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# SEMANTIC AND SYNTACTIC PREDICTIONS IN READING ALOUD: ARE GOOD PREDICTORS GOOD STATISTICAL LEARNERS?

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## BACKGROUND

Fluent and skilled reading involves the ability to predict upcoming words using semantic and syntactic information (Chang et al., 2016; Ferreira & Qiu, 2021; Pickering & Garrod; Staub, 2015).

A growing number of studies have used statistical learning (SL) paradigms to investigate whether SL abilities can explain inter-individual differences in reading abilities (Ren et al., 2023).

## RESEARCH QUESTION

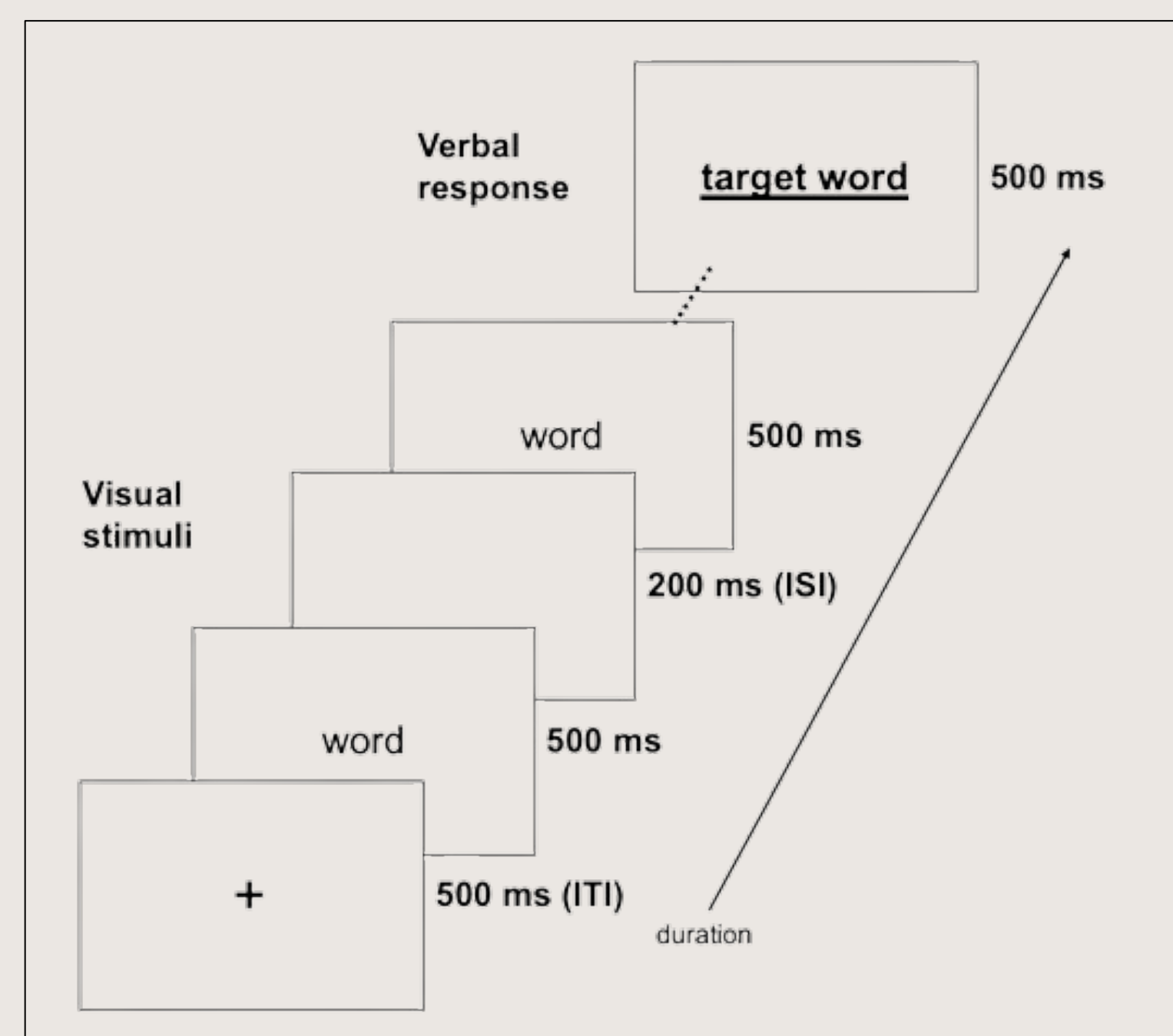
Does the ability to make predictions in the domain of language rely on the domain-general ability to extract statistical regularities, i.e., SL?



