

## **Durational variations in Raleigh and Ocracoke vowel productions: methods for analyzing undershoot**

Griffin Lowry (North Carolina State University)

Dialectal and generational differences in undershoot between speakers from Raleigh and Ocracoke, North Carolina, are examined. Undershoot occurs when a speaker fails to reach the target formant values of a certain sound, especially for vowels. While this is commonly due to duration, other factors can cause undershoot (coarticulation, stress, speaking style). Through comparing these speakers, this paper aims to evaluate new and old ways of analyzing undershoot, including an examination of formant ranges and calculations of absolute undershoot values. Formant ranges are the difference between the maximum and minimum frequency values of a particular formant throughout the duration of the vowel. Absolute undershoot is a formula developed by Oh (2007, *J. Phon.* 36:361–384) that attempts to quantify the amount of undershoot a speaker shows in order to conduct inter- and intra-speaker comparisons. Furthermore, analysis of undershoot may illuminate causes of sound changes. For example, the older speaker from Raleigh showed undershoot in /u/—longer durations resulted in backer realizations. The younger Raleigh speaker, conversely, showed no undershoot but consistent /u/-fronting. /u/-fronting possibly began with undershoot in one generation, and then became a hypocorrected norm in the next generation.