ON CLITICS

Arnold M. Zwicky

OHIO STATE UNIVERSITY

ON CLITICS*

Arnold M. Zwicky

Ohio State University

1. Introduction. Most languages -- very possibly, all except those of the most rigidly isolating type -- have morphemes that present analytic difficulties because they are neither clearly independent words nor clearly affixes. The problem is recognized, at least as a difficulty in terminology, in traditional language descriptions, where certain elements are set apart from the ordinary words and affixes of the language by being labeled clitics (pro- or pre-, en- or post-), particles, or pre-/post-positions (for some recent general discussion, with French, Latin, English, and Italian examples, see Matthews 1974:166-9). The problem was also recognized by structuralists, who saw such elements as challenging the principle that the levels of linguistic structure (in particular, the levels of morphology and syntax) are sharply separated; Pike 1949, for instance, discusses quite clearly the analytic difficulties presented by English fast speech forms and, especially, by a set of Mixteco morphemes.

For generative grammarians these difficulties were obscured for some years, since the traditional domain of morphology was assumed to be apportioned between syntax and phonology. With a return to the traditional position that morphological structure and syntactic structure obey different principles by and large, as do morphophonemics and phonology proper, has come the realization that there are borderline cases. So in Aronoff (1976:3-4), where it is proposed that inflection is a 'syntactic' matter while derivation is a matter of word formation rules belonging to the lexicon, we find a brief discussion of clitics (with examples from Classical Hebrew, English, Syriac, and Navaho), which are distinguished from both inflectional and derivational affixes but assumed to be closely related to the former. The generative grammarian's striving for both precision and generalization in linguistic descriptions has, in fact, led to the uncovering of a host of analytic problems, which I will try to survey in this paper.

I begin by looking at a particularly complex case from the Austronesian language Madurese, as treated by Stevens (1971). On the one hand, a Madurese reduplicative morpheme, symbolized by Stevens with an R, shows alternative orders with respect to certain other morphemes, in particular the causative prefix pa-: from the base kumpul 'gather', both

                    i   -   *pa*   *-pul-kumpul*
            passive causative   R   base

    and   *i-pul-pa-kumpul*

            (for some speakers, also *pul-i-pa-kumpul*)

can be formed, and both mean 'kept on being gathered'. In this
respect, R shows the syntax of an independent word, for, though
alternative orderings without difference in cognitive meaning are
very common in constructions formed from independent words (as
in so-called 'free word order' languages), within words the
ordering of elements is rigidly fixed (Perlmutter 1970:234,
citing Postal):

Ordering: Alternative orders of morphemes within a word are
associated with differences in cognitive meaning.[1] This bit
of evidence from word-internal syntax is supported by the
phonology of R; 'R acts...very much like a separate word phono-
logically; various rules which are effective across morpheme
boundaries within a word (for example, a type of vowel harmony
and syllabification, are not effective across the boundaries
separating R from adjacent morphemes' (Stevens 1971:421). Here
we appeal to a distinction between rules with different domains:

Internal Sandhi: In many languages there is a set of phono-
logical rules of internal sandhi: these apply only within
words, never across boundaries between two words.[2]

        On the other hand, the morpheme R shows at least two of
the syntactic properties of an affix, as opposed to an inde-
pendent word: It is a bound morpheme, in the sense that it
cannot occur in isolation (even, presumably, as an answer to
a question) and in the sense that it cannot be set off from the
morphemes with which it is in construction by parenthetical
material; and it occurs in words between two clearly affixal
morphemes, the passive *i* and the causative *pa*. The first of
these properties is not specifically stated by Stevens, though
it can be inferred from his description of R as a prefix; here
we appeal to the principle:

Binding: Bound morphemes are affixes.

The second property depends on an assumption that syntax and
morphology are not intermingled:

Construction with Affixes: A morpheme in construction with an
affix is either a base or an affix.

Finally, there are two matters that would bear on the affix/ independent word decision for R, but for which Stevens' brief note does not contain the relevant information. The first of these is syntactic, and relies on the following general hypothesis:

Rule Immunity: Proper parts of words do not undergo rules of deletion under identity.[3]

In particular, affixes are immune to such rules, so that we do not find derivations like

> *yellowish or greyish → yellow or greyish*

> *dancing and singing → dance and singing*

Though I know nothing whatsoever about conjunction reduction in Madurese, I think it is safe to suppose that R behaves like an affix in this respect, and does not delete under identity to an R in a conjunct.

The second consideration is phonological. Though Stevens does not mention accent in his squib, I will suppose that R does not bear accent, in which case there is phonological evidence for its affixal status, using the general principle:

Accent: Morphemes that do not bear an independent accent are affixes.

2. Types of clitics. Now it is clear that the six principles above, whatever their general utility, cannot all be held simultaneously. Of them, Binding, Construction with Affixes, and Accent are the most susceptible to attack, and indeed there are many cases in which these three principles as a group have traditionally been assumed to need refinement or amendment. In the following subsections I describe three classes of exceptional cases.

2.1. First class: cases where an unaccented bound form acts as a variant of a stressed free form with the same cognitive meaning and with similar phonological makeup. Traditionally the unaccented bound unit is called a conjunct, conjoint, or conjunctive form, the stressed free unit a disjunct, disjoint, or disjunctive form or the unaccented bound unit is said to be clitic (literally, 'leaning on'), weak, or dependent, in contextual alternation with free, strong, or independent forms. The weak or clitic pronoun of many Romance and Slavic languages are standard examples; thus French conjunct pronouns me [mə] 'me' and le [lə] 'him', versus the corresponding disjunct pronouns moi [mwa] and lui [lμi] and Serbo-Croation enclitic pronouns

im 'to them' and *ti* 'to you (sg.)', versus the full pronouns *njima* and *tebi*. Similarly, Egýptian Colloquial Arabic enclitic pronouns [(a)k] '2nd sg. masc.' and [ha] '3rd sg. fem.', versus the independent pronouns [ʕínta] and [hǐyya] (Mitchell 1962: 52-3) (the enclitic pronouns are objects or possessives, while the independent pronouns are normally subjects, though they can be used with possessive enclitics for emphasis); and Modern Greek conjunct pronouns [me] 'me' and [se] 'you (acc. sg.)'/ [su] 'you (gen. sg.)', versus disjunct pronouns [eména] and [eséna], respectively.

The disjunct form in such languages is typically used whenever an accented pronoun is called for on syntactic or seman- tic grounds, in particular when a pronoun is to be emphasized or when it must stand in isolation (as in answers to questions); so, in Modern Greek:

> [eséna   (su)ðíno   éna mílo]
>   to you to you I give an apple

'I'll give <u>you</u> an apple.'

(*[sú ðíno éna mílo])

and, in answer to [pianú tolés] 'To whom are you saying it?':

> [eséna]

'To you (sg.)'

(*[sú])

(examples adapted from Householder et al. 1964:82).

Notice that the phonological relationship between the weak and strong forms in these examples is not straightforward; it is unlikely that the weak forms are related to the strong ones by phonological rules of any generality. Notice also that emphatic uses of strong forms may, in some languages and under certain circumstances, cooccur with clitic forms, as in the Modern Greek example above and in French *Je le vois lui* [žləvwá lyí] 'I see <u>him</u>'.

This French example also illustrates the fact that conjunct clitics often show <u>special syntax</u>: in French declarative sentences, conjunct object pronouns are obligatorily placed before the verb despite the fact that French declarative word order is SVO, objects ordinarily coming after the verb:

> *Je vois Jean*   [žvwá žã]

'I see John'

*Je Jean vois

Je le vois   [žləvwá]

'I see him'

Je vois $\left\{\begin{array}{l} \text{le} \\ \text{lui} \end{array}\right\}$

Notice, finally, that the French conjunct pronouns behave like affixes with respect to rule immunity:

     Je connais Jean et je crains Jean

     'I know John and I fear John'

     → *Je connais et crains Jean*

       'I know and fear John'

but

     Je le connais et je le crains

     'I know him and I fear him'

     → *Je le connais et crains*

2.2 Second class: Cases where a free morpheme, when unaccented, may be phonologically reduced, the resultant form being phonologically subordinated to a neighboring word. Cliticization of this sort is usually associated with stylistic conditions, as in the casual speech cliticization of object pronouns in English; there are both formal full pronouns and casual reduced pronouns:

	Full	Reduced
He sees her	[hì sìz hʌ̀]	[hì sìzr̩]
She met him	[šì mɛ́t hìm]	[šì mɛ́rm̩]

As in the case of the clitics discussed in the previous section, the full form is the one that appears under emphasis or in isolation:

She met him   [šì mɛ̀t $\left\{\begin{array}{l} \text{hím} \\ \text{*ım} \\ \text{*m̩} \end{array}\right\}$]

(Who is it?) Him   [$\left\{\begin{array}{l} \text{hím} \\ \text{*im} \\ \text{*m̩} \end{array}\right\}$]

However, those clitics showed special syntax and opaque phono-
logy, while these have ordinary syntax (the reduced forms occur
in the same positions as the full forms) and ordinary phonology
(by and large, the rules relating the two forms are of
general applicability in the language; but see section 7.1
below). Although the line between the two types of clitics
is not always clear, it is useful to have separate terms for
the two cases. I suggest the (nonstandard) terms special
clitics for the first type and simple clitics for the second.

