

Exploring **Novel Visual Word Learning** methods & the role of **consolidation** with an original **FPVS-EEG** approach

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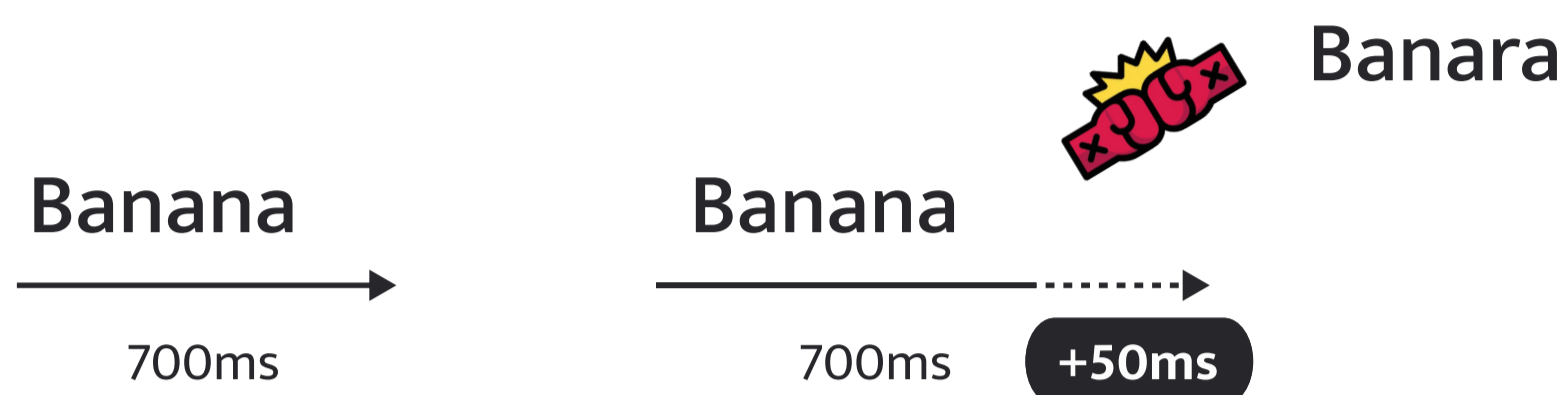
Aim:

Contrast 2 methods of **learning** novel words:

- **PH** (Phonological & Orthographic information)
- **SEM** (additional Semantic information)

