The role of vocalic outliers on the perception of sound change

Sayako Uehara
Michigan State University

Vocalic outliers are argued to be significant data for listeners when estimating speakers' intended output and that listeners have perceptual bias towards outliers with positive social meaning (Labov et al. 2010a). Given the change in progress, namely the Northern Cities Shift (NCS), the current study found that the vocalic outlier in the direction of the change is reported to have stronger impact on perception than the outlier in the direction of traditional vowels.

The NCS is a chain shift of American English vowels observed in the Inland North region and is known to be largely below the level of awareness (Labov 2010b). This study employed one of the NCS vowels, /ɛ/, that has been reported to be backing and lowering, although I chose to focus only on the F1 dimension of the /ɛ/, whose lowered variant is positively associated (Savage et al. 2016).

The perception data were collected from 34 participants who originated from Inland North (Lower Michigan). I presented four sets of stimuli, either "Low Symmetrical," "Low Outlier," "High Symmetrical," or "High Outlier," with different distribution of /ɛ/ vowels. All stimuli were based on the word 'bed' and each set contained five 'bed' tokens. The 'Outlier' sets contained one token with either high (low F1) or low (high F1) vocalic outlier, whereas the "Symmetrical' sets contained non-outlying tokens. Upon listening to each set, participants were asked to choose a 'bed' token that best represented the set of speech from a set that varied in F1 values in seven steps: 580, 660, 740, 820, 900, 980, 1060. The results showed that compared to other three sets, the 'Low Outlier' with an outlier in the direction of change weighted more heavily in calculation of the mean. Moreover, listeners' bias towards positively associated variant is concurrent with Labov et al. (2010a).