

1 INTRODUCTION

- The ability to learn item-specific information and more general linguistic knowledge is crucial for learning and understanding language.
- During targeted memory reactivation (TMR), previously learned information is cued during sleep.
- Recent evidence suggests that TMR can promote memory consolidation for a range of stimuli (e.g., image pairs, words)^{1,2,3}.
- However, little is known about effects of TMR on learning a new language or acquiring linguistic knowledge.

RESEARCH QUESTION:
Does TMR support the acquisition of item-specific or general linguistic knowledge?

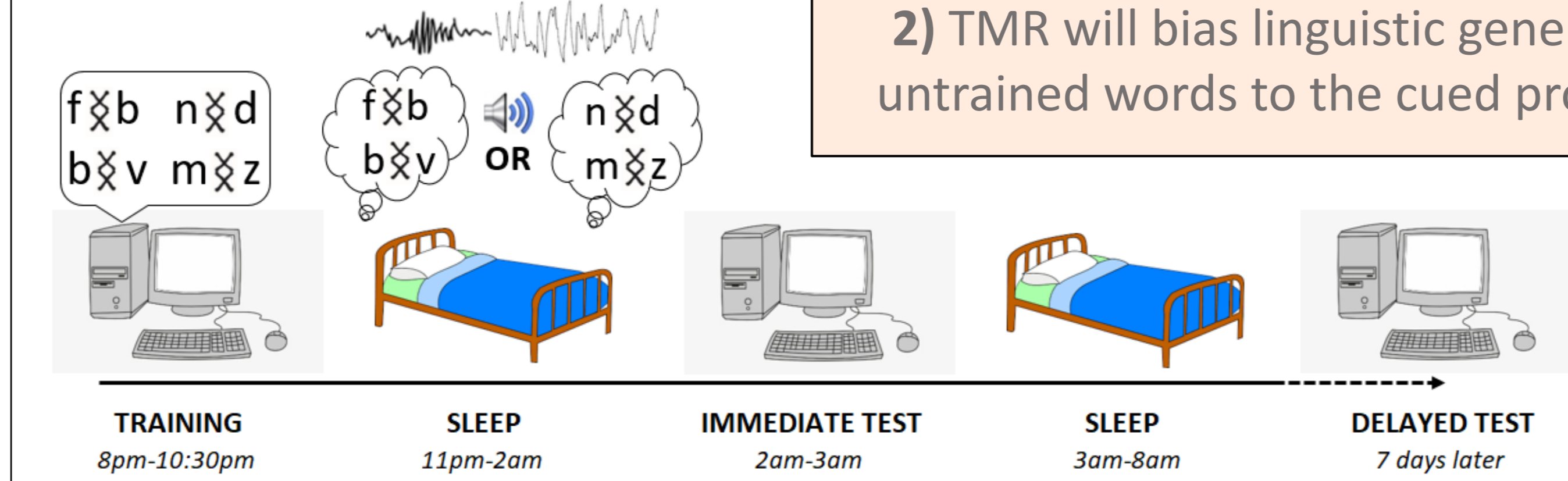
2 METHODS

Participants: 32 healthy, native, monolingual English speakers, aged 18-35. 19 participants were also excluded (15 poor sleepers & 4 failed training).

Stimuli: Participants learned 48 monosyllabic consonant-vowel-consonant pseudowords. Middle letters were written in an artificial script and could be pronounced in two ways. Test tasks included *trained* (tests item-specific memory) and *untrained* items (tests generalisation).

Pronunciation 1 *Pronunciation 2*
fǻb = /faɪb/ nǻd = /nid/
bǻv = /baɪv/ mǻz = /miz/

