ABSTRACT

MICHAEL JOSEPH FOX. Quantifying cross-dialectal variation in vowel-to-consonant coarticulation using locus equations. (Under the direction of Professor Erik R. Thomas.)

Locus equations – defined as a regression line fit to F2 measurements at the midpoint of many different vowels in one consonantal environment – have been shown to index degree of coarticulation in both CV (Sussman et al. 1991, 1993, 1995; Sussman and Shore 1996; Krull 1987, 1989; Duez 1992) and VC sequences (Fox under review). While myriad studies have documented coda consonant conditioning on vowel changes in American English (e.g. Labov 1994, 2001, 2010) few have examined the details of the effects conditioning consonants have on adjacent vowels. This study employs the locus equation metric to examine cross-dialectal variation in degree of coarticulation between vowel nuclei and the consonants /ɡ, k/ and /d, t/.

Previous work (Fox under review) has shown that there exists a differential in degree of coarticulation between /ɡ/ and /k/ in Wisconsin, but not /d/ and /t/, a region in which the raising of /æ/ is conditioned by a following voiced velar but not the voiceless counterpart (Benson, Fox, and Balkman 2011).

Data from fifty-four respondents in two geographically disparate regions, Wisconsin and North Carolina, generated one locus equation per speaker per consonant /ɡ, k, d, t/ for a total of 54 x 4 = 216 locus equations. Second Order Locus Equations (SOLE) were fit over the coefficients from the first locus equations. Results from SOLE comparisons show a differential in degree of coarticulation between /ɡ/ and /k/ in Wisconsin, but not North Carolina. Moreover, there is no statistical difference between /d/ and /t/ in either dialect region. These data strongly support the possibility of dialect specific patterns of coarticulation as well as their connection to the original impetus for a change in vowel quality in Wisconsin English. Locus equations are
presented as a viable tool for sociolinguists in studying vowel and consonant interactions in sound change.