

Suppressing the Zs¹

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I. THEORETICAL MATTERS

The label CLITIC has been applied to a wide variety of phenomena, from words that are prosodically dependent on neighbouring words (as are unaccented monosyllabic prepositions and personal pronouns in English) to words, or even individual morphemes, with idiosyncratic syntactic distributions (like the second-position pronominal and adverbial particles in many languages). I propose here to reserve the term for elements whose description requires more than the stipulation that they may or must be prosodically dependent.

Even with this limitation, it is not clear that clitics constitute a uniform set of phenomena, in the sense that they are all to be described by a single mechanism within a grammar. What unites, for instance, the auxiliary clitic in *The governor-general's coming* – a paradigm example of a SIMPLE CLITIC in the scheme of Zwicky (1977) – and the possessive clitic (POSS) in *the governor-general's manifesto* – a paradigm example of one type of SPECIAL CLITIC? Neither can be fully described via phonological rules applying within prosodic domains (e.g. syllable, foot, prosodic word, prosodic phrase). As Kaisse (1985: 41–44) argues, the weak forms of auxiliaries must be listed in the lexicon, rather than being derived from the strong forms by phonological rule, and the distribution of these weak forms must be described, at least in part, by rules of syntax and morphology; and POSS, which is located at the end of a syntactic constituent (an NP), has a distribution different from any free word in the language and so requires some account in the syntactic component of a grammar. But should these two phenomena be given the same formal treatment, as proposed in Klavans (1985) and elsewhere? A negative answer to this question is provided by Nevis (1985)², in whose scheme the pre-theoretical notion of ‘clitic’ is replaced by two quite distinct notions, described by different mechanisms within a grammar: BOUND WORDS (BWs) and PHRASAL AFFIXES (PAs). The auxiliary clitics are BWs, POSS and PA, and

[1] An earlier version of this paper (as of 13 May 1986) appeared in the Ohio State University *Working Papers in Linguistics* 32. 149–156 (1986). My thanks to Jonni Kanerva and Paul Kiparsky for their challenging comments on Nevis-style analyses of clitics, and to Gerald Gazdar and Nigel Vincent for their critiques of the earlier version of this paper.

[2] And also by Ian Smith and Steve Johnson, in a paper ‘The clitic as a derived category’, which they read at the 1984 annual meeting of the Linguistic Society of America but have not published.

the two phenomena share no property of interest beyond their prosodic dependency, which I will indicate by the feature [+CL]. Nevis couches his proposals in the framework of generalized phrase-structure grammar (GPSG), and my discussion here will follow his lead.

My focus is on POSS and the distinction between PAs and ordinary inflectional affixes. First I sketch the analysis of BWs (1.1), PAs (1.2) and inflectional affixes (1.3). I observe that Nevis' framework involves two independent classifications for dependent items other than BWs: whether the item is located on the head of a constituent or at one of its edges, and whether it is an inflection or a PA. That is, there are four distinct types of affix-like elements, rather than two. The question then arises whether so rich a theory of affix-like elements is necessary. The existence of inflectional affixes is not in doubt, nor is the occurrence of affix-like material on the heads of constituents in some instances and at their edges in others. What is at issue is whether the class of PAs can be assimilated to the class of inflections. Section 2 surveys relevant facts about the paradigm example of a PA, namely POSS. Section 3 exposes difficulties in accommodating these facts within any analysis that treats POSS as a formative, that is, in either a BW or a PA analysis. Finally I sketch a satisfactory analysis of POSS as an inflectional affix, considering the morphological side of the matter in Section 4 and the syntactic side in Section 5.

It cannot be concluded from this demonstration that PAs should always be treated as a subtype of inflectional affix. After all, I have considered only one putative PA, and the pattern of the data might be quite different for a different example. Nevertheless, this demonstration is theoretically suggestive: one would have thought that if there are any PAs at all, POSS is one of them. Kanerva (to appear) has argued independently that the possessive particles in Finnish, Nevis's own illustration of PAs, should be analyzed as inflections; and in any event the theoretical framework is simplified if PAs do not have to be formally distinguished from inflections.

