although traces in English seem for the most part (cf. Green, 1980) to have a proper antecedent, the same is not true in Spanish. Traces in Spanish can either have an antecedent proper:

¿Qué compró Paco [NP e]?

'What did Paco buy?'

or a "postcedent" (see (45)). Therefore, we might consider abandonng the term "antecedent" in favor of a term neutral as to whether X precedes or follows. "Cedent" might be a good candidate.

Whether traces must be to the right of the "cedent" (as in most English cases), or whether they may appear to either the right or the left of the "cedent" (as in Spanish and other major Romance languages), might constitute one of the parameters along which languages differ.

Although Chomsky maintains that the trace and the "cedent" are linked with only one θ-role, I am not sure that this claim is accurate enough. Both Gruber (1970) and Jackendoff (1972) assert that a given NP could be specified for more than one thematic role, e.g., both Theme and Agent coincide on the subject NP in Paco ran a mile in 4 minutes. (I owe this observation to J. Goldsmith.) Therefore, the way to state this characteristic is: the trace and the "cedent" are linked with the same θ-role(s).

Nor am I sure that the specification of this role could not change in some well-defined and restricted cases. What I have in mind are examples like (i) and (ii):

(i) Un hombre apareció.
   'A man appeared.'
(ii) [NP.\text{e}] apareció un hombre.  
appeared a  man

In both sentences \textit{un hombre} is the subject. But in (i) this NP is the Agent while in (ii) its role is closer to that of patient or theme (in Jackendoff's sense). The difference is similar to that of the following English sentences:

(iii) Three men appeared. (of their own free will)

(iv) There appeared three men. (?of their own free will)

The meaning of both (ii) and (iv) seems to be closer to "the appearance of \textit{X} happened/took place" than to "\textit{X} appeared".

This shift in meaning could be accounted for if a rule like the following were possible:

(v) Agent \implies Theme in presentational sentences.

However, since the notion of \textit{\Theta}-roles in the Chomskian government-binding theory is quite nebulous at best, my observations can only be taken as such until \textit{\Theta}-roles are further specified.

36 Chomsky (1979) defines government as follows:

\[ \alpha \ \textit{properly governs} \beta \ \text{if} \ \alpha \ \text{governs} \ \beta \ \text{and} \]

a. \[ \alpha = [\pm N, \pm V] \]

b. \[ \alpha \ \text{is coindexed with} \ \beta \]

PRO government falls under case b.

37 But see note 10.

38 There are a couple of well-known exceptions to this statement, for example, imperatives. See also Green, 1980.

39 French differs from all major Romance languages in that it developed from a stage in which it did not require a subject to the present stage in which a subject is needed (a few exceptions aside, see Kayne and Pollock, 1978). No doubt sound changes which caused the loss of verbal inflection in the spoken language played a role in the above development.
It remains to be determined which language constitutes the unmarked case. Intuitively Spanish seems to be more consistent: "null subjects everywhere."

Strictly speaking, there are only two because Ø represents the total absence of a subject.

Other corollaries might be: existence of leftward traces (Suñer, 1981, especially Chapter II.6), or indexing by AG (Chomsky, 1979); violation of complementizer-trace phenomena (Pesetsky, 1979-80); and items that count as anaphors with respect to the NIC (Taraldsen, 1978; Pesetsky, op cit.).

REFERENCES


__________. 1978. La subcategorización estricta y los sujetos en español. Paper read at V International Congress of the ALFAL.


Taraldsen, K. T. 1978. On the NIC, Vacuous Application and the that-trace Filter. MIT manuscript.
ON THE ROLE OF FUNCTION IN SOUND CHANGE *

F. van Coetsem
R. Hendricks
P. Siegel

0. Introduction

In this paper we shall first examine the various ways in which the actual events of sound change may be interpreted. By 'sound change', we obviously refer to a diachronic process, which of course may be reflected in a synchronic rule of the language. The diachronic process and its synchronic reflex are interrelated but, as we shall see, they should not be confused. Secondly, we shall discuss the ways in which morphological, semantic, stylistic and social functions interact with phonology. In doing so, we shall make certain suggestions, which, we hope, will be useful in further investigations of sound change, the mechanisms of which are in many respects not yet clearly understood. Further, we shall restrict ourselves to sound change alone, although clearly some of the points discussed have a broader application.

1. A Problem of Interpretation of Sound Change: The Notion of 'Masking'

1.1 As is well-known, the various schools of linguistics view sound change in quite different manners; there are, in particular, basically different ways to handle what is traditionally called 'analogy' (i.e., 'leveling' and 'extension'). Whereas the Neogrammarians make a sharp distinction between sound change and analogy, some recent approaches tend either to consider analogy, when it concerns sounds, a type of sound change or to reinterpret it into a rule-governed framework. Anttila (1972:88) points out: 'a widespread characterization of analogy and sound change is that the former involves meaning, the latter, form only. This is valid for most instances, but is by no means absolute.' One can also say that analogy of sounds has its own specificity insofar as it is a form of 'sound replacement', while regular sound change is 'sound development'; however, here again, a sharp distinction is not always possible. As we shall see in later discussion, in one case it appears convenient to handle analogy together with regular sound change; in another case, the two phenomena have to be considered separately.

1.2 Sound change (including analogy) often results in a situation
which obscures or masks earlier structural relationships or actual sequencing of events for the linguist as well as the speaker. Masking is part of language development and consists of either (i) a partial or complete restoration\(^2\) (or regression), i.e., a development back to an earlier state, or (ii) a partial or complete obliteration,\(^3\) i.e., a development to a new situation; there is as well the phenomenon of compensation, which is normally a form of obliteration involving a sound change (or changes), which restores by a different means a distinction destroyed by a previous sound change. In relation to rules masking may result in what has been called opacity.

Focusing in particular on the output of sound change, we can represent the actual situation as involving a sound change whose effects are acted upon by a subsequent change (analogy), or as involving a compensatory process by which a subsequent sound change makes up for the gap(s) brought about by an earlier sound change; in both cases, the conditioning factors or environments are in general also affected.

Reborrowing, either from an earlier developmental stage of the language or from another language (dialect) may also mask sound change. This affects primarily the lexical rather than the phonological level. For example, the \(u\) in Spanish espíritu 'spirit' does not reflect the regular development from Latin spiritus, but is a result of reborrowing. Such a development can lead to doublets, e.g., Spanish pesar 'to weigh' vs. the learned reborrowing pensar 'to think' both from Latin pensare 'to weigh, to evaluate'; cf also French peser 'to weigh' and penser 'to think'.

The synchrony-diachrony distinction is essentially a methodological convenience and has even been called a fiction. The dynamic aspects of language system and the systematic nature of language development have to be recognized. However, a real barrier does exist when the diachronic reality is obscured from the synchronic perspective of a given speaker or linguist. Masking is precisely this barrier.

1.3 There are a number of well-documented cases of a sound change which is completed in a given developmental stage of a language, but which is then erased or leveled out within a certain (morphological) environment in a later stage of that language. Compare, for example, Old French \(a \sim ai\) (resulting from a change of \(a\) to \(ai\) before nasal in stressed (') and free position) in e.g., amér, aín, aímes, aime, amón, améz, aiment (Latin amare), which is leveled out through generalization of \(ai [e]\), i.e., obliteration, represented in Modern French as: aimer, aime, aimèes, aime, aimons, aimez, aiment. The Old French alternation \(a \sim e\) (resulting from a change
of a to e in stressed and free position) in, e.g., lavér, tu léves, vous lavész (Latin lavare) is leveled out through generalization of a, i.e., restoration, represented in Modern French as: laver, tu laves, vous lavez.4 It is precisely upon such examples that the Neogrammarians' conception of 'conditioned sound change followed by analogy' is based. Indeed, this also shows that the phenomenon of masking has long been recognized, although its various implications, as well as those of sound change itself, are certainly not yet completely understood.

1.4 As a consequence of masking, it is possible that the actual sequence of events is not clearly recognized, and thus it may happen that the result of a subsequent sound change is incorrectly interpreted as the direct outcome of a previous sound change. Thus, masking naturally makes the changes susceptible to reinterpretation, leading one to posit conditioning factors different from those which actually held at the time of the change. For example, a sound change which has been partially masked, possibly by analogy, within a particular morphological category may be seen as a sound change whose operation is considered 'conditioned' by the morphological category in question. It is not always clear what is meant by such a grammatical conditioning, but it is very often understood as a kind of blocking. This, in effect, reduces the actual two-step development to a single change, which obscures not only the notion of grammatical conditioning of sound change, but, as we shall see, also the problem of regularity.

If we consider the case of partial masking for illustration, we can represent the entire situation in the following diagram, with the range of change and masking on the horizontal axis and time on the other. Thus, (1a) represents the first sound change, (1b) the subsequent one acting on the outcome of (1a); (2) is the analyst's (re)interpretation of the result of (1b) as the direct outcome of (1a), synchronically or diachronically.

![Diagram I](image_url)

**Diagram I**

Range of change and masking
A symptomatic example comes from Estonian as discussed in the literature (Kiparsky 1965: 1.28; Anttila 1972:79-80; Campbell 1974: 90; 1975:390-1). Anttila (p. 79) cites this example as 'clear evidence for grammatical conditioning' of sound change. In the southern dialect of Estonian, final -n is unconditionally lost. However, in the northern dialect, 'the -n has been retained if it means 'pers. sg.'', e.g.,

kannan 'I carry' ———> kannan

kannan 'base (gen. sg)' ———> kanna

This example is one of the crucial ones in all of the references cited above. Kiparsky argues that it, among other examples, appears 'to establish beyond any doubt the fact that categorial information can condition sound change.' There seems to be no doubt that categorial information can indeed condition sound change. The real question however is how exactly the grammatical conditioning operates. Is it through a partial masking of an earlier sound change, i.e., via a two-step development, or is it through a direct blocking by a morphological category, i.e., via a single change?

Anttila rightly insists on the fact that 'even if it is easy to formulate a grammatically conditioned sound change, it need not be historically correct. When looking at the total evidence from Estonian the above case looks somewhat different, though it is still an example of grammatical conditioning.' He points out that, at the beginning of the seventeenth century, the loss of final -n in both Estonian dialects was a variable rule in which -n was being lost, unless the following word began with a vowel. At this stage, the rule (change) is completely phonologically conditioned, although partially variable. Anttila goes on to say that the -n of the first person singular was 'generalized back..., partly (presumably) to avoid homonymy with imperative kanna 'carry'.' In South Estonian, the -n dropped everywhere, but here the imperative had a final glottal stop kannaq, at least in the Võru dialect, and no homonymy resulted with kanna 'I carry'.' This restoration of -n in the first person singular is clearly grammatically (morphologically) conditioned. However, it is not a passive constraint, i.e., a partial prevention or blocking of a process, but an active, partial reinstatement of the former situation in accordance with a reinterpretation on the part of the speakers. It is clear that if one incorrectly assumes that the grammatical conditioning in the Estonian change is a blocking of a sound change, then the change itself is incorrectly interpreted as a single diachronic development. Simplifying for the sake of discussion, we can represent the changes informally as follows:
(1a) \[ n \rightarrow \emptyset / \_\_\_\_\_\_\_ C \] (variably)

(1b) \[ \emptyset \rightarrow n / \_\_\_\_\_\_\_ \] in first person singular verbs

The rule, incorrectly interpretable as a complete diachronic process, is the following:

(2) \[ n \rightarrow \emptyset / \_\_\_\_\_\_\_ \], except in first person singular verbs

Thus, referring back to Diagram I, we can represent the Estonian developments in the following way:

**Diagram II**

Range of change and masking

\[
\text{kannan 'I carry; base (gen. sg.)'}
\]

That is, rules (1a) and (1b) represent the actual chronology of the changes, (1b) being a partial masking of (1a). Rule (2), which is valid synchronically, is misinterpreted as a diachronic process.
Clearly, there is a grammatical factor actively involved in such masking; whether this is to be seen as a case of analogy or as grammatical conditioning often depends on the relevant theoretical issues. The Estonian and French examples show two-step developments, and thus demonstrate an area of partial agreement between the Neogrammarian view of 'conditioned sound change followed by analogy' and more recent conceptions of grammatical conditioning of sound change.

