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Canadian French vowel harmony: rethinking the idea that phonological strata and morphological levels are mapped one-to-one

There is a case of opacity in Canadian French resulting from the interaction of vowel harmony with a process of pre-fricative tensing. Vowel harmony involves spreading a [-ATR] feature leftward from a final [+high] vowel to all other [+high] vowels in the word. [+high] vowels in closed final syllables must be [-ATR] by a laxing process. Non-final [+high] vowels in open syllables cannot be [-ATR] unless the final [+high] vowel is [-ATR]:

(1) dᶻɪ.fɪ.sɪl 'difficult'

In a final syllable, if a [+high] nucleus is followed by a voiced continuant, the [+high] vowel must be [+ATR] (this is pre-fricative tensing), yet vowel harmony can still occur (the [-ATR] feature can still spread): e.g. fʏ.ʒɪ.tˢiv 'fugitive, fem.'

The paper begins by describing the phenomenon, and explaining why it cannot be accounted for in a strictly parallelist version of OT (e.g. sympathy, McCarthy 1999); in short, because these processes involve allophonic variation, sympathy can only work if we do away with Richness of the Base (see Itô & Mester (2001) for a similar observation). The phenomenon must be accounted for in a stratal version of OT (e.g. Kiparsky 2000): In a first stratum, *Match[-ATR]*, which forces vowel harmony, is ranked above **[-ATR]/_[+vce, +cont]*, which forces pre-fricative tensing, and *Ident[+hi, -ATR]*. In a second stratum, constraints are reranked, so that **[-ATR]/_[+vce, +cont]* is undominated, and *Ident[+hi, -ATR]* outranks *Match[-ATR]*. The second ranking only selects the candidate that complies with pre-fricative tensing, yet whose non-final [+high] vowels have the same values for [ATR] as the [+high] vowels of the first stratum's winner.

The paper then moves on to show that this case of opacity exists within the same morphological level. Following Kiparsky (2000)'s LPM-OT, we assume that phonological strata are mapped one-to-one with morphological levels (e.g. stem, word, post-lexical, etc.). The paper provides evidence however that both vowel harmony and pre-fricative tensing are stem-level phenomena. Here is some evidence: A stem like fe.lɪ.sɪt ('congratulate') exhibits vowel harmony because the non-final [+high] vowel can be [-ATR]. If we add infinitive morphology to the stem, the vowel harmony effect is conserved by cyclicity, even though there is resyllabification: fe.lɪ.sɪ.te. The same goes for stems ending in a voiced continuant: For example, ɪ.ʁiz ('to make iridescent') shows pre-fricative tensing and harmony. With infinitive morphology added, we have ɪ.ʁi.ze, yet *ɪ.ʁɪ.ze is impossible. If pre-fricative tensing were a word-level phenomenon, we would predict that it would not carry over to the infinitive. Yet it does, which is evidence that pre-fricative tensing, like vowel harmony, must occur at the stem level, before any morphology is concatenated. The paper thus concludes by saying that the assumption that strata and morphological levels are mapped one-to-one is contradicted. This of course opens up the less desirable possibility that each morphological level is mapped to as many levels as we need.