Second language learning via syntactic priming:
The effects of modality, attention and motivation

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Second language (L2) speakers, like first language speakers, experience syntactic priming effects: they tend to re-use recently experienced syntactic structures to comprehend and formulate subsequent sentences. Since these effects can be long-lasting, syntactic priming could be a mechanism allowing the implicit acquisition of L2 syntactic knowledge[1] but many task and learner characteristics potentially affecting such learning remain unexplored. For example, written stimuli may facilitate language processing in L2 speakers by fostering deeper processing of the linguistic input[2] and by making the target structure more salient[3] than spoken stimuli. Moreover, attention and motivation are key modulators of L2 learning[4,5]. Thus, this study examined the influence of language input modality and individual differences in attention and motivation on L2 learning via syntactic priming.

In an online picture description task, we examined 119 French L2 English speakers' primed production of passives (e.g., "The sailor is being followed by the pirate") in reading-to-writing vs. listening-to-writing conditions: participants either read or listened to prime sentences (between-subjects manipulation) and wrote target sentences. We measured immediate priming (producing a passive immediately after exposure to the target structure), short-term learning and long-term learning (producing more target structures in immediate and delayed post-tests without primes relative to pre-tests, respectively). In post-test questionnaires, we asked participants whether they had been paying attention to syntax, to the task overall and whether they had noticed the target structures during the priming task, and measured their English learning motivation and their task-specific motivation. Overall, we predicted that the L2 speakers would experience larger priming and learning in the reading-to-writing condition and with increased attention and motivation levels.

We ran a mixed effect model for each priming type which included as fixed effects Modality (listening vs. reading), and either Prime (active vs. passive) for immediate priming, Section (pre- vs. immediate post-test) for short-term learning or Session (pre- vs. delayed post-test) for long-term learning. The L2 speakers showed significant immediate priming (Figure 1), short-term learning (Figure 2) and long-term learning (Figure 3). We analyzed the effect of each attention and motivation type on priming in separate models by adding each individual differences score as an additional predictor in each priming model. Contrary to our predictions, priming and learning were neither affected by prime modality nor by individual differences in attention. However, task-specific motivation increased L2 speakers' long-term learning in the reading-to-writing condition. These results suggest that syntactic priming tasks foster long-term L2 language learning, even in post-tests delayed by one week and regardless of language input modality. Since individual differences in attention did not relate to priming, they may also provide supporting evidence for models defining syntactic priming as an implicit language learning mechanism[6,7].

[1]Jackson, *Second Language Research*, 2018; [2]Gilabert et al., *Annual Review of Applied Linguistics*, 2016; [3]Kim & Godfroid, *The Modern Language Journal*, 2019; [4]Takahashi, *Applied Linguistics,* 2005; [5]Ushioda, *Language Teaching,* 2016; [6]Chang et al., *Psychological Review*, 2006; [7]Reitter et al., *Cognitive Science,* 2011.
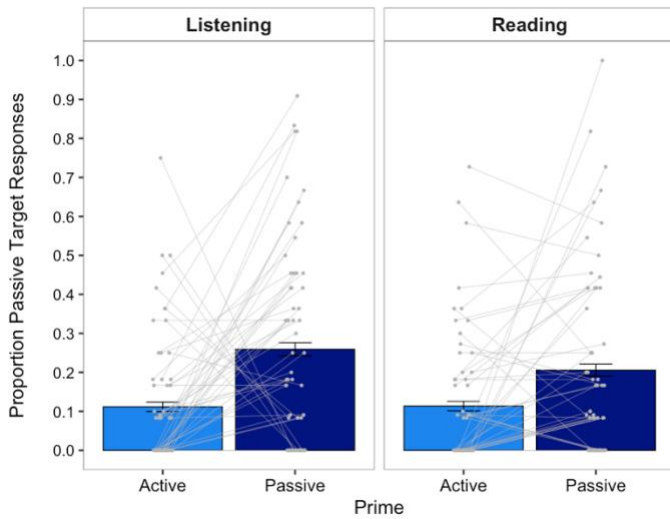

Figure 1. Passive responses in the immediate priming phase. Mean proportion of passive responses by Prime and Modality.*
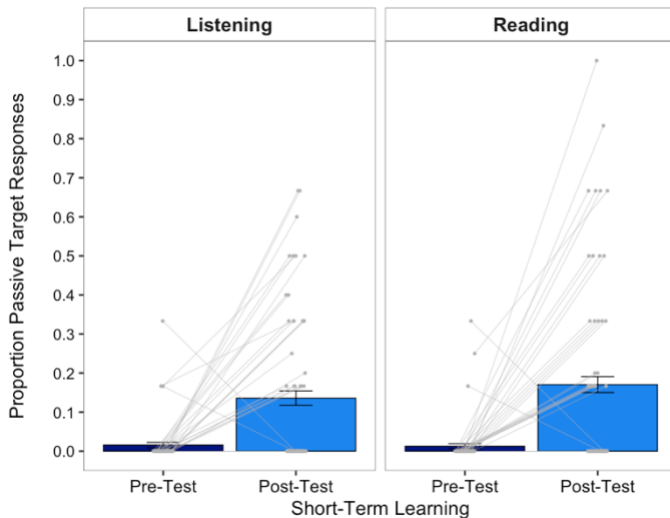

Figure 2. Passive responses in the pre- and immediate post-tests. Mean proportion of passive responses by Section and Modality.*
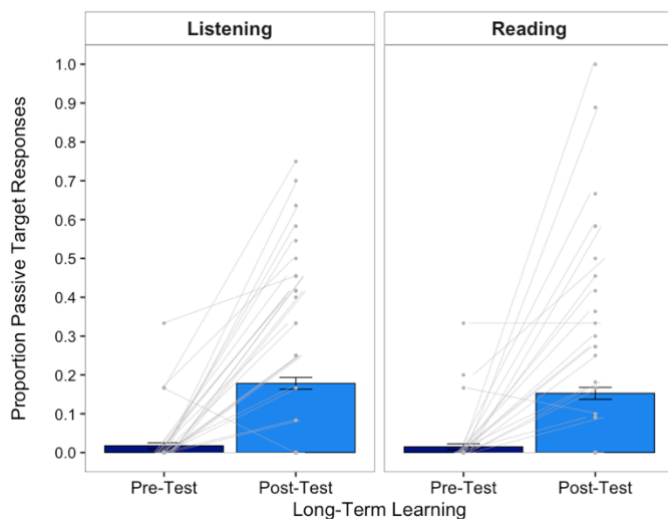

Figure 3. Passive responses in the pre- and delayed post-tests. Mean proportion of passive responses by Session and Modality.*

* Error bars indicate the standard error of the mean, grey dots individual data points and grey lines individual priming effects.