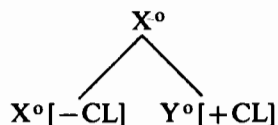
1.1 *Bound words*

Bound words (or, more exactly, bound I-FORMS, since the 'words' involved are not lexemes but inflectional forms of lexemes) are treated in the syntax simply as words representing particular syntactic categories. Their distribution is described just as the distribution of free words is described – by conditions on immediate dominance (ID), feature distribution, and linear precedence (LP). What sets a BW apart from free words is a non-syntactic principle of LIAISON that either permits or requires it to form a word-like unit with some neighbouring word (again, more exactly, with some neighbouring i-form), the HOST.

Nevis supposes that liaison is just 'phonological' attachment, but since the LEXICAL phonological shape of an optionally BW, like the English auxiliary *has*, can depend on whether or not there is liaison, I will assume that

host-plus-clitic combinations are in fact morphosyntactic constructs of some sort, with structures like the following:

(1) Bound word



Here, X and Y are syntactic categories, X being the category of the host and Y of the clitic. Some BWs, like certain of the *i*-forms of English auxiliaries, are optionally bound. They have 'weak forms' with a syntactic distribution that is a subset of the syntactic distribution of the corresponding 'strong forms', which are free words. Some BWs, like the Finnish particle clitics *-hAn*, etc. treated by Nevis, are obligatorily bound. They have no corresponding 'strong forms'. Nevis argues that the Finnish particle clitics are in fact bound WORDS because they belong to various classes of adverbial free words in Finnish, with which they share their syntactic distribution (differing only in that they must be attached to a host).

Nothing I have said so far would rule out the possibility of obligatory BWs belonging to a category with no free word member in it. Indeed, this is the analysis I assume is correct for second-position clitics in languages (like Tagalog; see Schachter & Otones, 1972: §§3.29, 6.2) that apparently have no class of free words restricted to this position.³

1.2 Phrasal affixes

A rather different picture is presented by another group of clitics, the phrasal affixes, exemplified by the English POSS's and the Finnish 'possessive suffixes' as analyzed by Nevis.

A PA clitic can have at least two properties, listed in (2), that would make it resemble an inflectional affix more than a free word.

- (2) (a) A PA clitic can have a phonological shape that is not available for free words (though the shape is available for inflectional affixes).

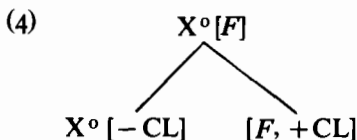
[3] This is also one of the available analyses for object pronominal clitics in Romance, which in general have distributions different from any other items, independent object pronouns included, in their languages. A BW analysis is in fact assumed in most transformational treatments of these phenomena, whether those treatments involve a movement transformation, as in Kayne (1975, esp. ch. 2), or base generation of clitics, as in Jaeggli (1981: ch. 1) and other works cited there. But a PA treatment, similar to the one Nevis gives for the Finnish 'possessive suffixes', is also possible, and so is a straightforward inflectional treatment, as proposed in a phrase structure framework by Stump (1980) and in a government-binding framework by Borer (1983). Finally, the Romance 'weak' object forms might be treated not as clitics (of any sort) or inflections, but rather as incorporated anaphoric pronouns (that is, as morphological constituents in compound-like combinations), parallel to an analysis advanced by Bresnan & Mchombo (1985) for the object marker in Chichewa.

- (b) There is not necessarily a class of free words a PA clitic can be referred to in its syntax.

On the other hand, PAs have at least three properties, listed in (3), that ally them with BWs rather than inflectional affixes.

- (3) (a) PA clitics are always located outside inflectional affixes, as English POSS is in *Oxen's*, *schemata's*, etc.
 (b) Unlike inflections, PAs are always realized affixally, never processually, that is, never as gemination, vowel shift, subtraction, or the like; see the discussion of Hidatsa in Zwicky (1985a: §4.2).
 (c) Some PAs, like some BWs, exhibit 'promiscuous attachment', attachment to i-forms of virtually any syntactic category, as English POSS does in *the person I talked to's theories*, *the person who's talking's theories*. (Promiscuous attachment for such PA clitics is a consequence of the fact that they are located at the edge of some constituent rather than on that constituent's head.)

Nevis's proposal for describing a PA is that the feature *F* it realizes is distributed by syntactic rules. One special rule permits a lexical (0-bar) category with the feature *F* to branch as in (4).