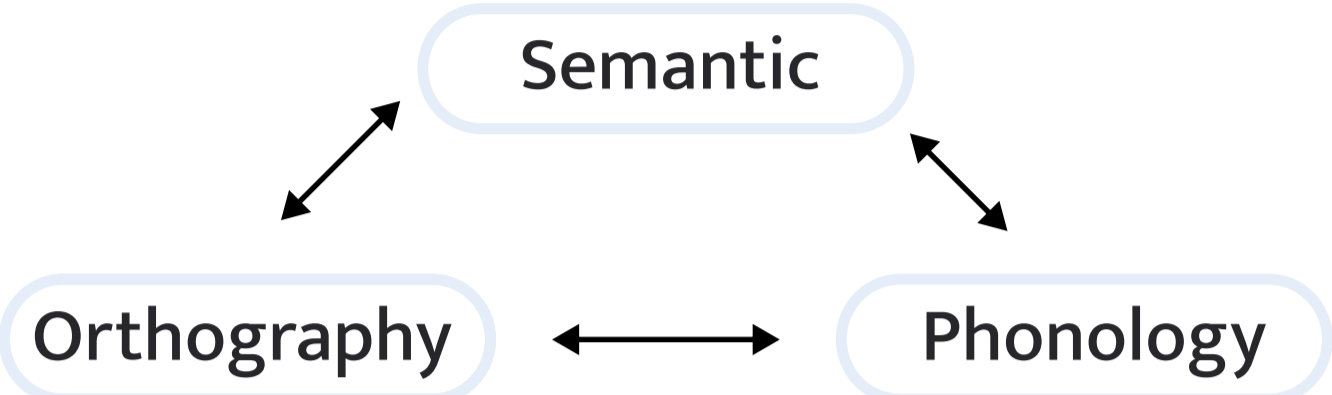
Introduction

Lexical Engagement ^a

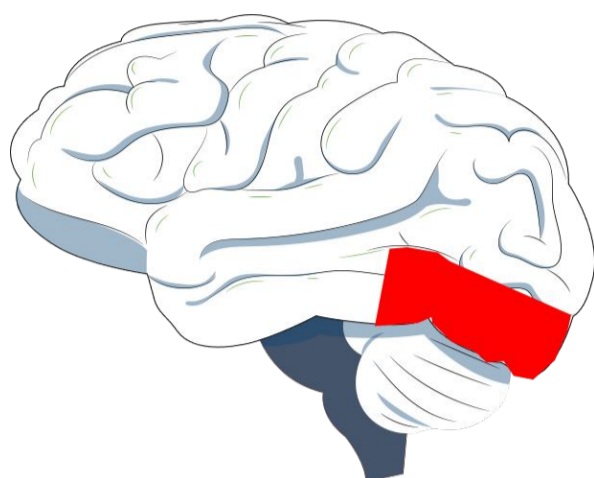


Competing effect ^b

Word Representation^c



Brain representation ^d



Left Occipito-Temporal
Cortex Responses

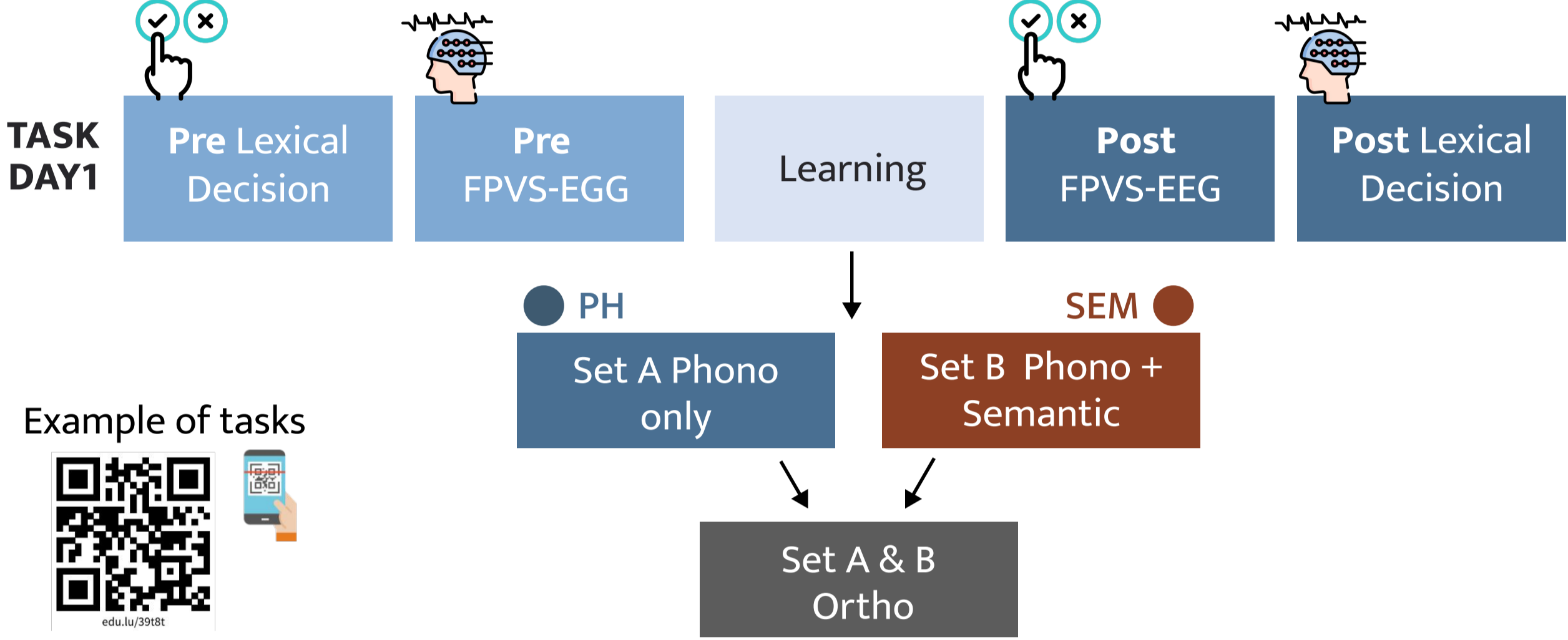


