

No Morphological Markers, No Problem: ERP Study Reveals Semantic Factors Differentiating Neural Mechanisms of Noun and Verb Processing

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Abstract

Neural mechanisms behind noun and verb processing are ubiquitously separate, yet it remains controversial which factor, syntax or semantics, is behind such separation. We conducted an ERP study using Chinese sentences with a specific construction, noun phrase + mei (“not/no”) + noun/verb/noun-verb-ambiguous-word, and excluding other grammatical or syntactic factors that could hint at the target words’ part-of-speech. Results showed significantly distinct P200, N400 and P600 between noun and verb processing in native speakers, indicating that semantic factors are essential for the differentiated neural mechanisms behind noun and verb processing. Similar results were also found between noun-verb-ambiguous-word and noun processing, but not between noun-verb-ambiguous-word and verb processing, suggesting that lacking clues on part-of-speech makes the dynamic properties of the ambiguous words more salient than the static ones, thus causing interpretation of such words more likely as verbs. This further elaborates the crucial role of semantic factors in noun and verb processing.