

## Examining auditory selective attention in realistic, natural environments

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### Abstract

The topic of the present collaborative project (Medical Acoustics and Cognitive Psychology) is the exploration of cognitive control mechanisms underlying auditory selective attention. The aim is to examine the influence of variables that increase the complexity of the auditory scene with respect to technical aspects (dynamic binaural hearing with consideration of room acoustics and head movements) and that influence the efficiency of cognitive processing. Using a binaural-listening paradigm, the ability to intentionally switch auditory attention in various anechoic and reverberating setups was tested. The paradigm consists of spoken word pairs by two speakers which were presented simultaneously to subjects from two of eight azimuth positions. The stimuli consisted of a single number word, (i.e., 1 to 9), followed by either the direction "UP" or "DOWN" in German. Guided by a visual cue prior to auditory stimulus onset indicating the position of the target speaker, subjects were asked to identify whether the target number was numerically smaller or greater than five and to categorize the direction of the second word. Reproduction techniques and reverberation times were varied to analyze influences of the reproduction method in reaction times and error rates.