

# **Motor equivalent strategies in the production of German /ʃ/ under perturbation**

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**Running title:** Motor equivalence in /ʃ/

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## Abstract

The German sibilant /ʃ/ is produced with a constriction in the postalveolar region and often with protruded lips. By covarying horizontal lip and tongue position speakers can keep a similar acoustic output even if the articulation varies. This study investigates whether during two weeks of adaptation to an artificial palate speakers covary these two articulatory parameters, whether tactile landmarks have an influence on the covariation and to what extent speakers can foresee the acoustic result of the covariation without auditory feedback. Six German speakers were recorded with EMA. Four of them showed a covariation of lip and tongue, which is consistent with the motor equivalence hypothesis. The acoustic output, however, does not stay entirely constant but varies with the tongue position. The role of tactile landmarks is negligible. **To a certain extent, speakers** are able to adapt even without auditory feedback.