32 right-handed
French speakers

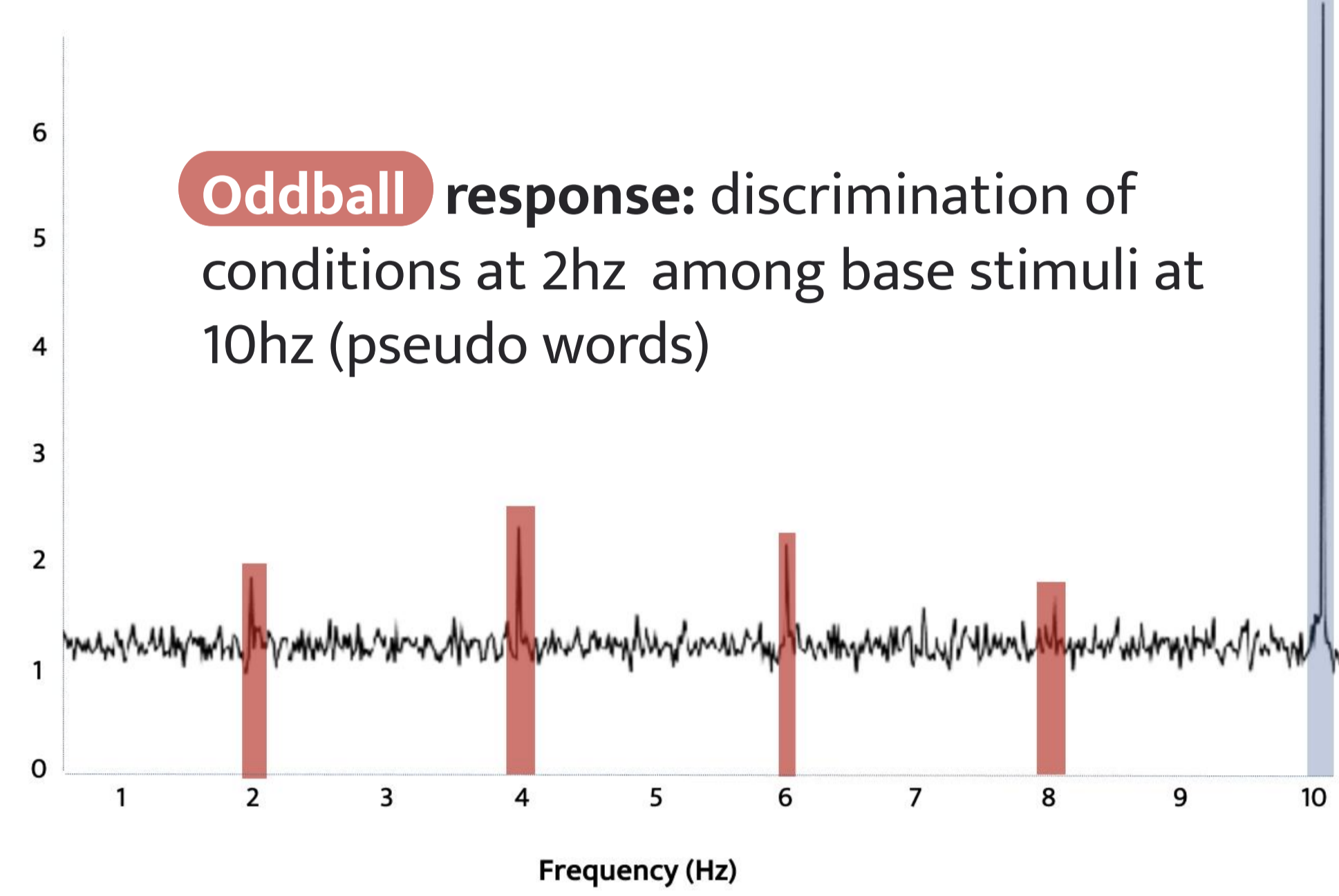


Set A - 16 French words
Set B - 16 French words
(counterbalanced)

Design



Example of tasks



W

4 conditions :

- Novel word learnt with PH method
- With SEM method
- Known words
- Unknown words

