

A neurophonetic perspective on articulation planning

Keynote lecture

Wolfram Ziegler

Institute of Phonetics and Speech Processing, University of Munich, Germany

Outline

In behavioral research, pathology can be revealing about normal function. In speech, more specifically, some pathologies of the brain may inform us about the mechanisms governing normal speech production.

Neural pathologies afflicting a circumscribed cortical region in the inferior frontal lobe of the left brain, resulting in a syndrome termed *apraxia of speech*, are revealing in this regard, because this brain region is considered to store the processes of speech motor planning we have acquired during childhood. As a consequence, investigations into the patterns of apraxic speech impairment may contribute to our knowledge about the architecture of the phonetic planning processes involved in the production of a speaker's native language.

In this talk, I will review the phonological factors determining the likelihood that apraxic patients commit errors and describe a non-linear probabilistic model based on gestural decompositions of words to predict the relative vulnerability of phonological words to apraxic speech impairment. Several clinical and non-clinical applications of the model will be outlined to demonstrate its usefulness.