It still remains to be considered whether grammatical conditioning, in addition to operating actively, can also operate as a passive constraint, i.e., as a (partial) prevention or blocking of a sound change; such a situation would be formulated as a one-step development, that is, as a single sound change. It seems reasonable to assume that grammatical conditioning can block sound change. However, because of the possibility that masking is involved in the many cases for which we do not have appropriate evidence, unambiguous examples are difficult to find. There is the well-known and often cited case from Yiddish which might shed some light here. In Yiddish, final shwa is deleted except when it occurs in an adjective ending. Thus, e.g., Middle High German erde 'earth' becomes Yiddish erd, while the -e is retained in groyse of de groyse shtot 'the big town' (Sapir 1949:262, King 1969:123). However, even this example does not seem completely convincing (cf., e.g., Jasanoff 1971:82). It may be that we are dealing here with blocking although it is not impossible that, as in the Estonian example, there may have been a variable rule involved. It is quite possible that variability is in such cases the normal transitional pattern. In connection with this, frequency and functional load of the form in question are to be taken into consideration. It is precisely this issue of morphological blocking of sound change which represents the crucial difference between the views expressed in more recent works on sound change, on the one hand, and those of the Neogrammarians, on the other.

1.5 We have pointed out that grammatical conditioning may manifest itself (i) through a restoration or an obliteration in the case of masking, or possibly (ii) as a blocking on a diachronic development. In fact, grammatical conditioning may manifest itself in other ways. For example, English diatonic pairs, e.g., récord (noun) vs. recórd (verb) have developed by realignment from isotonic forms, i.e., with nouns and verbs identically stressed (cf. Chen-Wang 1975:261).

1.6 As we have demonstrated, masking is clearly an important source of misinterpretation of sound change, a situation of which not all linguists are clearly aware. This leads to differences of
opinion concerning grammatical conditioning and sound change, and affects our view of the nature of sound change. Because lack of appropriate documentation is normally at the root of many of the current controversies of this type, they are kept alive by ambiguous or nondecisive examples and the theoretical biases of the analysts involved. A typical case can perhaps be seen in the discussion of the derivation of certain morphological categories by tone change in early Chinese (e.g., Downer 1959:259-90). The issue concerns whether the tone difference between certain nouns and verbs was due to the loss of a reconstructed -s suffix or to a grammatical category (i.e., to a two-step or a one-step development, respectively). What is sorely needed in such cases is appropriate (historical) evidence; otherwise, no completely satisfactory explanation is possible. That there is a problem of documentation here has been clearly recognized by Anttila (1972:79).

1.7 Masking may not only lead to the incorrect assumption of blocking by morphological categories in certain cases, but to any other kind of erroneous formulation of change as well. As we stated, the data available may not reveal the masking process directly, but in some instances it is easily recognizable through indirect but clear evidence of various sorts.

A case in point is Verner's Law in Gothic, which most probably presents another example in which analogical leveling has partially masked a former change. On the basis of comparison of the Old Germanic languages, it is assumed that Verner's Law has produced in the paradigm of the Germanic ablaut verbs an alternation between voiceless and voiced spirants: the former in the present and preterit singular, and the latter in the preterit plural and past participle:

\[ f \sim b: \text{Old Saxan } f \sim b \text{ in heffian, höf } \sim \text{ hōsum, gīhān} \]
\[ p \sim d: \text{Old Engl. } d \sim d \text{ in weordan, weard } \sim \text{ wurdon, worden} \]
\[ x \sim g: \text{Old High German } h \sim g \text{ in ziohan, zōh } \sim \text{ zugum, gizogan} \]
\[ s \sim z: \text{Old Norse } s \sim r \text{ in kļōsa, kaus } \sim \text{ kurom, kōrenn} \]

In the Gothic paradigm of ablaut verbs, the effects of Verner's Law have been systematically erased, but the change is still directly reflected in forms outside the paradigm proper, i.e., in the preterit, presents, causatives, participial adjectives, and possible cases like the reduplicated form saizlep 'slept'. Thus, for example, filhan 'to hide, conceal, bury', falh, fulhum, fulhans are within the verbal paradigm, but outside the paradigm we find a lexicalized participial adjective fulgins 'hidden, concealed, secret', which
reflects the \( h \sim g \) alternation produced by Verner's Law. On the basis of such evidence, we have good grounds for arguing that Verner's Law was operative within the verbal paradigm at an earlier stage of Gothic giving us the following forms: *filhan, *falh ~ *fulgem, *fulgans. Developments parallel to this analogical change can also be found in the other Germanic languages. For example, in Modern Dutch we find verkiezen 'to prefer, elect', verkoos, verkozen, verkozen, all with \( z(s) \), but a lexicalized, participial adjective uitverkoren 'chosen' with a residual \( r \). It is clear from Middle Dutch (verkiesen, vercoos ~ vercoren, vercoren), which still displays the regular alternation \( s \sim r \), that leveling has occurred here (cf. English lose, lost but forlorn).

It is widely accepted, for good reason, that analogical leveling had indeed occurred within the verbal ablaut paradigm in Gothic, masking the original situation (cf. Rooth 1974:127 ff.). Clearly, such a drastic leveling is not at all uncommon (Van Coetsem 1962) and is completely consistent with the well-known tendency towards simplicity and regularity in Gothic. The leveling is all the more understandable, since the alternation of voiceless and voiced spirants was redundant in indicating a morphological distinction. In spite of this, Hirt (1931:148) rejects such radical leveling and suggests instead that Verner's Law operated under different accentual conditioning from that of the other Germanic languages:

'Gothic has erased Verner's Law to a great extent, in most cases favoring the voiceless spirants. This extends almost without exceptions to the preterit plural of the verb, the verbal adjective, the causatives, etc. I consider it impossible to attribute all this to leveling. We have to assume, rather, that in Gothic, the accent, in many cases, has been shifted before the operation of Verner's Law (our italics).'

Even so, Hirt does not specify in which cases the accent shift occurs. If the consensus about the leveling is correct, we see once again an interpretation directly based on the results of masking, in this case leading to a different reconstruction of pre-Gothic, and a different formulation of Verner's Law for the language.

Another kind of example concerns the merger of \( a \) and \( o \) in Germanic. This is generally considered to be an unconditioned sound change. However, evidence for a supposed conditioning is found in foreign names such as Langobardi, where the unstressed compounding vowel is then assumed to be a residual original Indo-European \( o \). The weakness of this argument becomes apparent when we consider that
such examples are reborrowings from the classical traditions, possibly through Celtic mediation. Apparently, the classical authors, in following native patterns, substituted o for a in transcribing Germanic names. The masking resulted in such a case in the imposition of an unmotivated phonological environment on what is actually an unconditioned change (cf. Van Coetsem 1977 for more details).

1.8 In the sections above, we have outlined several examples which exemplify how masking allows an inappropriate reinterpretation of the actual events of sound change. In the Estonian example, the reinterpretation takes the form of a constraint on a rule, which implies a diachronic blocking which has not in fact occurred. In the Gothic example, the actual analogical leveling has been rejected on rather weak grounds, and instead the resulting data are accounted for by an incorrect ordering of the rules into a bleeding relationship, i.e., the accent shift would remove most environments for Verner's Law if allowed to precede. In our third example, Langobardi, we point out that the use of improper data has resulted in the imposition of an inappropriate rule environment on what is actually an unconditioned merger.

2. The Notion of Secondary Function of Segments and the Problem of Regularity of Sound Change

2.1 The Estonian example of sound change outlined above clearly illustrates the operation of a grammatical category, which systematically affects the sound change, through the intermediation of a segment. In other words, it shows that a grammatical category may be a function of a segment, just as it may be a function of a morpheme, a fact well-attested in the synchronic study of language. However, the implications this has for sound change have not been clearly recognized at all. As the Estonian sound change exemplifies, it is not the grammatical category per se, but the segment expressing this category which is directly associated with the action of a given sound change. Therefore, when considering a grammatical conditioning of sound change, we have to make a distinction starting from the phonological level itself. That is to say, we consider the case of a segment (i.e., a bundle of features) that, aside from its function as a sound of the phonological system, exhibits an additional function (or several additional functions). (If a class of segments is involved, it is more appropriate and economical to consider a feature or features as manifesting this additional function.)

Consequently, to account for this in a straightforward way, let us propose the following distinction. The primary, purely phonological function of a segment (hereafter: \textit{SF1}) is simply that of
being a component of a lexical form. In addition to this primary function, a segment may have one or more secondary functions (SFL-2), which may be morphological, as in the Estonian example, but may serve other purposes as well, as we shall show. This distinction, it must be emphasized, does not necessarily imply a hierarchy of importance; that is, the terms primary and secondary are used to distinguish that function which a segment must have from that which it may have.

This distinction between SFL and SFL-2 complies with a fundamental dichotomy within the language system, i.e., duality of patterning. SFL occurs on a purely phonological (nonmeaningful) level, i.e., as one of the 'deuxième articulation' (Martinet) wherein the symbols are distinguished and characterized by 'mere otherness' (Jakobson). On the other hand, SFL-2 is and remains an element of the phonological level, but also transcends that level through an additional 'meaningful' function of various types.

One could say that when a segment has a secondary function and thus becomes part of the meaningful level of language, it does not only behave as a morpheme but is actually a morpheme. Indeed, for English *days* we normally state that -s is the plural morpheme. However, what do we do when several segments are involved which collectively have a secondary function? It seems difficult to claim that the polysegmental phonestheme *sl*, e.g., in *slip, slide*, etc., is a morpheme, although it has acquired a secondary (phonesthemic) function (cf. the notion of 'secondary association' in Hockett 1958:296-4). There do seem to be marginal or transitory cases such as -tique with a secondary (semantic) function, in *bathtique* and *phonetique* (names of stores) from *boutique* in which -tique is evidently not a morpheme; a similar case is *-zine* in *newzine* from *magazine* (in a classified advertisement, *Ms. Magazine*, March 1978). This seems to indicate a way in which not only a segment but also a group of segments with secondary function can develop to a 'full-fledged' morpheme. Even so there is an important distinction to be made which confirms the usefulness and validity of the notion of 'secondary function of segments': whereas a morpheme is by definition a meaningful element of language, a segment is by its very nature nonmeaningful unless it has a secondary function.

2.2 The lack of distinction between primary and secondary functions of segments has led, among other things, to a hazy treatment of the problem of regularity in sound change. A case in point is King's formulation and evaluation of two hypotheses concerning sound change (1969:119 ff.), which is intended to summarize the issue of regularity:
H1: **Phonological change is regular, and its environment can be stated in strictly phonological terms.**

H2: **Phonological change is regular, but its environment cannot always be stated in strictly phonological terms.**

In discussing which of the two hypotheses is the correct one, King cites the well-known example from Yiddish mentioned above (section 1.4), and decides in favor of his second hypothesis. However, he oversimplifies the issue in that he fails to distinguish SF1 and SF1-2, and hence considers the two hypotheses as mutually exclusive. He is clearly aware that the notion of 'functionality' has been used in connection with, for example, this Yiddish sound change, yet makes the following remarks (p. 124):

'A word sometimes used in attempting to account for morphologically conditioned phonological change like this is functional... The notion (in this case) is that e's serving to mark adjective inflections fulfill a necessary function which requires their maintenance, whereas e's in all the other cases can be dispensed with. This is not an explanation for the dilemma, but merely a different term to designate it with, for unless "functional" is defined in some precise, non-circular way it cannot be offered as an explanation.'

As long as King considers the two hypotheses as mutually exclusive, he is right in stating that 'functional' has been used in a circular way. However, given the distinction between SF1 and SF1-2 outlined above, we may apply two fundamentally different meanings to 'functionality'; this then allows us to keep both hypotheses, instead of having to reject one or the other as King does, applying to each the corresponding segment types. Thus, we propose the following formulations of the two hypotheses on the regularity of sound change, each applicable in its own domain:

H1: For SF1, phonological change is regular, and its environment can be stated in strictly phonological terms.

H2: For SF1-2, phonological change is regular, but its environment cannot always be stated in strictly phonological terms.