For English POSS, Nevis's GPSG treatment would associate the feature LAST, having the value POSS, with an N^2 modifying an N^1 . LAST is a feature with the properties listed in (5). The first of these properties is one of the defining characteristics of a FOOT FEATURE in the GPSG framework. The second follows automatically from the linear precedence rule in (6), which requires that a daughter category with the feature LAST follow all of its sisters, with the result that a lexical category with the feature LAST will in fact be the last word in its N^2 . It would also require that each of two daughters with the feature LAST follow the other. Since these requirements are contradictory, (6) has the effect of ensuring (5b), which consequently need not be stipulated separately.

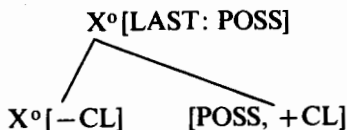
- (5) (a) The feature must appear on a mother category if it appears on any daughter category.
 (b) The feature can occur on no more than one daughter category.
 (6) $X < [LAST]$

For the moment I will treat LAST as a special type of feature subject to the ID condition in (5a) and the LP rule in (6), and I will postpone until Section

5.2 the technical question of whether LAST should in fact be treated as a foot feature.

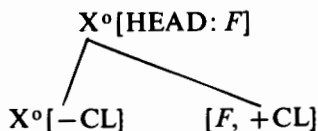
On Nevis's treatment, a lexical category with the feature LAST will branch as in (4), giving a structure like (7) for *to's* or *talking's*, a structure in which POSS belongs to no syntactic category.

(7) Edge-located PA



For PA clitics that are located on the head rather than at the edge of a phrasal constituent, Nevis's framework would have the relevant feature *F* distributed from the phrasal category to the head lexical category via the Head Feature Convention of GPSG. The lexical category will then branch roughly as in (8), which is parallel to (7).⁴

(8) Head-located PA



1.3. *Inflectional affixes*

Nothing in Nevis's framework requires that a feature distributed from a phrasal category to a lexical category must be associated with a branching like the ones in (7) and (8). Without a branching of this sort, such a feature (whether located at an edge or on the head) is simply realized via morphological rules, as an inflection (which might be realized affixally or processually). That is, in Nevis's scheme there are two entirely independent parameters: necessarily affixal realization (PA clitics being necessarily affixal, ordinary inflections not so) and edge location, with its accompanying promiscuity of attachment (both PA clitics and ordinary inflections being locatable in either way).

There are then four potentially distinct situations involving the distribution of features rather than of words, as in (9).

- (9) (a) Head inflection (the usual configuration).
- (b) Head affixal clitic (Finnish possessive suffixes, in Nevis's analysis).

[4] I am glossing over a number of details here. Current versions of GPSG, as in Gazdar *et al.* (1985), do not treat HEAD as a category-valued feature, as Nevis and I treat LAST, so that (9) and (10) would not be fully parallel.

- (c) Edge affixal clitic (English possessives, again *à la Nevis*).
- (d) Edge inflection.

The type in (9d), edge inflection, has not yet been illustrated. In Zwicky (1984) I suggested that it might be exemplified by the cases of Welsh, which are marked (in part) by the system of consonant mutations in the language; the proposal is sketched in Zwicky (1986a: §3). These mutations affect an initial consonant of the FIRST word in an NP, giving rise to such alternations as NOM/GEN *dydd* '(a) day' and *pob dydd* 'every day' vs. ACC *ddydd* and *bob dydd*, respectively. Many details of the analysis are controversial, however – the assumption of case features at all in Welsh, in particular, not to mention the distribution of these features via the special feature FIRST (parallel to LAST). Fortunately, Poser (1985), using the data in Churchward (1953, 1959), has provided a clearer example of edge inflection, namely the 'definitive accent' of Tongan. (Poser also explicitly connects his discussion of Tongan to the facts about the English genitive).

The Tongan feature DEF[inite] (whose semantics and pragmatics are not at issue here) is realized processually, as a shift of word stress to the final mora. Poser (§4) argues that this stress shift precedes a morphological rule of Tongan, Syllable Fusion, which converts certain vowel sequences into tautosyllabic long vowels or diphthongs, and also that Syllable Fusion is a lexical (rather than postlexical) rule, to use the terminology of Kiparsky (1982), so that the stress shift itself must be lexical. However, the word affected by the shift is not the head N of a [+DEF] NP, but rather whichever word happens to end that NP; in (10) (Poser's example (10)), *Sione* has final-mora stress rather than the normal penultimate-mora stress that the other conjunct, *Feleti*, and the head noun, *sa:liote*, both exhibit.

