

Lexical Boost from the Subject Noun: The Influence of Task

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People are more likely to reproduce a syntactic structure they have just encountered rather than construct one anew (see Pickering and Ferreira, 2008). Lexical overlap between prime and target can enhance this *structural priming* effect, termed the *lexical boost* (LB). In the Implicit Learning Model, Chang, Dell & Bock (2006) claim that abstract syntactic priming is the product of implicit learning, while the LB occurs because the repeated word in a target sentence functions as a memory cue for the prime structure. To test the prediction that the LB is driven by explicit memory, we increased the explicitness of the repeated word by allowing participants to refer back to the prime and compared this to a task where they could not look back. This was achieved by using a sentence completion task (e.g., Desmet & Declercq, 2006; Kantola & Van Gompel, 2011; Kaschak, Loney & Borreggine, 2006; Pickering & Branigan, 1998; Scheepers, 2003) in which participants could either see the previous trial (Experiment 1) or not (Experiment 2).

Experiment 1 56 native English speakers completed a booklet of 40 handwritten prime-target completions. The prime sentence either encouraged a prepositional object (PO) or a double object (DO) ditransitive completion, while the target could be completed as either a PO or DO. The subject noun was either repeated between the prime and target or not. Critically, the prime was always visible when the target sentence was produced. For example:

	PO elicitation	DO elicitation
Prime:	The cleaner lent the {long ladder ... ,	the eagerly apprentice ...}
Target:	The {cleaner, painter} showed ...	

A higher proportion of PO completions followed PO primes compared to DO primes (58% vs 51%; $p < .05$). As shown in Table 1, this effect was driven by cases where the noun was repeated ($p < .001$); indeed, when the noun was not repeated, there was no abstract priming; ($p = .91$). The qualifying interaction between structure and noun repetition was significant ($p < .01$).

Experiment 2 was identical to Experiment 1, except that participants were unable to look back to the prime, with each sentence being presented one at a time on a computer screen. Forty-eight native English speakers completed 48 prime-target sentences.

Again, participants produced more PO completions following PO primes than DO primes (63% vs. 54%; $p < .001$). Critically, as shown in Table 2, structure and noun repetition did not interact ($p = .84$), suggesting that, for this method, there was no noun boost (priming effect for both noun repeated and not repeated: $p < .05$).

Discussion These results indicate that the subject noun boost is strongly affected by how explicit the word repetition is: There is a noun boost when participants can simultaneously see the repeated noun in the prime and target, but not when the target is presented on its own. This suggests that when participants looked back, the repetition of the subject noun functioned as a cue that boosted the activation of the prime structure, whereas no activation boost occurred when the repetition was not visually explicit. Interestingly, when participants could look back there was no priming in the absence of subject noun repetition. This may be because the process of looking back interferes with the prime activation.

These results are compatible with the Implicit Learning Model, in which the LB is affected by the explicitness of word repetition. Our findings also suggest that the subject noun boost effect is a highly strategic effect, as it only occurs when participants can simultaneously see the prime and target. The strategic nature of the effect may explain why we observed a lexical boost with a word that is not the syntactic head of the PO/DO structure (Pickering & Branigan, 1998; cf. Scheepers et al, 2017).

References

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Appendix

Table 1 Percentages of target PO completions out of all PO and DO target completions for Experiment 1.

	PO prime	DO prime	priming effect (PO – DO)
Subject noun repeated	60.2	47.1	13.1
Subject noun not repeated	56.2	55.1	1.1

Table 2 Percentages of target PO completions out of all PO and DO target completions for Experiment 2.

	PO prime	DO prime	priming effect (PO – DO)
Subject noun repeated	61.5	50.7	10.8
Subject noun not repeated	63.8	56.7	7.1
