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Project Title: The Role of Memory on Language Processing: Oscillatory Evidence

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Abstract: Rossi and Prystauka (under review) investigated pronoun processing in L2 learners and native speakers of Spanish via electroencephalography (EEG). When processing grammar, the late (L2) learners were found to have alpha and beta oscillations that declined earlier in time, in contrast to the native speakers. Alpha and beta frequency bands (oscillations) have been frequently linked to the prediction of incoming sensory input and alpha bands have been linked to multiple neural processes that underlie working memory (Terporten, Schoffelen, Dai, Hagoort, & Koem, 2018); Wianda & Ross, 2019). This may suggest that when individuals are processing linguistic information under taxing conditions (e.g.: in their second language), the individual may not have sufficient memory resources to support the continuous processing of linguistic information in their non-native language. The present study adopts a similar design to the previous study, but manipulates the taxing environment in which linguistic information is being processed in. By manipulating working memory, we predict a change in the oscillatory behavior of our participants, similar to what was observed in the previous design. Through the use of EEG, participants will complete a series of linguistic tasks. One participant group will complete the linguistic task with an additional working memory component, while the second group will complete the same linguistic task with the absence of the working memory component. We predict that the oscillatory behavior of the participant group with the additional working memory component will show a decrease in their alpha and beta oscillations, as previously seen in the literature.



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