MUSIC PREFERENCE STUDY WITH COCHLEAR IMPLANT RECIPIENTS USING MULTI-TRACK RECORDINGS

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Cochlear implant recipients nowadays often reach near normal speech understanding in quiet environments. However, speech understanding in noisy environments is still rather poor, resulting in an important focus of cochlear implant research on signal processing for improving speech understanding in noise. Also perception of complex pitch has received significant attention in recent years, for improving speaker identification, for tonal language speech perception as well as for music perception. Results on improving complex pitch perception have nevertheless been disappointing so far. Studies on subjective music perception with cochlear implant recipients suggest a preference for simple monophonic melodies and rhythmic sounds, whereas more complex, polyphonic music, such as pop, rock or classical orchestral music is often perceived as unpleasant and noisy. The assumption that cochlear implant recipients prefer a more simple or monophonic representation over a polyphonic representation is investigated in this study.

In general, pop and rock music consists of a band accompanying the vocalist singing the main melody. The band typically includes drums, electric guitar, bass guitar and keyboard. The test subjects were given a mixing console and separately recorded tracks with which they were asked to make an audio mix that sounded most enjoyable to them. Relative level settings of the different tracks will be shown and compared between cochlear implant and normal hearing subjects. In subsequent experiments, the relative level settings preference for the different instrument tracks from the pilot experiment has been investigated in more detail with more songs using a paired comparison analysis. Preference rating scores for different level settings will be shown and again compared between cochlear implant and normal hearing subjects.

The preliminary results show that for the pop songs provided, cochlear implant recipients prefer an audio mix with larger vocal-to-background music ratio compared to normal hearing subjects. Within the background music itself, cochlear implant recipients prefer an audio mix with prominent drums and attenuated piano and guitar.

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