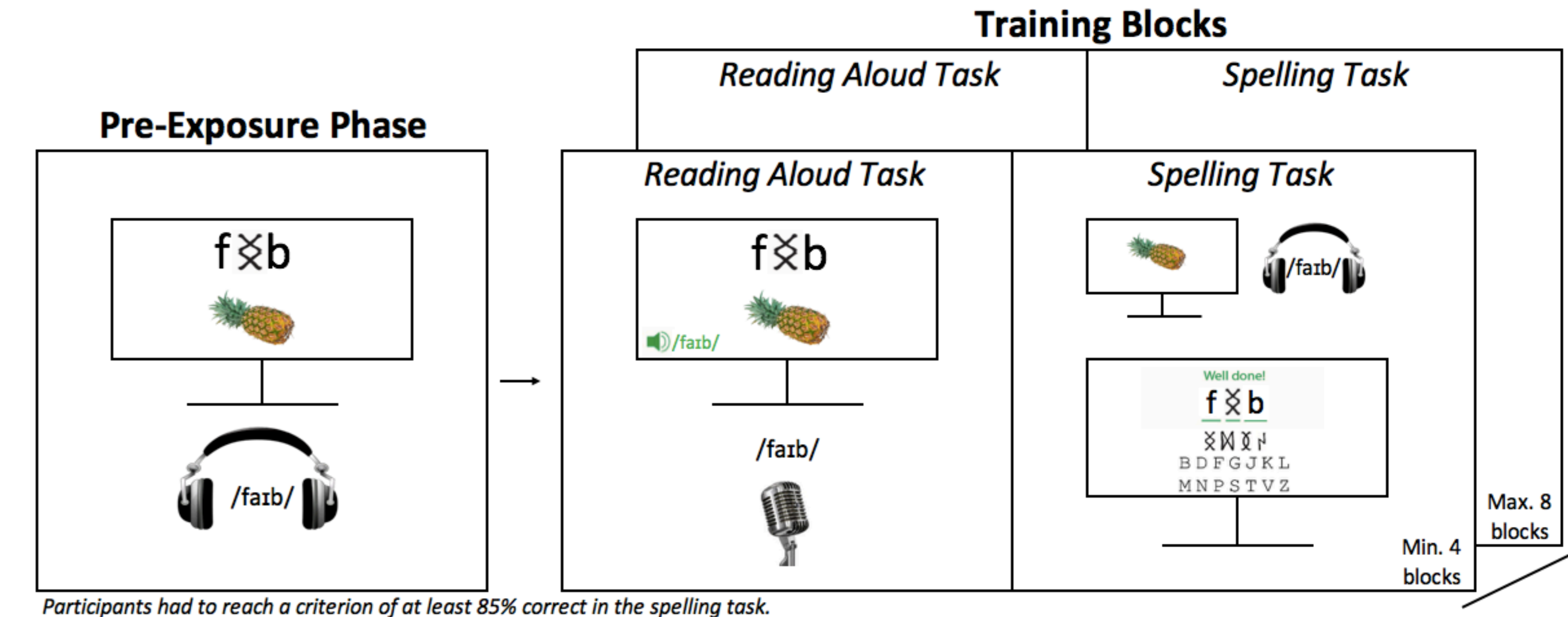
Procedure:



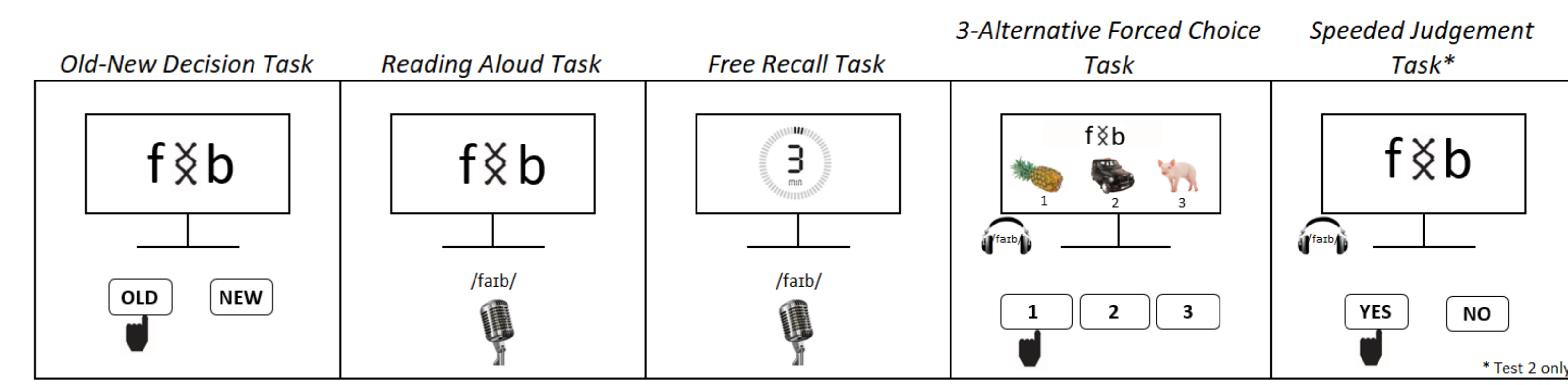
PREDICTIONS:

- TMR will strengthen item-specific memory for cued items.
- TMR will bias linguistic generalisation in untrained words to the cued pronunciation.

