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Persistent structural priming from language comprehension to language production ☆,☆☆

Kathryn Bock [a,*], Gary S. Dell [a], Franklin Chang [b], Kristine H. Onishi [c]

[a] *University of Illinois at Urbana-Champaign, Beckman Institute, 405 North Mathews Avenue, Urbana, IL 61801, USA*
[b] *NTT Communication Science Laboratories, 2-4 Hikari-dai, Seika-cho, Kyoto 619-0237, Japan*
[c] *Department of Psychology, McGill University, Montreal, Quebec, Canada, H3A 1B1*

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Abstract

To examine the relationship between syntactic processes in language comprehension and language production, we compared structural persistence from sentence primes that speakers heard to persistence from primes that speakers produced. [Bock, J. K., & Griffin, Z. M. (2000). The persistence of structural priming: transient activation or implicit learning? *Journal of Experimental Psychology: General, 129*, 177–192.] showed that the production of target priming structures increased the probability of spontaneously using the same structures to describe events in subsequent pictures that were semantically unrelated to the primes. These priming effects persisted across as many as ten intervening filler trials. The present studies replicated these results using auditorily presented primes to which participants only listened. The results indicated persistence of priming across all lags, with relative magnitudes of priming as large as

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* Corresponding author. Tel.: +1 217 244 1121.
E-mail address: jkbock@uiuc.edu (K. Bock).

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those observed by Bock and Griffin. The implication is that structural priming is persistent regardless of the modality in which language structures are experienced, underscoring the power of priming as an implicit learning mechanism.

Keywords: Sentence production; Language production; Structural persistence; Implicit learning; Language comprehension; Syntax; Language learning

1. Introduction

The distinction between linguistic competence and linguistic performance is one of the most controversial in the study of human language. In parallel with related distinctions between knowledge and behavior in traditional learning research (Tolman, 1948), the competence–performance distinction rests in part on differences between what is known in principle and what is done in practice. Beyond this, however, there are diverging views about how competence shapes or participates in performance. In this work, we call on the relationship between language comprehension and language production to evaluate two views of the relationship between language knowledge and language use.

Linguistic competence can be construed as having everything to do with normal performance (Bresnan & Kaplan, 1984; Bybee, in press) or as having next to nothing to do with it (Newmeyer, 2003). The first position is called the strong competence hypothesis. It says that competence is a single system that constitutes the language user's internal description of linguistic knowledge. The system is not merely compatible with the demands of performance, but supportive of them: "The formal properties of...proposed linguistic representations [must be] related to the nature of the cognitive processes that derive and interpret them in actual language use" (Bresnan & Kaplan, 1984, p. 107). Because language users both understand and speak the same language, successful communication entails that at some level, the same knowledge participates in language comprehension and language production.

Strong competence contrasts with what we will call weak competence. The weak competence hypothesis doubts the utility of an account of language knowledge that serves the goals of linguistic theory as well as the goals of explaining the different facets of normal language performance, including language comprehension and production. Clark and Malt (1984) presented a persuasive version of a weak competence hypothesis, arguing that different kinds of knowledge underlie different kinds of language use. They observed that "A native Californian can understand...Australian, Indian, Scottish...yet not have the slightest [ability to produce] them. He can understand syntactic forms in these dialects, as well as in Shakespeare, Joyce, and even Bellow...He can understand a large number of words that he couldn't use himself" (Clark & Malt, 1984, p. 200). In short, "comprehension and production [may] access distinct representations of linguistic knowledge, even though in normal people the two representations code much the same information and are closely coordinated" (Clark & Malt, 1984, pp. 200–201). Along similar