Dialect contact, perceptual divergence, and the potential instability of the /s, ç, ʃ/ contrast in standard German

This study investigated the production and perception of the rare three-way /s, ç, ʃ/ contrast in Standard German which has been reduced to a two-way contrast in a number of German varieties. All three fricatives differed in their spectral properties with /ç/ taking up an intermediate position and featuring a higher F2-transition. In perception, listeners used spectral cues more categorically to distinguish between /s/ and /ʃ/ than they used the F2-transition for the /ç, ʃ/-distinction. Cues were weakened in perception when listeners saw pictures of a neutralizing dialect. Such cue weakening may be related to diachronic changes by which /ç/ merges with /ʃ/. 