Argument Structure Priming: Evidence from Passive and Locative Constructions

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Speakers tend to reuse recently experienced syntactic structures, a phenomenon termed syntactic priming (Mahowald et al., 2016). In Bock and Loebell's (1990) (B&L henceforth) seminal priming study participants heard either passive (*The construction worker was hit by the bulldozer*), locative (*The construction worker was digging by the bulldozer*) or active primes (*The construction worker drove the bulldozer*) and then described depicted transitive event targets. The analysis showed equally more passive responses after passive and locative compared to active primes. As the verbs in passive and locative sentences have different argument structure but follow the same constituent order (NP-V-PP), B&L concluded that syntactic priming was only sensitive to the shallow syntax of primes but not to any of their thematic or argument-structural aspects. This account has dominated in priming research for over 30 years despite Ziegler et al. (2019) recently showing that B&L's results could only be replicated with the preposition *by* in locative primes; and once *by* was replaced with other prepositions, e.g. *near*, locative-to-passive priming disappeared. Ziegler et al. argued that in the absence of lexical overlap between primes and targets their shared constituent structure was not sufficient to evoke passive priming. However, the animacy distribution in all B&L's and many Ziegler et al.'s targets was unequal (e.g., human patient and inanimate agent). Such distribution naturally licences patient-first constructions (Titov, 2017). The passive being the most frequent structure that achieves patient-agent order in English, the overall production of passives may have been inflated and could have masked potential effects brought on by the argument-structural differences between passives and locatives.

The present study addressed this issue by manipulating the targets' animacy and explored whether passive priming could reach beyond the shallow syntax and whether the argument structure could play a role in priming of the passive. On each trial, native English speakers (n = 316) read a prime sentence and then described a depicted transitive event. One group of participants read passive and active primes and the other group – locative and active primes (***Figure 1***). Half of the targets had equal animacy (EA), e.g., inanimate agent and patient, and the other – unequal animacy (UA), e.g., inanimate agent and human patient. The study, thus, followed 2 x 2 x 2 mixed design with Prime Condition (Passive vs. Locative) as a between subject factor, and Prime Type (Active vs. Non-Active, i.e., either passive or locative) and Target Animacy (UA vs. EA) as within-subject factors. A mixed effects analyses revealed a significant main effect of Prime Type with more passives produced following non-active than after active primes (31% vs. 24%, $p < .0001$), and a main effect of Prime Condition with more passives produced in the Passive than in the Locative condition (30% vs.25%, $p = .003$). Importantly, there was a significant Prime Type x Prime Condition interaction with stronger priming for the passive than for the locative primes (11% vs. 5%, $p = .0005$), although both were significant at $p < .0001$. There was also a significant main effect of Target Animacy with more passives produced for the UA than for the EA targets (37% vs. 18%, $p = 0.002$) (***Figure 2.***).

The presence of the animacy effect supports the proposal that animacy asymmetry impacts on speakers' structural choices (Titov, 2017) and that the findings from B&L and Ziegler et al. may have been skewed by unequal animacy in the targets. Critically, the results show that passive and locative primes were treated differently by the participants, suggesting that priming reaches beyond surface constituent structure and is indeed sensitive to the argument-structural characteristics of passive and locative constructions. Unlike Ziegler et al. who found no difference in size of the passive-to-passive and locative-to-passive priming, the present study showed stronger priming for passives than for locatives. Whereas locative-to-passive priming could be triggered by the shared lexical content as Ziegler et al. suggested, passive-to-passive priming was evidently driven by those characteristics of the passive that were beyond either the constituent structure or the lexical similarities between the primes and targets. Taken together, these findings challenge B&L's account and call for a more refined approach to syntactic priming which takes into considerations argument-structural aspects of the prime.

Figure 1. Examples of experimental stimuli.