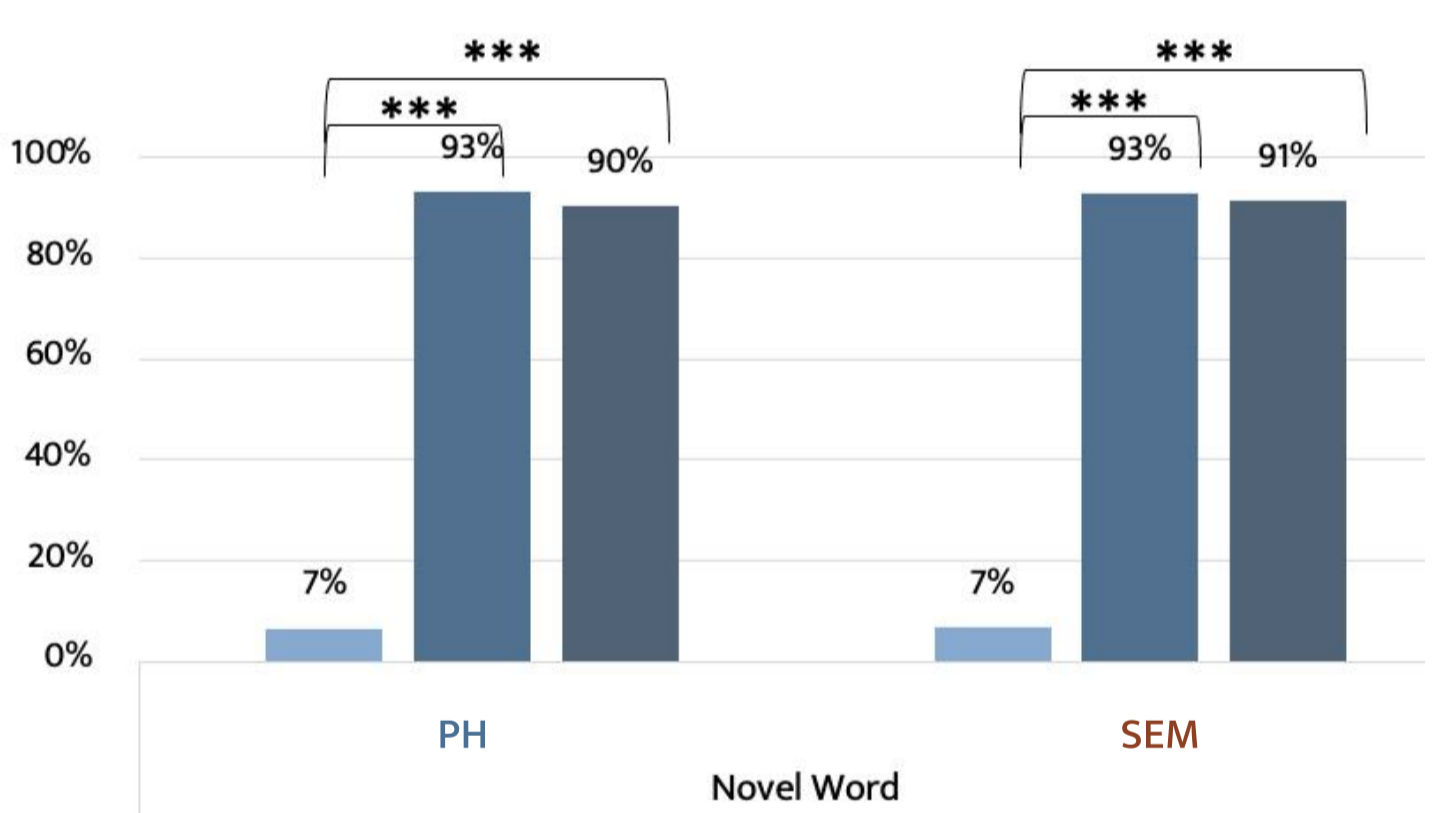


FPVS Paradigm

