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# The Role of Sentence Priming on the Implicit Memory of Syntactic Structures

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## Abstract

Recent research on sentence priming suggests that frequent or recent processing of a syntactic structure influences subsequent linguistic behavior (Bock, 1986; Bock & Loebell, 1990; Bock, Loebell & Morey, 1992). The studies to be presented investigate whether sentence priming is due to an implicit memory of syntactic structure as distinct from lexical and thematic priming.

Experiment 1 uses an indirect measure of conceptual fluency (a standard measure of the "Mere Exposure" effect and also of implicit memory) which employs self-reported, intuition-based affective judgments (Bornstein, 1989; Gordon & Holyoak, 1983; Seger, 1994). An affective measure of grammatical acceptability is used as the dependent measure of conceptual fluency, with the prediction that grammatically acceptable sentences which had been read for content during an earlier part of the experiment will be judged as more grammatically acceptable during the subsequent test phase. This prediction is supported by the results of Experiment 1, which found increased grammatical acceptability ratings for recently read sentences. This finding demonstrates an implicit memory or "Mere Exposure" effect for identically repeated natural language stimuli.

Experiment 2 examines whether the priming effect found in Experiment 1 generalizes across priming and test sentences which are syntactically similar (as defined by a phrase structural description) but which do not have the same content words. The priming effect is found for related syntactic structures containing novel content words, showing that the priming effect observed in Experiment 1 cannot be due to simple lexical repetition.

In further experiments we investigate potential lexical and thematic influences on indirect

measures of sentence priming. In one experiment the similarity of syntactic structure between priming and test sentences is maintained while the thematic role relations are altered. Another experiment maintains thematic role relations of the priming and test sentences while altering their comparative syntactic structures. A cognitive model incorporating an implicit representation of syntactic structure would predict that priming will occur for sentences which are syntactically similar, regardless of thematic role relations, but that priming will not occur on the basis of thematic role relations alone.

The studies show that indirect measures employed in implicit learning research may be useful tools with which to investigate sentence priming phenomena. Results of these experiments have implications for theories of implicit memory, metacognition, and cognitive models of syntactic processing.

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