IS SYNTACTIC PRIMING A MERE CONSTITUENT STRUCTURE REPETITION? NEW EVIDENCE FROM ENGLISH-SPEAKING ADULTS AND CHILDREN

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It is widely accepted that syntactic priming occurs between sentences that share surface constituent structure [3]. Evidence for this was first reported by Bock and Loebell [1] (henceforth B&L), who found that English speakers produced equally more passive sentences after hearing passive primes (e.g. *The construction worker was hit by the bulldozer*) and locative primes (e.g. *The construction worker was digging by the bulldozer*) than following active primes (e.g. *The construction worker drove the bulldozer*). This occurred despite the fact the predicates of the passive and locative primes had distinct argument structures: the former subcategorizing for a single internal argument and the latter for an external. As the passive and the locative share their constituent structure (NP-V-PP), and it differs from that of the active (NP-V-NP), the results suggest that priming is sensitive to the constituent order but 'blind' to the argument structure of the primes and the structural hierarchy which stems from it.

However, all target events in B&L study contained inanimate agents and human patients, and such animacy asymmetry has been argued to license constructions where the patient linearly precedes the agent [4]. As the passive is the most frequent patient-first structure in English, the production of passives in this study may have been inflated by the unequal animacy distribution in the targets. Further, since the active sentences were used as a baseline, it is difficult to assess the true magnitude of the priming effect because hearing active sentences could have also affected the syntactic make-up of the target responses.

In order to explore the issue, in the present study we introduced three critical changes to the original design: (1) controlled for the animacy in the targets, (2) replaced the active-prime condition with a no-prime baseline which required to test the conditions between subjects. 126 native English speakers were tested: 66 adults (Exp.1) and 60 4- to 7-year-olds (mean age = 6;0) (Exp. 2). Experiment 2 aimed to assess whether young children are susceptible to the surface constituent priming B&L argued for, perhaps as a consequence as taking holistic shortcuts due to their underdeveloped syntax (e.g. the Maturation Hypothesis [2]). The participants were assigned to one of the three conditions: locative, passive or no-prime baseline. They viewed 16 animated prime events: transitive in the passive condition while hearing passive primes, and intransitive in the locative condition while hearing locative primes (see Table 1). In the baseline an equal mix of transitive and intransitive events were presented in silence. The primes were paired with 16 animated target transitive events to be described by the participants. The targets' animacy was manipulated within subjects: in half of the targets both intended arguments were inanimate (equal animacy; EA), and in the other half, the patient was animate, and the agent was inanimate (unequal animacy; UA) (Table 1).

The results of the first experiment showed passive-to-passive priming but, crucially, no locative-to-passive priming: significantly more passive responses were produced following passive primes than locative primes, while the proportion of passives in the locative and the baseline conditions did not differ significantly. At the same time the frequency of responses with a locative PP remained the same across conditions (baseline: 23, passive: 23, locative: 21). In addition, UA targets evoked significantly more passives than EA targets in all three conditions (Fig. 1), revealing a strong effect of animacy asymmetry on the structural choices made by the participants. Although B&L's results were not replicated for the UA targets, this was not unexpected since the original procedure was run within subjects, allowing for potential cross-prime contamination. The patterns of responses observed in children largely replicated those obtained from the adults (Fig. 2), although the animacy effect was significantly stronger in adults than in children ($p < .001$). Overall, however, the findings suggest that just like adults, young children are sensitive to the aspects of syntax that lay beyond surface constituency, providing evidence for their syntactic competence.

We conclude that, contrary to B&L's claim, constituent order is not sufficient to trigger priming effects and argue that the current approach to syntactic priming must incorporate argument-structural aspects of primes, some evidence to which already exists in the literature [5].

Table 1. Examples of prime and target items.

	Prime Sentences participants heard		**Target events to be described**
	Passive prime	Locative prime	
Equal animacy (EA)	*The balloon was squashed by the stool.*	*The balloon was hovering by the stool.*	sun dries puddle
Unequal animacy (UA)	*The worm was squashed by the mushroom.*	*The worm was lying by the mushroom.*	hose splashes mouse.

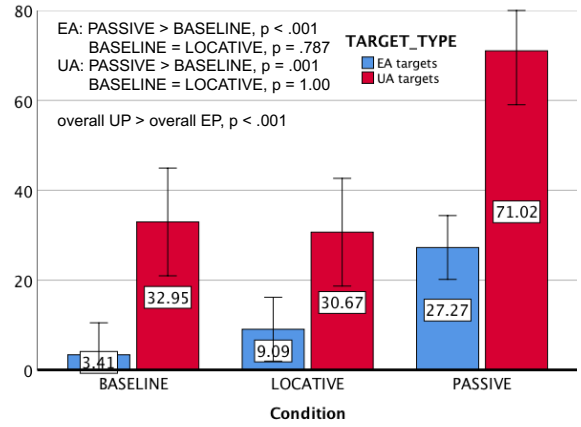

Fig.1. Average percentage of full passive responses in equal animacy (EA) and unequal animacy (UP) conditions, Experiment 1 (English-speaking adults).

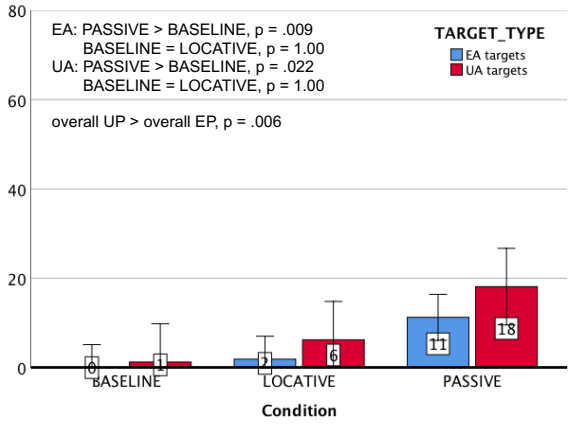

Fig.2. Average percentage of full passive responses in equal animacy (EA) and unequal animacy (UA) conditions, Experiment 2 (English-speaking children).

References

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