

Priming ditransitive structures in comprehension [☆]

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Abstract

Many studies have shown evidence for syntactic priming during language production (e.g., Bock, 1986). It is often assumed that comprehension and production share similar mechanisms and that priming also occurs during comprehension (e.g., Pickering & Garrod, 2004). Research investigating priming during comprehension (e.g., Branigan, Pickering, & McLean, 2005; Scheepers & Crocker, 2004) has mainly focused on syntactic ambiguities that are very different from the meaning-equivalent structures used in production research. In two experiments, we investigated whether priming during comprehension occurs in ditransitive sentences similar to those used in production research. When the verb was repeated between prime and target, we observed a priming effect similar to that in production. However, we observed no evidence for priming when the verbs were different. Thus, priming during comprehension occurs for very similar structures as priming during production, but in contrast to production, the priming effect is completely lexically dependent.

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1. Introduction

It is generally assumed that recent exposure to a syntactic structure facilitates subsequent production and comprehension of the same or similar structures. Evidence that recent exposure to syntactic structures affects subsequent production comes from studies showing evidence for syntactic priming, the phenomenon that the processing of a syntactic structure facilitates the subsequent processing of the same structure (e.g., Bock, 1986, 1989; Bock & Loebell, 1990; Bock, Loebell, & Morey, 1992; Pickering & Branigan, 1998). By contrast, it is much less clear whether syntactic priming affects comprehension processes in a similar way. Therefore, the question we address in the current paper is whether syntactic priming in comprehension occurs for similar structures as those tested in production research.

One of the first studies showing evidence for syntactic priming during production was reported in a seminal paper by Bock (1986). Participants in her study produced ditransitive prime sentences that either had a double object dative (DO) or prepositional object dative structure (PO), as in (1):

- (1a) The lifeguard tossed the struggling child a rope. (DO structure)
- (1b) The lifeguard tossed a rope to the struggling child. (PO structure)

They were followed by a semantically unrelated target picture that could be described either with a PO (e.g., *The man is reading a book to the boy*) or DO structure (e.g., *The man is reading the boy a book*). The results showed that participants tended to describe the picture using the same syntactic structure as in the prime sentence. That is, after producing a PO prime (1b), they were more likely to describe a following picture using a PO structure than a DO structure, and likewise, after producing a DO prime (1a), they were more likely to describe the picture using a DO structure than a PO structure. Subsequent experiments have suggested that sentence priming effects have a truly syntactic component and are not merely caused by non-syntactic factors. For example, Bock (1989) observed that priming occurred regardless of whether function words (e.g., *to*) were the same in prime and target. She also showed that the priming effect was not due to prosodic similarities between prime and target. Bock and Loebell (1990) showed that sentences with the same structure as dative POs but with different semantic roles (e.g., *The wealthy widow drove her Mercedes to the church*) primed the production of PO structures to the same extent as dative POs, suggesting that the priming effect is syntactic rather than semantic in nature. Hartsuiker and Westenberg (2000) observed priming for different orderings of the past participle and auxiliary in Dutch (e.g., *was stolen* vs. *stolen was*). These structures do not differ in their conceptual or information structures, so these results suggest that sentence priming effects are not merely due to repetition of conceptual or information structure. Finally, Pickering and Branigan (1998) found that priming was unaffected by repetition of the verb's aspect, tense, or number in ditransitive structures such as (1). In sum, there is strong evidence for a syntactic component to sentence priming effects. In addition, there may also be other factors that play a role. For example, recent production experiments have provided evidence for semantic effects (e.g., Chang, Bock, & Goldberg, 2003; Cleland & Pickering, 2003; Griffin & Weinstein-Tull, 2003).

Pickering and Branigan (1998; Branigan et al., 2000) showed that repetition of the verb between prime and target is one important factor affecting syntactic priming. Using

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