

11 Future research

Currently, there is active neuropsychological research on voice and identity processing in blind and sighted listeners (Hölig et al. 2014a, Hölig et al. 2014b, Föcker et al. 2012, Föcker et al. 2014, Zäske et al. 2014, Schweinberger and Schneider 2014, Gainotti 2014, Blank et al. 2015).

An interdisciplinary follow-up study which is related to the topic of the present thesis has already been accepted for publication (Braun et al. 2015). In this feasibility study, a more complex speaker identification experiment was adapted for functional magnetic resonance imaging (fMRI) in order to investigate 1) whether a complex speaker recognition experiment can be carried out within an fMRI setting, 2) whether listeners' brain activations differ for recognized and unrecognized speakers and 3) whether activation patterns differ between particular listener groups, e.g. blind and sighted listeners. From a forensic phonetic point of view, an answer would be highly valuable as to why some listeners are better at recognizing people by their voices than others. So far, 14 sighted and two congenitally blind listeners underwent an fMRI scan while listening to test files with familiar, less familiar and unknown voices. Listening to familiar compared to unknown voices elicited brain activations in the left part of the cerebellum and the right frontal pole in sighted participants. When fMRI data of the second half of listening to familiar speakers were compared to fMRI data from the first half, sighted listeners showed activations in visual areas – probably because they visualized the familiar speakers after successful recognition. Interestingly, the congenitally blind listeners, who have never seen a face before, also showed activations in visual brain areas. More blind participants are needed in order to run a group analysis. Although first results look promising and might lead to useful applications in the field of forensic phonetics one day, the use of fMRI for analyzing research questions in the field of forensic speaker identification needs to be tested thoroughly in order to prevent any misuse of brain imaging techniques in the field.