120 normo-readers students

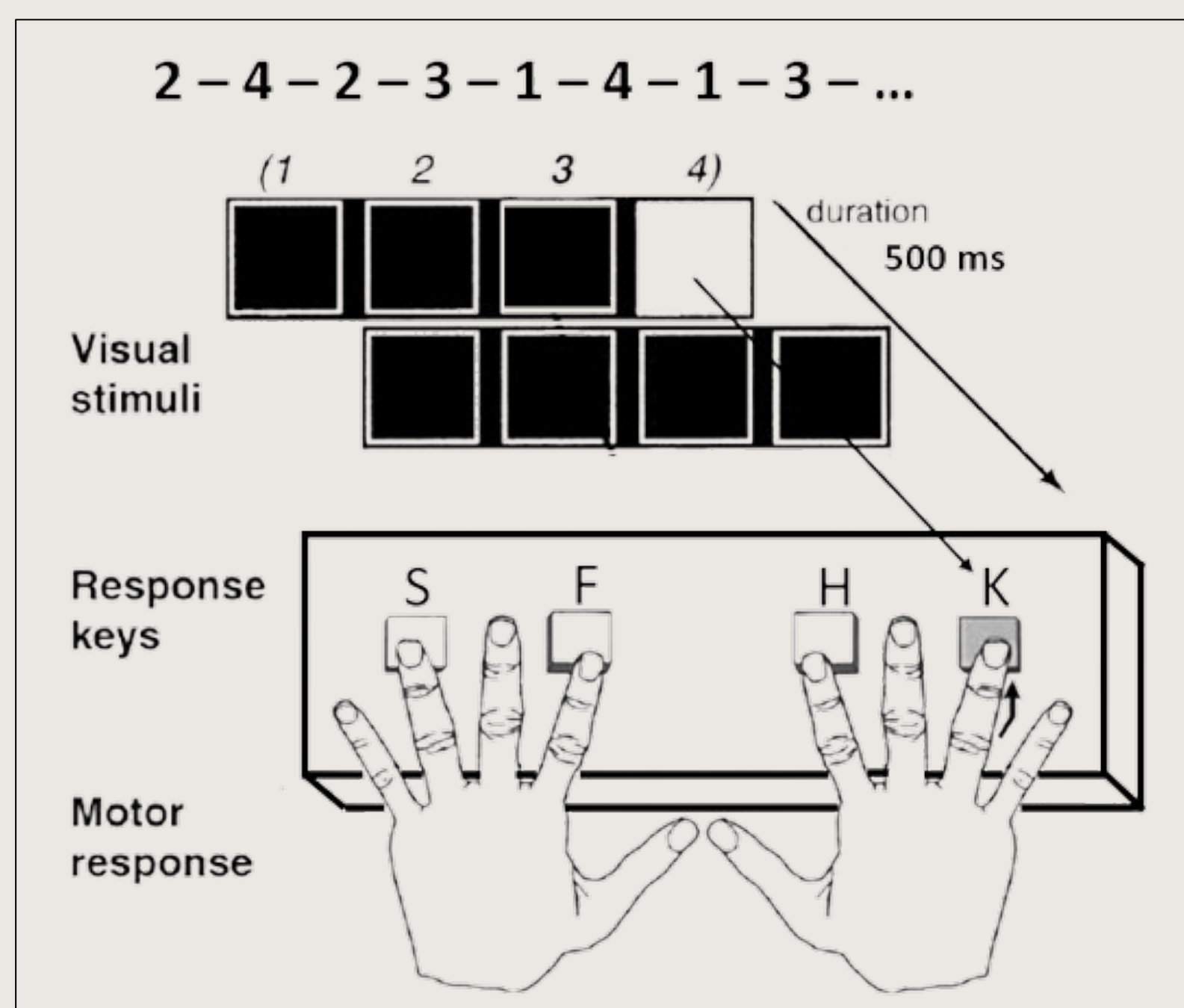
## METHODS

### Predictive reading task

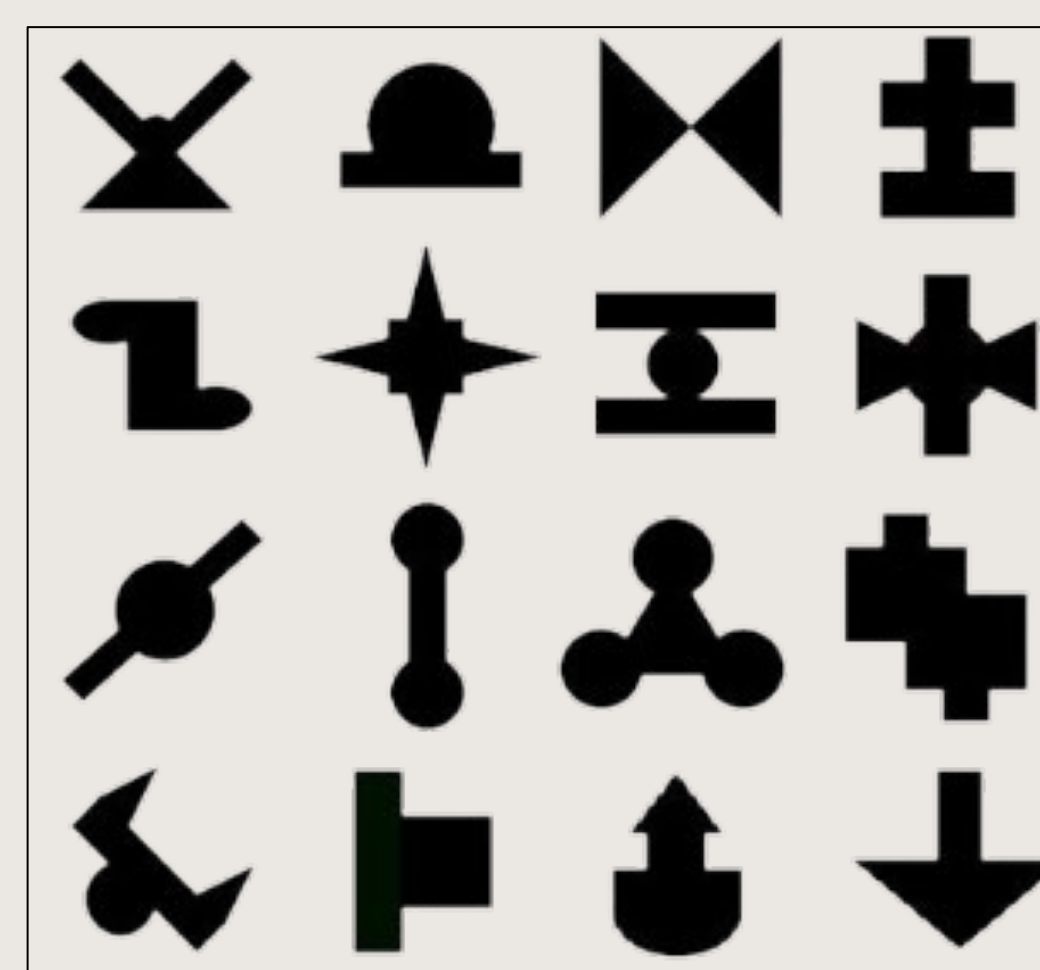


Gavard & Ziegler (2022). *Experimental Psychology*.

### Serial reaction time task



### Visual & Auditory SL task (VSL & ASL)



16 familiar sounds (e.g., glass breaking, dog barking, clock ticking, etc)

- Phase 1: 10-min familiarisation stream of shapes/sounds organised into 8 triplets (4 with TP of .33 and 4 with TP of 1)
- Phase 2: 42-items test

VSL: Siegelman et al. (2017). *Behav Res.*  
ASL: Siegelman et al. (2018). *Cognition*.

