ACOUSTICS2008/3093
Inter-speaker variability and the articulatory-acoustic relations in German and English /sh/

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The aim of this study is to investigate speaker-specific articulatory-acoustic relations and their potential causes in the realisation of /sh/. By means of electropalatographic and acoustic data for 12 German and 12 English native speakers (6 males and 6 females for each language), we obtained the following results: 1) relatively invariant COG values of the frication noise among the subjects, 2) huge inter-speaker variability in the articulatory place of articulation, especially for the males. We suggest that in the realisation of /sh/ motor equivalence principles can be used speaker-dependently. In particular, the length of palatal channel, the size of the front cavity (including its sublingual portion) as well as lip protrusion are the relevant articulatory parameters involved in the adjustment of the frication noise. Speaker-specific articulatory strategies will be discussed in the light of the formant transition characteristics, palatal morphology, and the prototypical articulatory patterns will be illustrated by means of acoustic modelling.