The role of speaker gender in diachronic change of Korean fricatives

Anonymous authors
Affiliations unknown

Seoul Korean (SK) is known for a three-way laryngeal contrast among lenis, fortis, and aspirated voiceless obstruents, which is currently undergoing a diachronic change: whereas older speakers rely more on voice onset time (VOT) to distinguish lenis and aspirated stops, younger speakers rely more on onset fundamental frequency (f0) in the following vowel.\[^{[1, 7, 8, 12, 15]}\] This shift is more advanced among females than males,\[^{[13]}\] and is reflected in disparate strategies for enhancing the contrast in clear speech.\[^{[5]}\] In contrast to stops, fricatives in SK show a two-way contrast between a fortis /s*/ and a categorically ambiguous “non-fortis” /s/, the subject of debate due to similarities that /s/ bears both to lenis and to aspirated stops.\[^{[2, 3, 4, 6, 9, 10, 11, 14]}\]

We asked whether fricatives in SK would participate in the same type of sound change observed in SK stops, and whether speaker gender would have a significant effect as for stops. We addressed these questions through the lens of clear speech production (i.e., hyperarticulation), focusing on three acoustic dimensions of the SK laryngeal contrast (VOT/aspiration, f0 onset, constriction/frication duration), under the logic that different representations of a contrast result in different methods of enhancing it.\[^{[5]}\] Our main prediction was that older and younger speakers would hyperarticulate the fricative contrast differently, reflecting a diachronic change in the representation of /s/; furthermore, we expected speaker gender to play a role in this change.

To test these predictions, we recorded the speech of native SK speakers (n = 34) from two age groups in Seoul. Older speakers (mean age = 57.7 yr, 9 females and 9 males) were born before 1977, while younger speakers (mean age = 22.4 yr, 8 females and 8 males) were born after 1990. Participants produced utterance-initial /s/ and /s*/ in different speech conditions (plain citation, clear) and in different vowel contexts (followed by one of /i, i, u, e, e, o, a, a/) and wordhood contexts (real, nonce). Acoustic analyses of frication duration, aspiration duration, and f0 onset were carried out, and the acoustic data were analyzed using mixed-effects linear regression models (random effects: Participant, Item; fixed effects: Condition, Fricative, Generation, Gender, Vowel, Wordhood). In this paper, we focus on the effects of age (i.e., generation) and gender on hyperarticulation of the fricative contrast by looking at the third-order interaction of Condition and Fricative with Generation and Gender in each regression model.

The results support the hypothesis that younger and older SK speakers have different representations of the fricatives, which lead to different strategies for hyperarticulating the contrast in clear speech. In regard to frication, both older and younger speakers used this cue, and females did so more consistently than males. However, only younger speakers used aspiration, whereas only older speakers used f0, with little difference between the genders in the use of these two cues. In particular, while in clear speech older speakers of both genders pulled the fricatives apart in f0, younger speakers of both genders merged them instead (see Figure 1).

Crucially, unlike older speakers, younger speakers showed no reliance on f0 to enhance the /s/-/s*/ contrast, which differs from younger speakers’ heavy reliance on f0 to enhance stop contrasts. This finding thus suggests that the increasing role of f0 in the SK laryngeal contrast (“quasi-tonogenesis”) is specific to the stops. That is, the ambiguous fricative contrast in SK is indeed undergoing a sound change, but a different sound change from the stops. Moreover, speaker gender has a significant effect on change in the use of frication, but not of f0: it seems younger speakers, male and female, now share the same High tonal target for both fricatives.
Figure 1. Onset f0 by speech condition, fricative category, speaker age, and speaker gender (L: male, R: female). Error bars indicate 95% confidence intervals of the mean over participants.

References