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Predictors of the long-term retention of a unique experience in young children

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Introduction

- What determines the memory of a unique event in children?
- Some of the variables implicated in long-term verbal recall are age, language skills and verbal rehearsal (e.g., Jack, Simcock & Hayne, 2012; Dahl, Kingo & Krøjgaard, 2015; Peterson, 2002).
- Performance benefits from the presence of external cues at test that match the original encoding context (Dahl et al., 2015). Memory tests vary in the extent to which they contain such environmental features.
- Perhaps these different memory tests are associated with different patterns of predictors.
- We tested this prospectively in 4- and 5- year-olds, who had engaged in a treasure hunt 1 year earlier.

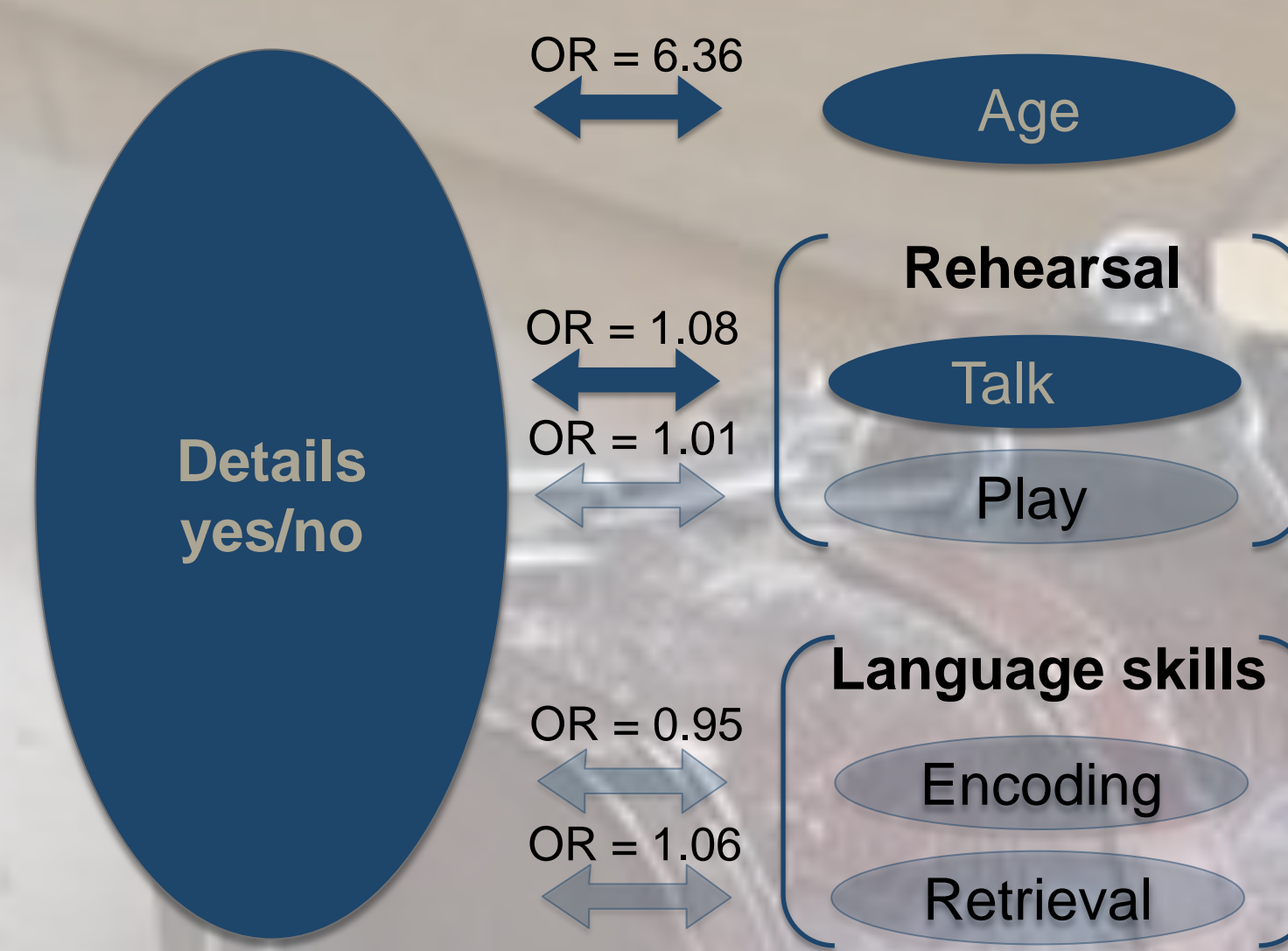
Aim

To explore the predictive value of age, language ability and rehearsal for performance on various indices of long-term memory in early childhood.