From the historical point of view, it should not be sur-
prising that there is difficulty in drawing the line between
simple and special clitics, since special clitics are often the
remnants of an earlier system of simple clitics; this point is
made by Givón (1971: 396-7) with respect to the clitic pronouns
of modern French and Spanish, the ordering of which can be
taken to reflect the object-before-verb order of earlier Romance,
and by Hale (1973:339-44) with respect to the pronominal special
clitics in the Australian language Walbiri, which he suggests
have evolved from simple clitics, with the neighboring language
Warramunga showing an intermediate stage (in Warramunga the
clitic pronouns are merely unstressed variants of independent
pronouns, but have moved into 'second position', after the
first (nonpronominal) constituent of the sentence). After the
development from independent word to clitic, the next step is,
of course, the incorporation of clitics into morphology proper:
what is a clitic at one stage is reinterpreted as a derivational
or inflectional affix at the next.[4]

2.3 Third Class: Cases where a morpheme that is always
bound and always unaccented show considerable syntactic free-
dom, in the sense that they can be associated with words of a
variety of morphosyntactic categories. Frequently, such a
bound word is semantically associated with an entire consti-
tuent while being phonologically attached to one word of this
constituent, and ordinarily the bound word is located at the
very margins of the word, standing outside even inflectional
affixes. Examples of bound words are the Latin particle -que
'and', the Tagalog particles, and the English possessive mor-
pheme.

The Latin -que is a conjunction and is associated
semantically with a word, phrase, or clause, though it is
attached to the first word in such a unit:

duāsque ibi legiōnēs cōnscrībit
two and there legions (he) enrolls

'and (he) enrolls two legions there'

(De Bello Gallico, cited by Hale and Buck (1966:sec.307))

The Tagalog clitic particles all have adverbial meaning and are associated semantically with an entire sentence; the interrogative particle *ba*, which corresponds to no free or accented morpheme in the language, is typical. The particles, *ba* included, are attached after the first (nonclitic) word in a sentence, and since the word order in Tagalog is relatively free, this could be any of a variety of words:

> *Nakita ba ni Juan   si   Maria ngayon?*
> has seen agent   topic   today

> *Ngayon ba nakita ni Juan si Maria?*

> 'Has Juan seen Maria today?'

> *Hindi ba nakita ni Juan si Maria ngayon?*
> not

> 'Hasn't Juan seen Maria today?'

> (examples adapted from Schachter (1974)).

The English possessive morpheme is associated semantically with a noun phrase, though it is attached phonologically to the last word of the noun phrase (which is not necessarily the head of the construction, or even a noun):

> *Germany's defenses*

> *The Queen of England's hat*

> *the woman I talked to's arguments*

The possessive morpheme can follow inflectional suffixes, as in

> *the woman I interviewed's arguments*

which parallels in this respect the behavior of Latin *-que*, as in

> *arma virumque*

> 'arms and the man (acc.)'

3. Endoclitics. With this rough delineation of three types of clitics (special clitics, simple clitics, and bound words), all of them bound unaccented morphemes that sometimes are in construction with affixes, we return to the problem posed by the morpheme R in Madurese. Of the three types of traditional clitics, R is most like a bound word, since it seems to correspond to no free or accented morpheme in the language. However, R occurs not at the margins of words, where all the other

clitics illustrated so far have occurred, but rather within words, between affixal morphemes. We appear to have a case here of a clitic that is neither a <u>proclitic</u> -- preceding the word to which it is attached -- not an <u>enclitic</u> -- following the word to which it is attached -- but rather is an <u>endo-clitic</u> (the term is nonstandard), or 'infixed clitic', inter-rupting the morphemes within the word to which it is attached.

Numerous further cases of endoclitics have been brought to my attention, all of some interest from the historical point of view. The Estonian emphatic morpheme -ki (--gi), for instance, has the syntactic freedom of the typical bound word, and in addition (like Madurese R) fails to condition at least one rule of internal sandhi ([n] fails to assimilate to [ŋ] before -ki, though [n] regularly assimilates to velars word-internally; see Lehiste (1960:39). The morpheme is normally enclitic. However, when added to interrogative words (making them indefinite), -ki may either follow or precede a number of case suffixes: the allative of miski 'something' (mis 'what?' plus -ki) is either millelegi, with -ki following the allative suffix -le, or millegile, with this order reversed. According to Ilse Lehiste, to whom I owe all of these observations about Estonian, school grammars prescribe the order with the enclitic -ki, but many speakers, Lehiste included, prefer the other order in certain of the cases. And in some cases only the internal placement of -ki is possible, as in the allative kuskile (or kusagile) of kuski 'somewhere' (from kus 'where?' plus -ki). Here we have, transparently, a morphological change in progress, with -ki coming to be treated more and more as a suffix attached to the base.

Turkish presents us with another illustration. According to Lewis (1967:108), in the third person plural of verbs, 'alternative forms can occur, with the plural suffix preceding or following the personal suffix': thus, alɨyorlarsa or alɨyorsalar 'if they are taking (plural -lar, third person conditional -sa). Here we have an apparent violation of the ordering principle. But, in fact, the personal suffixes are clitic forms of the verb 'to be'; under certain conditions the personal suffixes alternate with fuller forms (for -sa, isa), and, in addition, these suffixes are exceptional in not bearing stress, which normally falls on the last syllable of the word (hence, alɨyorsalár but alɨyorlársa).

Still another case involves the pronoun clitics of the New Guinea language Hua. These are normally prefixed to nouns and verbs;

> There exists, however, a small number of extremely common nominal and verbal roots in which these pre-fixes, depending on their phonological shape, are either (a) obligatorily infixed (b) optionally infixed or (c) absorbed into the root.
>
> (Haiman ms. 1976)

Thus, from za' 'hard' with the clitic g 'your (sg.)', g-za', but from *hamu'* 'person who shares one's name' with g, *ha-g-amu'*; from za' and ra' 'we (du.)', ra'-za', but from *hamu'* and ra', either ra'-hamu' or *ha-ra'-amu'* (examples from Haiman).

The alternative orders permitted to R in Madurese, to -*ki* in Estonian, to the third person suffixes in Turkish, and to some prefixes in Hua would be extraordinary indeed for ordinary affixes, but alternative orders are by no means uncommon for special clitics and bound words. Following Perlmutter's claim that the analogue of the ordering principle above holds for the combination of a word with all its clitics, a wide variety of counterexamples have been adduced; some of these will be surveyed below. They include cases in which clitics have alternative orders with respect to one another and also cases in which a clitic may occur in both orders with respect to its host[5] (the word to which the clitic is attached). In any event, it is clear that the ordering of elements within a group[6] (a host plus all of its clitics) is not so rigid as the ordering of elements within a word. And, apparently, this relative freedom of occurrence may carry over to clitics that move inside the word.

I have so far argued that Madurese R is a clitic, in that by the first two principles -- alternative ordering and lack of internal sandhi -- it behaves like an independent word, while by the remainder -- binding, construction with affixes, rule immunity, and lack of accent -- it behaves like an affix. With this discussion as background, I turn now to a survey of the empirical and analytic problems surrounding clitics, illustrated with examples from a variety of languages. These problems fall naturally into four large areas: the (synchronic) source of clitics, their external syntax (with respect to their hosts), their internal syntax (with respect to one another), and their phonology. I take up these areas in turn.

4. The Source of Clitics. Here there are at least two questions to be asked about the clitics in any particular language, or about the source of clitics universally:

Which elements in a sentence are realized as clitics?

When is this cliticization blocked, when is it optional, and when is it obligatory?

4.1 Simple Clitics. The answer to the first of these questions is particularly straightforward for simple clitics: apparently, any word that can appear unaccented has the potential to cliticize to a neighboring word. As a result, the list of syntactic categories that can appear as clitics is the familiar

list of categories that may, or must, appear without accent in various languages:

(a) auxiliaries, in particular modals and the verbs of periphrastic constructions (verbs of being, becoming, possessing, doing, wanting, going and coming, causing, etc.);

(b) personal pronouns, or redundant expressions of these bearing marks of person, number, and other agreement categories;

(c) determiners;

(d) 'dummy' nouns, like the English *one* in *this one*;

(e) prepositions and postpositions;

(f) conjunctions and complementizers;

(g) adverbial words, among them negatives, place and time adverbs, adverbs marking sentence type (interrogative, quotative, imperative, etc.), emphatic adverbs (including items meaning 'even' and 'only'), epistemic adverbs (indicating degree of speaker's belief in a proposition), and narrative adverbs (indicating temporal or logical sequence).

Examples of simple clitics of all seven types can be found in English: (a) *would* in *I'd object*; (b) *he* in *What is he* [[zi] to do?; (c) *a(n)* in *an answer*; (d) *one* in dialectal *big'un* [bígŋ] and *this'un* [ðɪsŋ]; (e) *for* in *for hours* [fɹɑ́wrz]; (f) *and* in *and you* [ŋyú] and *to* in *I wanna go*; (g) *not* in *haven't*. Sometimes the clitic words already form units with their hosts (are already 'dependents of a head', in the sense of Selkirk (1972: sec. 2.1); this is true of determiners (*a(n)* above), prepositions (*for* above), and conjunctions (*and* above) in English. But in the other cases the clitic words are not in close syntactic relationship with their hosts, and there is a disparity between syntactic constituency and the accentual units I have termed 'groups'. I do not know of any interesting hypotheses about universal conditions on the direction of cliticization in the remaining cases or on the contexts which would permit or require cliticization in these cases[7] -- though these are certainly important areas for research -- and I conclude, with other investigators of simple clitics, that language-particular rules of clitic attachment must be stated, even for simple clitics.