- (10) kuo maumau ʔa e sa:liote ʔa Feleti mo Sione
 PAST broke ABS the cart GEN Fred and John
 'Fred and John's cart is broken.'

Poser speaks of the definitive accent as a clitic, but in fact the analysis that he advocates 'rewrites a semantically definite NP as an NP that must ultimately dominate a word bearing the definitive foot feature' (269). That is, his proposal treats the definitive accent as an inflection, but one distributed via a foot feature rather than a head feature.

Returning now to the taxonomy of affix-like elements in (9), I observe that it can be very tricky indeed to decide whether a given range of data in some language illustrates one of these situations rather than another. Consider, in particular, how to discriminate between an inflection and an affixal clitic – between (9a) and (9b), or (9d) and (9c). Three potential criteria (exterior location, necessarily affixal realization, and promiscuous attachment) are given in (3), but only the first two are applicable to items located on the edge of a constituent. Of these two, only the first, exterior location, is usually relevant,

since the prototypical instance of inflection is in fact affixal. The Tongan definitive accent is processual, hence could not be a PA according to (3b), but English POSS is affixal, which is consistent with its being either an inflection or a PA clitic.

It is in a way unfortunate that (3a), exterior location, usually turns out to be the single property deciding between inflections and PA clitics, since there is always a way to treat affixal clitics as inflections in the absence of evidence of type (3b): instead of positing a (language-particular) branching rule like (7) or (9), stipulate instead that the affix in question must fill the outermost affix slot, all other affixes having the default characteristic of filling inner slots. For English POSS, the choice is between stipulating in the syntax that the feature POSS conditions a branching as in (7), or stipulating in the morphology that POSS fills the second of two slots for inflectional affixes.

One consequence of the purely inflectional analysis is that every word in the English lexicon (or at any rate, every word that can occur as the rightmost item in an NP) would have at least one inflected form; *to*'s and *talking*'s must be listed as inflectional forms of *to* and the already inflected *talking*, respectively. Poser (1985: 268) comes to the same conclusion for Tongan, proposing to 'inflect every word (or at any rate, every word that can appear as the rightmost word in an NP), for definiteness'. This move would represent no complication of the lexicon, since the shapes of the inflected forms are completely predictable from general principles.⁵

2. FACTS ABOUT POSS

I will now argue that of the three possible treatments of English POSS within Nevis's scheme – as a BW clitic, as an (edge-located) PA clitic, or as an (edge-located) inflectional affix – the last is the best. One consequence of this position is that the very existence of PA clitics, and of syntactic branchings like those in (7) and (9), is called into doubt, since English POSS is in fact the standard example of a PA clitic. My argumentation will depend on claims about principles that describe the allomorphy of words, in particular on claims that certain sorts of morphological or morphosyntactic rules do not exist. Such negative claims cannot themselves be demonstrated (though they can be made plausible); the reader should understand at the outset that my conclusions are tentative.

2.1. *PL + POSS*

The basic facts that are relevant to the issue are very familiar; see the survey of the literature on *PL + POSS* in Zwicky (1975: 165–175). As illustrated in

[5] The purely inflectional analysis is then very much in the spirit of Sadock's (1985: 423) proposal for English POSS within his Autolexical Syntax framework. Indeed, I have argued in Zwicky (1986b) that Sadock's framework and mine are more similar than might at first appear.

(13b), parallel to the singulars in (11a), PL and POSS can combine, but when the shape of PL is the (regular) sibilant suffix, as in (11c), POSS is suppressed.⁶ (The examples in (11) involve both the prenominal possessive construction and the doubled possessive construction of *a friend of mine*, in which POSS co-occurs with the prepositional possessive in *of*.)

- (11) (a) my oldest kid's ideas, a friend of my oldest kid's
 (b) the children's ideas, a friend of the children's
 (c) the two kids'/*kids's ideas, a friend of the two kids'/*kids's

The suppression is not phonologically conditioned, as is shown by the examples in (12), where the nouns to which POSS attaches end in one of the sibilants /z/ or /s/ but POSS is not suppressed. (These examples involve both the prenominal possessive and the 'locational' possessive of *at/to/near Kim's* 'at/to/near Kim's place'.)