Some final remarks are in order here. First, changes of either type
may be in competition with the other, thus leading to residual and exceptional cases (Wang 1969). Secondly, the extent of regularity of sound change for SF1-2 is limited by morphological, semantic, stylistic, social or possibly other factors, some of which shall be discussed in the following sections. Thirdly, we do not mean that regularity of sound change may not be affected by still other factors than secondary function of segments.

3. The Operation of the Secondary Function of Segments in Sound Change

3.1 As our reformulation of King's H2 states, the presence of a secondary function of a segment involved in sound change may, but does not have to, lead to extra-phonological restrictions on the phonological environment of that change. Clearly, we do not know precisely when, i.e., under what circumstances or conditions, the operation of the secondary function takes place or fails to take place. More research will be needed in this area.

There are several ways in which the operation of a sound change may affect the indication of functional distinctions. Thus, for example, in some cases sound change may have no effect at all. In these cases, if secondary functions are involved, their operation will be completely unchanged, because all prior distinctions are 'carried through' intact. For example, neither the \( \text{a-o merger} \) in Germanic, nor the change of \( \text{e to i} \) in Gothic, affects the indication of the functional distinction between present and preterit singular in the ablaut verbs. The alternation of \( \text{i} \rightarrow \text{a} \) in Gothic (cf. \( \text{gība 'give'} \) [present] \( \text{→ gaf 'preterit singular'} \))
indicates the functional distinction involved in precisely the same way as the earlier \( \text{e} \rightarrow \text{o} \).

Similarly, it is possible that a given sound change may affect the indication of a functional distinction for a specific segment or group of segments. In this case, we must consider the notions of \textit{relevance} and \textit{redundancy} of the functional distinction of that segment (or group of segments). That is, the distinction carried by that segment may be lost, reinstated or maintained elsewhere; or, the segment itself may be retained along with its functional distinction (cf. Estonian example above).

3.2 We have also noted the distinction between an \textit{active} (restoration or obliteration in the case of masking) and \textit{passive} (blocking if there is evidence for it) operation of a secondary function.
4. **Types of Secondary Functions of Segments in Sound Change**

We tentatively propose two essentially different, though not mutually exclusive, types of secondary functions, namely *language-determined* (LD) and *socially-determined* (SD). A segment exhibiting an LD function may be important morphologically, semantically, etc., and may have more than one secondary function at a given time.

Independent of, or in addition to, this LD function, a segment (phonemic or subphonemic) may have an SD function, which serves to indicate sociolinguistically significant information, including geographical or dialectal information. SD function, unlike LD function, is not limited to being item-specific (i.e., affecting sound change in one paradigm or groups of lexical items), but rather may be associated with the most general rules as well.

4.1 **LD Function.** Besides the grammatical (morphological) function discussed earlier, we briefly examine here some other secondary functions of segments without attempting an exhaustive discussion of all possible LD functions (cf. Campbell 1975).

(i) **Sound Symbolism: Onomatopoeia and Phonestheses.**

Segments manifesting a sound symbolic function, besides being components of lexical forms, serve to imitate extra-linguistic phenomena or to supply additional semantic content. We state that these forms are language-determined (though extra-linguistically motivated) because, given a culturally important extra-linguistic sound, the imitation will be constrained by the specific phonological system of the language in question. Anttila (1972:86) mentions the example of Middle English *pipen* 'to chirp' which has two apparent 'descendants' in Modern English: *pipe*, the expected form, and *peep* which represents either a preservation or a restoration of the original Middle English form. Such an exception to an otherwise productive rule exemplifies the presence of a secondary LD function. It is interesting that the word manifesting the original vowel, i.e., *peep*, is the one maintaining the earlier sound symbolic function.

We would like to make it clear that a sound symbolic form is not simply exempt from phonological rules, but rather may behave differently from other forms depending on the effect the sound change rule involved would have on this particular form. To illustrate this, let us assume that a sound symbolic form fits the structural description of a sound change. If this change should
cause the form to lose its secondary (sound symbolic) function, the form may undergo the change, hence losing its function, or it may simply fail to undergo the change, being either preserved or restored. On the other hand, if the form resulting from the sound change should still be sound symbolic, then it would undergo the change like other forms. Although our example concerns the sound symbolic function of a single segment, our analysis is clearly appropriate for the case in which several segments (e.g., sl- in slide, slip, etc.) collectively manifest a similar (in this case, phonesthetic) function.

(ii) Analogy.

In English and Dutch we find clear examples of analogy as an LD function. In Middle Dutch, hede 'today' developed to heden on the model of gisteren 'yesterday' and morgen 'tomorrow'. Similarly, English morn developed to morning due to its semantic association with evening. The Middle Dutch words for the time of day include nacht 'night', avond 'evening', morgen 'morning' and noen 'noon'. In modern Flemish dialects, the word morgend [t] has developed a final [t] by analogy to avond [t]. In standard Dutch ochtend [t] 'morning' from Middle Dutch ochten has developed its [t] in a similar way. In Flemish dialects noenend [t] and possibly noent9 also appear on analogy to other forms. An example from French is romand (for roman) after allemand, in Suisse romande on the model of Suisse allemande.

In such cases because of their coincidental occurrence in semantically related forms, a final segment or a group of segments develops a semantically motivated secondary (LD) function, behaving as a morpheme added to forms within a semantically determined class (cf. our remarks in section 2.1). How to relate secondary function of segments to the operation of analogy of this and other sorts is an issue which needs to be investigated on its own.

(iii) Stylistics.

Although the place of stylistics is not altogether clear, segments may acquire a secondary function which indicates only stylistic variants. In some cases, this stylistic function develops into a semantic function, distinguishing related lexical items.

Compare the case of intervocalic -d- deletion in Dutch, which was later partially reversed by hypercorrection (cf. Dutch geschieden 'to happen' vs. German geschehen; inversion or conversion of rules). In some instances, the -d- is reintroduced,10 resulting initially in purely stylistic variants, as in the case of Dutch rode vs. roodie, both meaning 'red', but the former being a
more formal item. In this particular case, one could appropriately say that 'each word has its own history.'

The situation is complicated when these doublets become semantically differentiated, as in the case of *broer* vs. *broeder*, now 'brother' vs. 'religiously brother, friar'; and *moer* vs. *moeder*, now 'mother (vulgar, or used for animals)', and 'human mother', respectively. However, the development involved is clearly manifested. (See Zonneveld 1978 for a recent and more complete discussion of such problems; for a similar case in Swedish, cf. Chen-Wang 1975:262-3.)

The classification of this stylistic function is somewhat problematic. Although this function is initially social in motivation, it later may, as in the cases we have shown, display a lexical function, thus representing an intersection between LD and SD function.

4.2 SD Function. Perhaps the most striking example of secondary function is the role of social factors in the spread of sound change. Once again the notion of secondary function is useful to clarify the mechanisms involved. Labov, in his innovative work on sound change, distinguishes three stages of sound change: the origin of linguistic variations, the spread and propagation of linguistic changes and, finally, the achievement of regularity (1972:1). He concerns himself primarily with those aspects of sound change which are socially significant and hence more observable to the community, being above the threshold of awareness. Even so, he points out that (p. 2):

>'The contribution of internal, structural forces to the effective spread of linguistic changes, as outlined by Martinet (1955), must naturally be of primary concern to any linguist who is investigating these processes of propagation and regularization.'

He further distinguishes between change from above and change from below. The latter is described as follows (p. 178):

>'The changes began as generalizations of the linguistic form to all members of the subgroup; we may refer to this stage as change from below, that is, below the level of social awareness.'

Of course the medium for all sound change is social in nature; however, the initial motivation need not be, but may be due, for example, to internal, systemic pressure.
In so-called 'change from below' the whole group or subgroup follows or conforms to a new trend. This is a case of linguistic conformity which is to be seen in a social perspective, but occurs below the level of social awareness. On the other hand, so-called 'change from above', as in the classic Martha's Vineyard example, involves linguistic divergence consciously correlated with social (areal-linguistic) divergence. Such linguistic divergence develops when the result of a sound change becomes identified with a particular sociolect or dialect (stigmatization), in other words acquires a secondary (social) function. The question of social awareness and functionality is consequently crucial to the above distinction.

In light of this, the earlier view of sound change as expressed, for example, by Hockett (1958:44ff.) can be understood in a social perspective if we accept the idea of linguistic conformity. In addition, the view focuses on the initiation of sound change rather than on its spread. Without implying any temporal gap, sound change involving linguistic conformity naturally precedes sound change involving socially motivated linguistic divergence, which, consequently, illuminates more the aspect of spread and social functionality of sound change rather than its initiation. Therefore the traditional and more recent views of sound change do not appear incompatible.

Furthermore, the notion of 'masking' is also relevant here in that what looks like an exception to an otherwise regular sound change may be the result of social interference. For example, if a group or subgroup undergoes a sound change and then borrows certain unshifted forms from another sociolect, the result is masking.

5. Conclusion. It seems to us that the notion of secondary function of segments may help to accommodate views which were previously antagonistic or incompatible into a cohesive framework. As we tried to demonstrate in our discussion of King's hypotheses on the regularity of sound change, seemingly contradictory explanations may in fact be complementary, each being valid in its own particular domain.

FOOTNOTES

* We completed this paper in 1978 for a Festschrift whose publication has been delayed. Since it has been referred to several times already, we thought that this paper should be made available in the interim. We gratefully acknowledge the Cornell
Humanities Faculty Research Grants Committee for a summer grant (1977) which enabled us to undertake this research project. For various very useful comments we would like to thank W. Browne, M. Gircour, C. F. Hockett, P. Hopper, D. R. Ladd, R. Lee, O. Leys, B. Mannheim, M. Newfield, G. Tops, L. Waugh and W. Zonneveld.

1 We use the traditional terms sound change and phonological change (the latter in the discussion of King's hypotheses concerning the issue of regularity of sound change) as cover terms for any change that affects the segmental or supra-segmental level of language. In the literature the term phonological change is sometimes used to refer to specific kinds of sound change. We are aware that the term sound change covers quite different concepts and includes a range of possible distinctions.

2 Even if the restoration or obliteration is complete there may be historical evidence through intermediate developmental stages, which enables us to posit the change. See the case of Modern French lauer discussed further on, and cf. Germanic ai/au → Old High German ei/ou → Modern German ai <ei> /au (Bach-Harms 1973:3, and in a larger framework, Van Coetsem 1975).

3 Masking implies a time dimension which Chen-Wang (see recently 1975) have emphasized in their discussion of lexical diffusion. As they remark (p. 256): 'much discussion has been devoted to the relative chronology of phonological processes, but this concerns the external relation between rules in terms of time sequence; the internal time dimension has not received equal attention until fairly recent times. By internal dimension we mean the chronological profile...of the gradual evolution, and expansion or regression (our italics), of a single phonological process.' Viewed this way one can regard a change and its masking (restoration) as a single phonological process. However, this does not affect the notion of masking, since the process implies actually two differently directed steps, regardless of the way the change is characterized.

4 There are also cases of reborrowing from Latin. In other examples an Old French alternation is retained in Modern French, e.g., venir, tu viens, vous venez, mourir, tu meurs, vous moruez. This question is handled in a broader perspective in Van Coetsem (1962).

5 'Das Gotische hat den sogenannten grammatischen Wechsel in weitem Umfang beseitigt, und zwar in den meisten Fällen zugunsten
By 'function' we mean the role that something plays, the service it performs.

Cf. the similar distinction between sense discrimination and sense determination independently proposed by Jakobson-Waugh (1979).

The notion of 'polysegmental phonestheme' is distinguished from that of 'morpheme' in that, in every case, the segments making up the phonestheme play a double role: on the one hand, they are part of a morpheme, which relates in a systematic way to the semantic system of the language, on the other hand, they refer directly to our conception of extra-linguistic phenomena.

Noent is ambiguous because of a tendency in Flemish dialects towards occlusion after dentals (cf. Dutch pols 'pulse', Flemish dialects pulst).

Influence of the standard orthography cannot be left out of consideration.

REFERENCES


Für Mundartforschung 29:216-27.


