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Theoretical background

- Familiarity with objects influence value-based decisions^{1,2}
- Previous studies lack a clear definition and a vision what the role of familiarity is
- We define familiarity from a memory perspective as of how similar is presented object to previously seen objects³
- In comparison to recollection, familiarity is a fast and automatic process
- We used memory model⁴ for calculating familiarities between pairs of objects to simulate choices
- The object with higher calculated familiarity is chosen to have a higher value
- Familiarity is influenced by systematically repeated exposures to objects
- **Goal:** predict value-based decisions solely with a model that only works with familiarity
- Value-based decision: the value that is associated with an object

References

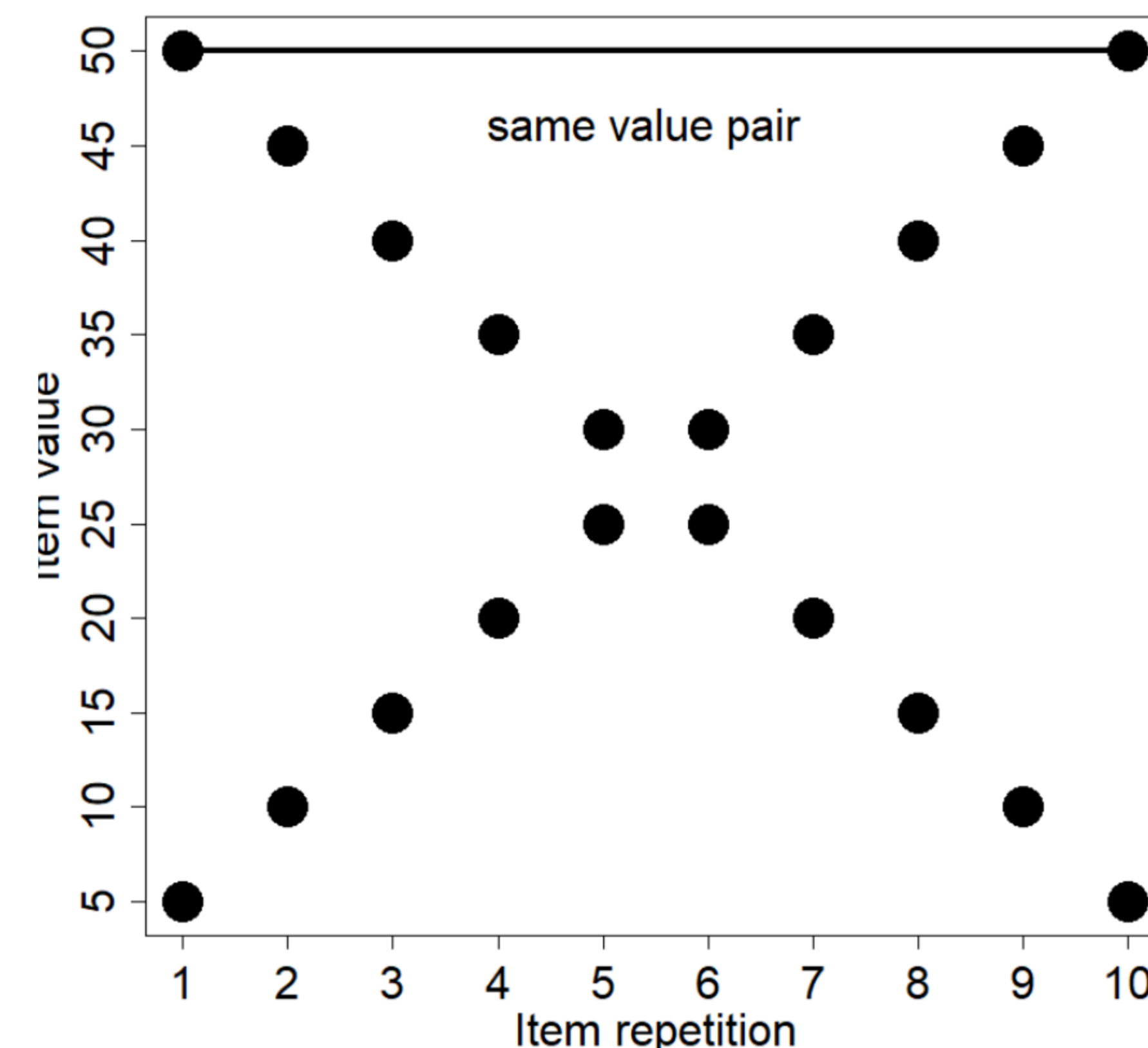
- 1: Honda, H., Matsuka, T., & Yamagishi, K. (2011). The role of familiarity in binary choice inferences. *Mem Cogn*, 39, 851-863.
- 2: Duncan, K. D., & Shohamy, D. (2016). Memory states influence value-based decisions. *Journal of Experimental Psychology: General*, 145(11), 1420-1426.
- 3: Nosofsky, R. M. (1988). Exemplar-based accounts of relations between classification, recognition, and typicality. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 14(4), 700-708.
- 4: Brown, G. D. A., Neath, I., & Chater, N. (2007). A temporal ratio model of memory. *Psychological Review*, 114, 539-576.

