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Frequency interacts with lexicality during auditory lexical decision: Insights from diffusion drift modeling

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Abstract

This study extends the application of Diffusion Drift Modeling (DDM) to examine the lexical access of monosyllabic Chinese real words and pseudo-words in an auditory lexical decision task. Here, the pseudo-words were constructed from phonological segments based on real words, allowing us to assess lexicality derived from suprasegmental information—specifically, tones—and to match their frequency to that of corresponding base forms. Following Ratcliff (2004), we manipulated the drift rate to vary with log-transformed frequency and lexicality while maintaining other DDM parameters as constant. Our results revealed that pseudo-words generally led to slower drift rate compared to real words. Additionally, for real words, an increase in log-frequency was associated with higher drift rate, whereas for pseudo-words, an increase in frequency unexpectedly corresponded to lower drift rate. This differential impact of frequency on drift rate may suggest the distinct cognitive pathways activated in the processing of suprasegmental information in lexical access.

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