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The influence of global context and classifier-noun congruency on Chinese predictive sentence processing

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Abstract

Accumulative behavioural and electrophysiological evidence has demonstrated the effects of sentence context on word processing. However, there is insufficient research investigating both global and local effects during processing. A Chinese classifier can select or exclude some nouns, and it is obligatorily used with numerals or demonstratives (e.g., "this" and "that") to specify the quantity of an object or identify particular objects. There is no study that manipulated the congruency of Chinese classifiers to look at this local effect on processing the head nouns. In this study, we employed the EEG technique to investigate the prenominal prediction effect and, more importantly, to look at whether an incongruent classifier is strong enough to disconfirm a prediction generated by a highly constraining sentence. Highly constraining sentences were built and tested through a probability pre-test, and the probabilities of congruent head nouns of the sentences are all above 50%. We manipulated the congruency between global sentence context and head nouns, as well as the congruency between classifiers and head nouns in those highly constraining Chinese sentences using a two-by-two factorial design. The results revealed that the semantic and grammatical features of highly predicted nouns can be pre-activated prior to the bottom-up input of the head nouns. This effect is already visible at the classifier position as the N400 amplitude of an incongruent classifier is larger than that of a congruent classifier. In addition, both global sentence context and local classifier-noun congruency significantly influence head noun processing to the extent that neither factor exhibits overwhelming strength over the other, as indicated by the N400 amplitudes of the head nouns. Furthermore, both global and local information can be integrated during early lexical processing.