The architecture of derivational OT: evidence from Icelandic syncope

Although classic Optimality Theory succeeds in explaining a wide range of phonological phenomena, there are still areas, such as syncope, where it seems inadequate. Since syncope can be shown to be sensitive to metrical structure, simultaneously building metrical structure and deleting vowels seems counter-intuitive, and not surprisingly, parallel OT often has trouble accounting for it. In recent work, McCarthy (2008) argues for a derivational approach to syncope in the framework of Harmonic Serialism (HS). In HS, there is an unlimited number of steps (informally, “passes through” the constraint ranking), but the constraint ranking must remain fixed between steps. This is in contrast to theories like Stratal OT (Kiparsky, 2000), where the number of levels is fixed—they are often correlated with morphology: stem, word, and post-lexical—but constraints can be re-ranked in between levels. Using data from Icelandic syncope (IS), I will argue that McCarthy’s account of syncope in HS is inadequate, crucially because it does not allow constraint re-ranking. Instead, I propose a multi-level analysis similar to Stratal OT, where footing happens in the first level and syncope and lengthening happen in the second.

Some examples of words showing syncope are given in (1). The forms in the left have a vowel in the second syllable that disappears when a vowel-initial suffix is added (see the forms on the right). The empirical question I address is as follows: in words showing syncope, when is the vowel deleted and when is it realized? In most cases, the vowel is preserved only when deletion would lead to an output with an illicit cluster or superheavy syllable (see (2)). However, we cannot appeal to syllabification for the forms in (3), where deleting the vowel never leads to strings which cannot be syllabified. Rather, they pattern in the same way as all other cases of IS: the syncopating vowel is only realized if it is in a heavy syllable (see (4)).

To account for IS, I propose a derivational analysis with two levels or steps: in the first level (see (7)), footing constraints are highly ranked, and MAX-V is undominated to prevent deletion and footing from occurring simultaneously. Borrowing from McCarthy’s account, we can “target” the proper vowels in Icelandic if we adopt McCarthy’s *V-PLACEweak-in-foot (*V-wk, see (5)), and build disyllabic feet only when the word-medial syllable is light. This will yield violations of *V-wk only in forms where we see syncope. Importantly, EXH(wd) (see (6)) must dominate *V-wk to build disyllabic feet in this level.

In the second level (see (8)), we must rank MAX-V below *V-wk to allow deletion. Furthermore, we must rank EXH(wd) below MAX-V in order to avoid deletion as a way to reduce violations of EXH(wd) (see (10)). However, the ranking of *V-wk ≫ MAX-V ≫ EXH(wd) predicts that we would simply retract the right foot boundary to avoid the violation of *V-wk (see (11)). To prevent this, I propose a prosodic faithfulness constraint that I call ID(ft) (see (9)). Ranking ID(ft) above MAX-V will lead to deletion rather than unfooting as a means to resolve a violation of *V-wk.

The account proposed here allows constraints to be re-ranked like in Stratal OT, but the morphological distinctions given to each level in Stratal OT would force us to say that IS is a postlexical process. Assuming suffixes are not present until the word stratum, we would have to build feet at that stage and then delete at the next. In this case, the morphological distinctions of the strata seem to do more harm than good— it is not even clear whether any processes would happen at the stem level.

The fact that constraints cannot be re-ranked in HS is exactly what causes it to fail in attempting to account for IS. As before, we must rank EXH(wd) above *V-wk in order to build disyllabic feet at all. This means the ranking EXH(wd) ≫ MAX-V must also obtain by transitivity, and thus we predict deletion as a way to remove violations of EXH(wd). This leads to spurious overdeletion for the forms in (3). Without constraint re-ranking, there is no way to reconcile the problem of needing EXH(wd) to be ranked above *V-wk to get the correct footing, but below *V-wk (and MAX-V) for deletion.

I conclude that, while HS may be needed to explain areas of the phonological landscape, it is not enough to handle all phenomena requiring a derivational account, because it lacks the ability to re-rank constraints between levels. Beyond this theoretical syncope, the account proposed here leads us to the following view of syncope: it is faithfulness to prosodic structure, but lack of faithfulness to the segments that comprise it.
Icelandic syncope metrical theory, syncope, harmonic serialism, stratal OT, Icelandic

b. [a:.kYr] ‘field’ noun acc. sg. [ak.rar] nom. pl.
d. [sen.dm] ‘sandy’ adjective acc. m. sg. [send.na] acc. pl.

(1) Illicit cluster /hamar-s/ → [ha:.mars] vs. *[hamrs]
Trimoraic /imis-sa/ → [i:.ms.sa] vs. *[ims.sa]

a. [bu:.In] ‘done/lived’ adjective acc. m. sg. [bu:.na] acc. m. pl. (Compare to [run.na] ‘to round something off’)

(2) Note: Icelandic has both short and long diphthongs (Orešnik and Pétursson, 1977)

(3) Deletion /send-m-a/ → [send.na] vs. *[send.dr.na]
No deletion /send-m-na/ → [send.dm.na]

(4) *V-PLACE\_weak\_in\_foot: Vowels in the non-head positions of feet must not have place features.

(5) EXH(wd) : Assign one violation mark for every syllable node that is immediately dominated by a prosodic word node. (Itô and Mester, 1992; Selkirk, 1996)

**Level 1 input:** /bu-m-a/

*(bu)I.na 2 violations of EXH(wd)
\[\Rightarrow (bu)I.na\]

**Level 2 input:** *(bu)I.na

*(bu.m)na *(σ,H)
\[\Rightarrow (bu).m.na\]

**Level 1 input:** /bu-m-na/

*(bu.m)na

**Level 2 input:** *(bu.m)na

MAX-V
\[\Rightarrow (bu).m.na\]

(6) XH(wd) : For every input syllable α that stands in a correspondence relation with an output syllable β, if α is in a foot, then β must be in a foot, and vice versa.

(7) **Level 2 input:** *(bu)I.na

*(bu.I)na *V-wk
\[\Rightarrow (bu:).I.na\]

(8) ID(ft): For every input syllable α that stands in a correspondence relation with an output syllable β, if α is in a foot, then β must be in a foot, and vice versa.

(9) **Level 2 input:** *(bu)I.na

*(bu.I)na *V-wk
\[\Rightarrow (bu:)I.na\]

References