Additional relevant bibliography (available to us or published after completion of the paper).


POSSIBILITIES AND LIMITATIONS OF VERBAL COMMUNICATION: 
LANGUAGE AND REALITY*

Linda R. Waugh
Cornell University

1.0 In this paper, I would like to explore the relation between language and reality, and especially the way in which language—and in particular the semantic system of language—is used to create its own eminently linguistic reality.

It has often been argued that there is some universal extralinguistic reality (or substance) which is common to all human beings and which is then turned into linguistic reality (or form) through the linguistic system of signs. Language then would be a representation of or patterning imposed upon (un-patterned) reality (see Hjelsmlev 1939; Chomsky 1972; but cf. Malmberg 1977). There are, however, various difficulties with this point of view.

1.1 First of all, we live in a semiotic universe, a universe of signs in which everything becomes, or has the potentiality of becoming, a sign (see Peirce 1949; Goodenough 1957; Jakobson 1968; Eco 1976; Graeser 1978). The world of human experience is a pre-eminently semiotic world, in which nonsemiotic elements are subordinated to and defined from the point of view of semiotic elements. This is not to deny that extra-semiotic reality exists, but rather to say that we are semiotic beings. Thus, we can never know this 'reality' except through our semiotic lenses, or, at the very least, as a counterpart to our semiotic reality: "a specifically symbol-using animal will necessarily introduce a symbolic ingredient into every experience" (Babcock 1973: 13). The universe in which we live is a highly patterned and highly complex one characterized by a multiplicity of semiotic systems; thus, extralinguistic reality is by its very nature composed of several semiotic realities intermixed with the non-semiotic. And of course what is non-semiotic for one culture will be semiotic for another: there is nothing which would by definition be non-semiotic. Thus, the notion of a non-semiotic substance which

would be unpatterned, waiting to be turned into linguistic reality does not accord with what we know about human experience.

1.2 Secondly, it is also obvious that, while all human beings live in a semiotic world, these worlds differ widely from one culture to another. There are great differences between peoples and between individual people. The universal in culture is always combined with the non-universal. There is no universal semiotic world common to all human beings; rather, there are certain communalities of experience and certain universal, pan-human phenomena (see Lévi-Strauss 1958) which are, at the same time, always correlated with certain differences. The universal and the particular are so intertwined as to be inextricable from each other; the universal is embedded in particularizations producing unique systems. Thus, the notion of a universal semiotic substance which would be represented by language is contradictory to our knowledge of the differences in human experience.

1.3 Thirdly, if we take the entire system of each language in its turn, then it is a self-evident fact that each language is a unique system, despite all the universal and near-universal communalities of structure there may be. Thus, for example, it is evident that languages differ widely in their semantic systems, for example with respect to their lexical systems (including particular lexical items, fixed expressions, idioms, common metaphors, etc.) and that these differences effect not just specialized vocabulary but the very core of the system. (E.g., while English has both do and make, French has only faire, which overlaps partly with do and partly with make. Some uses of do have no real counterpart in French and some uses of make correspond to other verbs in French, and of course there are certain uses of faire which do not correspond to either do or make in English.) But the differences between languages are not just lexical—they reach the syntactic structures, the grammatical (obligatory) categories, the phonological system, the morphological relations, etc. And of course, languages differ most overtly in which signifier is correlated with which signified—the particular signs are quite obviously different from one system to another. (In fact, it is this difference which is at the basis of Saussure's discussion of the arbitrariness of the linguistic sign—but see in particular the criticism of Benveniste 1939 and Jakobson 1965). There have of course been attempts to use universal logical schemes of various sorts to analyze general syntactic relations. But, aside from questions of whether these schemes have been successful or not, there remains the obvious observation that such schemes ignore for the most part those properties of given systems which are non-universal and yet are important for a full understanding of those systems. I want to emphasize again that I'm not denying the universality of certain
linguistic patterns but rather affirming that since the universal is always 'woven' into a system which is also structured by the non-universal, the interweaving of the universal with the non-universal creates in each case a unique system. "Every language represents a unique structure. Each language represents a conception of the world which is proper to it and which has no exact correspondence in any other linguistic community" (Malmberg 1977: 248; translation mine). The notion of a universal semiotic world waiting to be turned into a universal linguistic semantic system is doubly problematic.

1.4 We are left then with individual linguistic structures as they are embedded in individual semiotic communities. And here too we know that there are substantial differences between cultural systems and linguistic systems. Thus, it seems not to be the case that a given language would take the (semiotic) reality which exists in the given culture (or cultures) to which it belongs and turn this reality into linguistic units through the particular linguistic system. Language is not a mirror for the given semiotic systems with which it is connected multimodally (see Preziosi 1979:96-101), just as each of these systems is not a mirror of language. In fact, each system presents its own relative autonomy and as such has an internal coherence which has no exact correspondent in any other system. So, the semantic system of a given language has its own inner reality which is unique.

1.5 All of these foregoing observations find their confirmation in several different areas: (1) it has for example been hypothesized that various linguistic expressions may be directly translated by other semiotic systems. So, the word cigarette may be translated or interpreted by pointing to a package of cigarettes. Pointing, however, is by its very nature imprecise and may carry connotations above and beyond those given by the linguistic expression. If by way of translating the word cigarette, we point to a package of Camels, our interlocutor does not know if we mean the contents of the package, the package itself, the words written on the package, the picture of a camel on the package, etc. In addition, the interlocutor may not know whether we mean the pointing gesture to be a simple index, or an invitation to bargain over the package, or a sign of malediction, etc. Pointing belongs to another (gestural) semiotic system, multimodally connected with the linguistic system and serving rather as further specification of and support for the linguistic system rather than as a direct interpretation or translation of it.

1.6 (2) Since any sign in the linguistic system is defined by its interrelation with the other signs in that system, a given
signifier and a given signified are terms in a network of relations; and since it is the relations which define the terms and not the other way around, it is not the case that each term is defined by being related to some extra-linguistic substance directly. Rather, it is the case that each linguistic term is defined by its relation to other terms in the same system. One of the most important of such relations in the linguistic system, pertinent for the signifier as well as the signified, is the relation of opposition. Opposition is a binary relation of mutual implication whereby each of the opposed terms is defined by the conceptual or perceptual domain which they share. (See Pos; Waugh 1979). Moreover, it is an asymmetrical relation, whereby one of the terms is marked—that is, perceptually or conceptually more focused—than the other term, which is unmarked. By virtue of the structure of the relationship between the terms, the unmarked term takes on two closely related contextual interpretations. One of these is the interpretation whereby the marking characteristic of the marked term is explicitly denied by the unmarked term; the other is that interpretation whereby the marking is neither affirmed nor denied. In the tense system of French for example, in the opposition present tense/imperfect tense (I am simplifying here), the imperfect tense is the marked term in the relation because it refers necessarily to past time (il était ici: 'he was here'), while the present tense is the unmarked term since it may refer either to the non-past and specifically to a moment simultaneous with the moment of speaking (il est ici: 'he is here') or to more general, 'timeless' time (Dieu est bon: 'God is good', deux et deux font quatre: 'two and two are four') (for further discussion, see Waugh 1976 and 1979a). It is difficult to see in what way this interrelation and asymmetry could be simply and directly given by extra-linguistic reality.

1.7 (3) As is well known, the signified of the linguistic sign is general: "it cannot indicate any particular thing, it denotes a kind of thing" (Peirce 1960:2.301). Or, as Roman Jakobson has put it: "any symbol is endowed with a general meaning, and the general meaning of any symbol, or of any verbal symbol in particular, has a generic character. Any further segmentation and individuation of the symbol is determined by its context. Thus tree means any species and any individual instances of a kind of plant, and only a context can adapt this word to one single species or to one single specimen" (Jakobson 1959:268). The general meaning associated with a sign is also invariant, in the sense that there is a common denominator of meaning related to all its uses; this general invariant is more general than the contextual variants (its more specific meanings). Thus, just as the notion of general entails at the same time the notion of specific, so the notion of (relational) invariant entails at the same time the notion of (contextual) variation—and vice versa. It is because of both the general and the invariant nature of the
linguistic sign that the creativity of language exists; it is on
the relation of invariants and their associated variants that the
creativity of language is based. That is, it is the presence of
the invariant in the code which guarantees that the speaker can
create, and the addressee can understand, an old word in a new
context "and this is proof that the constituents of such a context
are known to us and possess an invariant semantic value".
(Jakobson 1971:225). As Peirce pointed out, the mode of being
of the symbol is "esse in futuro"; it lies in the potentiality of
the symbol to be used and to be understood in potentially new
contexts, so long as it is contextualized. Potentiality, creativ-
ity, and contextualization are all necessarily associated with
each other.

While the contextual variants are more specific than the
general invariant, they need not be individuated. It is quite
obvious that by using the word table in the context wooden (e.g.,
wooden table), the type of table has been specified but by no
means individuated. Such individuation would most likely be done
by a (deictic) demonstrative such as this or that. One thing
which is extremely important to remember here is that all of the
different kinds of tables—wooden tables, aluminum tables, round
tables, square tables, etc.—are of course not identical as ob-
jects. They may be treated as identical from the viewpoint of the
linguistic system through the sharing of the relational invariant,
but then the identity is a linguistic identity, not an extra-
linguistic identity. It is obvious that from the point of view of
other linguistic categories (say, classification of wooden ob-
jects), as well as semiotic and functional classifications (e.g.,
their use as artifacts in the built environment), these various
tables are not identical (e.g., an antique, highly ornate, oval
wooden 'dining' table may be functionally quite different from a
folding, aluminum, rectangular, 'work' table). Moreover, this
classification of tables is a fact of English—not all languages
classify objects this way. So for example, the German difference
between Tisch and Tafel has no obvious or direct counterpart in
English. And, of course, not all cultures even have these objects.
So, the presence of the word table in the system of English and
the fact that one could use it for a given object in a given con-
text, is a linguistic fact of English; and the word table is the
linguistic facet of that object.

With this phenomenon, we see very clearly that language is
not, indeed language cannot be, a reflection of already patterned
reality. If anything, some of the patterns in that patterned
reality are linguistic patterns, so that rather than language
mirroring other systems, we may use language to create patterns
for reality. And as Donald Preziosi has argued (1979:1-7), the
differentiation of aesthetic domains—such as art, architecture, sculpture, painting, etc.—may be only linguistic fictions (linguistic patterns) based on the presence of different nouns in a given system at a given time. They do not necessarily, he argues, represent any true semiotic differences.

1.8 (4) But the notion of linguistic fiction is an extremely important one which goes much further than this example. In an ingenious but often neglected philosophical treatise, Jeremy Bentham pointed out the presence in language of what he called "linguistic fictions", names (in fact, nouns) which in no way represent or stand for some entity in the real world. "To language, then—to language, alone—it is that fictitious entities owe their existence, their impossible, yet indispensable existence" (Ogden 1932:15). Bentham listed as fictions, English nouns such as emotion, relation, faculty, power, quantity, quality, place, time, rest, action, passion, matter, form, space, modification, etc. All of these owe their existence to language, "but we are under the necessity of talking about them in terms which presuppose their existence" (Ogden 1932:iii). It becomes clear, upon taking an unprejudiced view of language structure, that language is filled with such fictions in the sense that through language we can create names for entities which have an existence as entities only or chiefly by virtue of being a part of the linguistic system. Of course, while such names may be creations of the linguistic system, by virtue of that they become real parts of the linguistic system: they have a verbal reality. The creation of the linguistic sign matter and the association of the signifier with the signified is the creation of a real, intersubjective entity which is integrated as a relational entity in the system and which thereby achieves linguistic reality. In this respect, it is no different from a 'non-fictitious' entity such as table. In other words, from the viewpoint of linguistic structure, it does not matter whether tables exist and time doesn't, or whether both exist, or whether both don't exist. They are treated by the linguistic system as equally part of the semantic structure. Thus, the difference between fictitious and non-fictitious entities does not correspond to any structural linguistic difference between the two, and the fictitiousness of given entities "has no bearing on the question of their semantic significance" (Jakobson 1971:495). I want to emphasize here that linguistic fictions are not fictions from the viewpoint of language, but only from the viewpoint of other systems; from the viewpoint of language they are a linguistic reality.

