

Morphological Containment and the typology of INTERFACE constraints: a case study from lexical accent systems

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In Optimality Theory (Prince & Smolensky 1993), one way to explain how morphological information is coded in phonology is to employ INDEXED constraints, also known as INTERFACE constraints. These are mainly faithfulness but marginally also markedness constraints that are indexed to refer to specific morphological elements, e.g. roots vs. affixes (McCarthy & Prince 1995; Alderete 1999), affix classes (Benua 1995, 1998), word categories, e.g. nouns vs. non-nouns (Smith 2002), lexical strata, e.g. native vs. foreign (Fukazawa et al. 1998; Itô & Mester 1999), and structural positions, e.g. heads vs. non-heads (Revithiadou 1999). Interestingly, certain indexed constraints have been elevated to metaconstraints, i.e. ROOTFAITH >> AFFIXFAITH (McCarthy & Prince 1994). Opponents of the INTERFACE CONSTRAINT (IC) approach, however, draw attention to a serious problem: there is no principled reason to limit indexing to faithfulness constraints alone and, more importantly, to specify for what exactly constraints should be indexed for (see Anttila 2002; Inkelas & Zoll 2003). In this paper, we argue that Van Oostendorp's (2004) MORPHOLOGICAL CONTAINMENT THEORY (MCT) provides a principled basis for the formulation of ICs as well as the necessary theoretical coverage to account for a wide range of morphoaccentual processes which crucially call upon ICs.

Van Oostendorp (2004) proposes a modification of the classical version of OT that endorses the notion of CONTAINMENT and at the same time exploits CONSISTENCY OF EXPONENCE (CEO), i.e. no change in the exponence of a phonologically-specified morpheme (Prince & Smolensky 1993). The revised theory proves to be successful in accounting for certain types of opacity and derived environment effects. Its important aspect is that it allows the morphological affiliation of phonological elements to be visible in the surface structure. In essence, CEO is a form of morphological containment since it imposes a restriction on GEN to never alter the morphological affiliation of phonological elements.

The major theoretical gain of taking CEO seriously is that OT can now easily incorporate into its analytical apparatus the principle of COMPOSITIONALITY (based on Montague 1974) in (1) that regulates the interface between grammatical components. Roughly, compositionality states that phonology can 'mirror' morphology (as well as syntax and semantics) because the components of grammar are built on a par. Furthermore, it entails that only designated morphological categories (e.g. roots, affixes) and relations holding between them (e.g. headedness) can be visible to phonology, thus imposing a principled restriction on the typology of ICs. To illustrate with an example. The Greek and Russian stress facts in (2) demonstrate that it is not sufficient for a morpheme to have a lexical accent in order to be assigned stress prominence. The prominent accent must also belong to the HEAD morpheme of the word, that is, the morpheme that carries information about its combination with other elements and determines the category of the whole construction, i.e. roots in inflected words and derivational suffixes in derived words. The MCT captures the isomorphy between morphological and prosodic headhood by generating a faithfulness constraint such as PARSE-HEAD in (3), as the only permissible type of IC. [Thus excluding ICs indexed for affix classes, lexical strata, etc.] In addition, by endorsing the principle of compositionality, the MCT succeeds in bringing under the same roof otherwise typologically unrelated ICs (cf. Selkirk's (2005) focus-prominence ICs that require semantic and syntactic strong/head elements to be contained in the output as heads of prosodic constituents). Finally, on the basis of additional evidence from other languages (e.g. Salish, Turkish non-final stress), we show

that the MCT predicts a more confined and empirically verifiable typology for lexical stress systems than alternative theories (e.g. Alderete's (1999) ANTI-FAITHFULNESS model).

To conclude, in this paper we claim that a new version of Prince & Smolensky's Containment Theory that extends the notion of containment to morphological structure (and potentially to other components of grammar) offers a more restrictive view of CON and the typology of interface constraints.

Examples

- (1) The prosody of a complex form is a function of the prosody of its parts and of the morphological rules by which they are combined:

$$g(F_M(A,B)) = F_P(g(A), g(B))$$

where: g is a function that maps a morphological constituent into a prosodic constituent, F_M the morphological mode of combination, F_P the prosodic mode of combination, A and B morphological constituents

- (2) a *inflected words*
- | | | |
|-------------|----------|---------------------------|
| /staʃið-ón/ | staʃiðon | 'raisin-GEN.PL' <i>Gr</i> |
| /právil-á/ | právila | 'rule-NOM.PL' <i>Ru</i> |
| /bolót-á/ | bolóta | 'swamp-NOM.PL' <i>Ru</i> |
- b *derived words*
- | | | |
|----------------------------------|-------------|-------------------------------------|
| /papayál-ák _{DerS} -os/ | papayalákos | 'little parrot-NOM.SG' <i>Gr</i> |
| /górl-ást _{DerS} -á/ | gorlásta | 'loud-mouthed-NOM.SG.FEM' <i>Ru</i> |
- (3) PARSE-HEAD (accent, M-P/head): Parse the lexical accent of the morphological head as the head of the prosodic word.