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Stimuli

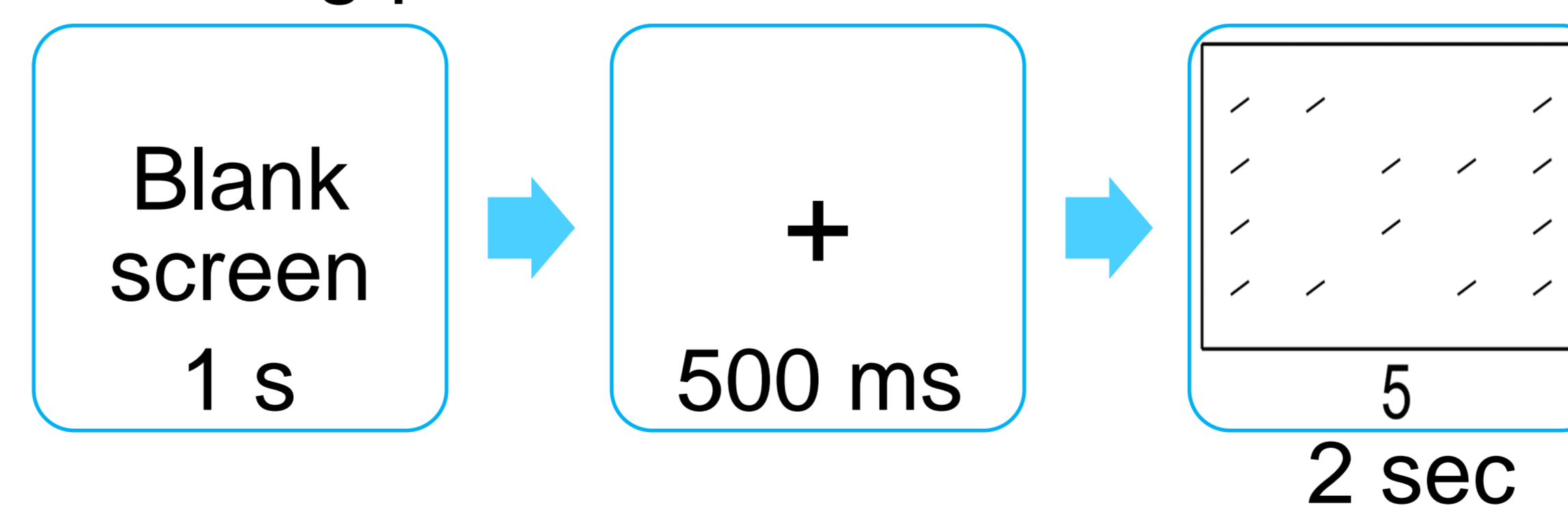
- Manipulation of item exposures and item values



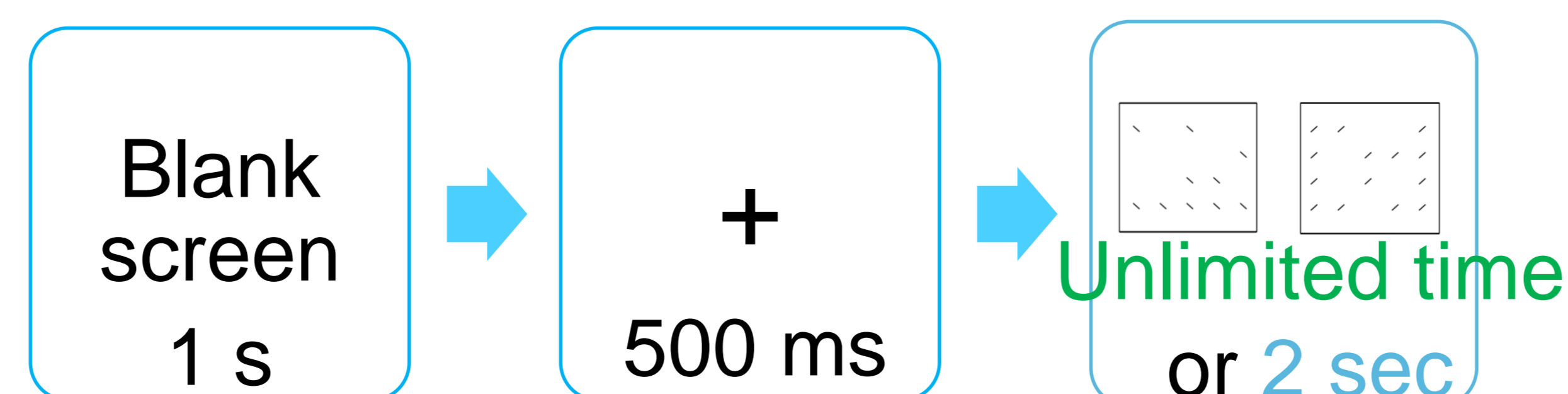
- Same value pair: pairs of items with the same value but different item repetition

