Vowel shift patterns in a multi-regional production and perception database

Valerie Fridland, Tyler Kendall, and Craig Fickle

Exploring the relationship between speech production and perception at both the individual and regional level, we examine vowel productions in recorded data from over 60 speakers in 8 states (CA, IL, NC, NV, NY, OR, TN, VA) across the South, West, and Inland North (Labov et al. 2006). We pair these data with the results from a vowel identification study from these same locales involving over 300 listeners (including the same speakers from the production study). We expand over previous work examining the perceptual effects of participation in U.S. vowel shifts, e.g., Northern Cities Shift and Southern Vowel Shift, both in terms of subjects and locales and in terms of vowel classes analyzed. Building on other recent work (Evans and Iverson 2004, 2007, Sumner and Samuel 2009, Fridland and Kendall 2012), we ask (a) whether differences in regional speakers’ productions implicate differences in perception, (b) whether individual differences in production relate to individual differences in perception, and, (c) whether different vowel sub-systems (e.g. tense and lax mid-front vowels, low back vowels) vary in the way that this linkage between production and perception is realized.

For vowel categories, /ɛ/ and /æ/, examined previously by Fridland and Kendall (2012), we find both within-region differences but also important support for previous findings on regional differences in perception, with Southerners from all three Southern locations (NC, TN, VA) both producing and perceiving vowel categories differently than participants from other locations. Further, the Northern subjects perceive the low vowels differently than listeners elsewhere, a finding inline with the North’s productions. We also find linkages between production and perception at the individual level, although the specific linkages are different for different vowel classes. E.g., how listeners perform on the identification task for /ɛ/ and /æ/ is significantly influenced by their spectral distance between /ɛ/ and /æ/ in production, but identification of /æ/ and /a/ is better predicted by the degree of merger of low back vowels /a/ and /ɔ/, rather than distance between /æ/ and /a/. We explore the implications of these differences on theories of sound change and our understandings of the production-perception link.

References