- (12) (a) the fuzz's old cars; at Buzz's
 (b) the bus's doors; at Cass's
 (c) the terrace's tiling; at Thomas's

POSS is suppressed no matter which of the three allomorphs of the regular PL occurs on its host:

- (13) (a) the dogs'/*dogs's kennel
 (b) the cats'/*cats's favourite places
 (c) the crocuses'/*crocuses's bright blossoms

And it is suppressed whether its host is the head noun of the NP, as in (11) and (13), or just a noun that happens to end that NP, as in (14b) and (15b).

- (14) (a) anyone who likes children's ideas
 (b) anyone who likes kids'/*kids's ideas
 (15) (a) people attacked by Katz's reactions to him
 (b) people attacked by cats'/*cats's reactions to them

2.2. Z+POSS

As has been noted by Stemberger (1981: §2.11), POSS is also suppressed in the presence of other Z affixes (those with the same allomorphy as PL). The examples in (16) illustrate suppression in the presence of the verbal suffix PRES, while those in (17) illustrate suppression in the presence of another

[6] English POSS has several other problematic characteristics, three of which I will merely enumerate here; (A) is well known, but (B) and (C) are less celebrated, despite the fact that they were noticed by Kruisinga (1932: §§761, 829, 907). (A) POSS is occasionally suppressed in speech (as it regularly is in writing, according to at least some style sheets) after proper names ending in /s z/: *Jones's*, *Nevis's*, *Jeeves's*. (B) PL+POSS is unacceptable if the plural i-form is an irregular one ending in an obstruent: **feet's*, **geese's*, **teeth's*. (C) For many speakers, PL+POSS is unacceptable if POSS is not located on the head of its NP: **our fathers-in law's*, **the queens of England's*, **the men I mentioned's*.

POSS; POSS in a prenominal possessive is suppressed by POSS in a locational possessive in (17a), by POSS in a doubled possessive in (17b).

- (16) (a) people who hurry's ideas
- (b) people who are hurrying's ideas
- (c) everyone who hurried's ideas
- (c) anyone who hurries'/*hurrie's ideas
- (17) (a) everyone at Harry's/*Harry's's ideas
- (b) a friend of my children's/*children's's ideas

2.3. Multiple suppression

In fact, any number of instances of POSS can be suppressed. The construction in (18) 'ought to' have two instances of POSS, one for the doubled possessive and another for the prenominal possessive modifying *ideas*, but both are suppressed by PL on *kids*. And the construction in (19) 'ought to' have three instances of POSS, one for the locational possessive, a second for the doubled possessive following *acquaintance*, and a third for the prenominal possessive modifying *crazy ideas*, but all are suppressed by PL on *Smiths*.

- (18) a friend of my two kids'/*kids's/*kids's's ideas
- (19) an acquaintance of the people at the Smiths'/*Smiths's/*Smiths's's/
*Smiths's's's crazy ideas

3. FORMATIVE PROBLEMS

The data in 2.1–2.3 present problems for any analysis that treats POSS as a syntactic FORMATIVE, that is, as a constituent licensed by syntactic (rather than morphological) rules. In both a BW treatment of POSS and a PA treatment, POSS is in fact a formative, so that the data speak against both types of analysis.

To see what the issue is, observe that a formative POSS (like all other formatives) must have a lexical entry, and that its lexical entry must include a phonological representation or representations for POSS. Assuming that the lexical phonological representation of the Z suffixes PL and PRES is /z/, what we should like to say about the allomorphy of POSS is sketched in (20). The intended function of the UNLESS clause in (20) is to block the assignment of any phonological representation to POSS in the circumstances specified in the clause.

- (20) POSS has the lexical phonological representation /z/, UNLESS its host ends in a morpheme /z/.

There are at least two problems here. The first is that (20) takes account not merely of the phonological shape and/or the morphosyntactic features of the host, but also of the specific morphological composition of the host

(including phonological properties of one of its constituent morphemes). Lexical phonological shape can depend on properties of adjacent words – in the model of Zwicky (1986a) such a dependence would be expressed in a morphosyntactic subcomponent of ‘shape conditions’ – but so far as I know conditions of this sort are blind to the internal morphological composition of these adjacent words.