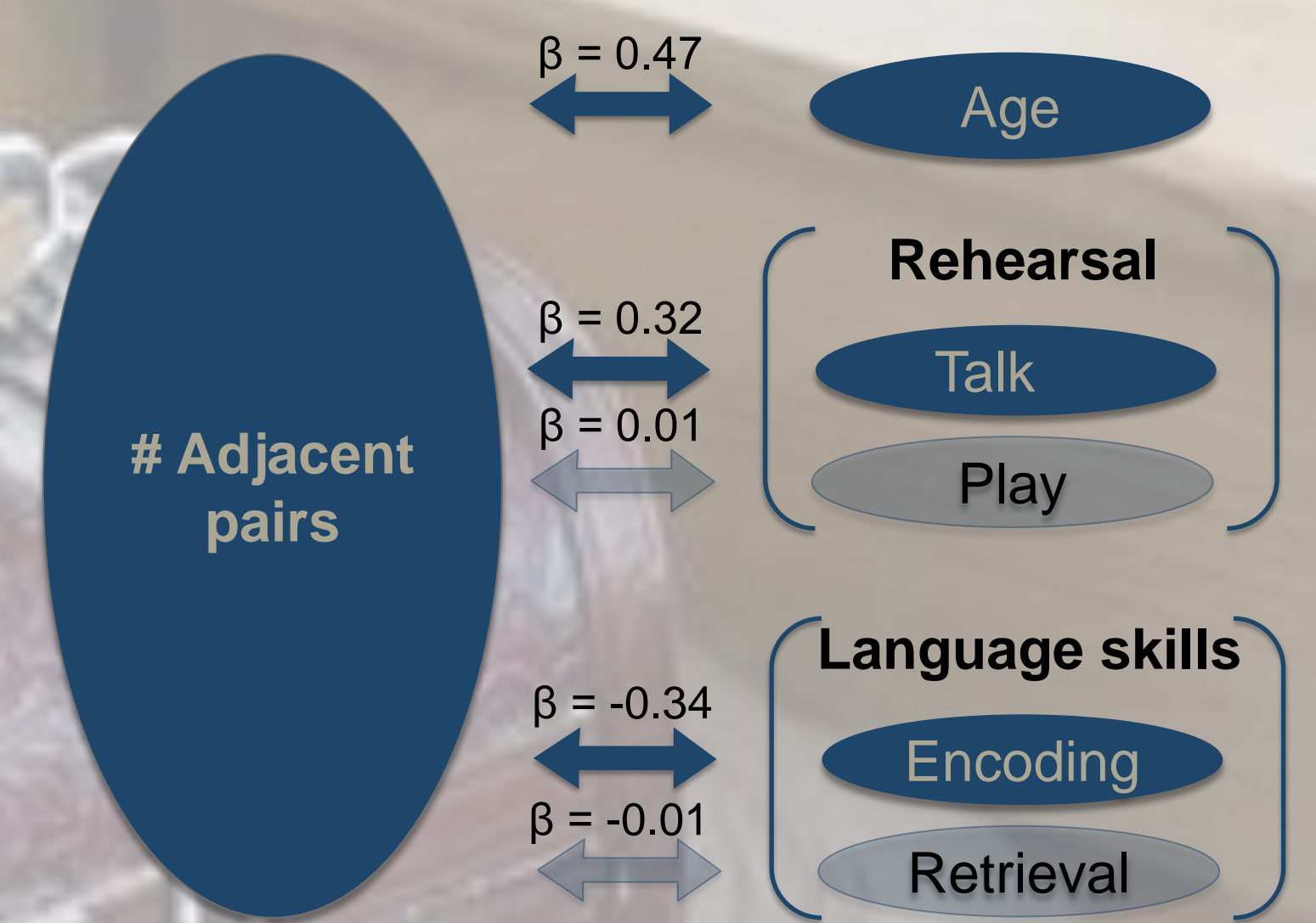
Results

Regression analyses: For all dependent variables, age was entered in a first step; language skills (encoding, retrieval) and rehearsal (talk, play) in a second step.

