

## The Ethnic Distribution of a Regional Change: /æ, ɛ, eg/ in Washington State

John M. Riebold (*University of Washington*)

Recent studies at the University of Washington as part of the Pacific Northwest English Project (PNWEP) have found that Washingtonians are raising /æ, ɛ/ before /g/ (e.g. “bag”, “beg”), known as ‘pre-velar raising’ (Wassink, 2014; Wassink, Squizzero, Scanlon, Schirra, & Conn, 2009), and lowering /e/ before /g/ (e.g. “vague”) (Freeman, 2014). However, there is much still to be understood about the social and geographical distribution of these changes.

This paper is a sociophonetic study of the character and spread of this change in three regions of Washington State (Seattle metro area, central WA, eastern WA) using wordlist data from 40 speakers from four non-white ethnic groups known to have a long history in the Northwest: African Americans, Japanese Americans, Mexican Americans, and members of the Yakama Nation. F1, F2, and F3 measurements were taken at three timepoints per vowel (20%, 50%, and 80% of vowel duration), and subsequently normalized with the formant-extrinsic Nearey2 method (Nearey, 1978; Thomas & Kendall, 2007). Traditional ellipse plots (F1 x F2) were used to situate each word class in the vowel space, while three-dimensional ‘overlap fractions’ (F1 x F2 x duration) (VOIS3D; Wassink, 2006) were used to assess the extent of raising and the potential contribution of duration in maintaining contrast. SS-ANOVA (Gu, 2002) plots were used to examine vowel trajectories, modelling them as curves connecting onset, midpoint, and offset, which allowed for a more accurate view when compared with methods which draw straight lines between measurement points (Wassink & Koops, 2013).

Results show that non-white Washingtonians are indeed participating in the changes in all three of the regions studied. All speakers raise /æ, ɛg/ and lower /eg/, but to varying degrees, with Yakama Nation speakers being the most advanced on average, and Mexican Americans the least. Looking deeper, Japanese Americans appear to be the most advanced in /æ, ɛg/-raising, Yakama Nation speakers are the most advanced in /eg/-raising, and African Americans are the most advanced in /eg/-lowering. Generational differences (in apparent time) are also visible in the data, with middle-aged speakers being most advanced in both the raising of /æ, ɛg/ and the lowering of /eg/. Finally, although women and men are similar in their raising of /æ, ɛg/, men are more advanced in /eg/-raising and /eg/-lowering. These patterns strongly resemble those found in the Caucasian subsample of the PNWEP, where middle-aged speakers and males also appear to lead (Freeman, 2014). Taken together, these results suggest that despite differences in the communities and their geographical distribution, at least as far as these changes are concerned, Washingtonians of various ethnicities may indeed share a linguistic system.

This paper contributes to the literature surrounding a nascent change in an understudied dialect area. It has the potential to shed light on the linguistic consequences of the inter-ethnic contact that has characterized much of Washington’s history, and it provides further evidence for the participation of non-white ethnicities in regional changes, motivating their inclusion in future studies of regional dialects.

## References

- Freeman, V. (2014). Bag, beg, bagel: Prevelar raising and merger in Pacific Northwest English. *University of Washington Working Papers in Linguistics*, 32.
- Gu, C. (2002). *Smoothing Spline ANOVA Models*. New York, NY: Springer.
- Nearey, T. M. (1978). *Phonetic feature systems for vowels*. PhD thesis, University of Alberta.
- Thomas, E. R. & Kendall, T. (2007). NORM: The vowel normalization and plotting suite. <http://ncslaap.lib.ncsu.edu/tools/norm/>
- Wassink, A. B. (2006). A geometric representation of spectral and temporal vowel features: Quantification of vowel overlap in three varieties. *Journal of the Acoustical Society of America*, 119 (4), 2334-2350.
- Wassink, A. B. (2014). Vowel raising in Washington English: What's the *bag* deal? Paper presented at the Cascadia Workshop in Sociolinguistics 1, University of Victoria, Victoria, BC.
- Wassink, A. B., & Koops, C. (2013). Quantifying and interpreting vowel formant trajectory information. Paper presented at NWAV 42, Pittsburgh, PA.
- Wassink, A. B., Squizzero, R., Scanlon, M., Schirra, R., & Conn, J. (2009). Effects of style and gender on fronting and raising of /æ/, /e:/ and / ε / before /g/ in Seattle English. Paper presented at NWAV 38, Ottawa, ON, Canada.