Relating Individual Auditory Cue Weighting to Discrimination in Older Adults with Hearing Loss

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In previous work, using synthetic speech-like stimuli with co-varying spectral and temporal dimensions (Souza et al., 2015; Souza et al., 2018), individual hearing-impaired listeners were variable in the use of spectral vs temporal dimensions (cues) in the signal. When spectral cues were relatively static and broadband (synthetic frication noise), most of the listeners used both spectral and temporal (amplitude rise-time) cues when identifying consonants; however, when spectral information was dynamic and fine-grained (formant transitions), only half of the listeners reliably used spectral cues, relying instead on temporal cues, to identify consonants. In our current research, we hypothesize that listeners who rely on temporal cues do so because they are unable to discriminate fine-grained dynamic spectral information. To test this hypothesis, we measured spectral and temporal cue sensitivity with a rapid adaptive discrimination task. Discrimination results are consistent with individual cue weighting from the identification task. The discrimination task may offer a time-efficient measure of cue-use patterns which have implications for everyday listening and which may inform treatment choices.

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