The theoretically most satisfying assumption about such rules would be that they apply, as a group, to the output of all syntactic transformations and yield the structures to which

phonological rules of reduction and deletion apply (in other words, that they are 'readjustment rules', in the scheme of Chomsky and Halle (1969:9-11 et alibi). In at least one case, English *to*-encliticization, it seems clear that the clitic attachment is globally constrained (Lakoff (1970)):[8] the ability of *to* to cliticize onto certain preceding verbs depends on whether or not a constituent intervened between the verb and *to* at an earlier point in the derivation:

$$\text{Herman is the man I} \begin{Bmatrix} \text{want to} \\ \text{*wanna} \end{Bmatrix} \text{vanish}$$

In addition to whatever global constraints there are on rules attaching simple clitics, a variety of syntactic conditions determine their applicability. English *not*, for instance, attaches optionally to a preceding modal or auxiliary verb and is blocked from attaching to any other word:

$$\text{You} \begin{Bmatrix} \text{ought not} \\ \text{oughtn't} \end{Bmatrix} \text{to laugh.} \quad \text{They} \begin{Bmatrix} \text{tried not} \\ \text{*triedn't} \end{Bmatrix} \text{to laugh.}$$

$$\text{He} \begin{Bmatrix} \text{is not} \\ \text{isn't} \end{Bmatrix} \text{clever.} \quad \begin{Bmatrix} \text{He's not} \\ \text{*He'sn't} \end{Bmatrix} \text{clever.}$$

$$\begin{Bmatrix} \text{Those not} \\ \text{*Thosen't} \end{Bmatrix} \text{served should complain.}$$

$$\begin{Bmatrix} \text{If not} \\ \text{*Ifn't} \end{Bmatrix} \text{satisfied, you should return the book.}$$

Beyond the syntactic conditions on the attachment of simple clitics, there is one phonological condition I have been assuming, namely, that to be eligible for attachment a word must lack stress; this 'cliticize unstressed words' position is to be distinguished from a 'destress cliticized words' analysis, in which clitic attachment results in automatic destressing of the clitic. In favor of the general 'cliticize unstressed words' approach is the fact that several global constraints on cliticization have turned out to be global constraints on destressing. Among these are some constraints on the cliticization of auxiliary verbs in English (discussed well in Baker (1971)), including the much-discussed condition that the auxiliary not be followed by a 'deletion site':

$$\text{The} \begin{Bmatrix} \text{party is} \\ \text{party's} \end{Bmatrix} \text{in room 16.}$$

$$\text{I wonder wher the} \begin{Bmatrix} \text{party is} \\ \text{*party's} \end{Bmatrix}.$$

Also among these constraints is the condition that *not* fails to cliticize to a preceding modal when the modal is understood with wider scope than the negation (Horn (1972:ch. 4)):

We could not do it, you know.

[ambiguous: *(we could (not x))*
                  or *(not (we could x))*]

We couldn't do it, you know.

[only: *(not (we could x))*]

The generalization that covers these cases is that whenever some condition prohibits a word from losing stress, then that word cannot cliticize to a neighboring word, consequently is not subject to phonological reduction.

There is, finally, some evidence from English negation that rules of clitic attachment should not be thought of merely as readjustment rules, but must be seen as belonging to a larger set of postcyclic rules, including as well free deletions and minor movements (Pullum 1976: ch. 4, in fact, suggests that all rules forming phonological words are postcyclic): this is the familiar fact that the inversion of subject and verb in questions carries along a *not* that is cliticized to the verb but not one that is independent:

$$I \begin{Bmatrix} have\ not \\ haven't \end{Bmatrix} helped. \quad \begin{Bmatrix} *Have\ not \\ Haven't \end{Bmatrix} I\ helped?$$

This fact is explained naturally if clitic attachment is permitted to apply before inversion.[9]

Turning away from English, we see that most of the sources of simple clitics can be illustrated from Old Irish:

Words which are not themselves fully stressed are attached either (a) to the following words as pro-clitics, or (b) to the preceding word as enclitics.

(a) includes the article, possessive pronouns, and prepositions before words governed by them; pre-positions...and infixed personal pronouns before verbs; the forms of the copula...; often also conjunctions before verbs.
(b) includes certain demonstrative particles..and the emphasizing particles..Certain conjunctions used in principal clauses...are not stressed either.

(Thurneysen 1946:sec. 41)

Not all of the Old Irish clitics are simple clitics, however: the personal pronouns, classed by Thurneysen with proclitics,

are in fact 'infixed', that is, endoclitics, thus showing special
clitic syntax; in addition cliticization of the personal pronouns
is virtually obligatory, for the stressed forms of these pronouns
are usable only as predicate nominatives, in clauses without verbs,
after the interrogative pronoun, and after os 'and' (Thurneysen
(1946:sec.406). With this example we can move to the source of
special clitics and bound words.

4.2. Other Clitics. As we should expect on historical grounds,
the list of categories of words that can attach to neighboring
words as simple clitics serves also as a list of possible
sources for special clitics and bound words. Auxiliaries,
negatives, and personal pronouns are the most common types of
special clitics and bound words, but very rich systems occur in
some languages -- for instance, in Tagalog (Schachter (1974)),
which has in addition to a full set of agent and topic clitic
pronouns a group of eighteen clitic particles, including an
interrogative marker, a reported speech marker, politeness
particles, a conjunctive particle meaning 'because', and various
adverbials (translated as 'for a while,yet', 'only, just', and
'too, either', for example). A new difficulty arises when we
consider systems like this: the notion of syntactic source
of clitics can no longer be taken for granted, as it was for
simple clitics; rather, for each individual clitic or class of
clitics some analysis is needed to determine the appropriate
remote structure. Arguments that clitic pronouns originate in
the same positions as full NPs can undoubtedly be constructed
for any language that has clitic pronouns. The pronouns
appear in their surface positions by means of a movement rule
or rules (if the clitics are in complementary distribution with
full forms of pronouns, as in Tagalog and Old Irish) or by
means of an agreement rule (if the clitics are redundant
expressions of categories of NPs appearing elsewhere in sentences,
as in Walbiri[10]). For the remaining special clitics and bound
words, there is frequently no class of nonclitic constituents
to which a clitic can be assigned, so that its syntactic source
is not at all clear. In most of these cases these problematic
clitics are, semantically, sentence modifiers and are naturally
assignable to a constituent (like COMP) in construction with an
entire S (if not to an underlying higher S). This is a natural
analysis for the Tagalog ba, for instance (which is an optional
indication of interrogative sentence type, rising final intona-
tion being the only obligatory indication), for the interrogative
clitic li of Russian, and for the three sentence clitics of the
Australian language Dyirbal (Dixon (1972:122-3): interrogative
-ma, -riga (which 'indicates that the statement of the sentence
is definitely true'), and -gira (which indicates 'that the
statement should be correct but that there does remain an ele-
ment of doubt').

Next, consider the conditions on placement rules for special
clitics. We have already seen that languages differ with regard

to when items may or must appear as special clitics: personal pronouns filling the subject or direct object slot in a full Old Irish sentence <u>must</u> appear as clitics, while the corresponding personal pronouns in most of the modern Romance and Slavic languages may appear in the full form or may cliticize; the following may both occur in Serbo-Croatian (Browne 1974:39-40):

         Da   ti   dam   knjigu?
         conj. to you   I give   book
              (clitic)
         'Should I give you the book?'

         Da dam knjigu tebi?
                      to you
                      (full)

         'Should I give <u>you</u> the book?'

There are even cases where elements appear in the same form they have as clitics, but do not move into clitic position; thus, Fretheim and Halvorsen (1972:37) say that in their dialect of Norwegian, "Su[bject] clitics <u>must</u> undergo the rule, but O[bject] clitics may in certain cases remain in the position of non-clitic Object NPs even when the phrase marker satisfies the SD of Clitic Movement," and Hale (1973:312-3) says of Walbiri that the auxiliary optionally remains in sentence-initial position, rather than moving into second position, if it is more than one syllable long, and obligatorily remains there in certain negative constructions.

Although lack of accent ought to be a precondition on the appearance of special clitics and bound words, as on simple clitics, anomalously accented clitics have been reported. In Modern Greek, an enclitic pronoun receives stress when it follows a verb with antepenultimate stress and precedes another clitic (hence [δóse] 'give!', [δósemu] 'give me!', but [δósemúto] 'give it to me!'; examples adapted from Warburton (1970a:38)), and in the Philippine language Bikol, according to Stevens (1971:421), the disyllabic clitics do not lose their stress to a preceding nonenclitic element. The Modern Greek case properly belongs to a later section of this paper, since it involves the assignment of stress within the group, rather than within the word; we may assume that syntactically <u>unstressed</u> [mu] is cliticized, and that it later receives stress by rules of stress placement applying within the group. The Bikol facts, on the other hand, look genuinely problematical. Apparently the disyllabic clitics have not been fully absorbed into the clitic system, meanwhile exhibiting many of the properties of independent words (they bear stress, are freely ordered with respect to one another, may move from the usual position of clitics to attach to a verb elsewhere in the sentence, and do not condition a rule lengthening certain preceding vowels, although monosyllabic clitics do). The Bikol case is

reminiscent of the placement of some accented particles in
certain of the older Indo-European languages: the Latin post-
positive conjunctions *autem* 'however', *vērō* 'in fact', and
igitur 'therefore', for instance, which bear accent but are
placed like clitics, after the first word of a clause (Hale and
Buck (1966:sec. 310-1); and similar accented particles in Vedic
Sanskrit, among them *áha* 'just', *kíla* 'indeed', *nú* 'now', and
vái 'indeed' (Macdonell (1916:sec. 191i).

Finally, as with simple clitics, I turn to the issue of
where rules of clitic movement and clitic agreement are located
in a grammar. Pullum's (1976: ch 4) position, cited earlier, is
that all rules of cliticization are postcyclic. The arguments
he cites for postcyclicity (Kayne (1975) for French, Quicoli
(1972) for Portuguese, Perlmutter (ms. 1973) for Spanish, Moyne
and Carden (1974) for Persian) all, in fact, involve special
clitics. An interesting question then arises as to what sorts
of rules can apply after rules of clitic movement and agree-
ment. At least two large classes of such rules would be of
interest: rules affecting (that is, moving, deleting, or
attaching elements to) whole groups, and rules affecting indi-
vidual clitics or sequences of them.

