How stems and affixes interact: stem alternants as morphological signata

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In inflectional morphology, how do stem alternations interact with affixal allomorphy? One point of view is that there is no fundamental theoretical difference between these modes of inflectional expression, either because affixation is merely one kind of phonological change that can be effected by word formation rules (Anderson 1992), or because many stem changes can be analysed as a kind of affixation involving distinct autosegmental tiers (Lieber 1992), or because stem alternation is largely a matter of affixally triggered 'adjustment' (Halle and Marantz 1993). Against this view, it has been argued that certain generalisations about how inflection class systems work depend on drawing a fundamental theoretical distinction between affixal inflection and stem alternation (Carstairs 1988; Carstairs-McCarthy [henceforth C-McC] 1994). This position would be reinforced if it could be shown that stem alternations and affixal allomorphy interact in ways that presuppose this distinction, some patterns being favoured, others merely permitted, others impossible.

The purpose of this paper is to state some expectations about affix-stem interactions that arise from a set of claims made by C-McC and others, and to show what sort of evidence would confirm or at least be compatible with these expectations. Whether such evidence exists is largely a matter for future investigation, but some pertinent facts about Polish, German and Warlpiri are mentioned.

The first two claims have to do with the morphological sign (in the Saussurean sense) and its two components, the signans (or signifiant) and the signatum (or signifié):

(1) Signata need not be extralinguistic, and the signatum of a morphological sign need not even be extramorphological; moreover, a morphological signatum may stand in a syntagmatic relationship (rather than a paradigmatic one) to its signans (Lass 1990; C-McC 1994).

(2) One sign cannot have signata that are incompatible alternatives, or exclusive disjuncts (C-McC 1998a; 1998b).

A further claim relates to paradigm structure conditions (PSCs)—that is, implicational relationships between inflectional signs—of the kind investigated by Wurzel (1984; 1998):

(3) The best evidence for PSCs in inflectional systems involves relationships not between affixes but between stem alternants (C-McC 1991; 1994).

The fourth claim is, at this stage, a pure assumption, but a heuristically useful assumption because it should be easy to disprove if it is in fact false:

(4) In an inflectional paradigm exhibiting more than one stem alternant, all distinct alternants whose distribution is not purely a matter of low-level phonology must, in all their occurrences, be distinct as signantia or as signata or both (so a stem alternant cannot be simply 'empty' in the sense of Mel'cuk 1996).

To illustrate the implications of these claims for different patterns of distribution of affixes and stem alternants, let us assume hypothetical languages in which nouns inflect for two Numbers (Singular and Plural) and four Cases (1, 2, 3 and 4). I will use lower-case letters in italics to indicate distinct affixes, and 'Alt A' and 'Alt B' stand for distinct stem alternants.

Distribution pattern 1. Alt A throughout Singular, Alt B throughout Plural**. Allowable? Yes**. In terms of (4), Alt B is signans of 'Plural'.

Distribution pattern 2. Affixes: 1 *a*; 2 *b*; 3 *c* or *e*; 4 *d* or *f*. Realisation of Cases 3 and 4 by *c* and *d* is restricted to nouns with whose stem has a particular shape, e.g. disyllabic. **Allowable? Yes**. In terms of (4), 'disyllabic stem' is a signatum of *c* and *d*, alongside 'Case 3', 'Case 4' resepectively.

Distribution pattern 3. Three inflection classes, with affixes realising Cases 1–4 as follows: Class I *a, b, e, f*; Class II *a, b, e, d*; Class III *a, b, c, d*. Alt B appears with affixes *c* and *d*, Alt A everywhere else. **Allowable? Yes**. In terms of (4), 'Alt B' is a signatum of *c* and *d*; further, in conformity with (3), there is a PSC "Alt B in Case 3 implies Alt B in Case 4".

Distribution pattern 4. Affixes realising Cases 1–4 are *a, b, c, d* respectively everywhere, but some nouns have Alt B in Cases 2 and 3, all others have Alt B in Cases 3 and 4 (with Alt A everywhere else). **Allowable? No**. The distribution of the stem alternants can be expressed in terms of two PSCs that conform to (3), namely "Alt B in Case 2 implies Alt B in Case 3" and "Alt B in Case 4 implies Alt B in Case 3". However, Alt B cannot be a signatum of either *b* or *d*, because it does not appear consistently with either; and it cannot be a signans, because it would have incompatible signata ('Case 2 or 3 or 4'), so (2) would be violated.

Distribution pattern 5. Two affixal inflection classes. Class I has Singular *a, b, c, d*, Plural *e, f, g, h*. Class II has Singular *i, j, c, k*, Plural *m, n, g, p*. Alt B appears in Cases 3 Pl and 4 Pl of all nouns, and Case 4 Sg of Class I only; Alt A appears elsewhere. **Allowable? Yes**. Alt B cannot be a signans, because any signata would have to be an exclusive disjunction, ruled out by (2). However, Alt B is a signatum of *d, g, h*, and *p*, so fulfilling requirement 4. In addition, a PSC "Alt B in Case 4 Sg implies Alt B in Cases 3 and 4 Pl" complies with (3).

Distribution pattern 6. The same as Pattern 5, except that some members of Class II appear with Alt A throughout, i.e. with no stem alternation. **Allowable? No**. Alt B still cannot be a signans, and with affixes *g* and *p* it can no longer be a signatum either, because *g* and *p* can appear with Alt A too; so Alt B is no longer distinct in all its occurrences from Alt A in the manner required by (4). The same PSC applies as in Pattern 5, but this does not compensate for the failure to comply with (4).

Pattern 1 reflects in part the well-known situation of German, where an umlauted stem, if it alternates with a nonumlauted one in noun inflection, is a signans of 'Plural'. Pattern 2 is instantiated in Warlbiri, where the Ergative suffix *-ngku* is restricted to disyllabic stems, *-rlu* appearing elsewhere (Dixon 1980:306).

I am not aware of any actual inflectional behaviour that instantiates the disallowed Patterns 4 and 6. In respect of Pattern 6 this is particularly intriguing, because Pattern 6 looks at first less 'marked' than Pattern 5, through an increase in uniformity of the coding of lexical stems. This may illustrate how the dismantling of superficial inflectional complexity can be inhibited by the destruction of signans-signatum relationships that would result.

I am also unaware of any patterns that instantiate exactly the permitted Pattern 5. However, its central characteristic, whereby a stem alternant is a signatum of particular affixes, is shared with Pattern 3, which is essentially instantiated in Polish Masculine nouns (Cameron-Faulkner and Carstairs-McCarthy, in preparation): the

Locative and Vocative suffix *-e* is a signans of 'expalatal' stem alternants that appear in just those Cases.

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