

Abstract EFAS/DGA 2007

The perception of prosodic cues in normal listeners and cochlear implant recipients

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Prosody has a myriad of linguistic functions and involves specific aspects of speech, such as stress, intonation and pauses. The underlying acoustic quantities (amplitude envelope, pitch frequency, and temporal structure) can be processed by cochlear implants (CI) only to a limited extent. In order to investigate prosody perception in hearing impaired persons and subjects provided with hearing aids and/or CIs we developed a test battery which addresses several prosodic cues such as minimal pairs differing in duration, sentence stress, question vs. statement and gender of the speaker. The test battery consists of two parts: One part involves natural utterances from six different speakers (3 female, 3 male) and aims to reflect everyday listening situations. The other part consists of "morphed" stimuli which describe a continuum from one extreme (e.g. question) to the other (e.g. statement) and thus might be suitable to detect small differences in perception with considering the underlying acoustical parameters, e.g. pitch frequency (see presentation M. Landwehr).

The talk presents results from both, normal listeners and cochlear implant recipients. The normal hearing subjects were very well able to discriminate the prosodic cues and revealed very low interindividual differences. In contrast, the cochlear implant listeners covered a wide range of performance categories. Especially the perception of sentence stress posed problems to the CI-subjects. Since stress involves short leaps of the pitch frequency on the corresponding word or syllable, it can be hypothesized that the processing of the F0-contour plays a major role in the perception of prosodic cues.