Experiment

- Learning phase: remember presented items and item values



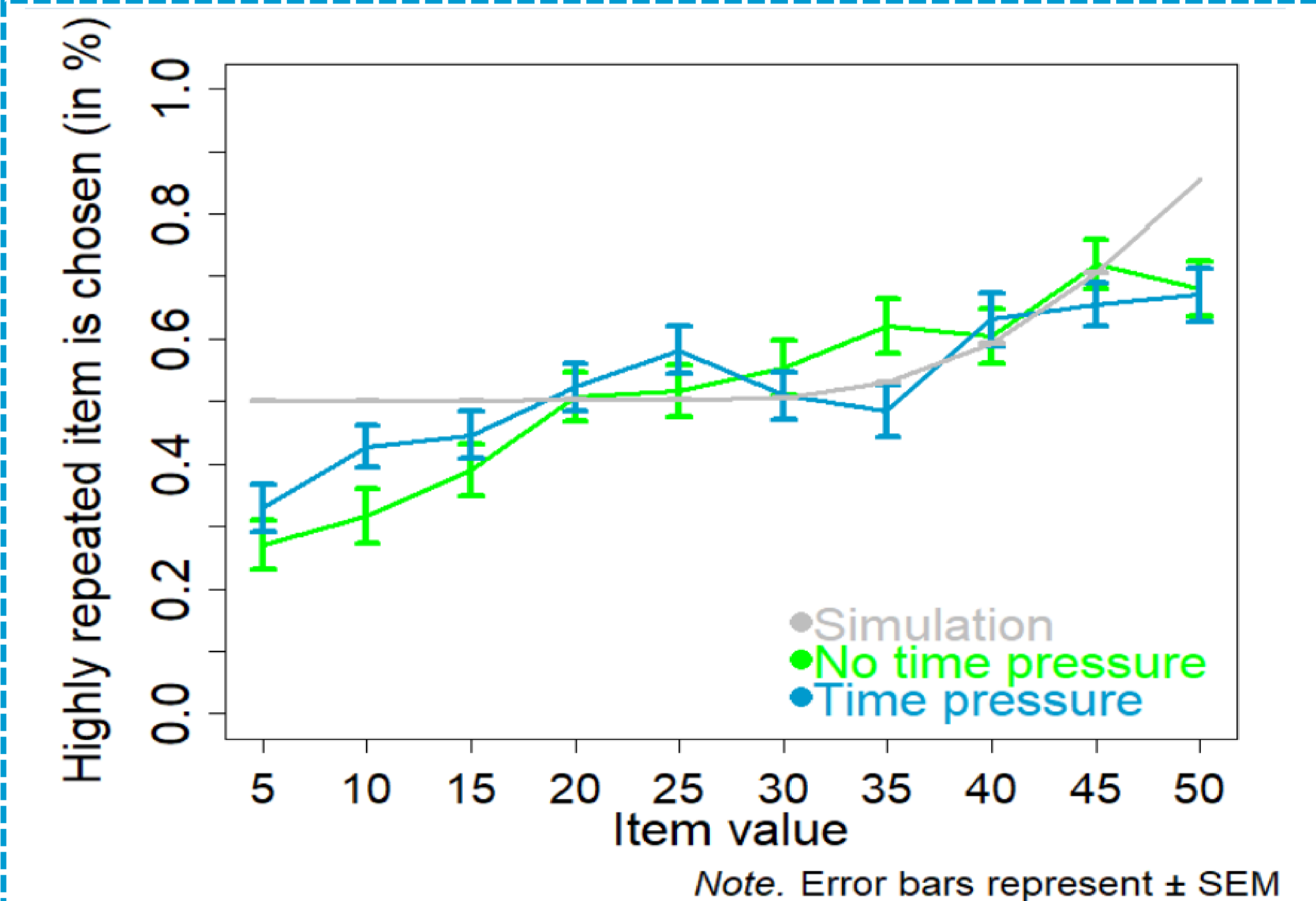
- Decision phase: choose the item with a higher value



Overall performance

- No time pressure condition: 62 % of correct answers
- Time pressure condition: 55 % of correct answers

Performance in same value pairs



Discussion

- **High-value pairs:** participants choose familiar options
- **Low-value pairs:** participants decide against familiar options
- Beside familiarity, recollection is affecting low-value choices
- The model does not account for a recollection
- With time pressure the familiarity again comes more evident