This point is especially important when we consider that language is filled with strictly linguistic divisions—we mentioned
above certain lexical differences (do vs. make, Tisch vs. Tafel). We could also mention the difference between the various parts of speech (including relational parts of speech such as prepositions and conjunctions). Furthermore, all languages evidence a difference between the optional categories (where the speaker may or may not use a given category in building an acceptable message) and the obligatory categories of a language (those categories which must be expressed if a speaker is to build an acceptable message in the given language). What is classified as optional (sometimes called grammatical categories—see Jakobson 1959—and including both morphological and syntactic categories) is different for each language. The division between optional and obligatory categories is clearly one which has no direct counterpart in any other semiotic system. And so on.

1.9 It should by now be quite obvious that the linguistic system as a whole is not a representation of some extralinguistic reality and that it is made up of a myriad of linguistically created entities. It has however been claimed that there is one aspect of language which is representational, that certain nouns (both proper nouns and common nouns) refer to 'real' entities and thus 'stand for' or 'represent' those entities in the linguistic system. It is assumed that there are semiotic entities which exist in other semiotic systems and are simply represented by a name in the linguistic system. In fact, it is in connection with names that the famous distinction between meaning and reference (Sinn and Bedeutung) has most forcefully been put forward (see Fregé). Now, on one level, such a distinction would seem to be reasonable. Clearly, the signified of the word table in the English lexical system is different from any number of physical objects which might be called table; these physical objects belong to a semiotic world different from the linguistic world. The problems lies not in differentiating non-linguistic objects from linguistic signs, but rather in assuming that linguistic signs refer directly to those objects. If we take the signified of the word table, we know that it does not refer to any particular table, but has a general meaning, which meaning is different from, but related to, any more specific applications of that general type. Of course, the general meaning as well as any specific contextual variations of that meaning are still different from any individual object or any collection of objects. Moreover, the fact that the word table can be used for objects as diverse as wooden tables, square tables, aluminum tables, etc. is, as I said earlier, a linguistic fact. It is obvious that these objects are not identical; it is also obvious that the property which binds them together and which in fact makes them a class of objects, is exactly the fact that there exists the word table in the system of English.
Furthermore, the classification linguistically so defined is quite different from any classification one would want to make from the viewpoint of any other semiotic system. The classification does not preexist the signified in the linguistic system, but rather is created by the linguistic system. But it should also be remembered here that the general, invariant meaning of the linguistic signified is not a class, but rather a common denominator of meaning common to its contextual uses—it is an equivalence in difference across contextual variations. As such, it is equal neither to a given object nor to a collection of objects; it is, in Peirce's terms, a habit, a law, a general, not an individual nor a collection of individuals. It is difficult to see in what way the relational invariant characteristic of the signified could be said to 'stand for' or 'represent' a collection of objects. Even nouns can not be said to 'represent' reality. Even a noun such as table is a linguistic sign, a linguistic classification which has no direct counterpart in other semiotic systems.

One of the main arguments for the differentiation of meaning and reference lies in the assumption that there are myriad series of expressions in any given language which, while being linguistically different, refer to the same object. And examples like morning star and evening star are cited (see Frege). If, however, we look not at the objects themselves but at our interaction with them, then it becomes clear that the examples cited are not examples of identity of reference. The morning star and the evening star differ in the spatiotemporal context in which they occur and it is simply not the case that any proposition true for one is necessarily true for the other. Moreover, an expression like evening star "denotes a certain corresponding cultural unit to which the speaker refers and which he has accepted in the way described by the culture in which he lives, without ever having experienced the real" object (Eco 1976:66). We experience all semiotic objects contextually. Likewise, our linguistic experience with and characterization of reference is necessarily contextual. One could say that the linguistic expression morning star is our way of characterizing our spatiotemporal semiotic relation to that object. But in such a case, the term morning star is the linguistic way in which we characterize that relationship. We may experience semiotic objects non-linguistically, but once we try to express that experience linguistically, it necessarily takes on a linguistic facet. 'Reference', then, as much as meaning, is a linguistic phenomenon; the term morning star refers to our linguistic characterization of our semiotic experience. Reference is essentially and inherently linguistic, for it is created by the relational invariant and the contextual variants inherent in the linguistic system.
Reference is the contextualization and specification of the given linguistic item as it is used in a given message. As such, it is essentially and inherently different from the object as an object. By referring to the referent, by designating a given referent, we are not referring to extralinguistic reality, but to a linguistic reality, no less a part of the linguistic system than is the general meaning.

1.10 It must be admitted then that language does not represent some outside reality but rather presents its own inner linguistic reality. The linguistic reality constituted by language is built by language. It is a linguistic world constituted by the linguistic system and has no direct counterpart in any other semiotic system. "Language allows no single, unitary appeal to a 'reality' beyond itself. In the end, it constitutes its own reality." (Hawkes 1977:26).

Now, it has been claimed by some that one can make a reference from language to extra-linguistic reality through the use of 'referring expressions', linguistic phenomena like this, the, pronouns, etc. Let us analyze this. This is a demonstrative and as such is an indexical symbol (see Peirce 1960). It has a general meaning, like any other linguistic sign (see Jakobson 1957). And even an expression like this table has a general meaning which can evidence a variety of contextual applications. It is only in a given speech situation, said in a context where it is clear what table is being referred to, that a given expression such as this beautiful table, can have an individuating, referring use. It would seem, then, that a direct link between language and extralinguistic objects would take place in given speech situations, with the indexical usage of deictic categories. This is fitting, because it is in the multimodal speech situation that language and other semiotic systems interrelate and interconnect. But what is the speech situation? Nothing other than that semiotic situation in which (minimally) linguistic communication takes place! The speech situation is created by linguistic usage. So, exactly in those cases where language refers, in the sense of referring expressions, it does so by using an eminently linguistic phenomenon! Not only is it a fact that the speech situation is part of and built by the linguistic world; but also, given the extreme importance of the dialogue for language acquisition as well as language maintenance, one can say that it is through the speech situation that the linguistic world is built. So, even this, deceptively easy case of referring, by language, to something 'outside of' language turns out to be a reference to something essentially linguistic--namely, the situation of linguistic communication. So, while language can, as Elmar Holenstein insisted, "refer factually to something extralinguistic" (1976), it does so by incorporating
that something into the typical linguistic situation—that of linguistic communication. 'Referring' no less than 'reference', is the 'linguisticization' of more general, semiotic reality.

1.11 Whether we take linguistic fictions such as the nouns mentioned earlier, whether we take referring expressions, whether we take the grammatical (obligatory) categories, whether we take all the other linguistically created entities—it is clear that language builds a reality of its own. Moreover, this reality assumes a real existence for the speakers of that language and may seem quite unreal to the speakers of another language. For speakers of German, the difference between Tafel and Tisch is an important lexical relation, but for speakers of English it is difficult to grasp. For speakers of French the difference between savoir and connaître really exists and the native speaker of French is right when s/he says there is a profound, real difference between savoir and connaître in French. Of course, for speakers of another language, the difference may seem exotic and strange—because for the linguistic reality of another system it doesn't exist. And native speakers of German are right who say: "how can there be a language without gender? Everyone knows it's such an important difference." While native speakers of English are right who claim that gender differences are fine when using pronouns for animate things, but rather weird when used for inanimate nouns. And so forth. Thus, what is important is whether something is real from an internal point of view—internal to a given code and to users of that code. What is real from the viewpoint of a given code are the categories established by that code; what is natural to the speakers of a given language are the categories of that language. Thus, the notions of 'reality', 'naturalness', 'important differences', etc. are defined by particular semiotic systems.

Thus, there are multiple semiotic realities including linguistic reality which form part of human experience. These semiotic realities are multimodally connected in speech situations, but they do not thereby lose their relative autonomy. And all of these semiotic systems—including the linguistic system—form the 'real' world in which we live.

1.12 Given that the structure of language in general finds its counterpart in no other semiotic system, one might ask what the relation is between the linguistic reality, created by the linguistic system, and other semiotic realities. Language is interrelated with other semiotic systems through a variety of means. Through the multimodality of the speech situation where language by no means remains isolated from other semiotic systems, but retains nevertheless its relative autonomy. Through the trans-
latability of the linguistic signified into other signs in other semiotic systems—but such translation generally destroys the signifier and of course the translation may either subtract elements from or add elements to the original. Through the use of 'referring expressions', the indexical symbols which may be used to point to individual phenomena in a given situation—but as we saw, the speech situation is itself a linguistically created situation. Through the general semiotic process of naming, or providing given semiotic objects with a linguistic label, of giving objects a linguistic facet—but of course such names have general meanings in the linguistic system and contract relations with other elements in that system. Through the 'linguisticization' of reference and in particular through the contextualization and specification of the general invariant. But it is clear that in all these cases the relative autonomy of the linguistic system remains intact. Language neither merges with nor directly mirrors the various semiotic realities it encounters. And the most direct encounter between language and other systems—in the use of deictic categories—always happens in the linguistically established speech situation.

1.13 Given that the linguistic categorization pertinent to given languages constitutes an inner linguistic reality, why is it that for the native speaker, language is always assumed to find its counterpart in an extra-linguistic world? Why is it that for the ordinary speaker of a language, a given linguistic sign (especially a lexical sign and most particularly a noun) is felt to be a simple substitute for the named object, a simple and direct index of reality? Now, we know of course, that the assumption of identity between word and object is not true for all uses of language. In particular, as Jakobson has pointed out (1934; see also Waugh 1980), in poetry, with its focus on the linguistic message and with the equivalence relations based on similarity between signifier and signifier and between signified and signified, the word is treated as a linguistic unit with its own value and the identity of word and thing is nullified. The poet knows full well that words are not simple substitutes for objects, but are objects in their own right.

But in 'ordinary' discourse and for the 'ordinary' language user, language represents reality because the linguistic world is so powerful a force for us and the linguistic world seems so 'natural' to us, that we assume that it must mirror some sort of reality. Because language provides 'names' for some extra-linguistic phenomena, it is assumed that all of language is a nomenclature which is interrelated with this extralinguistic world. And of course, language is interrelated with extralinguistic, semiotic realities at least in the sense that linguistic signifieds
are translatable into other systems and especially into our thoughts. And once they become part of our thoughts, once they become conceptualized, they become thereby a semiotic reality. And so, in many cases, an identity of word and 'object' is assumed. It is not that the object exists and thus needs a word for it, but rather the presence of the word in the linguistic system guarantees the existence of the object and may even create that existence. The object often exists because the word for it exists and not the other way around. The object is created by the presence of the word in the linguistic system. And since language tells us that these objects are real, we accept them as real. Thus, since the word time exists in the linguistic system of English, it becomes a real linguistic entity, an entity which can be measured (that took three hours), can be lost (I lost a half hour doing that), can be gained (I gained ten minutes by taking the shortcut), can be experienced (I felt the time rushing by), etc. Despite the findings of relativity theory, time and matter are still for us very different linguistically (and also, I think, conceptually). It may be that this difference is due, in part at least, to our different non-linguistic (and semiotic) experience of them both—and in such a case the linguistic and the more general semiotic coincide.

1.14 There is, then, no amorphous substance, no raw semiotic reality, no pre-existing semiotic continuum out of which a given language would arbitrarily choose its signifieds. Rather, the signifieds exist because they have been created for the needs of language; discrete semantic units exist uniquely for the purposes of language and thus are meant for linguistic ends; referents exist because they are creations of the linguistic system, a way of 'linguisticizing' our semiotic experience; linguistic fictions exist because they create our linguistic world. Linguistic signifieds are linguistic artifacts which exist precisely because they have a linguistic function to fulfill. And in many cases, the (extralinguistic) substance exists precisely because the (linguistic) form exists and not vice versa. The form/substance dichotomy is thus fictive and futile, in the signified no less than in the signifier (see Waugh 1979b): semantic units are not linguistic forms to be differentiated from non-linguistic substance, but rather are functional units whose meaning properties must be investigated in the light of their manifestly linguistic ends. And that is the reality of language.

REFERENCES


Librairie Plon.


