

## Bag, beg, bagel: Prevelar raising and merger in Seattle Caucasians

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Recent work on Pacific Northwest English has described the raising and upgliding of the front vowels /æ, ε/ before /g/, but with substantial variation and incomplete data, it has been difficult to determine whether either vowel is participating in merger (Squizzero 2009; Wassink et al. 2009; Wassink & Riebold 2013). This study addresses the issue by providing a more complete phonetic analysis of the prevelar system for 20 Seattle Caucasians divided evenly by gender and age group. Formant measures (F1, F2 at vowel onset, midpoint, offset) and vowel duration were collected for two reading tasks and analyzed using *VOIS3D* (Wassink 2006), which calculates overlap between vowels considering both formants and duration, and smoothing-spline ANOVA, which models overlap throughout vowel trajectories.

Importantly, this study's inclusion of /eg/ (e.g., *bagel, vague*), which is lowered to overlap the raised /εg/ (e.g., *beg, egg*), provides solid evidence of merger or near-merger between these two classes. In light of this, it appears that the prevelars form one phonological system, potentially a three-way merger in progress, with /æɣ/ (e.g., *bag, tag*) also moving toward /εg-eg/ at their location between non-prevelar /ε/ and /e/. This view is consistent with observations that /æɣ/ raises to various points but not as high as non-prevelar /e/, its assumed landing site in the absence of information on /eg/. The lowering of /eg/ also provides evidence against the hypothesis that prevelar raising is merely a reflex of coarticulation, which predicts that /eg/ should also raise. Instead, raising may have begun as listeners' reanalysis of velar pinch as an upglide, making way for the loss of distinction between underlying /æ/ or /ε/ and the nearest upgliding diphthong, /e/, a process made easier by the paucity of minimal pairs among the prevelars. However, although /εg/ and /eg/ overlap significantly in F1xF2 space throughout their trajectories, /εg/ remains shorter in duration, which may indicate incomplete merger. It remains to be seen whether full merger will be achieved in the future or whether duration is sufficient to differentiate /εg/ from its neighbors. Finally, while all 20 speakers exhibit (near-)merger between /εg/ and /eg/, the behavior of /æɣ/ is more variable and shows signs of social differentiation: men and older speakers are more raised, with middle-aged men showing significant overlap with /εg-eg/ and younger speakers showing less raising overall. This begs the question: is /æɣ/ truly advancing toward merger with /εg-eg/, or is the change reversing? Variation within each age/gender group suggests that other social factors may be responsible for the adoption or avoidance of /æɣ/-raising, but more work is needed to identify them.

This study contributes to the descriptions of a relatively young dialect region and an understudied sound change. While /æɣ/-raising has been reported in areas from the Great Lakes to the West Coast (cf. Labov, Ash, & Boberg 2006), there is little scholarly work on /εg/-raising or /eg/-lowering, despite both having been noticed anecdotally in various regions. Thus, the geographic and social distributions of prevelar raising and merger remain open for future research.

## References

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