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Journal of Memory and Language

Volume 41, Issue 4, November 1999, Pages 469-495

Regular Article

A Rose by Any Other Name: Long-Term Memory Structure and Sentence Processing

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<https://doi.org/10.1006/jmla.1999.2660>

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Abstract

The effects of sentential context and semantic memory structure during on-line sentence processing were examined by recording event-related brain potentials as individuals read pairs of sentences for comprehension. The first sentence established an expectation for a particular exemplar of a semantic category, while the second ended with (1) that expected exemplar, (2) an unexpected exemplar from the same (expected) category, or (3) an unexpected item from a different (unexpected) category. Expected endings elicited a positivity between 250 and 550 ms while all unexpected endings elicited an N400, which was significantly smaller to items from the expected category. This N400 reduction varied with the strength of the contextually induced expectation: unexpected, categorically related endings elicited smaller N400s in more constraining contexts, despite their poorer fit to context (lower plausibility). This pattern of effects is

best explained as reflecting the impact of context-independent long-term memory structure on sentence processing. The results thus suggest that physical and functional similarities that hold between objects in the world—i.e., category structure—influence neural organization and, in turn, routine language comprehension processes.



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Keywords

sentence processing; categorization; event-related potentials; N400

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† This work was supported by a Howard Hughes Predoctoral Fellowship to K.F. and grants HD22614, AG08313, and MH52893 to M.K. We thank Elizabeth Bates, Seana Coulson, Phillip Holcomb, Jonathan King, David Kirsh, Marty Sereno, and two anonymous reviewers for helpful comments and discussion.

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