Subject Clitic Inversion in French *

Dana Wheeler

0. Introduction

Considerable attention has been given to the inversion of subject clitics in French. Kayne (1972) and others recognize two constructions, 'simple inversion' and 'complex inversion', which are treated as a unified movement phenomenon by proposing ad hoc base and deletion rules. After outlining three previous treatments of these constructions and the inverted subject clitics in section 1, I argue in section 2 that these inversions can more naturally be unified by treating 'complex inversion' as a special instance of left dislocation. If 'complex inversion' is treated as an instance of the independently motivated configuration of left dislocation, an analysis of subject clitic inversion in French may be reduced to one simple context-free rule of movement. This is also advantageous in that it allows us to explain the variation between Romance Languages with respect to 'complex inversion' simply by reducing it to the observation that French is the only major Romance Language that has subject clitics.

Section 3 gives an account for the asymmetry between ce and subject clitics in the 'complex inversion' construction based on their distinct status within the classes of NP's defined in the Government Binding framework of Chomsky (1979). Clefted configurations, that is, ce + ëtre, are argued in section 4 to be subject to the same rule of subject clitic inversion that will account for 'simple inversion' and inversion of the subject clitic in left dislocated phrases.

1.0 Subject Clitic Inversion

It has been noted by Kayne (1972) and others that there is a kind of inversion in French that reorders the subject clitic (SCL) and the first verbal element. This inversion, SCL-Inv, is different from the inversion commonly referred to as 'stylistic inversion' (cf. Kayne, 1972), which inverts a non-clitic subject NP and the verb. SCL-Inv is distinct from 'stylistic inversion' in that it exhibits the properties (a) – (c):

(a) it is a root transformation, in the sense of Emonds (1976);
(b) it can occur in yes/no questions as well as with wh questions, and
(c) it inverts the clitic only with the first verbal element of the verb string.
SCL-Inv accounts for instances of 'simple inversion', where no 'subject NP' other than the SCL appears in the sentence. The inverted sentences (1a) and (2a) (derived from (1b) and (2b), respectively) are examples of 'simple inversion':

(1a) Quand parlez-vous à Jean?

(1b) Vous parlez à Jean quand
     'You will speak to Jean when'

(2a) Est-elle arrivée hier soir?

(2b) Elle est arrivée hier soir
     'She arrived yesterday'

The clitic pronouns (Kayne's 'weak forms') that are affected by SCL-Inv are:

<table>
<thead>
<tr>
<th></th>
<th>singular</th>
<th>plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>je</td>
<td>nous</td>
</tr>
<tr>
<td>2nd</td>
<td>tu</td>
<td>vous</td>
</tr>
<tr>
<td>3rd</td>
<td>il, elle</td>
<td>ils, elles</td>
</tr>
</tbody>
</table>

Kayne (1972) also observes that the element ce is subject to SCL-Inv and is therefore a clitic. Ce has a limited distribution and occurs primarily with the verb être:

(3a) Est-ce vrai?

(3b) C'est vrai
     'It is true'

1.1 Complex Inversion and the SCL-Inv Transformation

According to Kayne (1972), SCL-Inv occurs in French in two distinct structures. The first, as noted in section 1.0, inverts the SCL with the first verbal element when the SCL appears as the only element in subject position in surface structure. The second structure in which SCL-Inv may appear is known as the 'complex inversion' construction. In this type of construction, a subject NP appears to the left of the verb and a subject clitic is attached to the right of the verb. Sentences (4) and (5) are examples of 'complex inversion':

(4) (Pourquoi) Jean est-il parti?
    '(Why) has Jean left?'

(5) Cela est-il vrai?
    'Is that true?'
Kayne is justified in stating that the inversion of the clitic is due to the same movement rule in both constructions (i.e., that they are a unified phenomenon) in that the inversion of the SCL in both cases exhibits the properties (a) – (c) of section 1.0 and it is possible to account for both by one rule. (See Kayne (1972) for further arguments.)

Kayne's rule of SCL-Inv is given as:

\[
\begin{align*}
(6) \quad \text{NP} & \rightarrow \text{NP}' \text{ SCL} \\
\text{NP}' & \rightarrow \text{DET N Comp}
\end{align*}
\]

This formulation presupposes a structure for the subject NP (factors 2 and 3) \([Y - \text{SCL}]\), where \(Y\) may represent a lexical NP, such as 'Jean' in (4) and 'cela' in (5). This forces Kayne into adding the phrase structure rule (7) to account for these cases:

\[
\begin{align*}
(7) \quad \text{NP} & \rightarrow \text{NP}' \text{ SCL} \\
\text{NP}' & \rightarrow \text{DET N Comp}
\end{align*}
\]

According to Kayne, then, the underlying structure for sentences such as (4) is:

\[
(8) \quad \text{NP} [\text{Jean - il}] \quad \text{est parti (pourquoi)}
\]

Jaeggli (1980:164) states that 'it is impossible to have both a pre-verbal subject clitic and an NP in subject position', and cites sentences such as (9) and (10) below as instances of left dislocation. These sentences have a surface order identical to the underlying order exemplified by (3):

(9) Jean il veut partir 
'Jean wants to leave'

(10) Les filles elles n'aiment pas les oranges
'Girls don't like oranges'

There is one other instance in which an NP and a pre-verbal subject clitic may appear adjacent to one another at surface structure: in the 'complex inversion' construction in popular French, where the SCL does not invert (cf. Goldsmith (1978), among others):

(11) Jean il est parti?
'Has Jean left?'

In order to maintain the assertion that subject NP's in French are generated as an NP and a subject clitic and still prevent them from appearing together in surface structure in declaratives, Kayne first postulates a rule of SCL deletion, formulated as:
(12) \[ \text{NP} \left[ \text{NP}' - \text{SCL} \right] \Rightarrow \text{NP} \left[ \text{NP}' - \emptyset \right] \]
\[
\begin{array}{llll}
1 & 2 & \Rightarrow & 1 & \emptyset \\
\end{array}
\]

This will account for declarative sentences where only a full NP (including 'strong' pronouns) appears in subject position. But, in an attempt to present a unified account of subject NP's, since subject clitics may appear by themselves, Kayne must also postulate a rule of 'strong form deletion', formulated as:

(13) \[ \text{NP} \left[ \text{Pro} - \text{SCL} \right] - V \Rightarrow \text{NP} \left[ \emptyset - \text{SCL} \right] - V \]
\[
\begin{array}{llll}
1 & 2 & 3 & \Rightarrow & \emptyset & 2 & 3 \\
\end{array}
\]

In this way, all subject NP's have the same base structure and appear at the surface as either a full NP or a subject clitic depending on whether SCL Deletion or 'Strong Form' Deletion has occurred:

(14) \[ \text{NP} \left[ \text{Lui-il} \right] \text{ est malin} \]

SF Deletion \[ \emptyset \]

'S'il est malin'

NP \[ \text{Lui-il} \] est malin

SCL Deletion \[ \emptyset \]

'lui est malin'

'He is cunning'

Kayne's base rule for French NP's is context-free, so that it may appear anywhere that an NP is generated by the PS rules. For instance, in a Passive construction, SCL Deletion will apply to the NP after it moves from object position into subject position. Thus (15) is the underlying structure for (16):

(15) \[ \text{- fusiller} \quad \text{NP} \left[ \text{ce garçon - il} \right] \quad \text{pourquoi} \]

(16) \[ \text{Pourquoi ce garçon sera-t-il fusillé?} \]

'Why will this boy be shot?'

To summarize, Kayne in order to account for the 'complex inversion' construction in French and maintain that its inversion and simple SCL inversion are the same phenomenon, has had to add an additional phrase structure rule specific only to French as well as two obligatory deletion rules. The theoretical disadvantages of this analysis lie in that it appears to be ad hoc, requires obligatory rules and is not consistent with the framework of the X notation. Furthermore, Kayne's rules of SCL-Inv, SCL Deletion and Strong Form Deletion are not only obligatory rules, but must also be extrinsically ordered with respect to one another.
Another observational problem with Kayne's analysis is contained within his rule of SCL-Inv (cf. 6). He has built a 'trigger' into the rule, 'X+', to ensure that SCL inversion occurs only in questions, either yes/no or interrogatives. However, both Kayne (1972) and Goldsmith (1978) note that SCL inversion may also occur after a certain type of 'sentence adverbs' when they precede the subject position:

(17) Il semblait presenter sa gorge au coup mortel; aussi l'a-t-il reçu
    'He seemed to present his throat to the mortal blow; thus it has-he received'

(18) Peut-être Jean est-il déjà parti
    'Maybe Jean has already left'

(19) Sans doute cette fille reviendra-t-elle
    'Without doubt that girl will return'

((17) and (18) are taken from Goldsmith (1978); (19) is from Kayne (1972).)

Kayne's rule, as formulated, will not account for the inversion of the subject clitic in the above sentences.

1.2 Other analyses of SCL Inversion

Goldsmith (1978) treats inversion of the subject clitic by asserting that the rule 'places a pronoun copy of the subject after the first verb, deleting the subject if it is a pronoun':

(20) \[
    \begin{array}{c}
    \text{NP} \\
    \langle \text{Pro} \rangle \\
    \hline
    \text{V} \\
    \hline
    \langle 1 \rangle \\
    1 & 2 \quad \Rightarrow \\
    2 + 1 \\
    \hline
    +\text{Pro}
    \end{array}
    \]

This rule accounts for simple SCL inversion by moving the subject clitic to the right of the first verbal element. In the instance that the subject NP is not a pronoun (weak or strong form), it copies its corresponding clitic to the right of the verb. This formulation of the rule avoids having to assume Kayne's ad hoc base structure for the NP, that is, \([\text{NP'] - \text{SCL}}\).

Kayne (1972) argues against a copying formulation of the rule of SCL inversion because of sentences of the type:
(21a) Pourquoi Jean et moi ne devrions-nous pas partir tout de suite?

(21b) Pourquoi Jean et moi ne devrait-on pas partir tout de suite?

'Why shouldn't Jean and I leave right away?'

The subject NP 'Jean et moi' may be 'represented by' more than one SCL. Kayne points out that it would be difficult for a copying rule, where the SCL is not represented in the base, to account for the dual possibility; further, and more important, he notes that where the subject NP and the SCL do not 'agree' and in (21b), the verb agrees with the SCL and not with the subject NP. This is evidence for assuming that agreement in general is formulated between the SCL and the verb in 'complex inversion' constructions, a notion that is incompatible with Goldsmith's rule. For further arguments against a copying hypothesis, see Kayne (1972) and Van Riemsdijk and Zwarts (1974).

Jaeggli (1980) has proposed an alternate solution to 'complex inversion', basing his analysis of SCL's in French on Kayne's observation that SCL's do not act like subject NP's; rather, they share the characteristic behavior of object clitics. He concludes that SCL's do not have NP status and, rather than generate them under the subject NP node, he generates them as part of the node INFL(ection). The two pertinent base rules for French are:

(22) $S \rightarrow NP \overline{INFL} \overline{VP}$

$\overline{INFL} \rightarrow (SCL) \overline{INFL}$

Following Jaeggli, the underlying structure for a sentence of the type (23) is (24), which contains a PRO, a phonologically null pronominal anaphor, in the subject NP position:

(23) Il est parti

(24) $NP[\overline{PRO}] \overline{INFL}[\overline{il - INFL}] \overline{VP}[partir]$

This differs from the 'complex inversion' construction only in that a lexical NP rather than PRO appears in subject position:

(25) Jean est-il parti?