Though I do not have enough examples to make generalizations
here, a few observations might be of value. I know of no rules
affecting whole groups, although there are some affecting entire
strings of clitics (without the host): when a language has a
primary location for its clitics, and another location under
certain conditions, then analysts usually assume that the clitic
string is assembled in its primary location and moved elsewhere
under those conditions. For instance, in Modern Greek clitic
pronouns precede all verb forms except the imperative, which they
follow:

[sutoférno]   'I('ll) bring it to you'

[féremúto]   'Bring it to me!'

It is natural to assume that the clitics are assembled preverbally
and then moved in the imperative. Similar analyses are standard
for Spanish and Italian, where (with various exceptions and
complications) the clitics are preverbal with finite verb forms,
postverbal with nonfinite forms:

Spanish: *Mi vecina me las da*

'My neighbor gives them to me'

Le gusta dármelas

'She likes to give them to me'

> Italian: *Lo porto a Maria*
>
> 'I'm taking it to Mary'
>
> *Portalo a Maria*
>
> 'Take it to Mary!'

See the next section for further discussion.

Rules affecting individual clitics are, for the most part, rules that would traditionally be described as 'morphological' rather than 'syntactic'. Typically, they mention the phonological makeup of specific clitics. Of such a morphological character are the haplology rules in many languages, which alter sequences of phonologically identical or near-identical clitics:

> Spanish: $le(s)$ $\left\{\begin{array}{l} lo(s) \\ la(s) \end{array}\right\}$
>
> $\qquad$ 1 $\qquad$ 2 $\;\to\;$ se $\quad$ 2

> Italian: $si \quad si \to ci$ 2
> $\qquad$ 1 $\quad$ 2

> Ewe: $\left\{\begin{array}{l} m\acute{\imath} \\ m\grave{\imath} \end{array}\right\}$ $\left\{\begin{array}{l} m\acute{e} \\ n\ddot{e} \end{array}\right\}$
>
> $\qquad$ 1 $\quad$ 2 $\;\to\;$ 1 $\emptyset$ $\qquad$ (Clements (ms. 1973))

> Japanese: $to \quad to \to to$ (Kuno (1973:118)

and rules creating portmanteau versions of clitic sequences:

> Tagalog: $\left\{\begin{array}{ll} ka & ko \\ ko & ka \end{array}\right\}$ $\;\to\;$ $kita$ (Schachter (1974:100))

> Pashto: $C\mathfrak{a}$ $ye \to C\mathfrak{a}$ $\qquad$ (Tegey (1975:575))
> (e.g., $t\mathfrak{a}$ $ye \to t\mathfrak{a}$)

> Albanian: $t\ddot{e}$ $e \to ta$ $\qquad$ (Meyer (1888))

and rules metathesizing sequences of clitics, like the Ewe rule discussed by Clements (ms. 1973), which moves certain clitic pronouns (obligatorily in most cases, optionally for the third plural *wó*) over a following negative *mé* or imperative *nè*. I do know of one 'syntactic' rule affecting an individual clitic: the Walbiri imperative formation rule, which deletes a second person clitic, leaving a full NP elsewhere in the sentence (Hale (1973: 326-7)). See the next section for another possible class of such rules.

Certain syntactic and morphological rules can thus be seen to apply after clitic placement. Another logical possibility for rule interaction -- though not a possibility consistent with the separation of syntactic rules from phonological rules, with all of the former applying before all of the latter -- would be for some indubitably phonological rules to apply before clitic placement. The two putative cases of this type that have been brought to my attention both involve endoclitics, and in each case it is not clitic placement per se that is at issue, but rather the infixing of clitics within their hosts. That is, we may maintain that the order of application is

clitic placement (a syntactic rule)

phonological rules

infixation (a morphological rule)

(thus keeping syntax and phonology separate, but permitting some morphological rules to apply after some phonological rules). The cases are the Hua endoclitics, which Haiman (ms. 1976) argues are not moved into roots until after reduplication (reduplication itself not applying until after some fairly low-level phonological rule); and the Pashto clitics, which Tegey (1975: sec. 2) maintains do not move within verb forms until after the application of a contraction rule.

5. External Syntax of Clitics. The previous section was concerned with the conditions under which cliticization takes place. Now I consider the relationship between clitics and their hosts, about which there are at least three significant questions:

a. To which elements in the sentence are clitics attached?

b. Are they attached as proclitics, enclitics, or endoclitics?

c. Are there alternative possibilities for the location of clitics?

I have already touched on these questions as they concern simple clitics. Perhaps all that need be added here is that some simple clitics may appear as enclitics in one context and proclitics in another. This is the way the English complementizer *to* behaves:

I've got to [gárə] *run.*

For us to run [tərʌ́n] *now would be foolish.*

Special clitics and bound words are another matter. To begin with, they accumulate at certain points within the sentence. The best general hypothesis I can suggest about where these clitics appear is that clitics whose source is within a particular constituent (an NP or an S) move either to one of the margins of that constituent or to the head of that constituent (the N or the V). Thus we find NP clitics associated on the surface with the entire NP, as in the English possessive construction in *the daughter of the regiment's happiness*, where the clitic comes at the end of the NP, or the Modern Greek possessive construction in

·[o-patéraz-mu]
  the father my

'my father'

[i-kalí-su   adelfí
the good your sister

'your (sg.) good sister'

where the clitic is attached after the first word of the NP (examples adapted from Thumb (1964:sec. 142); or associated with the head N of the NP, as in the earlier English construction in *my Lords concell of Norffolk* 'my Lord of Norfolk's counsel' (*Paston Letters*, cited by Breejen (1937:15).

And we find S clitics, both pronominal and adverbial, located either at one of the ends of the S or attached to a V. Of the options, probably the least common is sentence-final position, though this is where the adverbial and sentence-type particles of the Mon-Khmer language Chrau are located. These particles "are generally monosyllabic" and "their form is also restricted, in that there is never more than one consonant in [the onset], the vowel quality tends toward a central position, and the final consonant tends to be weakly articulated" (Thomas (1971:33); they indicate yes/no questions and imperatives, as well as adverbials translated as 'so, thus', 'already', 'only', 'also' and so on.[11]

The most common location for sentential clitics is probably at the beginning of the sentence,[12] although in this case the clitics seem rarely to appear literally in sentence-initial position but instead are moved into 'second position', following some accented unit. Hale (1973:340), having noted that Walbiri clitics appear in second position, adds in a footnote that this ordering principle is

operative in many of the Uto-Aztecan languages of
North America, in at least one of the Algonquian
languages (namely Abnaki...), and to a limited ex-
tent in the Athabaskan language Navajo; its operation
in Serbo-Croation is dexcribed by Browne [1974]. In
Papago, a Uto-Aztecan language of the American
Southwest, the surface positioning of the auxiliary
appears to be identical to that of Walbiri.... The
principle is, in fact, known as Wackernagel's law
and its operation in Indo-European is the subject of
a long paper by Wackernagel (1892).

'Second position', however, means different things in
different langauges. In Walbiri, it means following the first
(nonclitic) constituent, so long as that constituent is immedi-
ately dominated by S:

> *wawiri* *kapi-na* *pura-mi*
> kangarooo future I cook nonpast

> 'I will cook the kangaroo'

> *wawiri njampu kapi-na pura-mi*
>   this

> 'I will cook this kangaroo'

(data from Hale (1973:312,4); clitics are underlined.)

In Serbo-Croation, 'second position' means, in sentences beginning
with a predicate, after the first accented word of the predicate --

> *Doputovao je bio ranije*
> arrived aux.had earlier

> *Bio je doputovao ranije*

> 'He had arrived earlier'

but, in other sentences, after the first word or the first con-
stituent, where the constituent may be of any sort:

> *Predsjednik je Tainu danas doputovao*
> prseident aux. Tainu today arrived

> *Predsjednik Tainu je danas doputovao*

> 'President Tainu arrived today'

(Serbo-Croatian examples supplied by Wayles Browne.)

In Tagalog, 'second position' means strictly after the first (nonclitic) <u>word</u> of the sentence:

> *Hindi <u>ko</u> siya nakita ngayon*
> not   I   him/her has seen today
>   (agent) (topic)
>
> 'I haven't seen her today'

Finally, in Pashto 'second position' means, in sentences beginning with a verb, after the <u>stressed vowel</u> of that verb, so that the sequence of clitics will all be treated as endoclitics:

> *axisté <u>ba</u> <u>ye</u>*
> buy it will he
>
> *á-<u>ba</u>-<u>ye</u>-xistə*
>
> 'He would be buying it'

   (Tegey 1975:578)

but, in other sentences, after the first <u>stressed constituent</u> of the sentence. Doubtless there are further interpretations of 'second position' in other languages. What is important here is that it is some accented unit (a constituent of S, any constituent, a word, a syllable) to which the clitics are attached; a language may permit some freedom as to the point of attachment; and verb-initial sentences may have a special treatment, as in Serbo-Croation and Pashto.

    Cliticization to V rather than S may involve proclisis, enclisis, or endoclisis. Very commonly, clitics attach in front of the verb under one set of conditions, and after it under another, as we have already seen. Free alternative orders of host and clitic (for at least certain combinations of clitics) are also possible, as in Rumanian

> *băiatul <u>i-va</u> da-<u>o</u>*
> boy   IO will give DO
>   him   her
>
> *băiatul <u>i-o-va</u> da*
>
> 'The boy will give it to him'

(Hetzron (1976 ms.), citing Olsen (1928:80). I have offered similar examples in Old Provencal (by Dieter Wanner) and in Cretan dialects of Greek (by Angeliki Malikouti-Drachman).

