

Gender-based sound symbolism in Korean names: VOT and F0 effects in nonce names

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Introduction: Recent work on sound symbolism in given names finds recurring associations between phonetic features and gender across languages [1] (e.g., front/high vowels are more frequent in female than male names), suggesting an iconic link between sounds and traits stereotypically associated with gender (e.g., small = female, big = male) [2,3]. Exceptional language-specific patterns are also found (e.g. higher vowels favouring male Korean names [1] and low tone favouring Cantonese female names [4,5]). Such language-specific patterns have been shown to be productively extended to nonce name judgement for Korean vowel height [6] but not for Cantonese tone height, where the iconic pattern (high F0 = female) (re)emerges [7].

The current study examines how the iconicity of phonetic features and language-specific patterns interact in the relationship between obstruent type (lenis, fortis, aspirated) and name gender in Korean. Korean obstruents are distinguished by both VOT (fortis = short; lenis = intermediate initially/short medially; aspirated = long) and F0/intensity (lenis = low; fortis/aspirated = high). [1] finds that aspirated stops tend to occur more frequently in male names relative to lenis stops; fortis stops are mostly absent in given names. This aspirated vs. lenis pattern is consistent with predictions of iconically grounded links between male gender (bigger and stronger) and both longer duration and higher intensity, but contrary to those between high F0 and female gender (Table 1). Our study tests how the language-specific patterns in existing names and iconic tendencies interact in speakers' assignment of gender to nonce names.

Method: 40 native Korean speakers completed the study. Target stimuli were 10 CVCV minimal triplets with a stop (lenis, fortis, or aspirated) in either the initial (5) or medial (5) position. They were recorded by a middle-aged male speaker of Seoul Korean. The speaker made a clear 3-way VOT distinction and VOT was not manipulated. F0 on the following vowel was manipulated to be either high or low, for a total of 60 stimuli (2 positions x 5 triplets x 3 VOT x 2 F0). Participants completed a name-gendering task in which they heard each stimulus and rated how male or female they thought the name was on a 6-pt scale (1 = female, 6 = male), followed by a forced-choice identification task to categorize the stop in each target stimulus with three repetitions. Mixed effects regression models were used for statistical tests.

Results: In the categorization task (Fig.1), consonants were perceived as the produced VOT category (fortis, lenis or aspirated), except for initial lenis stops with high F0 which were perceived as aspirated. In the name-gendering task (Fig. 2), the main effect of VOT was significant in both positions and participants rated names with aspirated stops as more male than those with lenis and fortis stops. Fortis stops were rated more male than lenis stops in the medial position, but not in the initial position where the lenis pattern depended on F0. F0 had no effect other than a marginal effect for lenis stops in initial position: they were rated similar to aspirated (more male) in the high F0 condition and similar to fortis (more female) in the low F0 condition, consistent with the categorization findings (Fig.1) and aspirated stops being rated more male.

Discussion: Overall, the results suggest an aspirated (male) vs non-aspirated (female) distinction, which is modulated by VOT, with F0 contributing when it changes the perceived laryngeal category. For lenis and aspirated stops, this is consistent with the corpus [1] and the intensity and duration hypotheses, but contrary to the F0 hypothesis, whereas fortis results are consistent with all three hypotheses to varying degrees. The difference for the F0 hypothesis may be due to the sound symbolic effect of F0 emerging in the absence of evidence to the contrary. Alternatively, the fortis effects may be due to fortis consonants' association with smallness in native sound symbolic words [8] and with cuteness and femininity in *aegyo* speech [9]. The results are, however, more consistent with phonological categories (aspirated vs. non-aspirated) mediating the gender-sound association rather than a direct link between phonetics and meaning.

Table 1. Sound Symbolic Hypotheses for Korean obstruents and name gender

Predictor	Predicted male preference
<i>Intensity</i> (more intense = male)	Aspirated, Fortis > Lenis
<i>Duration</i> (longer VOT = male)	<i>Initial:</i> Aspirated > Lenis > Fortis <i>Medial:</i> Aspirated > Fortis ~ Lenis
<i>F0</i> (low F0 = male)	Lenis > Fortis, Aspirated

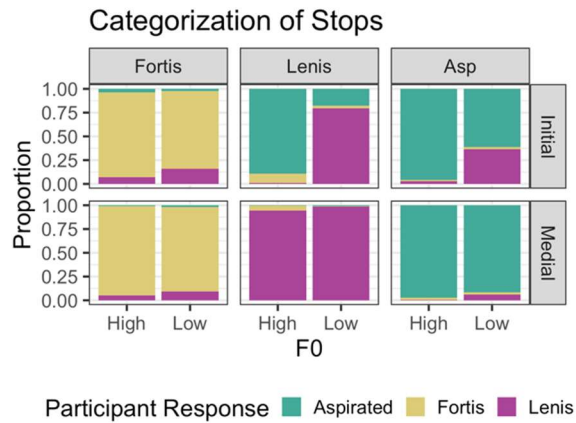


Figure 1. Proportions of categorization of Korean stops by F0, VOT (Fortis, Lenis, Aspirated) and position (word initial or medial)

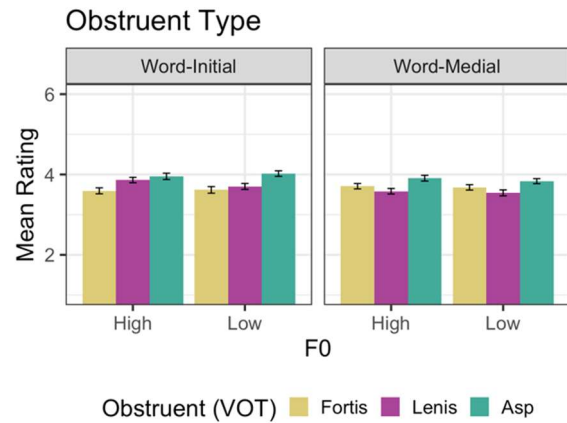


Figure 2. Mean gender ratings (1 = female, 6 = male; zoomed to show the mid range) by F0 (high, low), VOT (fortis, lenis, asp) and position (initial, medial) in word. Error bars indicate standard errors.

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