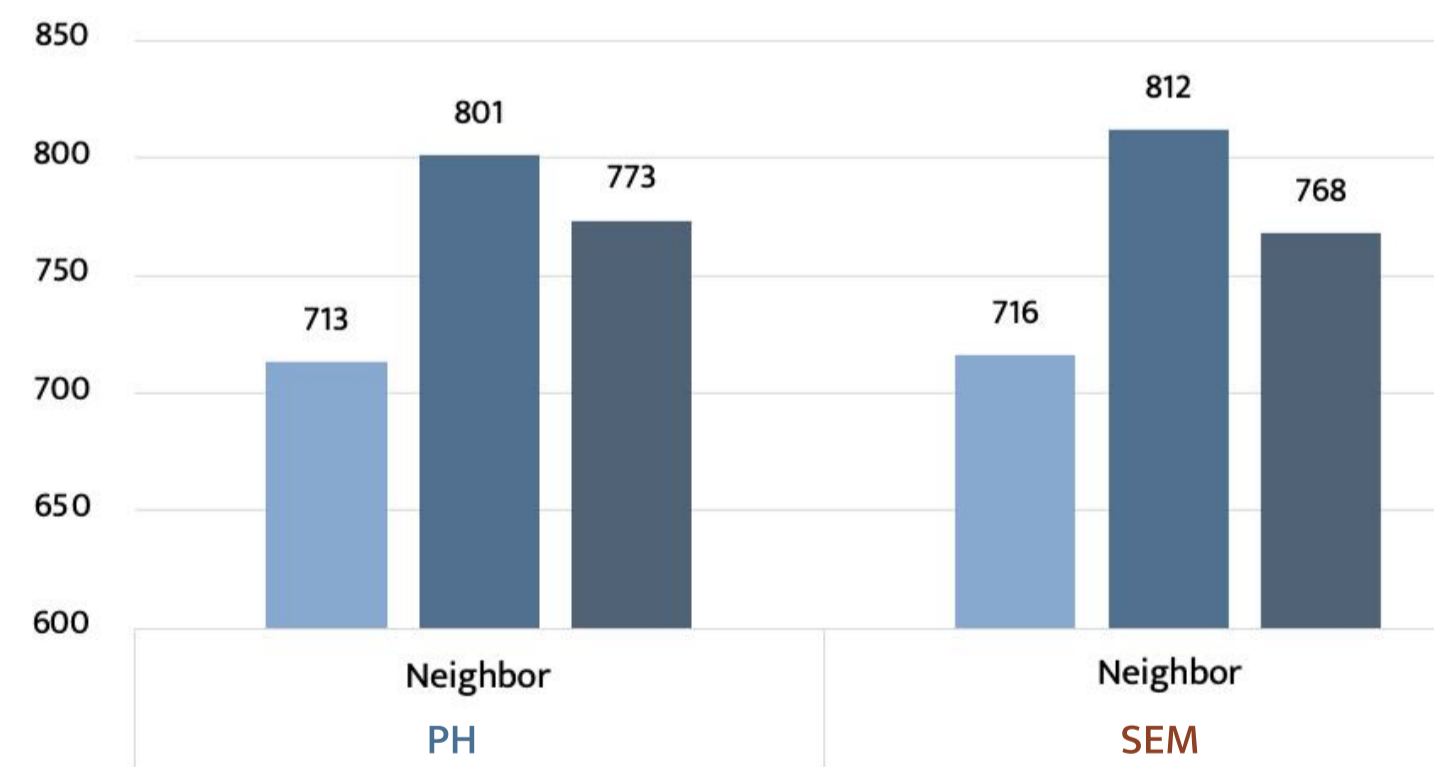
Results

Lexical Decision

