UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title
Analogical priming in a world naming task

Permalink
https://escholarship.org/uc/item/0q97m66n

Journal
Proceedings of the Annual Meeting of the Cognitive Science Society, 22(22)

Authors
Morrison, Robert G.
Holyoak, Keith J.
Spellman, Barbara A.

Publication Date
2000

Peer reviewed

Analogical priming in a word naming task

Robert G. Morrison and **Keith J. Holyoak**
University of California, Los Angeles
Department of Psychology; Franz Hall
Los Angeles, CA 90095-1563 USA
(morrison@psych.ucla.edu)

Barbara A. Spellman
University of Virginia
Department of Psychology; 102 Gilmer Hall
Charlottesville, VA 22903 USA

Introduction

Research on semantic memory has often tacitly treated semantic relations as simple conduits for spreading activation between associated object concepts, rather than as integral components of semantic organization (e.g., Quillian, 1968). Yet conceptual relations, and the role bindings they impose on the objects they relate, are central to such cognitive tasks as discourse comprehension, inference, problem solving, and analogical reasoning (see Holyoak & Thagard, 1995, for review). The present study addresses the question of whether semantic relations and their bindings can influence access to semantic memory.

Method

The experiment we report investigated whether, and under what conditions, presenting a prime pair of words linked by one of 10 common semantic relations would facilitate processing of a target pair of words linked by the same relation. For instance, the prime pair bird/nest is bound by the semantic relation "lives in". If bird/nest is presented as a prime pair then naming bear/cave should be faster relative to a target pair bound by a different relation, (e.g., razor/shave—"used to"). Primes and targets were presented as shown in Figure 1. In Experiment 1a participants were instructed to read each word silently as it appeared and then to say out loud the word printed in all capital letters. Naming latencies were measure from the time the second word in the target pair appeared. In Experiment 1b, participants were also instructed to "note and use" the semantic relations.

Results and Discussion

No effect was observed when participants merely read the prime pair $(F(1,27) < 1)$; however, under instructions to note and use the semantic relations, participants were significantly faster at naming target pairs after same relation primes ($\underline{M}$ = 833 ms) than after different relation primes ($\underline{M}$ = 847 ms), $\underline{F}(1, 27) = 4.45$, $\underline{p} < .05$ and $\underline{F}(1, 119) = 5.50$, $\underline{p} < .05$ in the item analysis.

Although the full set of conditions under which analogical priming may occur remains unclear, we have shown the importance of instructions when facilitation is achieved by a single same relation pair of words. McKoon and Ratcliff (1995) have demonstrated a similar effect through the context of target words; however, it is yet unclear whether the version of the effect obtained in their study may be the re
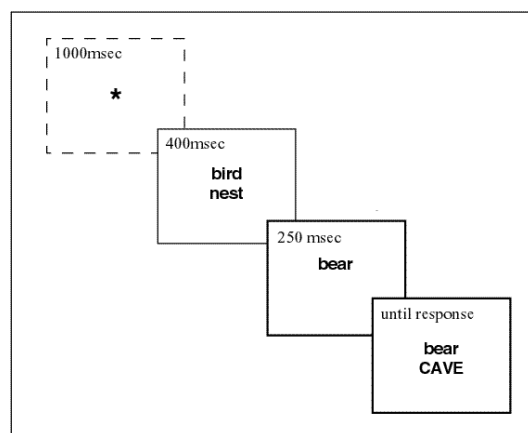

Figure 1: Analogical priming naming task

sult of an implicit strategic set similar to that imposed by our instructions. Although many questions about the nature of analogical priming remain unanswered, the phenomenon may prove central in providing theoretical linkage between basic mechanisms for accessing semantic memory and mechanisms for comprehension and reasoning.

Acknowledgments

References

Holyoak, K. J., & Thagard, P. (1995). Mental leaps: Analogy in creative thought. Cambridge, MA: MIT Press.

McKoon, G., & Ratcliff, R. (1995). Conceptual combinations and relational contexts in free association and in priming in lexical decision and naming. Psychonomic Bulletin & Review, 2, 527-533.

Quillian, M. R. (1968). Semantic memory. In M. Minsky (Ed.), Semantic information processing. Cambridge, MA: MIT Press.