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Identification of intervocalic consonants in stationary and nonstationary noise

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The factors which underlie the perception of consonants in noise remain poorly understood. In this study, native listeners identified 24 English consonants spoken by 8 talkers presented in 9 intervocalic contexts with varying stress position. Listeners were tested in 5 noise conditions: tokens were masked by stationary speech-shaped noise, a competing talker, 3 and 8 speaker babble and speech-modulated noise, all of which have the long-term spectrum of speech. The rank ordering of consonant identification scores in stationary noise was highly-correlated ($r=0.9$, $p<0.0001$) with a similar condition reported by Phatak and Allen [JASA 121: 2312-2326, 2007], but less so in the 4 nonstationary noise backgrounds ($r=0.74$, $p<0.001$). In particular, /y/, /r/, /l/, /f/, /ch/, /sh/, /m/ and most of the plosives showed a wide variation in ranking. These findings suggest that, in addition to the long-term spectrum of the masker, consonant identification is noise is affected by other factors such as temporal fluctuations in the masker, misallocation of foreground/background components and attention.