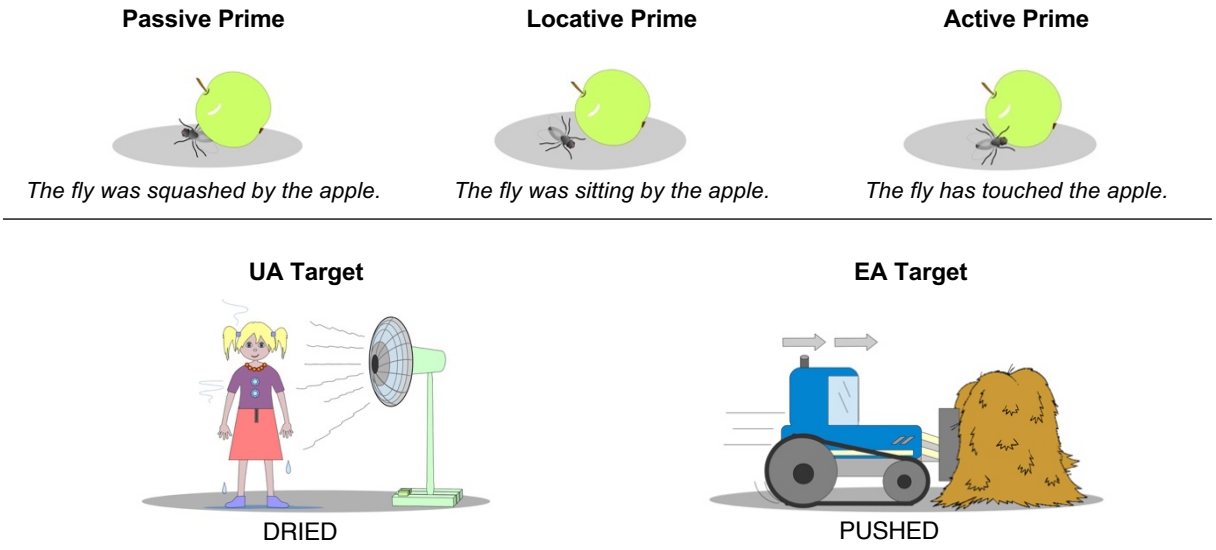
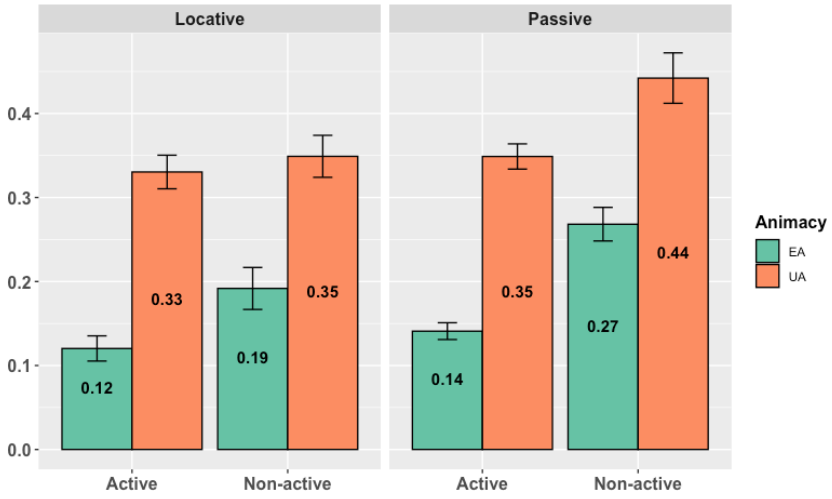


Figure 2. Proportion of passive responses by Prime Condition (Locative, Passive), Prime Type (Active = active primes, Non-active = non-active primes) and Target Animacy (EA = equal animacy in targets, UA = unequal animacy in targets).



References

Bock, K., & Loebell, H. (1990). Framing sentences. *Cognition*, 35(1), 1-39.
Mahowald, K., James, A., Futrell, R., & Gibson, E. (2016). A meta-analysis of syntactic priming in language production. *Journal of Memory and Language*, 91, 5-27.
Titov, E. (2017). The canonical order of Russian objects. *Linguistic inquiry*, *48*(3), 427-457.
Ziegler, J., Bencini, G., Goldberg, A., & Snedeker, J. (2019). How abstract is syntax? Evidence from structural priming. *Cognition*, 193, 104045.