Mapping Production and Perception in Regional Vowel Shifts: The Effects of Vowel Duration and Formant Trajectories

Valerie Fridland (*Univ. of Nevada Reno*) & Tyler Kendall (*Northwestern Univ.*)

Earlier work, such as Willis (1972) and Jansen (1986), demonstrated that differing production norms affect how speakers perceive input. More recently, in work related to the current project, vowel dynamics and regional dialect experience were found to influence vowel threshold decisions for high and mid front vowel classes. The current study expands on these findings to explore more deeply the link between perception and production and the role of socially-based variation.

Based on multiregional, web-based vowel identification and discrimination experiments, our projects have so far looked at community norms in terms of regional dialect differences, not at the level of individual speakers’ production systems. Expanding on earlier findings, the current project acoustically analyzes the vowel productions of a subset of the experiments’ participants to map their productive and perceptual spaces for the high and mid front vowel classes, asking what kinds of links exist between speakers’ actual speech production and perception (e.g., Frieda et al. 2000). Recent research has demonstrated the importance of considering vowel duration in understanding *production* differences (e.g., Jacewicz, Fox, and Salmons 2007) and, in addition to examining formant values, we investigate at length the role of duration and durational norms across dialect regions in the *perception* of vowel quality.

While we draw on production and perception data from three regions of the US, our paper focuses on the linguistic systems of speakers from Western Tennessee, examining the effect of individuals’ participation in the Southern Vowel Shift on their identification of vowel categories. We discuss methods for comparing vowel production and perception data, ranging from simple Euclidean distance metrics to mixed-effect regressions, and demonstrate the role that duration, in addition to formant trajectories, plays on dialect differences. (We also develop a 3D plotting technique for vowel duration-F1-F2 and make the plotting software available to the audience.)

References