Endoclisis usually occurs in alternation with proclisis or enclisis, as in the cases of Estonian and Turkish mentioned above (where an enclitic moves into the host noun), or in the following example from Albanian (where normally proclitic pronouns move into the host, as in Hua): Albanian clitic pronouns are proclitic to verbs, except in the affirmative imperative, where they appear after the verb stem (and before the second person plural suffix -ni):

> <u>ua</u> dërgon = u + e dërgo-n
>   IO   DO   send you (sg.)
>   3 pl. 3 sg.

'You send it to them'

> mos <u>ja</u> dërgoni = mos   i + e   dërgo+ni
>   neg   IO   DO send you (pl.)
>   3 sg. 3 sg.

'Don't you (pl.) send it to him!'

> dërgo<u>ja</u>ni = dërgo + i + e + ni

'Send it to him!'

(Data supplied to me by Jerry Morgan).

Even given that a clitic must attach to a verb, there may be more than one candidate verb, and in such cases a language may choose one or another of the alternatives, or it may permit variant forms. The issue arises in combinations of modal or auxiliary plus main-verb, and in verb-plus-complement-verb constructions. A few illustrations: the Albanian pronominal clitics are placed between most modals and the verb, but in the perfect (formed with the auxiliary 'to have') the clitics precede the auxiliary:

> do <u>ta</u> dërgoj = do   të   +   e   dërgoj
>   future subjunctive IO I send
>   3 sg.

> *ta do dërgoj

'I will send it'

> e   kam   dërguar
> IO   I have   sent
> 3 sg.

> *kam e dërguar

'I have sent it'

(data again supplied by Jerry Morgan)

In Norwegian, 'in sentences where there is both a special finite auxiliary verb and an infinitive lexical verbal form in a single S of derived structure, Su[bject] clitics...move to the finite form, while O[bject] clitics move to the infinite form' (Fretheim and Halvorsen (1972:23)):

> Har <u>han ikke</u> gitt <u>henne det</u>?
> has he not given IO   DO
>   her   it
>
> 'Hasn't he given it to her?'

In Old French, object clitics attached to a modal verb, while in modern French, they attach to the main verb:

> OFR: *Ele <u>s'en</u> voloit aler*
>
> NFr: *Elle voulait <u>s'en</u> aller*
>
>   'She wanted to leave'

(from Morin (1975:392)).

And in Spanish, clitics can move up or 'climb' certain sequences of complement verbs:

> *Quisera   poder   estar   haciéndo<u>melo</u>   ahora*
> I wish to be able to be making me it   now
>
> 'I wish I could be making it for myself right now'
>
> *Quisera poder está<u>rmelo</u> haciendo ahora*
>
> *Quisera podé<u>rmelo</u> estar haciendo ahora.*
>
> <u>*Me lo*</u> *quisera poder estar haciendo ahora.*

(examples from Roldán (1974:131)).

Standard assumptions about these alternatives and variants for locating clitics are that they involve either distinct rules of clitic movement (move clitics to such-and-such a position under certain conditions, otherwise to another position) or else movement rules applying in sequence (first move clitics to such-and-such a position, then move some of them to another position). I have little to add to this discussion, except to point out that if the second type of analysis is opted for -- clitic attachment, followed by clitic displacement -- then it must be possible for syntactic rules to pick out specific clitics or classes of them,

which is to say that clitics must be distinguished in some way
from genuine affixes and independent words at the point in deri-
vations at which clitic movement transformations apply (and the
rules moving these clitics would be 'syntactic', in the sense
of the previous section).

6. Internal Syntax of Clitics. In this section I examine
relationships among clitics. Two issues concern us here:

> What conditions are there on combinations of clitics --
>   on how many may occur in a group or on which parti-
>   cular ones may cooccur?

> What conditions are there on the sequencing of clitics
>   with respect to one another?

These are questions on which an enormous amount of scholarly
effort has been expended (the locus classicus is Perlmutter (1970)),
and I have little of substance to add to this discussion, but
merely survey the main points in the literature.

On the one hand, it seems that no language permits the
clitics in a group to occur in all possible orders. On the other,
some languages have rigid requirements on the ordering of clitics.
The analytic question is whether the observed orders are to be
described by clitic placement rules (which successively move
clitics into their surface location, as in Fretheim and Halvor-
sen's analysis of Norwegian, or Emonds' of French) or by syntactic
rules which permit any order whatsoever, plus a positive surface
structure constraint (which filters out all orders not satis-
fying its conditions, as in Perlmutter's treatment of Spanish and
French, and Tegey's of Pashto).

The major motivation for surface structure constraints comes
from instances in which a morpheme with two or more distinct
syntactic sources, or in which two or more homophonous morphemes,
have identical conditions on occurrence -- in which case distinct
clitic placement rules would have the same effect and obey the
same constraints, and generalizations would be lost. This is the
line of argument Perlmutter gives for an SSC in Spanish, with what
he maintains are several sources for the morpheme *se* as the hinge
of the argument. The Pashto case is particularly clear in this
regard, since two morphemes which are obviously fortuitous homo-
phones, the modal *de* 'should' and the second person singular
personal pronoun *de*, obey exactly the same (rigid) conditions on
occurrence with respect to other clitic morphemes of the language,
including a constraint against sequences of the 'same' clitic
(here, *de de*).

Whatever the appropriate descriptive device -- and this might
well be different for different languages -- there is a rich
collection of phenomena that deserve careful study and comparison,
with an attempt to draw some generalizations from these data.   A
survey of only a few systems of clitics is enough to demonstrate
that conditions on clitic sequencing involve both morphosyntactic
categories and at least some aspects of the phonological makeup of
individual clitics.   These are frequently mixed in the same system;
thus, the Spanish ordering formula

> se-second person-first person-third person

identifies one of the elements involved (se) by reference to its
phonological identity, the others by reference to their morpho-
syntactic categories (in this case, person).[13]   Similarly, the
constraints on clitics in Tagalog are in part phonological,
referring to the number of syllables in a clitic, and in part
morphosyntactic, referring to the difference between pronouns and
(essentially adverbial) particles; simplifying somewhat:

> monosyllabic pronouns-particles-disyllabic pronouns

(thus, for the monosyllabic pronoun ko 'I (agent)', the particle
na 'already' and the disyllabic pronoun siya 'he/she (topic)',
only one order is possible: ko na siya; (Schachter (1974:98))).
The conditions may, of course, be entirely morphosyntactic, as
in Norwegian (Fretheim and Halvorsen (1972:24)):

> subject-indirect object-direct object-sentence adverb-
> verb particle

and in Czech (George and Toman (1976:235)):

> auxiliary-reflexive-free dative-indirect object-
> direct object

And they may refer solely to morphemes identified by their phono-
logical form, as in one version of the Pashto constraint:

$$xo\ ba \begin{Bmatrix} -(a)m \\ -(a)mam \end{Bmatrix} me\ de\ ye$$

(adapted from Tegey (1975:572), where me is listed as 1 sg. and ye
as 3).

The ordering of clitics within a group may involve reference
to 'second position', as in Old Irish, which calls upon a special
place-holding particle when no other suitable initial element is
available:

> Where the verb is preceded by conjunct particles..., the
> pronoun is attached to the last of these and the stress
> falls on the element immediately preceding...Where there
> is no conjunct particle the pronoun is attached to the
> first proposition or verbal particle of a compound verb...
> Where neither a conjunct particle not a preverb...precedes
> the verb, the verbal particle *no*...is inserted before it
> for the purpose of infixing the pronoun.

> (Thurneysen (1946:sec. 410))

What needs to be examined in these systems is which morpho-
syntactic categories figure in ordering constraints (person and
case are prominent, as is the pronoun/particle distinction) and
what ordering relations obtain amongst these categories (pronouns
before particles, Su-IO-DO, and 2nd-1st-3rd are all frequent
orders). And, of course, which phonological properties of mor-
phemes figure in ordering constraints (to my knowledge, only the
phonological identity of morphemes and the number of syllables
ever need mention in ordering constraints, though many other
phonological properties -- vowel height, presence of a nasal, and
the like -- are logically possible candidates for ordering prin-
ciples) and what ordering relations obtain amongst morphemes with
these properties ('shorter before longer', or 'Pāṇini's principle'
(Cooper and Ross (1975:78-9), is almost surely a universal, in
the sense that if a language constrains clitic order by reference
to number of syllables, the requirement will be shorter-before-
longer and not the reverse).

The conditions on clitic order in a language may be ab-
solute, as in Spanish and Pashto, or they may permit alternative
orders with no concomitant differences in meaning, as in Tagalog,
where within certain subclasses of clitic particles there is
free order:

> *Tatlo* *lamang*   *po*   *sila*
> three only   politeness   they
>   marker   (topic)

> 'There are only three of them, sir'

> *Tatlo* *po lamang* *sila*

(Schachter (1974:110),

or in earlier Italian (and in some modern dialects), where various
pairs of clitic pronouns showed free alternative orders (see
Wanner (1974:162-5), and Hetzron (ms. 1976), which contains a
variety of Romance examples, plus Czech and Somali as well).

Although it is common for the conditions on clitic order to
be essentially the same whether the clitics occur before a verb or
after it -- this is the case in Spanish, Italian and Modern Greek,

for instance -- there are langauges in which proclitic order and
enclitic order are substantially different. In modern French,
in particular, the ordering for proclitics has third person pro-
nouns preceding first and second person pronouns, while the
ordering for enclitics (which appear in positive imperatives) has
first and second before third:

> _Tu me le_ donnes
> you IO DO give
>   me it
>
> 'You give it to me'
>
> _Donne-le-moi!_
> give DO IO
>   it me
>
> 'Give it to me!'