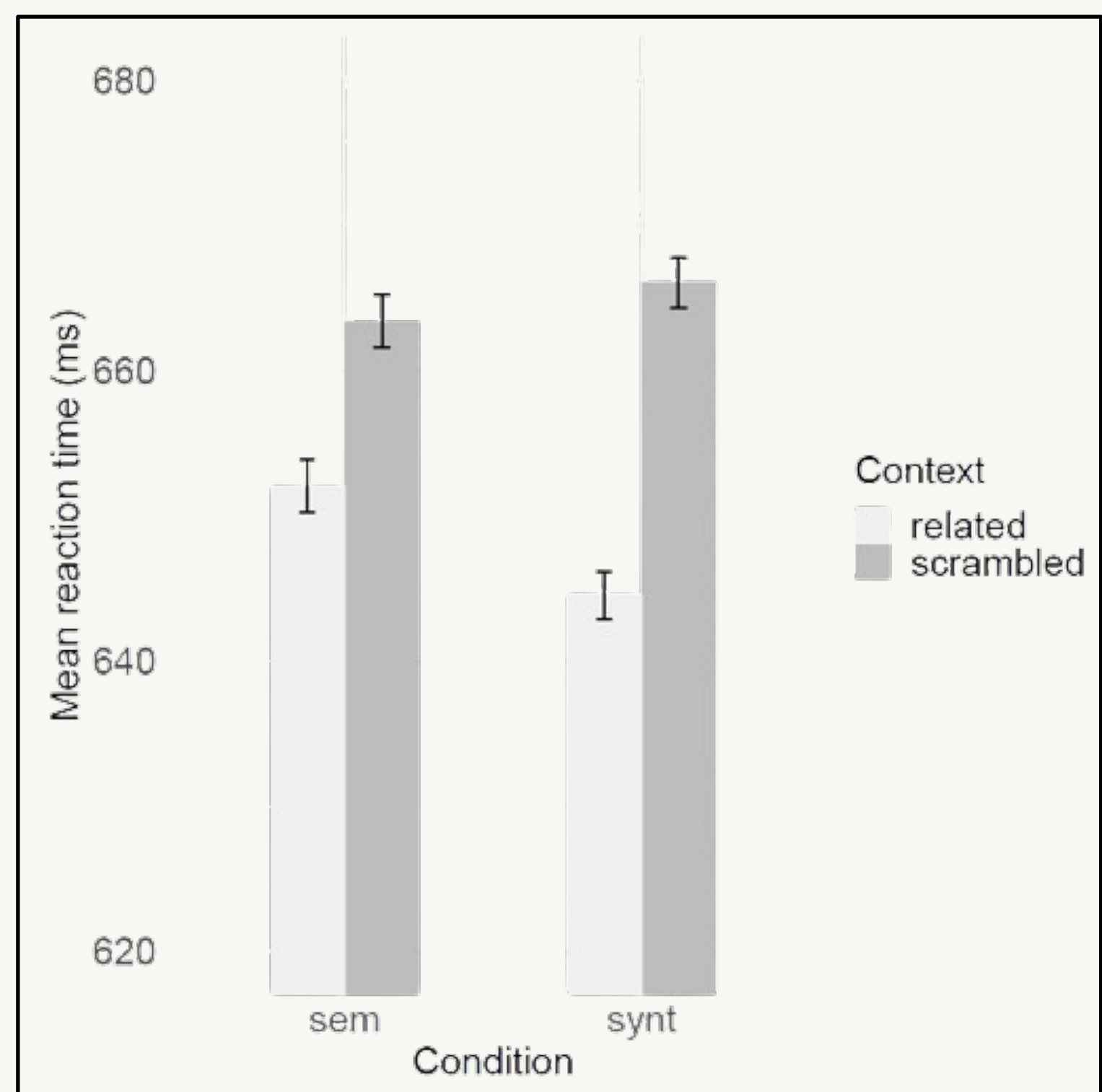
### Reading level task: SLS-Berlin

- 77 sentences
- « The cello is an animal belonging to the category of birds » : Correct or incorrect ?

