

Word counts:

Abstract:	60
Main Text:	993
References:	300
Entire document:	1410

Syntactic levels, lexicalism, and ellipsis: the jury is still out

Robert J. Hartsuiker

*Ghent University*

Sarah Bernolet

*University of Antwerp*

Address for correspondence:

Department of Experimental Psychology

Ghent University

Henri Dunantlaan 2

B-9000 Ghent

Belgium

Phone: +3292646436

E-mail: [robert.hartsuiker@ugent.be](mailto:robert.hartsuiker@ugent.be), [sarah.bernolet@uantwerpen.be](mailto:sarah.bernolet@uantwerpen.be)

URL: <http://users.ugent.be/~rhartsui/>

## Abstract

Structural priming data are sometimes compatible with several theoretical views, as shown here for three key theoretical claims. One reason is that prime sentences affect multiple representational levels driving syntactic choice. Additionally, priming is affected by further cognitive functions (e.g., memory). We therefore see priming as a useful tool for the investigation of linguistic representation, but not the *only* tool.

We are very sympathetic to Branigan and Pickering's (B&P's) general idea of proposing structural priming as a central part of a research programme aimed at understanding the nature of linguistic representation. However, our concern with this programme is that it overlooks important limitations of structural priming research. Such limitations concern the multiple levels at which priming can take place and the fact that priming experiments do not only recruit linguistic representations but also other aspects of cognition such as memory and attention. Some of the key inferences B & P make from priming results can therefore be accounted for differently. We argue that this is the case for the claims that (a) there is only a single syntactic level; (b) the lexical boost supports a lexicalist architecture; (c) priming can straightforwardly detect whether there are syntactic representations for elided constituents.

B & P claim that there is only one level of syntactic representation, in contrast to the two-level view taken in some parts of theoretical linguistics (Pollard & Sag, 1994), speech error research (Garrett, 1975), and computational modeling (Kempen & Hoenkamp, 1987). The main argument for the one-level view is Pickering, Branigan, and McLean's (2002) finding that "shifted" datives in English (1) do not prime the production of Prepositional Object (PO) datives (2) relative to a baseline (also see Pappert & Pechmann, 2014). B & P argue that if there were an intermediate syntactic level that specifies syntactic relations but not order, the shifted and PO structures would share a representation at that level. The two-level view would therefore predict priming from shifted to PO structures (albeit weaker than priming from PO to PO, as both POs would of course share representations at both levels). However, this line of reasoning ignores the possibility of priming at the level of thematic roles (in terms of order or emphasis), a possibility B & P do propose in several places. After all, a

shifted dative has the same ordering of thematic roles as a Double Object (3), and indeed, priming at that level is supported by Bernolet, Hartsuiker, & Pickering (2009), Chang, Bock, & Goldberg (2003), and Vernice, Hartsuiker & Pickering (2012). Thus, the data pattern is entirely compatible with an account in which a shifted sentence primes the PO, because of overlap in non-linearized structure, but also the DO, because of similarity in the ordering of thematic roles, resulting in comparable proportions of DO and PO responses in the baseline and after shifted datives.

- (1) The racing driver showed to the helpful mechanic the problem with the car
- (2) The patient showed his leg to the doctor
- (3) The patient showed the doctor his leg

Another central claim is that the lexical boost to priming is directly reflective of the relation between the lexicon and syntax. However, alternative conceptualizations of this relation account for the lexical boost differently (e.g., Chang, Dell, & Bock, 2006). Such accounts acknowledge that the results of structural priming experiments, as with any psychology experiment, are task-dependent, and therefore a function of participants' strategies, attentional foci, and memory. Specifically, participants in structural priming experiments may use explicit memory of previous sentences to help find a structure for the current sentence, and repeated lexical items may be particularly strong retrieval cues for this (Chang et al., 2006; Hartsuiker, Bernolet, Schoonbaert, Speybroeck, & Vanderelst., 2008). Consistent with this account, Hartsuiker et al. demonstrated that the lexical boost is much shorter-lived than priming effect itself, compatible with the idea that multiple fillers separating the prime and target sentences reduce the effectiveness of a repeated item

as a retrieval cue (see Bernolet, Collina, & Hartsuiker, 2016 for further discussion).

Summarizing, although it may be tempting to make direct inferences about the representational level from priming patterns, such inferences may overlook the role of memory (and perhaps other aspects of the person, task, context).

A final claim is that structural priming is informative about the syntactic representation of constituents that are represented semantically but not phonologically, as in ellipsis and coercion. In several examples, however, the interpretation rests on tacit assumptions. Take Cai, Pickering, and Sturt's (2013) example '*The waitress would like to lend the sailor the gun. Being afraid of getting into trouble, the chef would not like to [lend the sailor the gun]*'. There was no DO priming for sentences with ellipsis, while there was DO priming for sentences containing the full constituent. The logic here depends on the tacit assumption that in the sentences with ellipsis any syntactic representation of the elided constituent *must* be parallel to the initial version of that constituent. But if this assumption is not correct, and participants have a tacit syntactic representation for *lend the gun to the sailor* in a reasonable number of cases, little DO priming can be expected. Additionally, in Raffray, Pickering, Cai, and Branigan's (2014) study on coercion, no difference in priming of coerced sentences was found for the coerced sentence '*The celebrity began the champagne*' compared to the control sentence '*The celebrity began the speech*', suggesting that there is no syntactic representation for a missing predicate ('*drinking*') in the coerced sentence. This conclusion again depends on a tacit assumption, namely that in the control sentence, the status of '*speech*' as an event prevents participants from postulating a predicate. But if participants would postulate a predicate (they might represent the celebrity beginning to read, say, or practice the speech), the control and coerced sentence should behave alike

Although we fully agree that structural priming is a promising tool for investigating syntactic representation, we doubt whether it should be the only tool. As we have argued here, priming patterns are often compatible with several accounts, and complicating factors are that (a) priming likely affects several levels of representation; (b) priming is not only a function of processes within the system of linguistic representations but also of processes outside of it such as memory; and (c) the interpretation of priming experiments sometimes hinges on a-priori assumptions.

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