In such cases, it is assumed (as in Emonds (1975)) that a single
order underlies both of the observed orders and that one or more
movement rules yield the different surface orders. These rules
are then 'syntactic' rules applying to certain individual clitics.

7. Phonology. This extremely complex topic revolves around
essentially two questions --

(a) How are the phonological forms of clitics related
     to the forms of nonclitic elements?

(b) How are clitics phonologically integrated with their
     hosts?

7.1 Simple Clitics. Since clitics are, among other things, mor-
phemes with no independent accent, they should show the regular
phonological concomitants of a lack of accent. We therefore
expect the clitics in a language to undergo the same reductions,
deletions, and assimilations, and under the same conditions, as
other unaccented syllables in that language. And so it is with
the simplest of simple clitics [kən], [kn̩], [kŋ̩], and [ʔŋ̩] as
successive clitic versions of the English modal _can_, [kæn] in
its full form; [tʊ] or [tə] for the complementizer or preposi-
tion _to_, [tu] in its full form; or [ɽ] for the pronoun _her_
[hɽ] in its full form. In each example the clitic forms are
derived from the full forms by processes (in the sense of Stampe
(1973)) of considerable generality in English: the sequence for
can, for instance, shows the ordinary reduction of unaccented
vowels ([æ] to [ə], as in _mechanical-mechanistic_) and then the
same development seen in _bacon_ ([békə̃n], [békn̩], [békŋ̩], [béʔŋ̩]).

Other simple clitics show special phonology, as in the
reduction of German preposition-plus-article combinations (zu
dem to zum, zu der to zur, etc.). The English clitic *not*, for
instance, loses its vowel in *can't, shan't, won't,* and *don't,*
though genuine suffixes that are phonologically similar to *not,*
like -*ness*, do not lose their vowels. Moreover, *not* lacks an
ordinary reduced form [nət], so that this elision is not only
special but also obligatory when *not* is enclitic. The indefi-
nite article *a(n)* also shows special phonology, whichever of
its two unstressed forms, [ə] or [ə̆n] is taken to be more basic:
an insertion of [n] between vowels is not paralleled elsewhere
in English phonology, nor is a deletion of [n] before conso-
nants (without a transfer of nasalization to a preceding vowel).
In such cases we may say either that there is a minor phono-
logical rule, one that applies only to certain specific mor-
phemes, or that the different forms are in virtual suppletion,
with both of them (like the two forms [kʌm] and [kəm] for the
verb *come*) listed in the lexicon for English, each with its
own context of occurrence. When the application of a rule be-
comes obligatory in certain clitics (as has the deletion of
[ə] in clitic *not*, or, for many speakers, the deletion of [ə]
in hortatory *let us*), a third course may be open: the combina-
tion of clitic and host may be treated as a lexical unit, one
that realizes certain combinations of abstract elements.

Which of these treatments is the correct one in a par-
ticular case is not always obvious. For *let's* (as well as
the Welsh emphatic negative *m'or*) I have maintained (Zwicky
(1972)) that the third analysis, as a frozen lexical unit, is
the correct one, on the grounds that many speakers now permit
expression of the pronoun that is (historically) embedded in
this hortatory formula:

$$Let's \ (\begin{Bmatrix} us \\ you\ and\ me \end{Bmatrix}\ )\ go\ and\ get\ some\ pizza.$$

The historical development of simple clitics in these cases
is fairly clear: what is at one stage of the langauge a regular
casual speech form is perceived at the next as forming a lexical
unit. This reinterpretation may then preserve remnants of
earlier casual speech phonology -- the reduction of *us* in *let's*,
for example, though clitic *us* (as in *They saw us*) no longer re-
duces. Reinterpretation is facilitated when the use of casual
speech forms extends into other styles (so that the failure to
use the forms marks speech as formal). The reduction of *not* in
English has extended in this way, so that it is not surprising
to find peculiarities in its phonology. These peculiarities, in
fact, extend to the forms taken by modals serving as hosts to
clitic *not*: *shan't* and *won't* lacking the [l] of *shall* and *will*,

and won't and *don't* showing vowels unpredictably related to the
vowels of *will* and *do*.

So we see that hosts as well as clitics may show excep-
tional phonology. The fact that in the particular examples we
have been looking at <u>both</u> host and clitic are phonologically
exceptional supports an analysis of English cliticization in
which *can't, shan't, won't,* and *don't* are treated as lexical
units. Special phonology for hosts is not invariably associated
with special phonology for clitics, however; modal *going*, as in

$$We're \begin{Bmatrix} going\ to \\ gonna \end{Bmatrix} pluck\ penguins.$$

shows an unparalleled shift from [o] to [ʌ] to [ɔ] in the form
with enclitic *to*, though the reduction of *to* is perfectly nor-
mal for English.

When we turn from the phonology of clitics and hosts indi-
vidually to the phonological properties of entire groups, matters
become still more complex, even for simple clitics. The most
straightforward situation would be if clitic attachment always
created genuine 'phonological words', units to which all the
relevant (segmental and prosodic) word-internal vowels of the
language applied, and to which no other rules applied. Indeed,
very often we see word-internal rules applying within groups:
the reduction of intervocalic [nt] to [n] or [ɾ̃] in *wanna* from
want to is the same as that in *panties*, for example. We have
already seen, however, that in some groups special rules apply;
further examples show special interactions between host and
clitic, as when *let* and *give* assimilate to a following clitic
me [lέmi] and [gɪ́mi]) while phonologically similar verbs do not
(*bet me* is not pronounceable as [bέmi], or *have me* as [hǽmi]).

The simple clitics in English seem, on the other hand, to
undergo all applicable word-internal rules. To see this, we
must clarify what is to count as a relevant rule of word phono-
logy. The matter is made complex by the fact that many languages,
English among them, have affixes falling into two classes (some-
times more than two classes have been posited, as in Stanley
(1973)) with respect to their phonological behavior. In English,
all the regular inflectional suffixes and some derivational suffixes,
for instance -*ness*, fall in one class of affixes (which Chomsky
and Halle (1968) assume are separated from their stems by a single
word boundary, #), the remainder into the other class of affixes
(which Chomsky and Halle assume are separated from their stems
by the ordinary morpheme boundary, +); similarly for Dutch
derivational affixes discussed by Booij (1976). In English the
first suffixes have no effect on stress, while some of the second

(like *-ic* and *-ity*) do; /ng/ is realized as [ŋ] before suffixes of
the first sort, as it is in word-final position, but as [ŋg] before
the other suffixes; and so on. What is important for us here is
that simple clitics show the phonological behavior of affixes of
the first, or #, type. One indication of this fact in English is
that enclitics never condition a stress shift; *embarasses* preserves
is antepenult stress even with clitic objects, as in

$$It\ never\ embarasses \begin{Bmatrix} them & [m̩] \\ her & [r̩] \end{Bmatrix}$$

7.2 <u>Other Clitics</u>. Special clitics and bound words are much more
peculiar phonologically than simple clitics. To begin with, as I
pointed out in section 2.1 above, the phonological relationship
between a disjunct form and a conjunct form can be very remote;
consider two of the Norwegian oblique pronouns (Fretheim and Halvor-
sen (1972:3):

	written	disjunct	conjunct
'him'	*ham*	[ham]	[n]
'her'	*henne*	[henə]	[ənə], [a]

or the first person singular subject pronoun clitic in Walbiri
(Hale (1973:315)) -- disjunct ŋatju, conjunct -na. Even where
there is some visible connection between the forms, as with
French *moi/me* and *lui/le*, the forms usually cannot be regularly
related within the language. As a result, most investigators of
special clitics seem to have assumed that there is no rule-governed
phonological relationship and that the distribution of forms is
essentially a lexical matter. In some cases, words that may occur
both proclitically and enclitically have different forms in the
two positions: thus Modern Greek third person plural feminine
accusative [tis] proclitic, [tes] enclitic.

   Hosts, too, may adopt special forms, as in Old Irish, where
verbs take a special 'conjunct flexion' (Thurneysen (1946: sec. 38))
when they occur with the proclitics (negative and interrogative
markers, certain conjunctions, and the combinations of prepo-
sitions with the relative particle) known as 'conjunct particles'.

   The most striking, and puzzling, aspect of the phonology of
special clitics and bound words, however, is the extent to which
groups show word-internal phonology. The subject is very intri-
cate: some special clitics and bound words act as if they were
associated with #(like simple clitics), others as if they were
associated with +; some groups show the application of phonolo-
gical rules peculiar to sequences involving clitics.

We have already seen examples of special clitics and bound words evidencing what I shall call '# behavior ': Madurese R and Estonian -*ki* both fail to condition rules of internal sandhi. Similarly, the Sanskrit enclitic *ca* 'and' shows # behavior, since its hosts have the same forms before *ca* as they do before independent words beginning with *c*. The Spanish clitic pronouns show # behavior in that they have no effect whatsoever on the position of stress in their hosts: *dándonoslos* 'giving us them' maintains its initial stress even with two clitics (Harris (1969:119)). And the Turkish clitic personal endings do not bear stress (*alíyorlársa*), even though the regular word-internal stressing is on the final syllable.

Though most special clitics and bound words show # behavior, some are phonologically integrated to the extent that they show + behavior. Thus, in Latin the accent placement rules apply to the group rather than the word; the bound words -*que* 'and' and interrogative -*ne*, and the special clitic *cum* 'with', may therefore cause an accent shift:

vírum	'the man (acc.)'	*virúmque*	'of the man'
vídēs	'you see'	*vidésne*	'do you see?'
cum vóbis	'with you (pl.)'	*vobíscum*	'with you (pl.)'