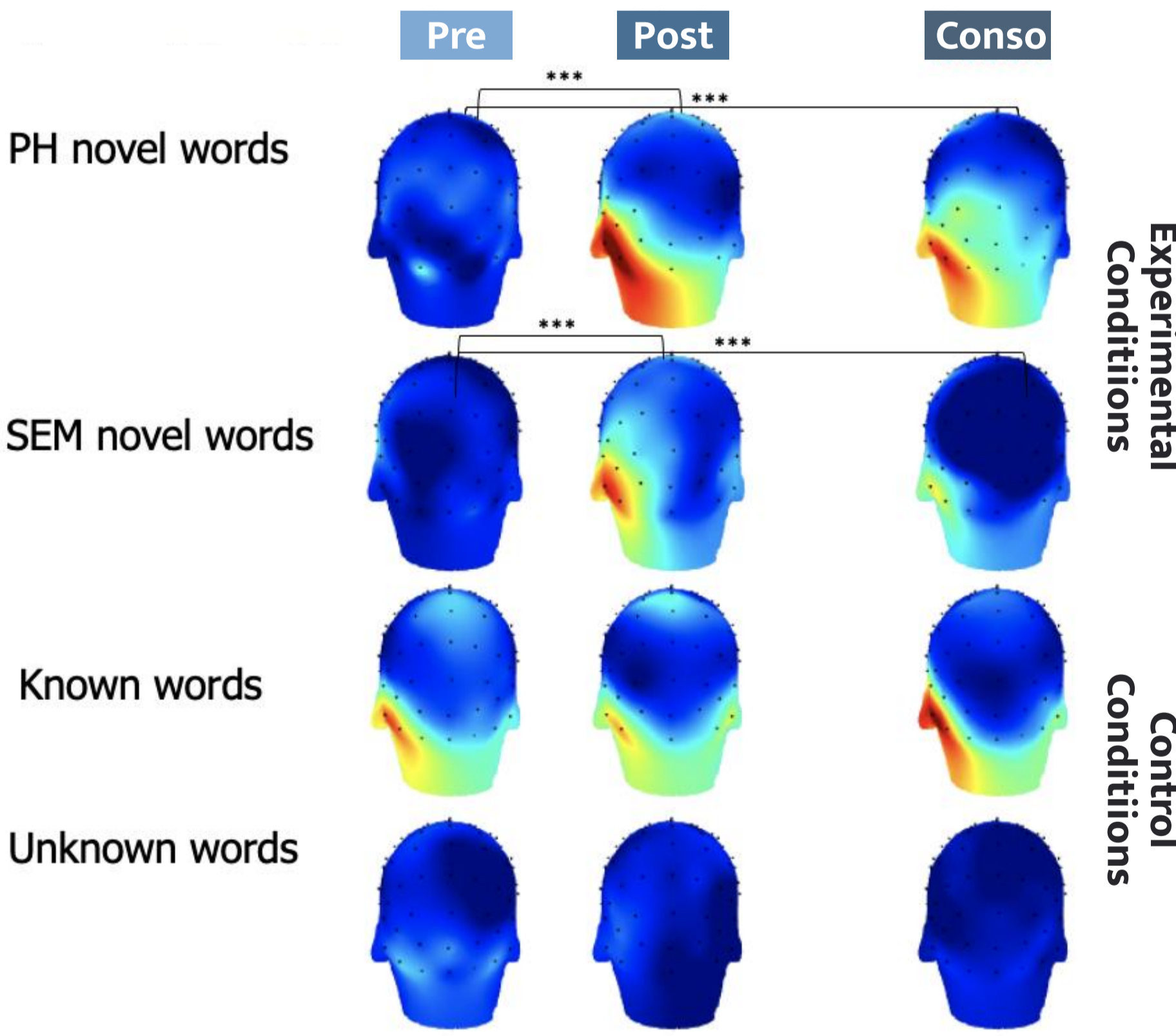
Word Recognition (accuracy)



