

## Age effects in L2 processing of passive sentences

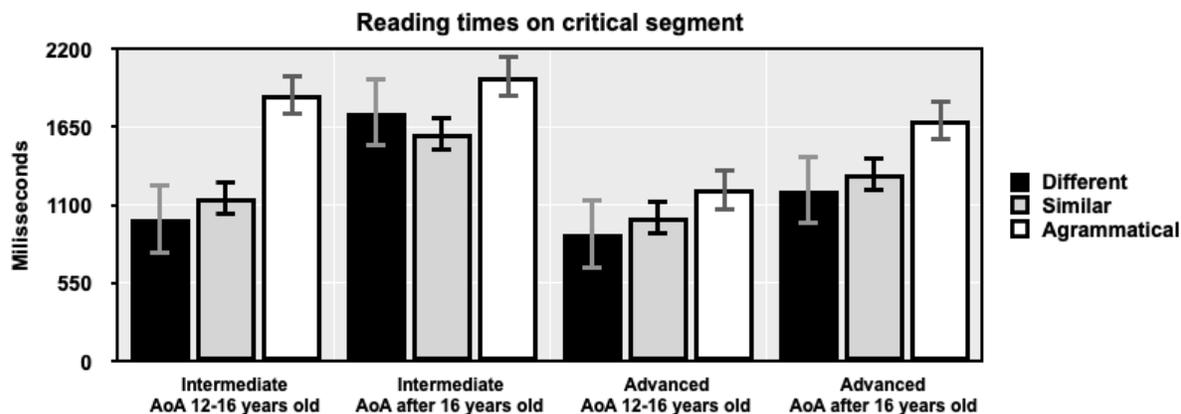
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**Introduction:** There has been a long-standing debate concerning the sensitive period for first and second language acquisition. Recent studies have reported that the age factor is a significant marker for L2 language processing (Hartshorne, et al., 2018; Bonfieni, et al., 2019; Oh, et al., 2019), especially regarding syntactic processing. The claim is that early learners would process L2 and inhibit L1 more efficiently. However, during the initial stage of the L2 acquisition, late learners rely on their L1 knowledge to organize the syntactic structures of L2 (VanPatten, 2015). According to Hartsuiker et al. (2004), learners recognize L2 syntactic structures that are similar to their L1 structure, but when the L2 structure differs from their L1, they resort to their L1 to process the structure, which results in syntactic transfer. Considering that English allows the double-object structure while Portuguese does not, that Portuguese allows the prepositional phrase at the beginning of the sentence, and that no studies were found on the passive structure for both languages, we are interested in investigating whether there would be a difference between early and late learners regarding the L1 influence on L2 processing on these types of constructions. Assuming that age is significant for L2 syntactic processing, the aim of this study was to investigate to what extent the mother tongue (BP) of intermediate and advanced learners would influence the processing of English passive sentences with three-argument verbs.

**Materials & Methods:** The participants were native Brazilian Portuguese (BP) adult English learners who were divided into the following groups: intermediate and advanced learners matched for age of acquisition (12-16 years and after 16). A self-paced (moving window) reading task was run with 56 English adult learners (mean age: 23.64) that read, among 24 fillers, 12 experimental English passive sentences with three-argument verbs in three conditions: **(i) different** syntactic structure from L1-BP (E.g., Finally, *the girl* [critical segment] was given the book in the library), **(ii) similar** structure to L1 (E.g., Finally, *the book* [critical segment] was given to the girl in the library), and **(iii) agrammatical** syntactic structure (E.g., Finally, *to the girl* [critical segment] was given the book in the library), which is an acceptable and current structure in BP. The VST (Vocabulary Size Test) was used to determine the proficiency of the groups.

**Results & Discussion:** A multivariate ANOVA (SPSS) examined age of acquisition and English proficiency as covariates, the reading time as dependent variable, and the age of acquisition (AoA) and English proficiency as independent variables. The multivariate result was significant for English proficiency (Intermediate group: Pillai's trace = 0.142,  $F(6.328)=4.169$ ,  $p<0.05$ ; Advanced group: Pillai's trace = 0.142,  $F(6.766)=9.737$ ,  $p<0.001$ ). Further analysis using the Tukey test revealed a significant difference between the pairs **agrammatical-different** and **agrammatical-similar** for the intermediate group ( $p=.002$  and  $p=.001$ ) and the advanced group ( $p<.0001$  for both). The reading times for **different** and **similar** conditions were faster for those who acquired English between the ages of 12-16 in both groups. For the **agrammatical** condition, the reading times were higher both groups, which suggests that they recognized the sentence as agrammatical in English, despite resembling their L1 structure. This suggests that there might have not been L1 transfer when processing this type of construction.

**Conclusions:** As expected, the results show a progressive increase in reading times proportional to the age of acquisition, the earlier the L2 was acquired the faster the critical segments were processed. Our findings revealed that learners in both groups increased the reading time in the agrammatical condition suggesting that they did not resort to their L1 to process the structure. The reading times of the similar, despite being structurally identical in both languages, and the different conditions were higher in both groups when acquisition occurred after the age of 16. It may be concluded that the mother tongue of these learners probably did not influence the processing of passive sentences with three-argument verbs.



Graph 1. Mean reading time of the critical segment in the three experimental conditions between the two groups and AoA.

## References

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