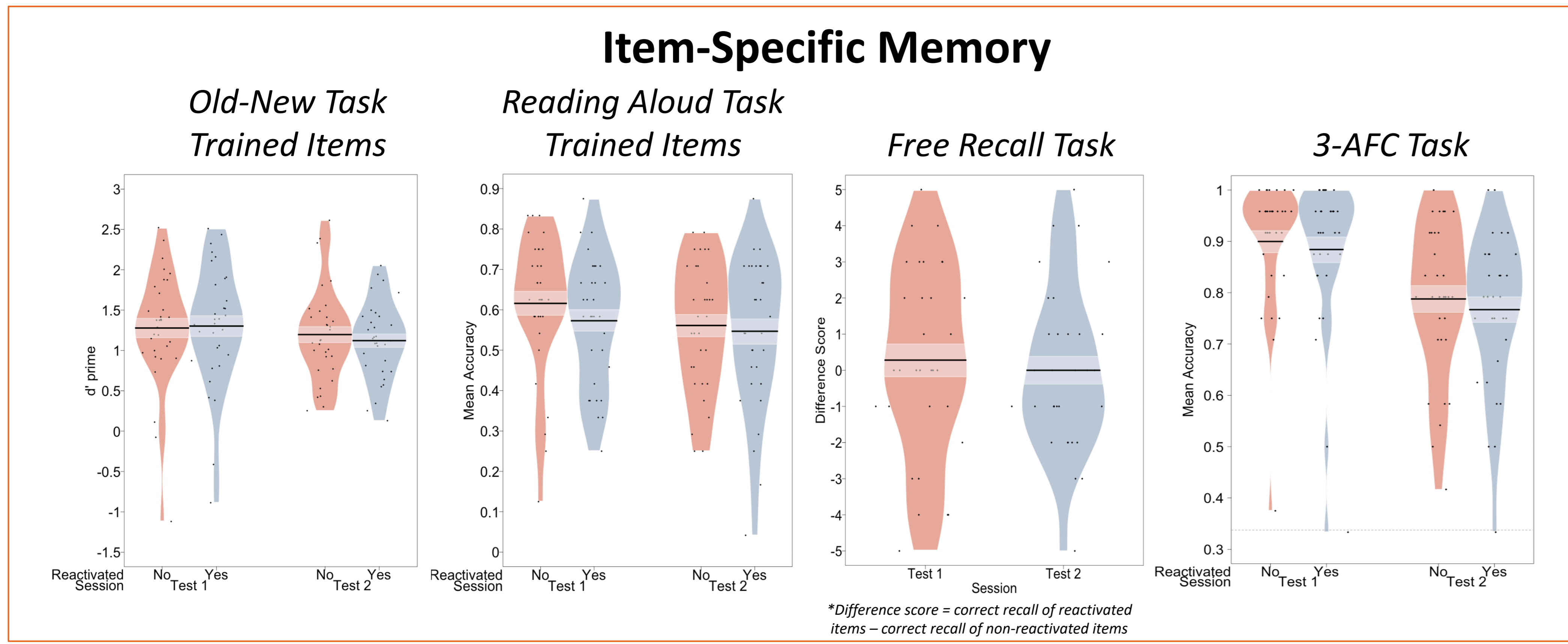
Training task:



