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Learnability Effects in Children: Are Languages with more systematic structure Easier to Learn?

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Background

Languages with more regular and compositional grammars are easier to learn. However, the causal relationship between the degree of systematicity and language learning have been tested insufficiently \cite{Raviv et al., 2021}, let alone in child participants.

This study will answer the following research questions:

1. Do children and adults benefit from systematic structure in a similar fashion? Conceptual replication of \cite{Raviv et al., 2021}
2. Is there any correlation between learning behavior and cognitive abilities such as working memory and selective attention?

Methods: A preregistered study

Artificial language learning: 3 fantasy languages that vary in degree of systematicity (12 scene-label pairings). Guessing and production tasks assessing both memorization and generalization.

Low structure

- keuw (30\textdegree)
- pofs (45\textdegree)
- Kuim (0\textdegree)
- Goom (315\textdegree)

Medium structure

- kome (60\textdegree)
- woesiko (45\textdegree)
- woesiok (0\textdegree)
- kemet (315\textdegree)

High structure

- guasoi (45\textdegree)
- wasoi (30\textdegree)
- festi (0\textdegree)
- festui (315\textdegree)

Cognitive abilities: Digit span working memory \cite{Semel et al., 2010}; Map Search Selective attention \cite{Manly et al., 2010, Robertson et al., 1994}

Participants: 105 children (8-10 years; 35 per language); 105 adults (35 per language)

Previous Findings

Adults benefit from linguistic structure in a nonlinear way \cite{Raviv et al., 2021}

Expected Findings

1. Regularity will benefit both children and adults
2. Children may benefit even more compared to adults, since they’ve been found more biased and prone to regularities and generalizations
3. Participants with better WM and selective attention will better perform overall regardless of the level of regularity
4. Participants will generalize better for the more regularized languages