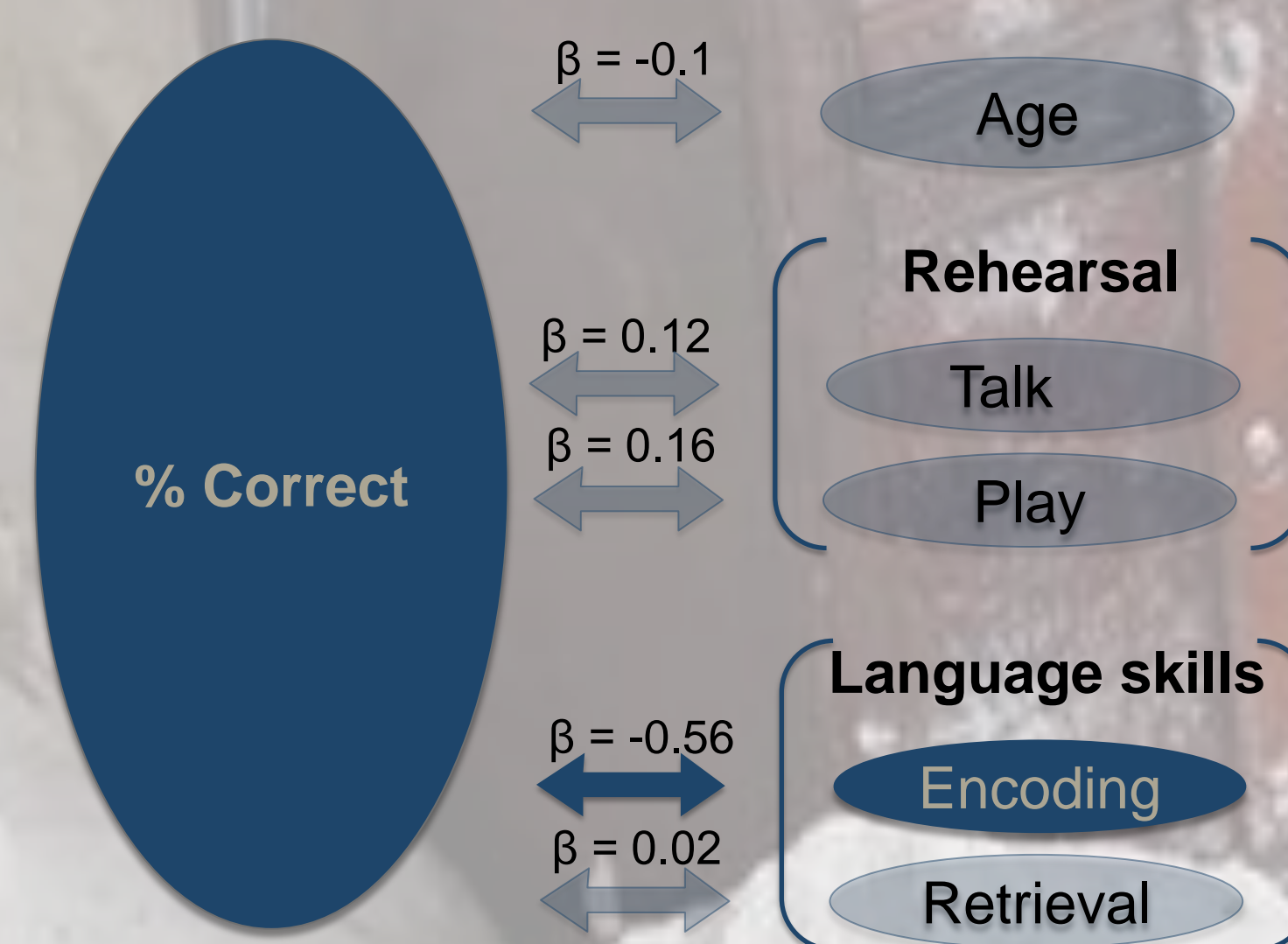
A. Verbal Recall



B. Sequencing



C. Recognition



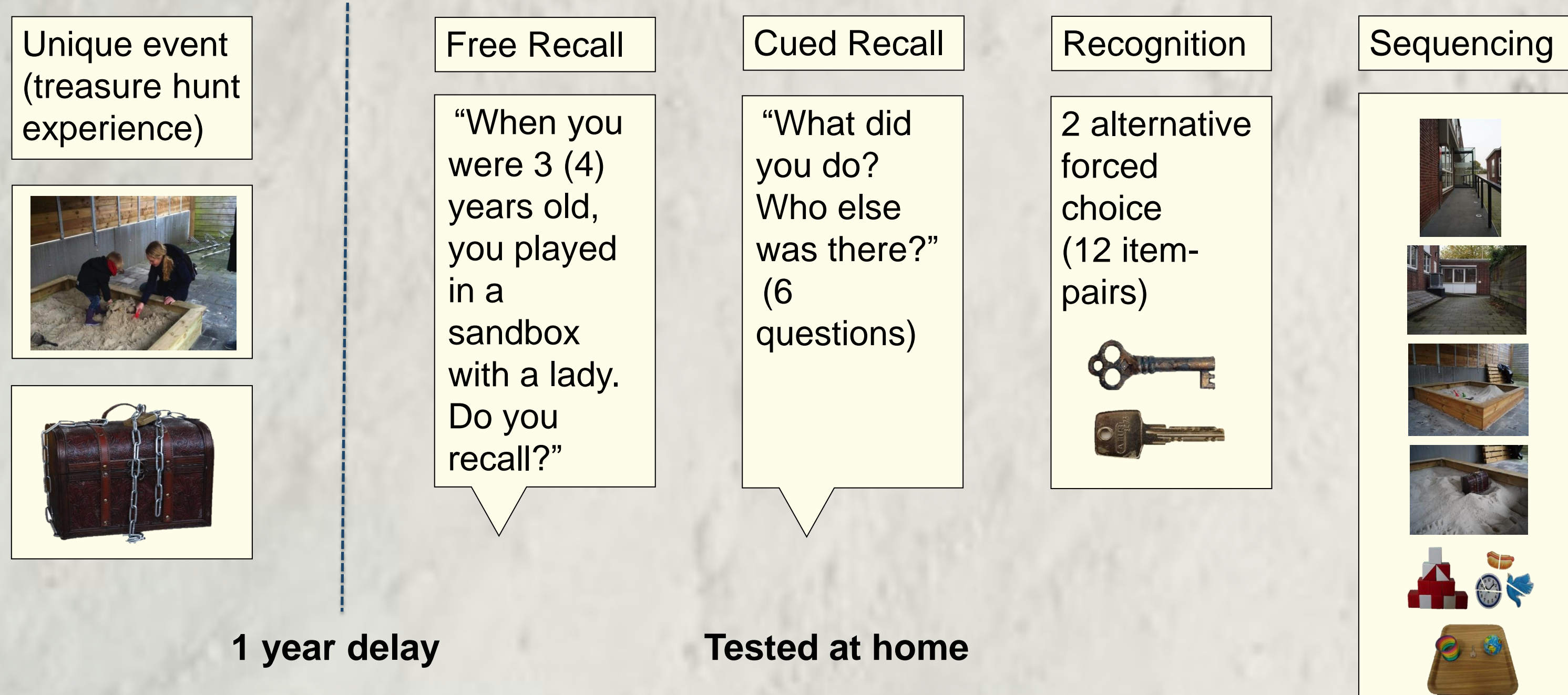
Proportions explained variance

- A. Verbal recall (*Logistic regression*)
1. Age: R^2 (Nagelkerke) = .10, $X^2(1) = 3.63$, $p = .06$
 2. Rehearsal and language skills: ΔR^2 (Nagelkerke) = .29, $X^2(4) = 12.08$, $p = .02$
- B. Sequencing (*Hierarchical multiple regression*)
1. Age: $R^2 = .22$, $F(1, 43) = 12.02$, $p = .001$
 2. Rehearsal and language skills: $\Delta R^2 = .18$, $\Delta F(4, 39) = 2.86$, $p = .04$.
- C. Recognition (*Hierarchical multiple regression*)
1. Age: $R^2 = .02$, $F(1, 40) = .64$, $p = .43$.
 2. Rehearsal and language skills: $\Delta R^2 = .28$, $\Delta F(4, 36) = 3.55$, $p = .02$.

Method

Participants: 4-year-olds: N = 24 (14 boys, 10 girls) & 5-year-olds: N = 21 (12 boys, 9 girls)

Procedure



Other measures

- **Language skills:** WPPSI-III-NL Subscale 'General Language Composite' (GLC)
- **Rehearsal:** Parent questionnaire (Visual Analogue Scales): E.g., How often did child talk about event?

Conclusions

- Compared to recognition, correlates of verbal recall and sequencing show different patterns.
- Older age and more talk about the treasure hunt during the previous year benefitted verbal recall and sequencing, but not recognition.
- Better language skills at encoding were associated with poorer recognition.
- This negative association was also apparent for sequencing. This may indicate that sequencing involves recognition as well as memory for temporal order.
- Perhaps a more perceptual type of processing at encoding especially benefits performance on tests reinstating the physical aspects of an experience, whereas post-event rehearsal keeps a memory alive in a more narrative form.

Literature

- Dahl, J.J., Kingo, O.S., & Krøjgaard, P. (2015). The Magic Shrinking Machine revisited: The presence of props at recall facilitates memory in 3- year-olds. *Developmental Psychology*, 52(12), 1704-1716.
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