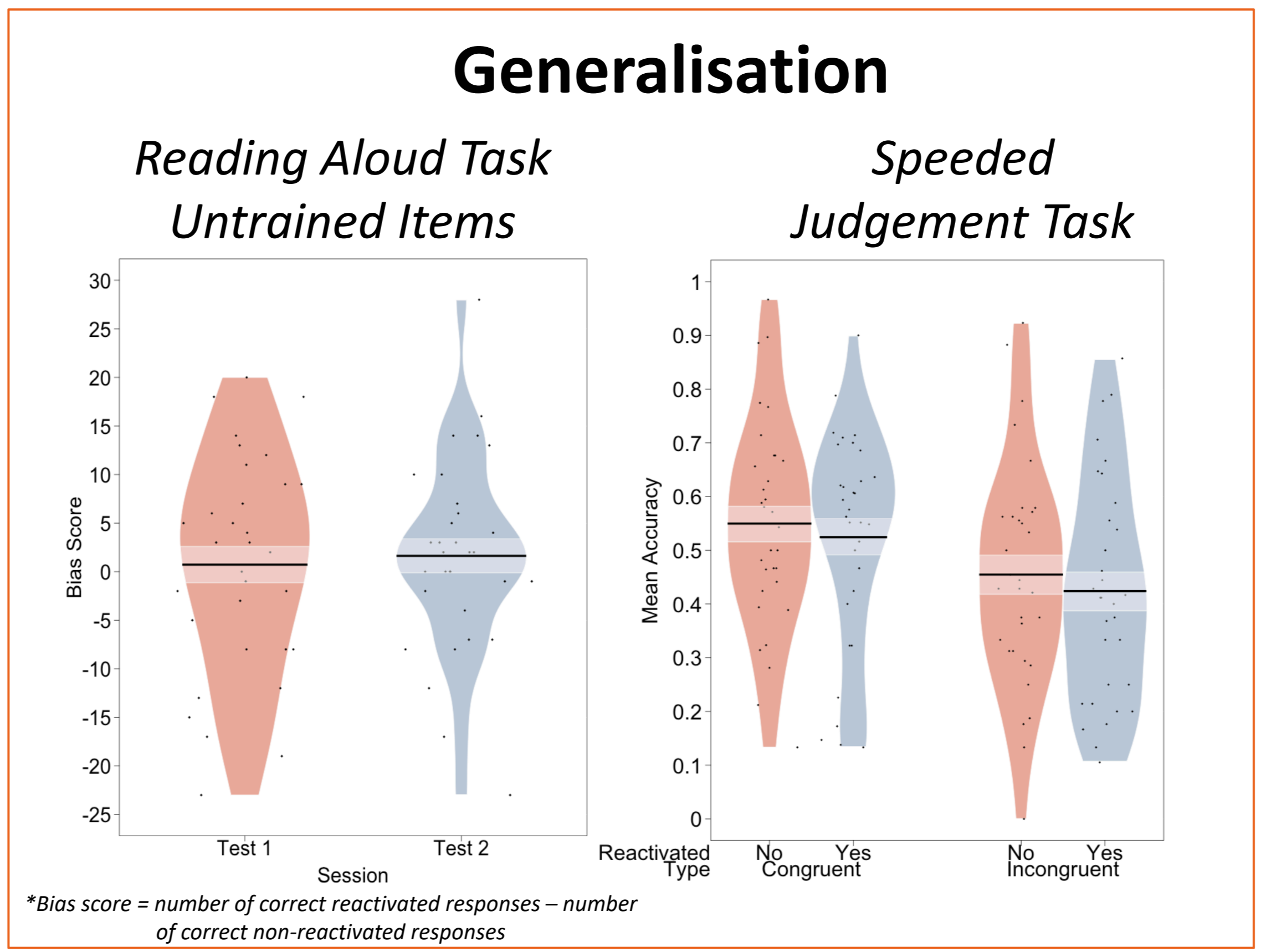
Test tasks:



3 RESULTS



We found **no effect** of targeted memory reactivation on memory for specific items learned at training.



We found **no effect** of targeted memory reactivation on the generalisation of symbol-to-sound mappings.

4 CONCLUSIONS

- Reactivation of specific items did not enhance memory for those items compared to items that were not reactivated.
- Reactivation of specific pronunciations did not bias generalisation of the symbol-to-sound mappings in untrained items.
- Therefore, beneficial effects of TMR may not extend to the acquisition of linguistic knowledge.

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- Rudoy, J.D., Voss, J.L., Westerberg, C.E., & Paller, K. A. (2009). Strengthening individual memories by reactivating them during sleep. *Science*, 326, 1079.
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