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Intelligibility of whispered speech interleaved with speech or noise maskers

Nandini Iyer, Douglas Brungart and Brian Simpson
AFRL, 2610 Seventh Street, WPAFB, OH 45433, USA

When an interrupted speech signal is alternated with a noise masker, performance is generally improved relative to the condition where the speech and noise are presented continuously. However, when two interrupted speech signals are alternated, performance declines relative to the continuous presentation condition. One possible explanation for this result is that listeners in the alternated speech and noise condition use the contrast between the periodic temporal structure of voiced speech and the random temporal structure of noise to segregate the time intervals associated with the speech target and noise masker. In the current experiment, a whispered speech signal was either presented continuously in the presence of a noise masker or alternated with a noise masker at an 8-Hz rate. The results show near perfect performance in the alternated whisper and noise condition, suggesting that harmonic structure due to voicing is not necessary to segregate a speech signal from an interleaved random-noise masker. Indeed, when whispered speech was interleaved with voiced speech, performance decreased relative to the continuous condition when the target talker was voiced but not when it was whispered, suggesting that listeners are better at selectively attending to unvoiced intervals and ignoring voiced intervals than the converse.