Things are not improved if the lexical phonological representation of POSS is just /z/, in which case there must be a rule deleting POSS /z/ immediately after a word ending in a morpheme /z/. I am not convinced that there are any good examples of rules deleting specific formatives (despite the title of Zwicky & Pullum, 1983), and so far as I know rules of external sandhi affecting word W are blind to the internal morphological composition of words adjacent to W (though not, of course, to their phonological properties and morphosyntactic features).

A second problem with (20) is the UNLESS clause itself. A contextual condition on the insertion of a particular lexical item should predict whether or not the resulting configuration is ACCEPTABLE, not whether or not the item has a non-zero realization. For example, the insertion of the strong form *le* for the masculine definite article in French is permitted UNLESS the following word begins with a vowel. It does not follow from this condition that ‘the man’ has a suppressed definite article: *homme*. What does follow is that **le homme* is unacceptable. This is not at all the intended effect of the UNLESS clause in (20).

4. SUCCESS WITH INFLECTION

Now I consider the treatment of POSS as a morphosyntactic feature, distributed by syntactic rules but realized as a suffix by the same sort of (morphological) rule appropriate for the standard examples of inflectional suffixes – a REALIZATION RULE in the Zwicky (1985b) framework for inflectional morphology.

4.1. Realization rules

In this framework, realization rules are distinguished from the operations associated with them (suffixation of specified material, reduplication of initial CV, etc.). A single realization rule might be associated with two or more operations (one rule realizing PL on German nouns is associated with an umlaut operation and also with the suffixation of *-er*), and the same operation might be associated with two or more realization rules (in English, suffixation of /z/ is associated with a rule realizing PL and with one realizing PRES).

Moreover, there can be conditions on a realization rule or on one of its operations, and the consequence of an unsatisfied condition will be different in the two situations: an unsatisfied condition on the rule results in unacceptability, as above, but an unsatisfied condition on the operation

results in failure of the operation – which is to say, no effect. For example, at least two rules realizing PL in German (one for non-umlaut plurals like *Hund-e* ‘dogs’, one for umlauted plurals like *Gründ-e* ‘grounds’) involve the operation in (21); when the condition in the UNLESS clause obtains, the operation doesn’t apply, and no suffix is attached, so that the plural of *Flicken* ‘patch’ is *Flicken* and of *Bruder*, *Brüder*.

- (21) Suffix /ə/ UNLESS the base ends in /ə/ followed by a sonorant consonant.

The ability of realization rules to take account of the internal structure of the bases they operate on is considerable, though perhaps limited by metaconditions like strict cyclicity. In any event, a realization rule like the one in (22) violates no metacondition that I know of.

- (22) In the context of [BAR: o], [POSS] is realized by operation (23).
 (23) Suffix /z/ in slot 2 unless there is a /z/ in slot 1.⁷

4.2. A digression on Portuguese

Before returning to the syntactic side of the analysis of English POSS (in Section 5), I will comment briefly on another set of ‘clitic’ data that appear to be problematic on morphological grounds; the postverbal object pronouns of Portuguese (see Williams, 1979: §§ 103–104, 127 and Prista, 1966: 59–62 for a presentation of the data). The object pronouns are usually referred to as clitics when they follow the verb, as in (24b) as opposed to (24a); in this position, they are orthographically connected to the verb by hyphens.

- (24) (a) João me vê. ‘John sees me’
 John me sees
 (b) João vê-me.

Matters are a bit more complex in two sets of verb forms, the future and conditional, both of which are of the shape infinitive plus person/number suffix. In these sets postverbal object pronouns are not located after the suffix but instead are ‘infix’d’, occurring immediately before the suffix:

- (25) (a) falar – lhe – ei ‘I shall speak to him/her/it’
 speak 3/sg 1/sg
 INF DAT FUT
 (b) dar – no – lo – á ‘He will give him/it to us’
 give 1/pl 3/sg/masc 3/sg
 INF DAT ACC FUT

[7] This analysis amounts to a stipulation that suppression of POSS occurs in the contexts described in (23). It does not derive this instance of suppression from a more general principle, as Stemberger (1981) attempts to do in his treatment of the POSS and related facts as instances of ‘vacuous rule application’.

