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Title: Sonority Sequencing and Optimal Syllable Structure in One Philadelphian's Polysyllabic /æ/-Tensing Pattern

In this paper I will advance an analysis of one facet of the complex Philadelphia low front vowel tensing pattern that has not, to my knowledge, received any systematic attention in the recent literature on this and the similar New York pattern (cf. Labov 1994 and works cited therein, Benua 1995, Morén 1997). The two low front vowels in question are the tense ([+ATR]) long vowel phonetically realized as the centralizing diphthong [ee], and the lax ([-ATR]) short monophthong /æ/. While the distribution of these two vowels in Philadelphia English is well-described for monosyllables, the facts concerning polysyllables present a more chaotic pattern, which may have deterred prior researchers from arriving at robust generalizations in such cases. In the present study, the author's own native speaker intuitions are the primary source of data, and from this database of one idiolect's internally consistent system there emerges an initially puzzling generalization relating to the sonority contour of the sounds following the low front vowel — a generalization that cannot be reduced to simple syllabification, but which submits easily to an Optimality-Theoretic analysis.

Given that before /d/, /ee/ occurs only in three lexical items — *bad, mad, glad* and their derivatives — and that in monosyllables (or word-final syllables) before the non-Dorsal voiceless fricatives /f, †, s/ both vowels may occur, I will assume that at least some lexical entries are specified for whether their low front vowel is tense or lax, and hence that /ee/ and /æ/ are underlyingly distinct vowels in this dialect. Nonetheless the contrast between the two vowels is neutralized in various environments, yielding a small number of alternations such as *c[ae]n/c[ee]n't*, *Afgh[ee]n/Afgh[æ]nistan, m[ee]ss/m[æ]ssive*. The distribution of /ee/ and /æ/ before the non-Dorsal nasals /m, n/ in word-final syllables, and the exceptional classes of normally unstressed function words (*[æ]nd, [æ]n, th[æ]n*, etc.), ablauted past tenses (*r[æ]n, sw[æ]m, beg[æ]n*), truncated forms (*J[æ]n* < *J[æ]net*, etc.), and Level II suffixed forms (*t[ee]n/t[ee]nning*, etc.) are highly predictable and well-documented in the literature, so that before /n, m/ it is generally not necessary to specify an underlying value of [ATR] for a low front vowel. Everywhere else, only /æ/ may occur, with the exception of voiced fricatives derived from voiceless /f, †, s/.

In polysyllables, my data show that the distribution of /æ, ee/ before /m, n/ is predictable from the sonority of the segment following the nasal: /æ/ occurs when

the nasal is followed by a sonorant sound (e.g. *s[æ]nity, p[æ]nor[æ]ma, c[æ]mel, b[æ]nner, f[æ]m[l]y, c[æ]m[r]a* (note these are non-syllabic [l, r]), *c[æ]nyon, M[æ]n[w]el, [æ]mnesia, [æ]mherst*), while /ee/ occurs when the nasal is followed by an obstruent (e.g. *[ee]mple, b[ee]nter, [ee]nchovy, [ee]mber, c[ee]ndy, t[ee]ngerine, St[ee]nford, [ee]nthropology, Fr[ee]ncis, [ee]nvil, [ee]NZAC*). In most polysyllabic examples cited in the literature, however, the segment following the nasal in the lax cases has been a vowel (e.g. *planet*) or a syllabic consonant (e.g. *manner, flannel*). But as the data cited above show, lax [æ] occurs not only before [+nas][+syll] but also before [+nas] and one of the non-syllabic sonorants [y, w, r, l, n, h]. With only vowels and syllabic sonorants in the picture, it was possible to claim (cf. Benua 1995) that tense [ee] is blocked from occurring before a nasal (or other trigger consonant) that is not exclusively syllabified with the low vowel, since in the sequence /æ/[+nas]V the nasal is ambisyllabic, while in monosyllabic /æ/[+nas]# it is just a coda. This analysis does not, however, account for the non-syllabic sonorant cases, since sequences such as /mn, nh, ml, nr, nw, ny/ cannot be syllabified as onsets, and thus the nasal cannot be ambisyllabic. (The only nasal-sonorant cluster that can serve as onset in the Philadelphia dialect is /my/.)

Instead of looking at the nasal's potential as onset, my proposed analysis of */ee/[+nas][+son] looks at the following sonorant's potential as coda. Viewed this way, we see that no [+nas][+son] sequences in English may be syllabified as complex codas. I will thus derive the prohibition */ee/[+nas][+son] from a more general constraint or set of constraints, abbreviated here as *Superheavy. In English *Superheavy has the effect of disfavoring tense (i.e., long) vowels in word-medial closed syllables, where final extrametricality cannot be invoked as an escape hatch. In the case of a obstruent following the nasal, both /æ/[+nas][-son] and /ee/[+nas][-son] will violate *Superheavy, given normal assumptions about coda maximization in stressed syllables (/æ/ and /ee/ are always stressed). As a result, a lower-ranked constraint favoring the sequence /ee/[+nas] will select the optimal output. In the case of a following sonorant, though, only /ee/[+nas][+son] will violate *Superheavy, and as a result /æ/[+nas][+son] will be selected instead.

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