In Modern Greek, as we have already seen, stress placement works (in a rather complex way) on groups as a whole; in addition to the stressing in [féremúto] 'bring it to me!', there is a special stressing when an enclitic is attached to a word with antepenultimate stress: [oánθropos] 'the man, person', but [oánθropózmas] 'our man,' person'. Note also the assimilation of [s] to a following voiced [m], which is typical of word-internal phonology in Modern Greek; Warburton (1970b:112) cites this assimilation in particular when she declares that 'when we say that proclitics and enclitics attach themselves phonetically to the following and preceding word respectively, we mean that the resulting clusters are subject to the phonological rules of morpheme medial clusters.' Walbiri enclitics also behave like ordinary suffixes with respect to the rule that 'a suffixal high vowel assimilates to a preceding final high vowel' (Hale (1973:313). And in Catalan (Johnson (Ms. 1974)), the [r] of the infinitive normally deletes in word-final position, but remains when a clitic follows:

[kantà βé]	'*to sing* well'
[kantár lə]	'*to sing it* (fem.)'

and [nt] normally simplifies to [n] word-finally or before a consonant, but (in some styles) remains before a clitic:

[fèn əšɔ́]   'doing this'

[purtắnt u]   'bringing it'

But there are innumerable complications in this picture.
Even in Modern Greek, special stressings in groups occur only with
enclitics, not with proclitics. And in Turkish, the enclitics in
general show # behavior with respect to stress but + behavior
with respect to vowel harmony (the interrogative particle *mu*, for
instance, is stressless and takes its vowel harmony from the word
to which it is attached: *dogrú* 'true', *dogrú mu?* 'true?'; *bugün*
'today', *bugün mü?* 'today?'; *yarín* 'tomorrow', *yarín mɨ* 'tomorrow?'
-- examples adapted from Lewis (1967:105)).

In still other cases special rules (other than the 'morpho-
logical rules' described earlier) apply across a boundary asso-
ciated with a clitic. Two examples of special facultative variants
from Modern Greek should suffice: first, the second person singu-
lar genitive proclitic [su] often reduces to [s] in speech when it
precedes a direct object pronoun beginning with [t] [sutoférno]
'I bring it to you' → [stoférno]; second, the first consonant of
a proclitic pronoun often voices after the (clitic) particles [θa]
and [na] -- [θatutopó] 'I'll tell it to him' - [θadutopó] (examples
adapted from Householder et al. (1964:82-4)).

The complexity of the phonology of groups is on the same
order as the complexity of the phonology of compounds. In both
cases, some combinations show # behavior, some show + behavior,
some show # behavior in one respect and + behavior in another, and
some show the application of special rules. There are languages
in which the compounds divide sharply into two classes with respect
to their phonological properties, and in which these two classes
can be associated with the boundaries # and +. Allen (1975)
argues persuasively for such a division in Welsh, for example. But
in Welsh the division into # compounds and + compounds, though
motivated by several independent phonological and syntactic proper-
ties, has no syntactic basis: some compounds act one way, some the
other, and there seems to be no general principle governing the
assignment of forms to one category or the other (compare the #
compound *cyn-faer* 'ex-mayor', from *cyn* 'former, preceding' and
maer 'mayor', with the + compound *cyn-ddelu* ('prototype', from
cyn and *delu* 'image'), although Allen does point out that the +
compounds are, on the whole, semantically less transparent than
the # compounds. There are similar problems in predicting the
stress patterns of English N-N combinations, where the differences
between forestress *(Fifth Street)* and afterstress *(Fifth Avenue)*
has sometimes been taken to involve the distinction between
genuine compounds (with internal #) and phrases (with internal # #);
see the discussion in Zwicky (1973). Apparently, in Welsh and
English, some compounds have one boundary lexically, while others

have another. There is no question here of writing rules that
demote # to + (or # # to #) under certain statable conditions
(and even if it were possible to devise such rules, they could
be objected to on general theoretical grounds, as in Pyle (1972)).

If clitic groups, which exhibit the same sort of phonolo-
gical peculiarities as compound words, are to be analyzed parallel
to compound words, then in at least some cases we would need to
list groups in the lexicon, complete with the appropriate bounda-
ries or equivalent marks. In any event, it cannot be assumed
that the phonology of clitics in a language follows in any simple
or direct way from syntactic rules of cliticization plus general
rules demoting # # to #, or # to + (which is not to say that
the groups in some languages, or some subclasses of the groups
in a particular langauge, might not submit to such an analysis).

FOOTNOTES

*Paper read at the Third International Phonologie-Tagung at the University of Vienna, 2 September 1976; an abbreviated version is to appear in *Phonologica 1976*, the proceedings of that conference. A tiny precursor of this article was distributed in dittos in January 1975. I have benefitted enormously from the criticisms, suggestions, and factual contributions of those who read this earlier version and of those who have discussed clitics with me since then; among these intellectual supporters are Arlene Berman, Wolfgang Dressler, Robert Hetzron, Robert Jeffers, Ilse Lehiste, Patricia Donegan, Jerry Morgan, Geoff Pullum, Jerrold Sadock, Jochem Schindler, David Stampe, Dieter Wanner, and Ann Zwicky. I am, of course, much indebted to David Perlmutter, whose work on clitics has largely defined the field and stated the central issues.

[1]Various potential counterexamples to this principle have been drawn to my attention. Robert Hetzron has pointed out to me, for instance, that the alternative plurals *pomidoro* and *pomodori* for Italian *pomodoro* 'tomato' have what might be taken as the same morphemes in different orders. Similarly, for some English speakers, *brothers-in-law* and *brother-in-laws*. Clearly, these examples are of compounds, with alternative principles for the placement of an inflectional morpheme belonging to the compound as a whole. As a class, compounds often show partly word-like, partly phrase-like, syntax and phonology (see footnotes 2 and 3 below, and sec. 7.2), and in this respect they resemble clitic constructions, though I will assume the two types of 'demi-words' can be distinguished.

[2]Here, too, compounds -- and compound-like affixal constructions (for instance, the English stressed prefixes *mis-, dis-, re-, over-,* and so on) -- may show external rather than internal behavior, as when a stop at the end of the first element of a Sanskrit compound assimilates in voicing to the segment beginning the second element (*ṣad-aha* 'period of six days', from *ṣaṭ < ṣaṣ* 'six' and *aha* 'day'), paralleling word-final (but not word-internal) stops; or when English has aspirated voiceless stops after the [s] of stressed *mis-* and *dis-* (in *mistranslate* and *disconnect*), paralleling word-initial (but not word-internal voiceless stops.

[3]Again, compounds and certain affixed forms resembling compounds may show exceptional behavior, as in German *Mittag- und Abendessen* 'lunch and dinner' and *Ein- und Ausgang* 'entrance and exit', or English *book and magazine seller* and *pro- and anti-Marxists*.

[4]The bulk of Givón (1971), concerned with this end development, gives examples where morpheme ordering within words reflects an earlier syntactic order.

[5]This term was suggested to me by Robert Hetzron as a substitute for my earlier support.

[6]Another nonstandard term. My use of it here is not to be confused with other uses this word has had in linguistics. Nor is the group to be confused with the phonological word or phonological phrase, in Chomsky and Halle (1968) or other works.

[7]An unsuccessful attempt at framing such a condition is Postal's hypothesis that

> cliticization is, in general, blocked across major constituent boundaries, particularly across clause boundaries. Processes like cliticization would be permitted only for those constituents which are, at late levels of derivation, sisters -- and possibly sisters of certain limited kinds of constituents.
>
> (Postal (1974:106))

Postal is maintaining that there is a syntactic difference between *I believe it is true* and *I believe it to be true* (*it is true* is an S in the first example, while *it* is a surface direct object in the second), that the difference corresponds to a difference in clitic behavior (*it* is a (simple) clitic in the second example but not in the first), and that a universal constraint accounts for the difference. But the putative constraint is violated by other simple clitics in English (as in *The one you selected's probably going to win,* where *is* cliticizes to the verb of an embedded clause), and there is not much reason to think it holds for special clitics or bound words either (Postal himself cites counterexamples with the English possessive morpheme).

[8]Lakoff's treatment has been widely disputed (I will not review this literature here), but the alternatives that have been suggested seem to me to be notational variants, each coding globality in its own way.

[9]If the attachment of *not* is optional, then the ordering attachment -- inversion is paradoxical, violating as it does the principle of Obligatory-Optional Precedence (Ringen (1972)). However, if the attachment of *not* is obligatory (that is, if *not* must cliticize whenever it lacks stress), then attachment would be expected to apply before inversion, by Proper Inclusion Precedence (Sanders (1974)). Since I know of no compelling evidence against the assumption that *not*-attachment is obligatory, I will assume that it is; perhaps other attachments of simple clitics are as well.

[10]In the latter case, further analysis is needed, for the agreement rules might be one that straightforwardly copies some morphemes into the clitic position, or it might be one calling for a clitic agreement in certain abstract features with the source NP. Hale (1973) makes this point very clearly for Walbiri, which he argues has an abstract agreement rule.

[11]Chrau is an SVO language, so that there is no difficulty in seeing that these particles are genuinely sentence-final. In an SOV language like the Siouan language Hidatsa (Matthews (1965: ch. 3)) it is hard to tell whether certain morphemes are S-final or V-final. The Hidatsa mood morphemes appear to be V-final, however, since in certain moods the subject may follow the particle (this is so for the 'period' particle *c*, the report particle *rahe*, and the quotative particle *wareac*) while in two other moods the subject must follow the particle (for the optative *(a)h* and the imperative *(a)ka*).