(26) $NP[Jean] \overline{INFL}[\overline{il - INFL}] \overline{VP}[partir]$

For a detailed discussion of this approach, see Jaeggli, (1980, Chapter 3).
There are two aspects of Jaeggli's analysis that are pertinent to the question at hand. First, Jaeggli is able to simplify Kayne's rule of SCL inversion by having eliminated the NP constituent NP' - SCL, and by eliminating Kayne's +Q trigger. His formulation of the rule is as follows:

\[(27) \quad \begin{array}{ccc} X & \text{SCL} & V \ Y \end{array} \quad \Rightarrow \quad \begin{array}{c} X & V + \text{SCL} & Y \end{array} \]

\begin{array}{c}
1 \\
2 \\
3 \\
4 \\
\end{array} \quad \Rightarrow \quad \begin{array}{c}
1 \\
3 + 2 \\
4 \\
\end{array}

This rule, by Jaeggli's admission, will overgenerate to include declaratives. He allows for this by stating that 'a convention that applies after S-structure (perhaps in Logical Form) will interpret sentences with a post-verbal clitic as [-declarative]' (1980:185). A strategy eliminating the trigger from the formulation of the rule may indeed by correct but Jaeggli's convention is insufficient, because, as previously noted, other factors such as 'sentence adverbials' may trigger SCL inversion in declaratives.

Second, note that Kayne's and Jaeggli's analyses of 'complex inversion' have one crucial point in common: some sort of element other than the SCL appears in the subject NP position. This is for two reasons. The first is that since SCL's do not appear to act like NP's, they should not be generated in the subject NP position, or at least not by themselves, according to Kayne. (I will not take up that point here, but for an interesting analysis to the contrary, see Piera (1980).) Second, Kayne and Jaeggli both insist that 'complex inversion' is not an instance of 'left dislocation', where the 'subject NP' would be generated under a (TOPIC) node and a resumptive clitic pronoun would appear in the corresponding slot within the sentence.

Jaeggli does not argue the issue; he bases his assumptions on Kayne's arguments which hinge specifically on the following: based on work by Gross (1968), Kayne notes that 'a 'detached' [left-dislocated] NP is not readily replaceable between an interrogative phrase and a verb (1972:116)'. He concludes from this that sentences with a WH phrase to the left of a left-displaced NP are all instances of 'complex inversion'. The sentences cited to demonstrate this restriction all involve the clitic ce, as in, for example, (28):

\[(28) \quad ?? \text{Pourquoi, l'argent, est-ce mauvais?} \]
\[' \text{Money, why is it evil?}' \quad = \quad ' \text{Why is money evil?} ' \]

(c.f. Pourquoi Jean est-il malade?
'Why is Jean sick?')

It is my contention that (28) is ill-formed for the same reason that (29) - (32) are unacceptable:
(29) *Pourquoi cela est-ce faux?
'Why is that false?'

(30) *En quoi ce qu'il dit est-ce insensé?
'In what way is what he says absurd?'

(31) *De quelle façon les enfants est-ce marrant?
'How are children funny?'

(32) *Pourquoi ce garçon n'est-ce pas un bon élève?
'Why isn't that boy a good student?'

Sentences (29) – (32) are, according to Kayne, all instances of 'complex inversion' rather than displacement. Therefore, he is forced to exclude them by postulating that ce will never occur in the subject NP (cf. (7)) next to a lexical NP', rather, it will only appear with an abstract marker [C], that will be realized as Ø under Strong Form Deletion and ça under SCL Deletion. He also blocks the co-occurrence of ce with a lexical NP in the 'complex inversion' construction by expanding the SCL node in the base into a set of features (such as [+ masculine], [+ singular], etc.) which must 'match up' the SCL and NP'; since, according to Kayne, no combination of these features will be realizable as ce, it cannot co-occur with a lexical NP'.

Notice however that (28), cited as an instance of left dislocation, and (29) – (32), cited as instances of 'complex inversion' are all of the form (33):

(33) 'wh phrase – NP – verb – ce'

Rather than ruling out the possibility that the 'subject NP' in the 'complex inversion' construction may in fact be a left-dislocated NP due to the ungrammaticality of sentences such as (28), I will argue in section 3.1 that the ungrammaticality of sentences (28) – (32) is a unified phenomenon, due to the impossibility of a coreferential relationship between an NP and ce in sentences of the structure (33), above.

Crucially, neither Kayne (1972:41) nor Langacker (1972:44-45) find it desirable to define a dislocated NP in French as one set off by a pause (orthographically represented as a comma) from the rest of the sentence. One must agree with this, in light of such examples as (34), cited by Kayne as an instance of left dislocation, and (35), a declarative sentence where no pause need be perceived in standard spoken French and which can only be analyzed as left dislocation:

(34) Cela est-ce vrai?
'Is this true?'
(35) Jacques il est venu  
'Jacques came'  

This leaves open the possibility that 'complex inversion' in French may be an instance of the independently motivated left dislocation configuration, a position that I argue in favor of in the next section.  

2.0 Complex Inversion as an Instance of Left Dislocation  

The 'complex inversion' construction is basically of the form (36):  

(36) 'WH phrase) + WH - NP - verb - SCL ...'  

Kayne (1972) notes the special relationship between SCL's and 'complex inversion' as follows: '... no language can have complex inversion without having subject clitics'. If this observation is correct, it might be possible to treat 'complex inversion' as a special instance of a broader construction, relating its peculiarities (which are precisely the relationship of a 'subject NP' to a subject clitic) solely to the fact that SCL's exist only in French with respect to Romance.  

Left dislocation involves an NP generated under a node (TOPIC) that is related to a resumptive pronoun in the sentence by a rule of predication (or construal) that interprets the resumptive pronoun as coreferential with the dislocated NP. Sentences such as (37) are instances of left dislocation and are derived by phrase structure rules such as the ones in (38) (Chomsky, 1977):  

(37) John, I like him  
(38) Rule 1  
\[ \overline{S} \rightarrow \text{TOP} \overline{S} \]  
Rule 2  
\[ \overline{S} \rightarrow \text{COMP} \{\overline{S}\} \{\overline{S}\} \]  

In Romance, instances of left dislocation occur in general with clitics as the resumptive pronoun. 9 Hence we have sentences of the following type (from Jaeggli, 1980):  

(39) Esas novelas, Juan dijo que no las pudo terminar  
'Those novels, John said that he couldn't finish them'  

French, which is distinct from other Romance Languages due to the presence of subject as well as object clitics, has instances of subject dislocation as well, eg., (9) and (10). 10 The resumptive pronouns interpreted as coreferential to the topicalized NP are in fact clitic pronouns. These sentences have the structure in (40):  

(40)  
\[ \overline{S} \rightarrow \text{TOP} \left[ \overline{S} \rightarrow \text{COMP} \left[ \overline{S} \left[ \text{il veut partir} \right] \right] \right] \]
If we were to apply SCL-Inv (27) to the above structure, the result would be an instance of 'complex inversion':

(41) Jean veut-il partir?
     'Does Jean want to leave?'

Consider other sentences that Kayne (1972) analyzes as 'complex inversion'. They too can be analyzed as special subcases of left dislocation:

(42) A quelle heure le concert va-t-il commencer?
     'What time does the concert begin?'

(43) Depuis quand tout cela t'amuse-t-il?
     'Since when does all this amuse you?'

In each sentence above, we have a structure (before inversion) corresponding to Chomsky's for sentences containing a dislocated NP, generated by Rule 2 of (38):\(^{11}\)

\[
(44) \quad \frac{S}{S} \left[ \begin{array}{l} \text{COMP} \\ \left[ (\text{WH phrase}) \right] \end{array} \right] \rightarrow \frac{S}{S} \begin{array}{l} \text{TOP} \\ \left[ \begin{array}{l} \text{NP} \\ \left[ \begin{array}{l} \text{S} \\ \left[ \text{COMP} \right] \left[ \text{S} \right] \left[ \text{NP} \right] \left[ \text{S} \right] \left[ \text{SCL} \right] \left[ \text{VP} \right] \right] \\ \left[ \left( \text{V ...} \right) \right] \end{array} \right] \\ \end{array} \end{array} \right]
\]

It seems plausible, in the absence of strong syntactic argument to the contrary, to argue that Kayne's 'complex inversion' constructions are actually instances of left dislocated sentences to which SCL-Inv has applied. Of course this is the 'best case': independent motivation supports this analysis of topicalized structures.\(^{12}\) The only fact that need be stipulated is that French has subject clitics.

Further, note that the structure generated by Chomsky's rules provides for a COMP node both to the left and to the right of the TOPIC node. C. Piera has pointed out to me that this could conveniently provide a structural account for the presence or absence of a pause in otherwise non-distinct sentences. The presence of a pause after the dislocated NP indicates that only the embedded S is being questioned, as in sentences (45) and (46) below. The absence of a pause indicates that a WH element appears to the left of the dislocated NP and the entire topicalized structure is questioned, as in (48) and (49). Both types of sentences are then analyzable as instances of left dislocation:\(^{13}\)

+PAUSE:

(45) Jean, est-il arrivé?  (yes/no)

(46) Les chats, pourquoi ont-ils une telle faim? (interrogative)

(47) \[
\frac{S}{S} \begin{array}{l} \text{COMP} \\ \left[ \begin{array}{l} \text{TOP} \\ \left[ \begin{array}{l} \text{S} \\ \left[ \text{COMP} \right] \left[ \text{S} \right] \left[ \text{NP} \right] \left[ \text{SCL} \right] \left[ \text{VP} \right] \right] \\ \left[ \left( \text{WH phrase} \right) +WH \right] \left[ \left( \left( \text{...} \right) \right) \right] \\ \end{array} \right] \\ \end{array} \end{array} \]
(48) Jean est-il arrivé?

(49) Pourquoi les chats ont-ils une telle faim? (from Emonds, 1976)
"Why are the cats so hungry?"

(50) $S_{\text{COMP}} \left[ \left( \text{WH phrase} \right) + \text{WH} \right] = \left[ S_{\text{TOP}} \left[ S_{\text{NP}} \left[ S_{\text{COMP}} \left[ \ldots \right] \right] \right] \right]$}

To summarize, it appears that 'complex inversion' in French may be viewed as an instance of left dislocation, and that the inversion of the subject clitic in this construction is accounted for by the same rule that inverts SCL's in simple sentences. Of course the appeal of this approach is that it eliminates the need for postulating any base rules specific to French as well as any ad hoc transformations, such as Kayne's deletions. In addition, it accounts neatly for the fact noted by both Kayne and Jaeggli that agreement with the verb is determined by the SCL and not by the 'subject NP', as this NP will be generated outside the sentence containing the verb.

3.1 The Clitic 'ce' as a Resumptive Pronoun

We now return to the question left undiscussed in section 1.2 regarding the unacceptability of ce as the coreferential pronoun in sentences (28) - (32).

Both Kayne (1972) and Jaeggli (1980) observe that ce never appears as the inverted element in a complex inversion construction, but that it may appear as an inverted clitic by itself with or without a preceding WH phrase:

(51) Est-ce vrai? (cf. C'est vrai)

(52) Qui est-ce qu'elle voit?
'Who does she see?' ('Who is it that she sees?')

Note also that an inverted ce may appear to the right of a dislocated NP if not coreferential to it (as pointed out to me by C. Piera):

(53) Les jeux, est-ce les enfants qui les inventent?
(cf. Les jeux, c'est les enfants qui les inventent)
'Games, is it children who invent them?'

Kayne and Jaeggli also determine that ça and the clitic ce have the same feature bundle specification and that they appear to be in complementary distribution; further, that ce may be understood to be the clitic form of ça that appears in sentences with the verb ëtre, either immediately preceding or following the verb.
Consider, however, sentences such as (54) and (55) below, in which the inversion of ce is ungrammatical:

(54) *L'etat, est-ce moi? (cf. L'etat, c'est moi)

(55) ?L'argent, est-ce mauvais? (cf. L'argent, c'est mauvais) 'Money, is it bad?'

How are we to account for the discrepancy in grammaticality of an inverted ce? One possible answer is that ce is actually two separate clitics: the first, derived from ça, is non-referential and may not be coindexed to a preceding NP; the second is referential and may be coindexed to a preceding NP. This distinction is reflected in their syntactic distribution, as only a non-referential ce may invert. (For further discussion, see Wheeler (in preparation).)

Although non-referential ce is similar to the other subject clitics in that it may undergo inversion, it differs from them it that other SCL's may appear in one inverted construction in which ce may not:

(56) 'WH phrase – NP – ______ est-SCL …'

(57) *'WH phrase – NP – ______ est- ce …'

Within the analysis presented here, this generalization can be restated as: ce may not be coreferential with a left dislocated NP when a TOPIC intervenes.

