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Segmental and supra-segmental contributions to cross-language speech intelligibility

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Non-native accents affect speech recognition in noise, and previous work has shown that intelligibility is modulated by listener-talker interaction; a matched linguistic background between the two seems to maximise intelligibility. The present study examined the contribution of segmental and supra-segmental cues, as well as how the degree of L2 experience affects non-native speech perception. A group of monolingual native English listeners and two groups of French native listeners with different amounts of L2 experience were presented with English sentences produced by native and non-native (French) speakers in noise. The stimuli were digitally processed to swap the pitch and segment durations between recordings of the same sentences produced by different speakers (e.g. imposing a French-accented prosody onto recordings made from English speakers). The results revealed that English listeners were more accurate at recognizing speech with English segments but were little affected by prosody; low proficiency French listeners were more accurate when the speech had both French-accented segments and prosody; and high proficiency French listeners varied in the cues that they used depending on the noise level. The use of segmental and supra-segmental cues thus appears to vary with language experience and listening context.