[12]In VSO languages it may be hard to distinguish S-initial cliticization from V-initial cliticization. For example, in modern Welsh the affirmative particle *y(r)*, the question particle *a*, and the negative particle *ni(d)* all come at the beginning of sentences, and hence also come before verb forms. There are a few cases in which other elements can precede one of these particles (the question words *ble* 'where', *pa bryd* 'when', and *sut* 'how' can precede *y(r)*, for instance), but on the whole, when a constituent is moved in front of the verb the particle *y(r)* is not used at all and the question particle (in the form *ai*) and the negative particle remain in sentence-initial position (Bowen and Rhys Jones (1960:ch. 28). I conclude that these three particles are S-initial clitics.

[13]Dinnsen's 1972 reanalysis of the Spanish case involves two SSC's, one referring to *se* and to the category of person, the other referring to the case categories:

    reflexive-benefactive-dative-accusative.

REFERENCES

Allen, Margaret Reece. 1975. Vowel mutation and word stress in Welsh. *Linguistic Inquiry* 6.2.181-201.

Anderson, Stephen R. and Paul Kiparsky, (eds.). 1973. *A Festschrift for Morris Halle*. New York: Holt, Rinehart and Winston.

Aronoff, Mark. 1976. *Word Formation in Generative Grammar*. *Linguistic Inquiry Monographs 1*. Cambridge, Mass.: MIT Press.

Baker, C. Leroy. 1971. Stress level and Auxiliary behavior in English. *Linguistic Inquiry* 2.2.167-82.

Booij, G. E. 1976. Boundaries and the phonology of Dutch. To appear in *Phonologica 1976*.

Bowen, John T. and T. J. Rhys Jones. 1960. *Teach Yourself Welsh*. London: English Universities Press.

Brecht, Richard D. and Catherine V. Chvany (eds.). 1974. *Slavic Transformational Syntax*. Ann Arbor: Dept. of Slavic Languages and Literatures, University of Michigan.

Breejen, Bastiaan den. 1937. *The genitive and its of-equivalent in the latter half of the Sixteenth Century.* Amsterdam: N. V. Paris.

Browne, Wayles. 1974. On the problem of enclitic placement in Serbo-Croatian. In Brecht and Chvany 1974:36-52.

Campbell, R. Joe, Mark G. Goldin, and Mary Clayton Wang (eds.). 1974. *Linguistic Studies in Romance Languages*. Washington, D. C.: Georgetown University Press.

Casagrande, Jean and Bohdan Saciuk. 1972. *Generative Studies in Romance Languages*. Rowley, Mass.: Newbury House.

Chomsky, Noam and Morris Halle. 1968. *The Sound Pattern of English*. New York: Harper and Row.

Clements, G. N. ms. 1973. Permutation in morphology. Paper presented at LSA annual meeting, San Diego, Calif.

Cooper, William E. and J. R. Ross. 1975. World order. In Grossman et al. 1975:63-111.

Dinnsen, Daniel A. 1972. Additional constraints on clitic order in Spanish. in Casagrande and Saciuk 1972:175-83.

Dixon, Robert M. W. 1972. *The Dyirbal Language of North Queensland*. London: Cambridge Univ. Press.

Emonds, Joseph. 1975. A transformational analysis of French clitics without positive output constraints. *Linguistic Analysis* 1.1.3-24.

Fretheim, Thorstein and P. Halvorsen. 1972. Norwegian clitic placement. *Univ. of Oslo Working Papers in Linguistics* 3.1-44.

George, Leland and Jindřich Toman. 1976. Czech clitics in universal grammar. *CLS* 12.235-49.

Givón, Talmy. 1971. Historical syntax and synchronic morphology: an archeologist's field trip. *CLS* 7.394-415.

Grossman, Robin E., L. James San, and Timothy J. Vance (eds.). 1975. *Papers from the Parasession on Functionalism*. Chicago: Chicago Linguistic Society.

Haiman, John. ms. 1976. Reinterpretation.

Hale, Kenneth. 1973. Person marking in Walbiri. In Anderson and Kiparsky 1973:308-44.

Hale, William G. and Carl D. Buck. 1966. *A Latin Grammar*. University, Alabama: Univ. of Alabama Press. Reprint of 1903 edition.

Harris, James W. 1969. *Spanish phonology*. Cambridge, Mass.: MIT Press.

Hetzron, Robert. ms. 1976. Clitic pronouns and the linear representation.

Horn, Laurence R. 1972. *On the semantic properties of logical operators in English*. Ph. D. dissertation, UCLA.

Householder, Fred W., Kostas Kazazis, and Andreas Koutsoudas. 1964. *Reference grammar of literary Dhimotiki*. *IJAL* 30.2, Part II. IURCAFL Publication 31. Bloomington, Ind.: Indiana Univ., The Hague: Mouton.

Johnson, C. Douglas. ms. 1974. *Clitic phonology in Standard Catalan*.

Kayne, Richard S. 1975. *French syntax: the transformational cycle*. Cambridge, Mass.: MIT Press.

Kuno, Susumu. 1973. *The structure of the Japanese language. Current studies in linguistics 3*. Cambridge, Mass.: MIT Press.

Lakoff, George P. 1970. Global rules. *Language* 46.3.627-39.

Lehiste, Ilse. 1960. Segmental and syllabic quantity in Estonian. *American Studies in Uralic Linguistics* 1. 21-82.

Lewis, G. L. 1967. *Turkish Grammar*. Oxford: Oxford Univ. Press.

Macdonell, Arthur A. 1916. *A Vedic Grammar for Students*. London: Oxford Univ. Press.

Matthews, G. Hubert. 1965. *Hidatsa syntax*. The Hague: Mouton.

Matthews, Peter H. 1974. *Morphology: an Introduction to the Theory of Word-structure*. London: Cambridge Univ. Press.

Meyer, Gustav. 1888. *Kurzgefasste albanesische Grammatik*. Leipzig.

Mitchell, Thomas F. 1962. *Colloquial Arabic*. London: English Universities Press.

Morin, Jean-Yves. 1975. Old French clitics and the Extended Standard Theory. *CLS* 11.390-400.

Moyne, John and Guy Carden. 1974. Subject reduplication in Persian. *Linguistic Inquiry* 5.2.205-49.

Olsen, Hedvig. 1928. *Etude sur la syntaxe des pronoms personels et réfléchis en roumain*. Copenhagen: Høst.

Perlmutter, David M. 1969. *Les pronoms objects en espagnol: un exemple de la nécessité de contraintes de surface en syntaxe*. *Langages* 14. 81-133.

_____ . 1970. Surface structure constraints in syntax. (version of chapter 2 of Perlmutter 1971; earlier version published as Perlmutter 1969). *Linguistic Inquiry* 1.2. 187-256.

_____ . 1971. *Deep and surface structure constraints in syntax*. New York: Holt, Rinehart and Winston.

_____ . ms. 1973. Evidence for a post-cycle in syntax. Paper presented at LSA annual meeting, San Diego, Calif.

Pike, Kenneth L. 1949. A problem in morphology-syntax division. *Acta Linguistica* 5.125-38.

Postal, Paul M. 1974. *On Raising*. Cambridge, Mass.: MIT Press.

Pullum, Geoffrey K. 1976. *Rule interaction and the organization of a grammar*. Ph.D. dissertation, University College London.

Pyle, Charles. 1972. On eliminating BM's. *CLS* 8.516-32.

Quicoli, Antonio C. 1972. *Aspects of Portuguese complementation*. Ph.D. dissertation, SUNY Buffalo.

Ringen, Catherine. 1972. On arguments for rule ordering. *Foundations of Language* 8.2.266-73.

Roldán, Mercedes. 1974. Constraints on clitic insertion in Spanish. in Campbell, Goldin, and Wang 1974:124-38.

Sanders, Gerald A. 1974. Precedence relations in language. *Foundations of Language* 11.2.361-400.

Schachter, Paul. 1974. Constraints on clitic order in Tagalog. *UCLA Papers in Syntax* 5.97-118.

Selkirk, Elisabeth O. 1972. *The phrase phonology of English and French*. Ph.D. Dissertation, MIT.

Stampe, David L. 1973. *Dissertation on Natural Phonology*. Ph.D. dissertation, Univ. of Chicago.

Stanley, Richard. 1973. Boundaries in phonology. In Anderson and Kiparsky 1973:185-206.

Stevens, Alan M. 1971. Fixed morpheme order. *Linguistic Inquiry* 2.3.420-1.

Tegey, Habibullah. 1975. The interaction of phonological and syntactic processes: examples from Pashto. *CLS* 11.571-82.

Thomas, David D. 1971. *Chrau grammar*. *Oceanic Linguistics Special Publication 7*. Honolulu: Univ. of Hawaii Press.

Thumb, Albert. 1964. *A Handbook of the Modern Greek Language*. Chicago: Argonaut.

Thorneysen, Rudof. 1946. *A Grammar of Old Irish*. Dublin: Dublin Institute for Advanced Studies.

Wackernagel, Jacob. 1892. *Über ein Gesetz der indogermanischen Wortstellung*. *Indogermanische Forschungen* 1.333-436.

Wanner, Dieter. 1974. The evolution of Romance clitic order.
    In Campbell, Goldin, and Wang 1974:158-77.

Warburton, Irene P. 1970a. *On the verb in Modern Greek*. *Language
    Science Monographs 4*, Bloomington, Ind.: Indiana Univ. Press.

_____. 1970b. Rules of accentuation in Classical and
    Modern Greek. *Glotta* 48.107-21.

Zwicky, Arnold M. 1972. On casual speech. *CLS* 8.607-15.

_____. 1973. Bibliography III: forestress and afterstress,
    compounds and phrases. *Ohio State University Working
    Papers in Linguistics* 16.112-9.