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Chinese Character Network Structure Affects Processing of Single Chinese Characters

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Abstract

Mandarin Chinese has a logographic writing system consisting of characters (e.g., 友 and 朋) that are monosyllabic morphemes often combined to form words (i.e., 朋友, “friend”). The vast majority of Chinese words consists of two monosyllabic characters. This research describes the construction and properties of the Chinese character network and demonstrates how its network structure has implications for the lexical processing of Chinese characters through an analysis of Chinese megastudy data. Capitalizing on a database of over 25,000 double-character Chinese words, a network representation was created to represent how single characters are combined to form double-character Chinese words. Network measures such as degree and closeness centrality were retrieved from the network representation and included as predictors in a regression model to predict visual lexical decision performance of single Chinese characters. Network measures contributed additional variance beyond traditional variables such as number of strokes and character frequency.