

<CT>What structural priming can and cannot reveal

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<C-AB>**Abstract:** The nature of mental representations of linguistic expressions in relation to the time course from intention to articulation is a major issue. We discuss Branigan and Pickering's proposal to use structural priming to tap into this process. We show that their interpretation of their findings cannot be maintained. We reinterpret these results and suggest a revision of their conclusions.

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How can we determine the mental representation of linguistic expressions in relation to the time course from intention to articulation and vice versa (Levelt 1989)? A new experimental technique to tap into this process like Branigan and Pickering's (B&P's) contribution is very welcome. Their review of priming experiments shows that

expressions with a particular linguistic structure can facilitate the use of other expressions with a certain structural similarity. From this, they draw strong conclusions. Their interpretation is not compelling, however, and occasionally reflects a misanalysis (e.g., the Mandarin topicalization on p. 41 shows only that an (A'-bound) empty object is visible for priming). We suggest an alternative interpretation of their findings.

Under mainstream generative accounts, B&P argue, passives involve movement of the underlying object to subject position (leaving an NP trace/copy), whereas intransitive (active) locatives do not. Hence, the two sentence types involve different representations. B&P, however, report experiments in which intransitive locatives prime passives. The mainstream account is – they conclude – incompatible with this result.

They also discuss the unergative-unaccusative contrast, which is captured standardly by assuming that the unaccusative argument is first inserted in the DO position and next moved to the canonical subject position. Unergatives don't exhibit such movement. B&P show that, nevertheless, intransitive sentences with unergatives and unaccusatives prime each other. Hence, B&P argue, their difference is not syntactically represented. Syntactic representations, then, must contain much less detail than generative approaches assume: There is no syntactic movement, and syntactic representations do not contain copies/traces.

However, B&P mistakenly infer that anything you cannot see with structural priming is “inaccessible” (not used) in processing (p. 11). As is well known, all

experimental techniques aren't sensitive to the same processes. If a property established by one technique is not observed with another technique, it is a fallacy to conclude more than that there is a discrepancy to be explained. Crucially, there is abundant evidence that certain properties that, according to B&P, are not visible for priming are, in fact, visible to the processor.

For example, B&P's claim that the contrast between unaccusatives and unergatives is purely semantic and not syntactically encoded is untenable. First of all, the original tests from Perlmutter (1978) and Burzio (1981) show that, unlike the subject of unergatives, the subject of unaccusatives shares *syntactic* properties with direct objects. Second, these verb types display a difference in processing that is independent of semantic roles (e.g., Agnew et al. 2014; Koring et al. 2012). It follows from a difference in the structural representation, which, consequently, must be visible to the processor, contra B&P.

A second misconception concerns their claim that structural priming reveals the exact nature of syntactic representations. As B&P point out themselves, priming displays similarities in representation of a pair of sentences A and B relative to the pair A and C (pp.19–20). As such, this measure cannot tell us directly what the representation of a sentence looks like. A priming effect can tell us at most that particular sentences share some aspects of their representation, but this does not entail that their representations can be identified.

B&P's appeal to parsimony in their argumentation also fails due to inaccuracies in their exposition (including references to obsolete concepts like Deep Structure). Moreover, the absence of explicit mapping rules between syntax and semantics makes their preferred alternative impossible to assess. In generative theory (see Chomsky 1986, 1995, 2001, 1955/1975), the role of grammar is not so much to characterize what is grammatical as opposed to ungrammatical, but to characterize the relation between forms and their interpretations. Due to the phase-based organization of derivations, B&P's reference to levels misses the point. Properties reflecting steps in this derivational process are accessible to the processor, as shown by a variety of experimental techniques currently employed in addition to grammaticality judgment tasks (which B&P fail to acknowledge) (e.g., Bever & Sanz 1997; Brennan & Pylkkänen 2016; Crain & Thornton 1998; Friedmann et al. 2008; Koornneef et al. 2011; Sprouse et al. 2016).

Unlike what B&P presume, (Narrow) Syntax is independently characterized, namely as involving operations subject to restrictions (e.g., locality constraints) that are independent of intended meaning. Consider resumptive pronouns in *wh*-questions. The formation of *wh*-questions is subject to locality conditions. Interestingly, *wh*-questions that violate a locality condition can be “saved” by using a resumptive pronoun. The resumptive pronoun does not contribute to the meaning but makes an otherwise ungrammatical dependency licit. This shows that the interpretation itself is not blocked, but a particular syntactic derivation to realize that interpretation (for a similar contrast in binding dependencies, see e.g. Reuland 2011a, b; Koornneef & Reuland 2016).

Therefore, B&P's argument that there is no level of detailed syntactic representation because the priming tool does not track that level is misguided.

Yet, we share B&P's concern “[to identify] which aspect of structure priming taps into” (pp. 21–22). We suggest that the method of structural priming tracks no more, but also no less, than a particular aspect of detailed linguistic representations – namely, what is visible to the external systems. Phase theory helps us identify this aspect. Phase theory hypothesizes that, once the derivation of a relevant chunk – a propositional structure, a DP/PP – is complete, it is handed over to the realization and interpretation systems. Its internal structure – copies/traces – becomes inaccessible at that point. Hence, at this handover point, what is accessible in unergative and unaccusative structures will be quite similar, yielding the priming data unsurprising. The same applies to passives. What is visible of their internal structure will lack detail at the handover point, making them sufficiently similar to locatives for priming. Finally, given that scope marking is structurally represented, and the scope marker is external to the core proposition, the latter's internal structure, but not the scope marker, will have become inaccessible at the handover point. This reinterpretation in terms of phases provides a straightforward account of B&P's findings. In short, phase theory can help understand what structural priming shows.

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