Resisting syncope

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Syncope, or vowel deletion, is a process that involves an unfaithful mapping of an input into the output. As many past studies have shown, syncope may be blocked under certain conditions. An analysis of syncope needs to identify the conditions that enforce an unfaithful mapping, but also has to account for blocking effects. We address these issues examining a pattern termed 'differential syncope', in which certain vowels are immune to deletion regardless of their position in syllable or foot structure (Gouskova 2003:179 and references there).

In Modern Hebrew (MH) vowels get deleted if an affixed form would otherwise exceed the requirement on words to be maximally disyllabic (1a). In these cases the language tolerates otherwise banned word-initial consonant clusters. Syncope is blocked if the vowel that is in deletion position is a *high vowel* (1b). In Georgian, a morphologically controlled syncope in noun stems targets the low vowels *a* and *e* but does not apply to the high vowels *i* and *u*. Lebanese Arabic displays a syncope pattern that, conversely, targets the high vowel *i* but skips the low vowels *a* and *e*. From a sonority based perspective of syllable structure the Arab Vernacular pattern is expected (Gouskova 2003), whereas the MH /Georgian pattern is not. High vowels are generally regarded as less sonorant than mid and low vowels and as such make worse syllable nuclei than these. In Prince and Smolensky (1993) and subsequent OT-literature, this markedness scale is usually translated into a fixed hierarchy of markedness constraints, or a stringency relation (Kenstowicz 1994, de Lacy 2002): nuc/a » nuc/e,o » nuc/i,u or, likewise *Nuc/i,u ; *Nuc/i,u,e,o ; *Nuc/i,u,e,o,a.

In this paper we show that the MH/Georgian pattern is not at all surprising by comparing differential syncope patterns with patterns of vowel reduction as studied in Russian, Portuguese and other languages (Crosswhite 2001, 2004, Nesset 2002). In English, for example, vowel reduction is a gradual process that can culminate in the deletion of the vowel in weak position (2). The result of reduction is the set of *i*, *u* and schwa. Russian displays two patterns of reduction in unstressed positions, resulting in *i*, *u*, *a* in pretonic syllables and *i*, *u* and schwa in all other positions. The reduced inventory consists of the same vowels that block syncope in the MH/Georgian pattern. We treat syncope in a parallel fashion to 'extreme' vowel reduction (Crosswhite 2004), and propose a unified account of these phenomena by extending Crosswhite's analysis of reduction to the deletion patterns. Under this perspective *reduction* emerges if faithfulness to vocalic segments (MAX-V) is high-ranked, while markedness constraints on unprominent nuclei outrank featural faithfulness (IDENT[F], see 3a). *Deletion* emerges if the ranking of IDENT[F] and MAX-V is reversed (3b). The markedness constraints triggering reduction and deletion militate against highly sonorous vowels in unprominent positions, as proposed by Crosswhite. Under ranking (3b) it is better to delete a vowel and violate MAX-V to satisfy markedness than to change features in violation of identity. The proposed analysis renders apparent word binarity in MH, previously accounted for by a disyllabicity requirement on Hebrew stems (Bat-El 1994, Ussishkin 2000), to be an effect of foot binarity and markedness constraints on unfooted nuclei.

(1) *Hebrew Syncope pattern*

a. k**a**car + im → k_carim '*short ~ PL.*'
b. t**i**nok + ot → tinokot '*baby ~ PL.*'

(2) *British English syncope*

[ɪkˈstɹɔːdnɹɪ ɹɪˈdʌkʃn] 'extraordinary reduction''

(3) *Schematic rankings*

a. Reduction: MAX-V » *UNSTRESSED/a,e,o » IDENT[F] » *UNSTRESSED/i,u
b. Deletion: IDENT[F] » *UNSTRESSED/a,e,o » MAX-V » *UNSTRESSED/i,u