The production and perception of sub-phonemic vowel contrasts and the role of the listener in sound change

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In his work on the role of the listener in language change, Ohala (1981) suggests that acoustic byproducts of physiological linguistic processes may sometimes be perceived by listeners as grammatically important information. Listeners may then recreate these effects in their own speech, sometimes in exaggerated form, creating a feedback cycle which may ultimately lead to language change. For example, vowel harmony may sometimes be the outcome of perceptible vowel-to-vowel coarticulation that has become grammaticalized (Ohala, 1994; Przezdziecki, 2000).

For this to be so, the relevant coarticulatory effects would have to be perceptible to listeners in at least some environments. An interesting point is that the language-change hypothesis does not require that *all* speakers coarticulate heavily or that *all* listeners perceive such effects readily. Instead, for the hypothesis to be plausible, only small minorities of such speakers and listeners would suffice to get the process started.

However, research to date has not determined with certainty how far such effects can extend, or how perceptible they are to listeners. To shed light on this issue, I carried out a study investigating the production and perception of anticipatory vowel-to-vowel (V-to-V) coarticulation in English. First, seven native speakers of English were recorded pronouncing sentences containing multiple consecutive schwas or schwa-like vowels followed by [a] or [i]. The resulting acoustic data showed significant anticipatory vowel-to-vowel coarticulatory effects as many as three vowels before the context vowel. The perceptibility of these effects was then tested using event-related potential (ERP) and behavioral methodologies. Even the longest-distance effects (three vowels away) were perceptible to some listeners.

While the strongest support for the language-change hypothesis would come from a production-perception correlation, this was not found here. However, I argue that such a correlation is not strictly necessary, and that in broad terms these findings do support Ohala's hypothesis.

References

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