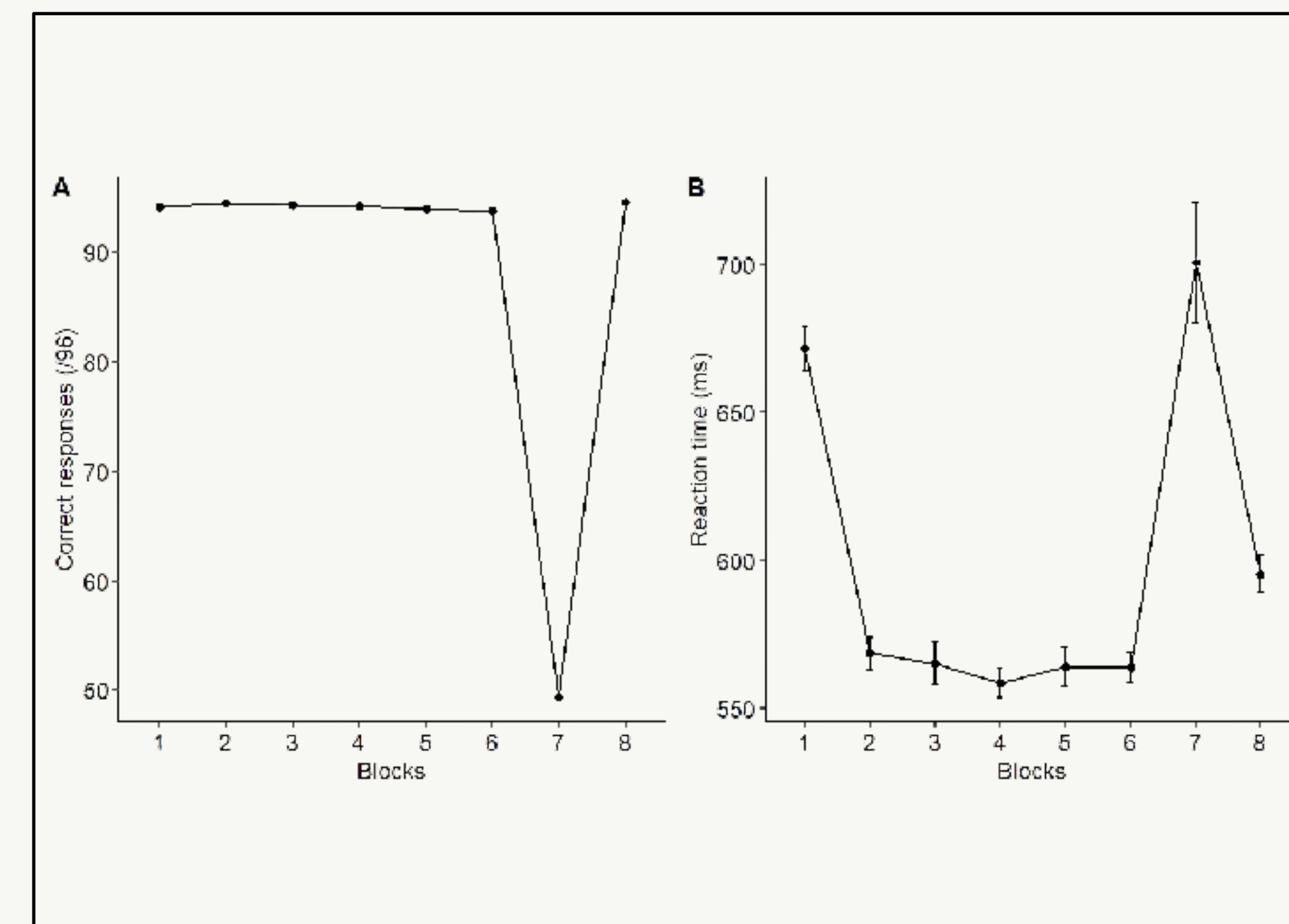
Lüdtke et al. (2019). *Frontiers in Psychology*.