- (c) *escrever* – *lhes* – *íamos* ‘We would write to them’
 write 3/pl 1/pl
 INF DAT COND

Unlike some clitics, the postverbal object pronouns are not promiscuously attached (see (3c) above); they are attached only to their governing verbs. And unlike ALL reasonably clear examples of clitics (of either type), these pronouns are sometimes located inside what appear to be inflectional affixes (see (3b)). That is, they don't look like clitics at all.⁸

The question then is how the pronouns can be analyzed within a framework countenancing only inflectional affixes and BW clitics, the former described by principles regulating the distribution of morphosyntactic features, the latter by syntactic ID rules. I will generalize the issue somewhat by referring to the postverbal object pronouns as the INTERIOR ITEMS and the apparent verbal inflectional affixes as the EXTERIOR ITEMS. There are then at least five analyses, as in (26), that are consistent with the framework for clitic description suggested by English POSS.

- (26) (a) The interior item is neither inflectional nor clitic.
 (b) The interior item plus the exterior item constitutes an inflected BW clitic.
 (c) The interior item is a BW clitic that is moved inside the exterior item by a morph metathesis rule.
 (d) Both the interior item and the exterior item are BW clitics.
 (e) Both the interior item and the exterior item are inflections.

Analysis (26a) would treat the combination of infinitive verb and interior item as an instance of word formation – that is, since the interior items are pronouns, as an instance of pronoun incorporation (as in Bresnan & Mchombo (1985) on Chichewa). There are problems with this analysis for Portuguese; in particular, I do not see how to describe the incompatibility between preverbal pronouns as in (24a) and postverbal pronouns as in (24b). Analysis (26b) would posit pronominal clitics inflected for tense/aspect and agreeing with subject NPs in person and number (in addition to having their own inherent person and number). Again there are problems with this analysis, following from the fact that the interior items in Portuguese are pronouns. I know of no pronoun with this pattern of inflection in any

[8] In the pretheoretical terminology of Zwicky (1977: §3) they would be ENDOCLITICS, like items cited there from Madurese, Estonian, Turkish and Hua. In the theoretical framework I have sketched here, however, there is no place for items that are literally endoclititic – that is, items that are inserted by syntactic rule into an inflected form. The Estonian data have been re-analyzed by Nevis (1984) as involving a derivational affix rather than a clitic; Klavan's (1979) observation that inflected words can be clitic provides a way of eliminating some other putative instances of endoclitics; and my discussion of Portuguese here suggests three other possibilities, in (26c–e). My hope is that one or another of these non-endoclitic treatments is justified for the remaining problematic cases.

language, and there is certainly no independent evidence for them in Portuguese. Analysis (26c) would posit a rule of infixation relocating the interior item. This would appear to be consistent with the general two-stage treatment of infixation proposed by Moravcsik (1977), in which infixes are generated as external affixes and then moved inside stems by metathesis rules. However, Moravcsik's metathesis rules are restricted to moving affixes over phonological constituents (consonantal onsets/offsets or whole syllables), and analysis (26c) would involve metathesis over a morphological constituent. In addition, the metathesis could not be treated as a rule of lexical morphology (since a BW clitic and its host are separate words) but would have to be a postlexical rule (a shape condition or a morphonological rule, in the framework of Zwicky (1986a)), and I know of no clear evidence that post-lexical rules should be capable of operations like morph metathesis. Analysis (28d) would reflect the historical origin of the paradigms in the future and conditional, the exterior items in question having originated as inflected forms of the auxiliary *haver* 'have'. On this analysis the postverbal pronouns would be clitic to a main verb form in examples like (25) in the same way that they are in examples like (24b). Finally, analysis (26e) would be entirely parallel to the analysis I have opted for in English PL+POSS forms like *children's*, and Portuguese would show an alternation between inflectional (postverbal) and periphrastic (preverbal) formations expressing pronominal objects, an alternation of the same sort as in English *children's* versus *of children* and *handsomer* versus *more handsome*.

Of the five analyses, only (26c) is probably ruled out on general principles. Analyses (26a) and (26b) seem unlikely for Portuguese, though they might well be appropriate for other apparent instances of 'infixed clitics'. Both analyses (26d) and (26e) are consistent with the facts I have presented about Portuguese and with a theoretical framework that recognizes only inflectional affixes and BW clitics. Some further facts of allomorphy – in particular, the absence of verb-final *r*, *z* or *s* before postverbal third-person accusative pronouns, and the fusion of most combinations of dative and accusative postverbal pronouns (Prista 1966: 37 f) – suggest that (26e) is the correct analysis for Portuguese as for English POSS, but I will not pursue the matter here.

