

New Polish sibilants: An acoustic study of conversational speech of female and male speakers

Polish pre-palatal sibilants: [ɕ ʑ tɕ dʑ] have been noticed to be in a state of variation with, presumably newer, variants. Czaplicki et al. (2016) is the first published account of these new variants known to us. In it, the new variants are described as displaying “exaggerated palatalisation” and transcribed as [sʲ zʲ tʲ dʲ]. Nawrocki and Wielgat (2025), in a later acoustic study, refer to them as “fronted palatalized”. Given the absence, to our knowledge, of articulatory studies, we will simply refer to these variants as “New Polish sibilants”.

Both studies referred to above have only included female participants. This is relevant since the new variants have been claimed to be typical of female speech, and sociolinguistic explanations put forward for the spread of the new variants claim that they function to signal femininity. To enable a quantitative comparison, we therefore attempt to measure the acoustic properties of pre-palatals in both female and male speakers of Polish. We will try to see to what extent the fricatives of either gender show the properties associated with “New Polish sibilants” as established in extant research.

We will use the PELCRA-EMO corpus (Pęzik, 2018) as the source of data. The corpus contains interviews with 40 participants (23 female, 17 male) speaking about the topic of emotions. To maintain gender balance in our sample, we will analyze 16 female and 16 male speakers (one of the male participants appears to have a speech fluency disorder). The corpus contains phone-level transcriptions created through forced-alignment. The annotation boundaries for all voiceless fricatives of the 32 selected speakers will have been manually corrected (work in progress, nearing completion), and the first four spectral moments (center of gravity, kurtosis, skewness, standard deviation) will be extracted using the spectral averaging approach (Shadle, 2012) as implemented in a customized version of DiCanio’s Praat script (DiCanio, 2021). The measurements we obtain will be compared to the values reported for the new variants and the old variants in extant literature.

A visualization of a preliminary analysis, based on the speakers annotated so far, is shown in Figure 1. It would appear that several male speakers produce /ɕ/ (or, perhaps [sʲ]) with center of gravity values well within those reported by Czaplicki et al. (2016) for the New Polish sibilants.

References

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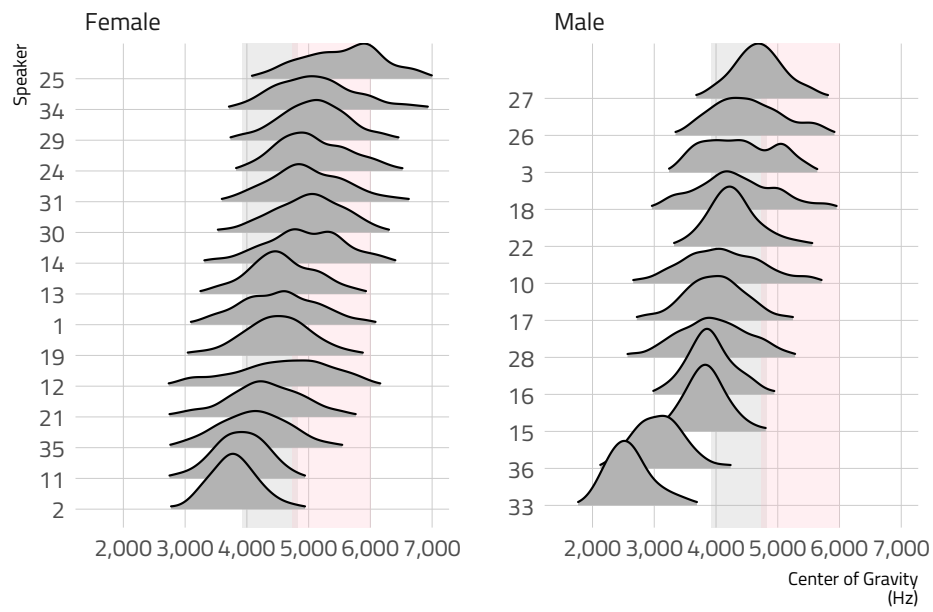


Figure 1: Distributions of Center of Gravity measures of the speakers annotated so far. Grey vertical bands indicate the region of one standard deviation in each direction from the mean for “old” sibilants, and pink bands indicate the region of “new” sibilants identified by Czaplicki et al. [2016].