

Sound change in the back vowels of Hawai‘i English

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Hawai‘i English (not to be confused with Hawai‘i Creole) is a regional dialect of English spoken in the Hawaiian Islands, with various prosodic and phonetic differences from varieties found in the continental United States. Until recently, very little work has focused on the description of Hawai‘i English (HE), and even less has investigated how this dialect may be shifting over time. The present study provides the first investigation into sound change involving the back vowels of Hawai‘i English. We demonstrate that realizations of /u/ and /o/ in HE are conditioned by age, suggesting that both vowels are involved in changes in progress.

Fronting of the high back vowel /u/ over apparent time is a common phenomenon found throughout the English speaking world (e.g. Labov, Ash and Boberg 2006, Price 2008, Boberg 2011, Haddican et al. 2013). Often, dialects which exhibit /u/-fronting also exhibit fronting of the mid back vowel /o/. /o/-fronting is typically less advanced than /u/-fronting, and is generally considered to follow /u/-fronting temporally (Labov 1994). The present study analyzes data from 224 unique tokens of /u/ and /o/ taken from sociolinguistic interviews conducted with 9 female HE speakers: 5 of which are older (aged 57-80) and 4 of which are younger (aged 21-23). Transcripts and sound files were force aligned using HTK forced alignment, and all of the tokens were checked for accurate alignment by trained phoneticians.

Separate linear mixed effects models were fit to normalized values of F₁ and F₂ at the midpoint of each vowel to test the significance of speaker age and surrounding phonological context as predictors of vowel shift. The models fit to the data show a significant effect of preceding phonological environment on F₁ and F₂ values for both /u/ and /o/—preceding coronals resulted in significantly fronter ($p < 0.001$ for /u/, $p < 0.001$ for /o/) as well as lower ($p < 0.01$ for /u/, $p < 0.05$ for /o/) realizations of both vowels. Significant effects of age were also found for both target vowels—younger speakers produced significantly fronter realizations of /u/ ($p < 0.05$), and significantly lower (but not fronter) realizations of /o/ ($p < 0.05$).

The fronting effect of preceding coronals described here is near-ubiquitous among the world’s Englishes; however, the accompanying lowering effect is less common, and bears further investigation. Likewise, the advancement of /u/-fronting over apparent time is a common and expected finding, but the lowering and lack of fronting for /o/ over apparent time in HE is less in keeping with the commonly observed pattern (although it should be noted that not all dialects of English which exhibit /u/-fronting also exhibit /o/-fronting, e.g. Canadian English). It is possible that /o/-fronting may be inhibited in HE due to the socio-indexical role that this vowel plays in perceptions of Localness in Hawai‘i. The lowering of /o/ over apparent time may also be due to such social factors, or may be motivated by linguistic pressure for phonemic dispersal, as speakers in the older age group show marked overlap between the token distributions of /u/ and /o/.

References

- Boberg, Charles. 2011. Reshaping the vowel system: An index of phonetic innovation in Canadian English. *University of Pennsylvania Working Papers in Linguistics* 17(2): 21-29.
- Haddican, Bill, Paul Foulkes, Vincent Hughes, and Hazel Richards. 2013. Interaction of social and linguistic constraints on two vowel changes in northern England. *Language Variation and Change* 25: 371-403.
- Labov, William, Sharon Ash, and Charles Boberg. 2006. *The Atlas of North American English: Phonetics, phonology and sound change*. Berlin/New York: Mouton de Gruyter
- Labov, William. 1994. *Principles of Linguistic Change: Internal factors*. Malden, MA: Blackwell.
- Price, Jennifer. 2008. GOOSE on the Move: A study of /u/-fronting in Australian news speech. Paper presented at the *Ninth Annual Conference of the International Speech Communication Association*.