

## Phonetic cue enhancement in hyperarticulation of Korean sibilants

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This work explores enhancement of two phonetic cues, VOT and f0, in the hyperarticulation of Korean sibilants. Korean has a two-way fricative contrast, fortis /ss/ and “nonfortis” /s/, which is ambiguous with respect to the three-way laryngeal contrast characterizing stops and affricates. We examine enhancement of two contrasts involving /s/: /s/ vs. /ss/, and /s/ vs. lenis affricate /c/.

We analyzed use of f0 and aspiration in baseline and hyperarticulated productions by younger (n=33, aged 19-53) and older (n=29, aged 54-82) Seoul Korean speakers. Both cues differentiated the /s/-/c/ contrast in baseline productions, but their relative importance is in flux: younger speakers used more f0, and less aspiration, than older speakers. Production of /s/-/ss/ was relatively stable across ages, differing in aspiration but not f0.

In hyperarticulation, we expected speakers to enhance dimensions as a function of their relative importance in baseline productions; however, this was not always the case (*italic text in Table 1*). Most notably, hyperarticulation led to “emergence” of an f0 distinction in the /s/-/ss/ contrast, indicating that despite a lack of f0 distinction in baseline, the contrast is, at some level, characterized by higher f0 for fortis /ss/, in line with previous *perceptual* findings. Follow-up comparisons showed that speakers’ use of f0 in production correlated with their reliance on f0 in a perception task, providing evidence for an individual-level perception-production link in phonetic representation that is only visible when considering the hyperarticulated productions. We frame the results within the broader context of the ongoing sound change in the Korean laryngeal system.

**Table 1:** Baseline and enhanced use of f0 and aspiration in differentiating two phonetic contrasts (/s/ vs. /c/ and /s/ vs. /ss/) by older and younger Seoul Korean speakers.

		/s/ vs. /c/		/s/ vs. /ss/	
		Baseline contrast?	Enhanced?	Baseline contrast?	Enhanced?
f0	Older	yes: s > c	yes	<i>no</i>	<i>yes (ss &gt; s)</i>
	Younger	yes: s > c	yes	<i>no</i>	<i>yes (ss &gt; s)</i>
	Change over time?	Increase		No change	
aspiration	Older	yes: s > c	yes	yes: s > ss	yes
	Younger	<i>yes: s &gt; c</i>	<i>no</i>	yes: s > ss	yes
	Change over time?	Decrease		No change	

**Figure 1:** Mean production values for aspiration (in ms) and f0 (in semitones) across contrasts, speech styles, and age groups. Error bars show one standard error based on by-speaker means.