Recall that in Chomsky's analysis of left-dislocated phrases, the NP generated under the TOPIC node is related to the sentence by a rule of predication. This implies that the sentence (the proposition) is 'about' the item focused in the TOPIC node, and a construal rule will interpret the resumptive pronoun as being coreferential to the NP in the TOPIC position.

The difference between non-referential ce and the other SCL's could be captured by treating ce as a member of a different class of NP's than the other SCL's: in particular, let us assume that SCL's are pronominals while non-referential ce is a 'name', a non-pronominal which may not have an antecedent.

If non-referential ce is a name, it would follow that instances of left dislocation occurring with it as the resumptive pronoun must be interpreted by a general rule of predication relating the topicalized NP and its proposition in the manner suggested by Chomsky (1977). In the instance of another SCL appearing as the resumptive pronoun, the rule of COINDEX, a construal rule, would simply determine the coreference relation between the topicalized NP and the pronounal. Left-dislocated phrases with non-referential ce, then, must be interpreted by a general rule of predication.
while left dislocated phrases with other SCL's may be interpreted by a rule of construal coindexing TOPIC and SCL.

It is due to characteristics of rules of predication that we can explain the unacceptability of sentences with the configuration (57).

Chomsky (1978) treats instances of WH movement as the relationship of binding, that is, the fronted WH phrase must bind the variable in the gap left by its movement. If the variable is not bound by its WH phrase, it is free, creating an open sentence at Logical Form. Sentences of this type are uninterpretable and therefore ill-formed.

The configurations in question, containing either an inverted ce or some other SCL, are all instances of this particular binding relationship:

\[
S_{\text{COMP}} [\text{WH phrase}] \Rightarrow S_{\text{TOP}} [\text{NP}] [\text{[ ] [V - SCL x ]}]]
\]

It is my contention that binding of the variable by the WH phrase in COMP is blocked in the inverted ce constructions, thereby creating an open sentence at Logical Form.

Recall that the ce sentences differ from the other SCL sentences: in the former, the interpretation of the dislocated NP and its proposition is by a rule of predication, while in the latter, it is by a rule of construal. Why should ce, involving a rule of predication in left-dislocated structures, be associated with an inability to bind a variable in its domain?

Hendrick (1980) gives evidence for the following condition in the theory of grammar:

(59) If a predication rule, P, co-indexes two constituents \( C_i, C_j \) then \( C_j \) is opaque.

In other words, predication rules establish opaque domains.

If a domain is opaque, no item within that domain may be construed with any item outside of it. Here, then, we have an independently motivated explanation for the ungrammaticality of dislocated phrases containing a WH phrase and ce as the inverted SCL. The rule of predication establishes an opaque domain within the embedded sentence and the variable it contains may not be bound by the WH phrase outside of it. The sentence is therefore open and uninterpretable at LF. When a construal rule is involved however, as the structures where the SCL is pronominal, (59) is inapplicable and the binding of the variable is unimpeded. Hence the acceptability of sentences with the configuration (56).
Let us return briefly to the question of 'complex inversion' as an instance of left dislocation. Recall that the SCL's other than non-referential ce have been assumed to belong to the class of NP's known as pronominals. According to Chomsky (1979), pronominals must be bound outside their minimal governing category. If 'complex inversion' is not left dislocation, that is, if the 'subject NP' and its corresponding SCL are both generated within the same sentence, the SCL will be bound to an NP within its governing category and Chomsky's binding conditions on pronominals will be violated. This seems to constitute a rather strong argument against the analyses of Kayne (1972) and Jaeggli (1980) where 'subject NP's' and SCL's are generated in the same clause.

If, on the other hand, 'complex inversion' is one instance of left dislocation, the resumptive pronoun (the SCL) will be generated within the sentence while its antecedent, the 'subject NP', will be generated outside the sentence under the TOPIC node to its left. The SCL will then be bound by an antecedent outside of its governing category and the binding condition on pronominals will not be violated.

4.0 Cleft Sentences in French and SCL Inversion

One other construction in French is relevant to this discussion of SCL inversion.

Clefted sentences in French pattern basically as those of English, with the cleft phrase 'it is' translated as ce - est 'c'est' (where ce is non-referential):

(60) It's John that eats late =

(61) C'est Jean qui mange en retard

(See Moreau (1976) for a discussion of 'c'est' and the cleft construction in French.)

Langacker (1972), in his discussion of clefted sentences and inversion in French, cites such question formulas as 'qu'est-ce que', 'qui est-ce que' and 'est-ce que' as the interrogative counterparts of cleft sentences. Thus,

(62) C'est Pierre qu'elle voit

may be questioned as in (63):

(63) Qui est-ce qu'elle voit?
'Who does she see?' ('Who is it that she sees?')
Ce, as has been observed, is subject to SCL inversion; it seems appropriate to extend the analysis to include clefted configurations and to point out that Langacker's question formulas are simply an instance of SCL-Inv applied to clefts. The inversion of ce in the cleft configuration exhibits the properties (a) and (b) of section 1.0 ((c) is inapplicable in this case, as ce will occur only with être):

(64)=(a) *Jean sait très bien à quelle heure est-ce que partira ton frère.
   'Jean knows full well at what time (is it that) your brother will leave'

(65)=(b) Est-ce que la mort est certaine?
   'Is death certain?'

Sentences such as (66) and (68) below appear to present problems for the analysis of questioned clefts as instances of SCL-Inv, as in the questioned configurations, the verb être may only appear in the present tense and 'est-ce' may not be negated:

(66) { Qu'est-ce ?? Qu'était-ce }
     qui s'était échappé 14

(67) C'était le pingouin du zoo que s'était échappé
    'It was the penguin from the zoo that escaped'
    (from Moreau 1976)

(68) *Qui n'est-ce pas qui est là? (from Langacker 1972)

cf.(69) Ce n'est pas Jeanne qui est là
    'It's not Jeanne who is there'

Langacker attributes this to the notion that the interrogative formulas with ce + être have 'frozen to some degree into fixed, "lexical" patterns'. He points out, however, that this does not imply that they are unanalyzable units and that these syntactic peculiarities do not prevent this construction from being derived by productive syntactic rules.

SCL inversion is such a 'productive syntactic rule' and may easily be extended to account for question formulation in cleft constructions.

5.0 Conclusion

In this essay, I argue that 'complex inversion' in French is an instance of left dislocation and is not a distinct construction. A simplified formula of a rule of SCL inversion (such as Jaeggli's) will account for all instances of the inversion in French, that is, in 'simple inversion', 'complex inversion' and cleft sentences.
Beside the simplicity of this proposal, a major advantage of treating 'complex inversion' as an instance of left dislocation is that it gives some insight into the variation between the Romance Languages. 'Complex inversion' is specific only to French. French is also unique among the major Romance Languages in that it has subject clitics. By treating 'complex inversion' as left dislocation, we may reduce what is language particular to French to the fact that it has subject clitics. French simply is able to make fuller use of left dislocation by dislocating 'subjects' as well as other phrases. In addition, while both Kayne (1972) and Jaeggli (1980) need to recognize two distinct structures for constructions involving a 'subject NP' and a subject clitic, this analysis presents a unified account for their co-occurrence.
* I wish to thank J. Herschensohn, M.C. Saiz and C. Piera for helpful discussion on an earlier version of this paper.

1. A root transformation is a transformation that may only apply in a root sentence. Emonds (1976) defines a root sentence as 'an S that is not dominated by a node other than S'.

2. Kayne (1972) also analyzes the 'indefinite' clitic on as subject to SCL-Inv (assuming certain restrictions in application, as in (21a - b)).

3. The reader is referred to Langacker (1972) and Moreau (1976) for discussion of the properties of the ce + être construction.

4. Another problem arises in Kayne's (as well as Jaeggli's) analysis of the base position of the SCL in French, in that it violates Chomsky's (1979) binding conditions, assuming (under the most natural hypothesis) that clitic pronouns are in fact pronominals. See section 3.1.

Notice, moreover, that the rule of SCL-Inv as formulated by Kayne is not stateable within a more restricted framework where transformations can only accept strings as their input.

5. 'Q' is used by Kayne in the sense of Baker (1970), as that which is common to both yes/no questions and interrogatives, that is, '+WH'.

6. Jaeggli's phrase structure rule for the INFL node appears to have been devised strictly to account for 'complex inversion' in French, just as was Kayne's phrase structure rule for the NP. It would be desirable to avoid postulating ad hoc rules of this type if the data could be accounted for with independently motivated properties of linguistic theory. See section 2.0.

7. Note that a fixed number of grammatical formatives can intervene between the subject clitic and the first verbal element: object clitics, y, en, on and ne. A rule of SCL inversion will somehow have to account for this, possibly by generating nodes for these elements to the left of the first verbal element in the base and referring to this grouping as V'. In any case, this is a problem for everyone's analysis of SCL-Inv and is not detrimental to my hypothesis.

8. Moreover, Langacker affirms that 'complex inversion' constructions should be analyzed diachronically as instances of left dislocation.
9. Jaeggli (1980) notes that left dislocations may be construed with resumptive epithets (p. 92). Kayne (1972) gives an instance of left dislocation with a strong form resumptive (p. 117):

(i)'Celui-là, tout le monde a peur de lui'
   (cf. popular French 'toute le monde en a peur')

10. See Torrego (1978, 1979) for an analysis of dislocated 'subjects' in Spanish. Briefly, she argues that many instances of a left-displaced subject are actually dislocation rather than topicalization. Their superficial resemblance to topicalization (in the sense of Chomsky (1977)) is due to the fact that Spanish, unlike French, has no subject clitics that may appear as the resumptive pronoun. Assuming Torrego's analysis, French may then be said to simply fill the 'gap in the paradigm' by allowing for resumptive subject as well as object clitic pronouns.

11. The SCL has been generated in subject position, that is, under the NP immediately dominated by S. I am not convinced by Kayne's and Jaeggli's arguments that because a SCL does not act like an NP it cannot appear syntactically under an NP node. It is phonologically a clitic and as such, distinct from NP's phonologically, not syntactically. (See Piera (1980) for discussion of this point.) In any case, it is not crucial to my analysis that the SCL appear under the subject NP node. It could be generated as in Jaeggli's analysis. What is crucial is that (a) the NP that is coreferential to the SCL appear under the TOPIC node and that the SCL appear within the S, and (b) the SCL be generated under the same node in both the 'simple' and the 'complex' inversion constructions.

12. See Chomsky (1977). Note also that independent instantiation of structure (44) may be derived from sentences of the type below (from popular French), where no inversion has occurred:

(ii)Depuis quand toi t'as pas d'amis?
   'Since when you don't have any friends?'

13. Moreau (1976:71) notes that sentences such as:

(iii) Pourquoi l'ingénieur a-t-il lavé sa voiture?

are unacceptable with a pause after 'l'ingénieur'. This would correspond to the idea that the placement of the WH element determines where the pause may appear in the utterance. In the absence of strong syntactic evidence, it does not seem to me to indicate that two distinct syntactic structures are necessary to account for the difference in utterance. Both may be instances of left dislocation.
14. Sentence (61),

'Qu'était-ce qui s'était échappé?'

is acceptable if understood as (a), but not if understood as (b):

(a)'What was it that escaped?'
(b)'What escaped?'

15. Again, see Torrego (1978, 1979) for an alternate (and, I believe, correct) analysis.
REFERENCES

P. Culicover, A. Akmajian and T. Wasow, editors
New York: Academic Press

New York: North Holland.

unpublished paper: MIT


unpublished paper: Indiana University.

unpublished paper: University of North Carolina at Chapel Hill.

unpublished Doctoral Dissertation: MIT

*Generative Studies in Romance Languages.*
J. Casagrande and B. Saciuk, editors.
Rowley, Massachusetts: Newbury House.

*Generative Studies in Romance Languages.*
J. Casagrande and B. Saciuk, editors.
Rowley, Massachusetts: Newbury House.

Universite de Mons.

unpublished paper: Cornell University

unpublished paper: UCLA

unpublished paper: University of Massachusetts, Boston

unpublished paper: MIT/University of Amsterdam

unpublished paper: Cornell University