Competing effect

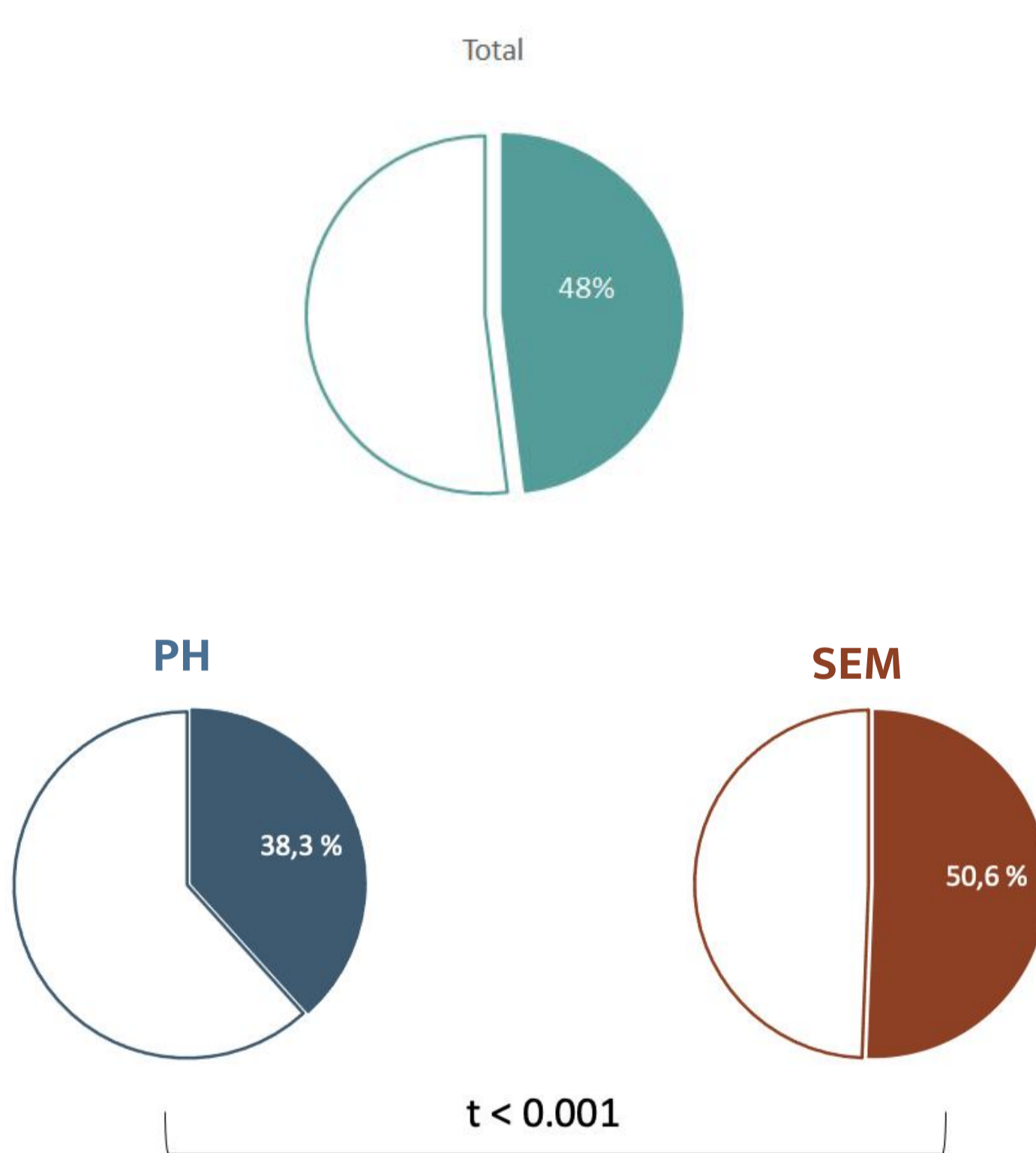


FPVS-EEG



Free recall

Consolidation



Lexicalization of the novel words

- **Better recognition** in lexical decision task in post and consolidation testing
- Slower reaction time on neighbors' words (**competing effect**) after learning the associated novel words
- **Discrimination** in EEG-FPVS paradigm of the novel words embedded in pseudo words



Effects persist over time

- No difference between **post** & **consolidation** testing with both EEG and Behavioral data



Impact of method

- **No difference** observed with Lexical decision tasks and EEG-FPVS paradigm.
- But in a free recall (two days later), words learnt **semantically** are **better** recalled

Discussion

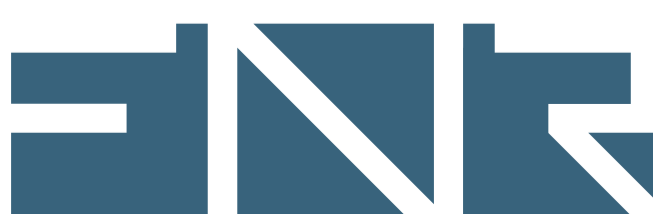


References

- ^aLeach, L., & Samuel, A. G. (2007). Lexical configuration and lexical engagement: When adults learn new words. *Cognitive psychology*, 55(4), 306-353.
^bBowers, J. S., Davis, C. J., & Hanley, D. A. (2005). Interfering neighbours: The impact of novel word learning on the identification of visually similar words. *Cognition*, 97(3), B45-B54.
^cSeidenberg, M. S., & McClelland, J. L. (1989). A distributed, developmental model of word recognition and naming. *Psychological review*, 96(4), 523.
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