Is third language learning influenced by working memory, implicit learning and inhibitory control?

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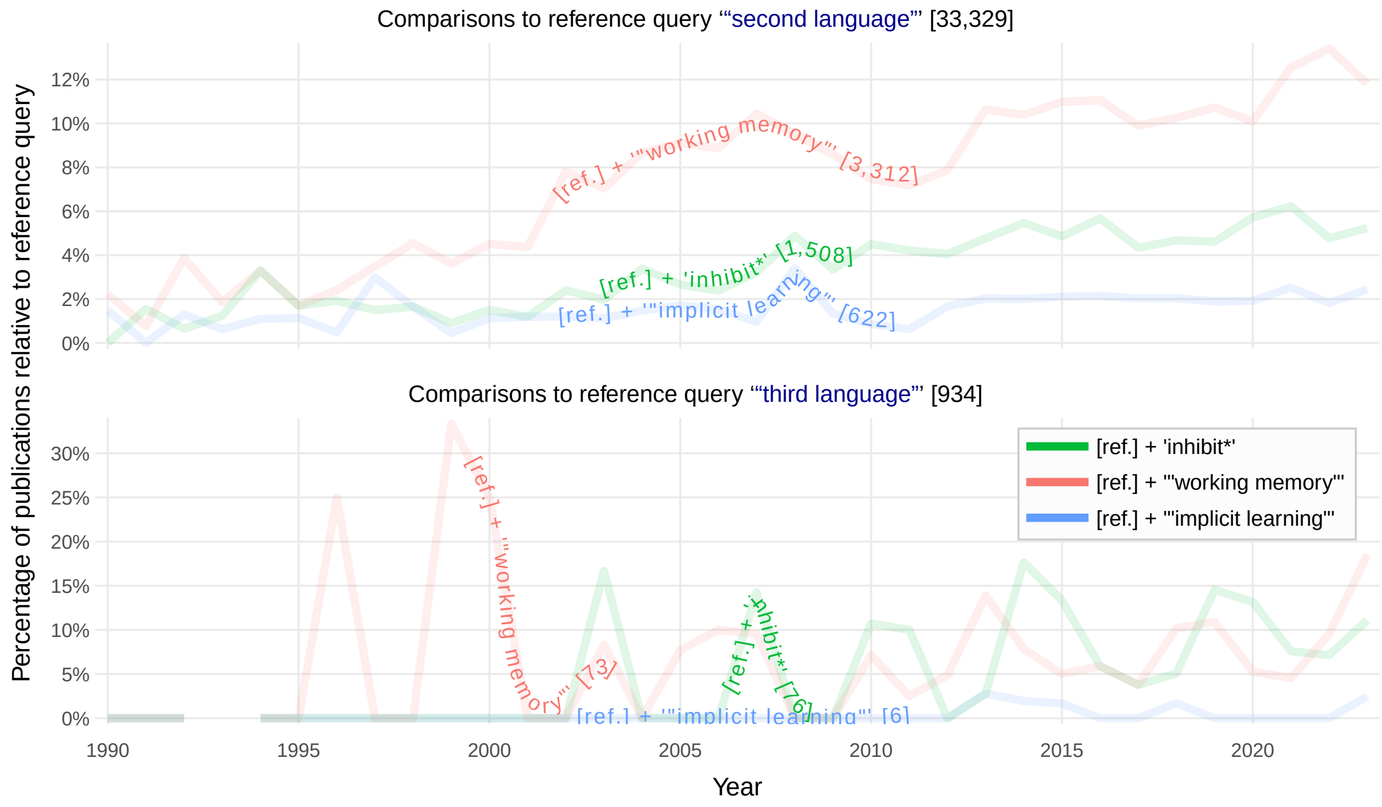
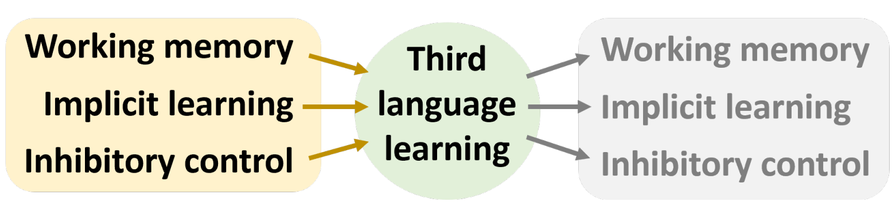
Introduction

- Executive functions have received substantial attention in the second language (L2) context [1], but much less in the third language (L3) context [2] (see figure on the right; analysis available at https://osf.io/m7zua).
- Working memory contributes to L2 learning [1], whereas inhibitory control does not [3].
- Inhibitory control enhances language-switching ability and resistance to interference from non-target languages [4].
- Implicit learning is crucial for acquiring morphosyntactic features [5].
- Attention-related effects may precede the selection of a source(s) of transfer [6, 7].
- Current study: role of three executive functions in L3 learning at initial exposure, using an artificial language paradigm [6]. Findings will also pave the way for studying the effects of L3 learning on these functions.

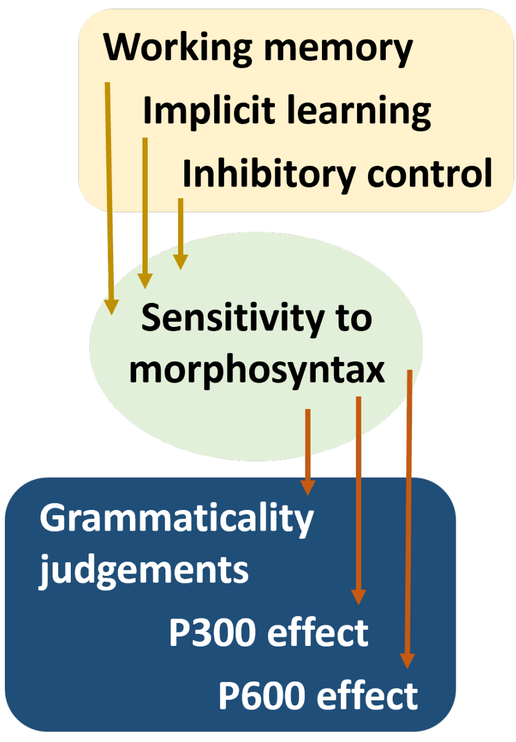




Research Questions

1. To what extent do working memory, implicit learning, and inhibitory control influence the acquisition of morphosyntax in L3 *ab initio*?
2. How do the three executive functions interact with each other? [1, 8]

Hypotheses



Methods

- **Tromsø sample:** L1 Norwegian and L2 English. Non-Scandinavian languages curbed.
- **Madrid sample:** see Gabriella Silva's poster.

In both sites, no disorders of language or attention, and no color blindness.

- **Materials:** Mini-English, Mini-Norwegian and Mini-Spanish, each formed of the lexicon of the original language, and all sharing the same novel morphemes for gender and number agreement between nouns and adjectives in copular sentences (natural to Norwegian and Spanish).

Sessions (a subset of the study)

1. Executive functions tested and language history elicited.
2. Implicit training and test (minimum score above 80%) in the property of gender agreement, followed by EEG experiment in which participants judge grammatical and ungrammatical sentences.

Conclusion

The current study is the first to investigate the role of working memory, implicit learning and inhibitory control in the acquisition of morphosyntactic features in a third language at initial exposure.

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