Origins of Canadian Raising in Voiceless-Coda Effects: A Case Study in Phonologization

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Phonological alternations are often taken to be “phonologized” versions of more subtle phonetic effects. This study traces the development of one well-known English phonological alternation, Canadian Raising (“CR”) of /ai/, documenting the phonetic basis and the course of phonologization with instrumental data from speakers born as long ago as 1878. The findings contradict the widely accepted view that CR is a consequence of the Great Vowel Shift (e.g., Trudgill 1986:158–161, Donegan 1992, Britain 1997, Stockwell & Minkova 1997), provide an extremely detailed picture of the origin of a phonological alternation, and suggest that one phonological rule may embody the effects of more than one phonetic process.

CR is usually (incorrectly) characterized as the raising of diphthong nuclei before voiceless codas: [t^I] tight versus [tal, taI, taIm] tide, tie, time. In Canada /au/ is affected as well, but this study focuses on the more widespread raising of /ai/. CR is a nearly paradigmatic case of a phonological rule. It is regular and productive. It is categorical in that native speakers have clear judgments, and that there are lexical exceptions (Vance 1987).

We propose that CR is a phonologization of the phonetic result of three simultaneous processes. Before a voiceless coda, vowel articulations tend to be peripheralized in vowel space (Wolf 1978, Summers 1987, Thomas 2000; Moreton in press), while diphthong nuclei are abbreviated (Gay 1968). The peripheralized /ai/ offglide raises the weakened nucleus through coarticulation. The phonological rule could then have arisen when this was reinterpreted as a target difference (“hypocorrection”, Ohala 1981, 1993). The following arguments are advanced:

1. /ai/ glides are more peripheral before voiceless obstruents in every English dialect in which they have been examined instrumentally (Thomas 2000, 2001). This relationship also holds for /oi/ and /ei/ over a wide range of U.S. dialects (Moreton in press 2003). The Great Vowel Shift, on the other hand, produced /ai/ by lowering the nucleus of Middle English /i:/, not the offglide, and did not affect /oi/.

2. Raising is in fact more widespread and more prominent in the offglide than in the nucleus. This is true not only for /ai/ in modern CR dialects, but also for /oi/ and /ei/ generally (Moreton in press 2003). The Great Vowel Shift, on the other hand, produced /ai/ by lowering the nucleus of Middle English /i:/, not the offglide, and did not affect /oi/.

3. “Canadian” Raising has been repeatedly re-innovated around the English-speaking world (Trudgill 1986:160, Britain 1997). By measuring archival and recent recordings, we have documented one of those re-innovations in the Western Reserve area of Ohio. The Western Reserve is relatively insulated from Canadian influence: U.S. dialects resist a range of Canadian variants (Labov et al. forthcoming Ch. 11, Zeller 1993), documented innovations in the Western Reserve have not come from Canada (Drake 1961, Thomas 2001), and the major sources of migrants to the Western Reserve have not been CR areas. Speakers born in the late 19th Century have the universal pattern of no nuclear raising and slight offglide raising, which gradually progresses to raising of Canadian magnitude among those born in the late 20th Century.

4. Many varieties of African-American English and Southern (white) U.S. English have an alternation in /ai/ which parallels CR: [talt] tight versus [ta:d, ta:, ta:m] tide, tie, time. Paradoxically, the more-demanding diphthong articulation appears in the short pre-voiceless environment (Sledd 1966). It makes phonetic sense only in terms of the present theory: The long (“drawled”) nuclei of these dialects are better able to resist the coarticulatory pull of the
offglide. The pre-voiceless offglides can thus hold their own, but the elsewhere offglides, unaided by peripheralization, assimilate to the nucleus.

This study extends a phonologization literature which has focused on splits and mergers rather than alternations, documents the emergence of an alternation in detail, and shows how one phonological rule can combine multiple phonetic effects.

References