5. FINAL REMARKS ON POSS

I now return to English. The morphological analysis I sketched in (22) and (23) accounts for POSS suppressing POSS, as in (17)–(19), not via the UNLESS clause in (23) but rather via the stipulation that the suffix fills slot 2. The effect of multiple instances of POSS would only be to require several times that this slot be filled with /z/.

5.1. *The syntax of POSS suppressing POSS*

But in fact the syntactic part of the (edge-located) inflection treatment would by itself have the effect of POSS suppressing POSS. Consider what the syntax would have to say about an example like (19). The NP node dominating *the Smiths* will have the feature LAST: POSS, as an instance of a locational possessive. The NP node dominating *the people at the Smiths* will have the feature LAST: POSS, as an instance of a doubled possessive. And the NP node dominating *an acquaintance of the people at the Smiths* will have the feature LAST: POSS, as an instance of a prenominal possessive. The ID restriction in (5a), which ensures that a mother node has the feature LAST if any of its daughters has this feature, and the LP condition in (6), which ensures both that a daughter with this feature LAST does come last and that no more than one daughter has this feature, will together require that the word *Smiths* in (19) have the feature POSS – because it is the last word of *the Smiths* and because it is the last word of *the people at the Smiths* and because it is the last word of *an acquaintance of the people at the Smiths*. The single feature POSS satisfies all three requirements.

Treating POSS edge-inflectionally in a framework in which LAST is subject to the conditions in (5a) and (6) thus REQUIRES that POSS suppress POSS. To get any other outcome for an edge-located inflection we would somehow have to distinguish different ‘sources’ for POSS; at best this would represent a considerable complication of the feature system, and at worst it would threaten to subvert the context-free character of a GPSG syntax.

5.2. *LAST as a GPSG foot feature*

As an addendum, I return to an important technical issue within GPSG that arises from the analysis of POSS I have suggested – namely the question of whether LAST should simply be treated as a foot feature, like WH or SLASH, so that condition (5a) would not have to be stipulated specially for LAST but would instead follow directly from its being a foot feature. Why not, then, just take advantage of the Foot Feature Principle (FFP; see Gazdar *et al.*, 1985: §5.2)? What the FFP would have to do is permit a single instance of POSS to satisfy any number of requirements inherited from nodes dominating it, in effect to act as a gap linked to multiple fillers. Now the FFP will accommodate the reverse situation, a single filler linked to multiple gaps (as in questions like (27)), but it cannot describe a single gap linked to multiple fillers. What stands in the way is a constraint on the applicability of the FFP, as described informally in (28).

(27) Which letter did you throw away without reading?

(28) The behaviour of **foot** features that are explicitly specified in ID rules, or which have arisen through the operation of metarules, is not regulated by the FFP (Gazdar *et al.*, 1985: 80).

To see the problem, consider the configuration in (29) and suppose that both the higher, dominating NP node and the lower, dominated one are in positions where they receive the feature LAST: POSS.

(29) NP [...NP...]

By the FFP, an occurrence of a word that is within the lower NP and has this feature would satisfy the requirement established by this feature on the lower NP. But it would not satisfy the requirement established by this feature on the higher NP; the occurrence of this feature on the lower NP is specified in an ID rule and by (28) is consequently exempt from the FFP.

It will not do to drop the constraint in (28), at least in so far as the foot features WH and SLASH are concerned. Consider an embedded fronted WH-question like the one in (30a). An ID rule stipulates the WH features on the first constituent of (30a) and the SLASH feature on the second, as in (30b).

(30) (a) who Kim saw
(b) $XP[WH] S/XP$

If the constraint in (28) were not in force, the FFP would require that the whole clause in (30a) – and any node dominating it – have both the features WH and SLASH. But since these occurrences of the foot features are stipulated by ID rule, such unacceptable consequences of the FFP are averted by (28).

I conclude that LAST cannot be treated as just another foot feature, subject to (5a) as constrained by (28), but must be treated as a new type of ‘near foot’ feature, subject to the ID principle in (5a) and the LP principle in (6), but not to (28).

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