## RESULTS 1/2

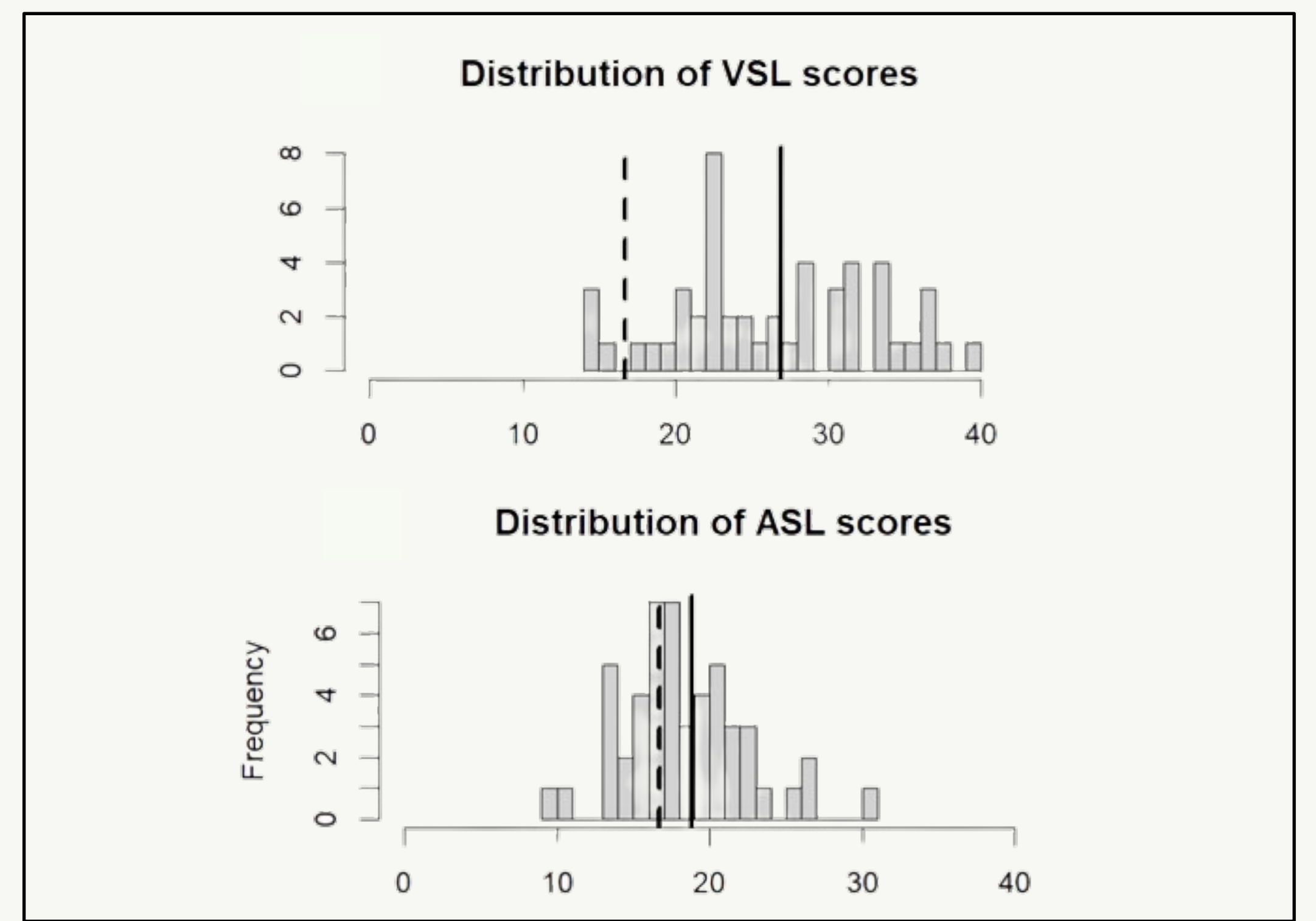
### Predictive reading task



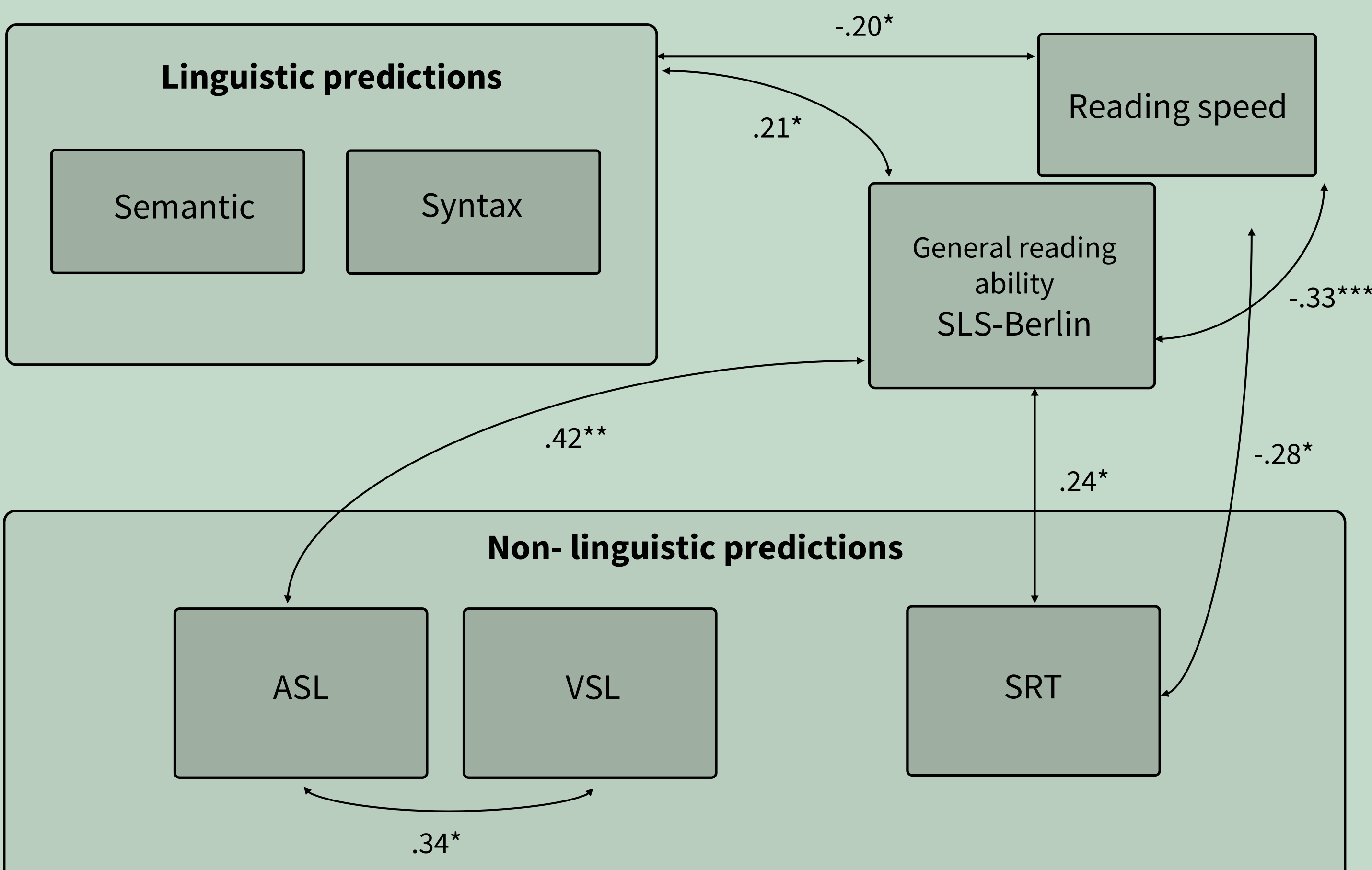
### Serial reaction time task



### Visual & Auditory SL task (VSL & ASL)



## RESULTS 2/2



Significant Pearson correlations are marked by asterisks: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$  (FDR-corrected).

## TAKE HOME MESSAGE

- 1 We found strong semantic and syntactic context effects on reading aloud single words.
- 2 SL was not associated with the ability to make semantic and syntactic predictions.
- 3 SL was associated with general reading ability and reading speed.
- 4 SL is not a unified construct.
- 5 The link between predictive reading, SL and dyslexia remains an open question.

## ACKNOWLEDGEMENTS

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