What's going on? Surprising difficulties in complex relational rule discovery

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Relational problems are hard

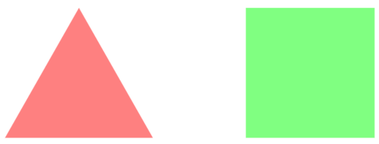
$3 > -4$

And they only get harder...

$-3 + 5 > 3 - 4$

Tackling relational complexity is key to making real-world inferences

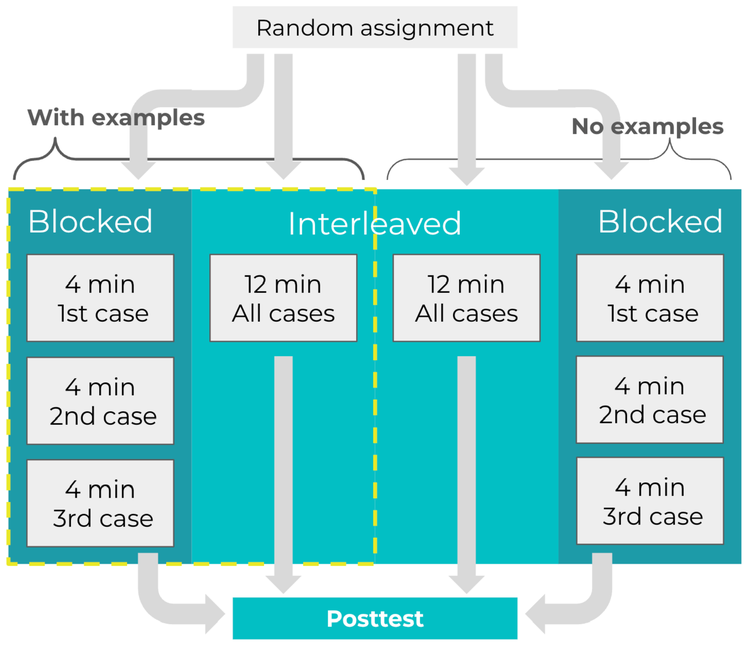
What environments facilitate the discovery of complex relational rules?



-3 +4

In this task, no. of sides represents the integer and color represents the sign

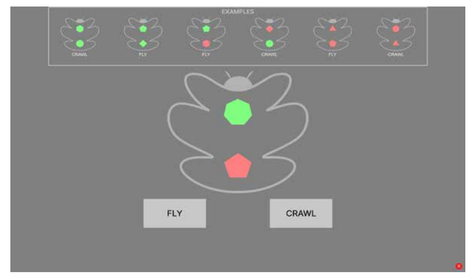
Participants completed an analog of an inequality task (n/task = 200)



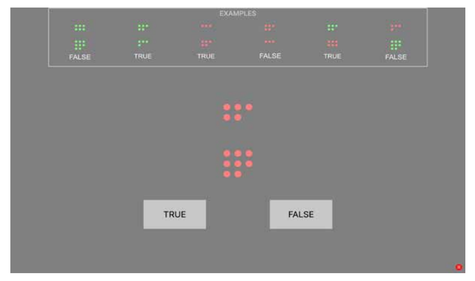
Hypotheses

Examples > No Examples
Blocking > Interleaving

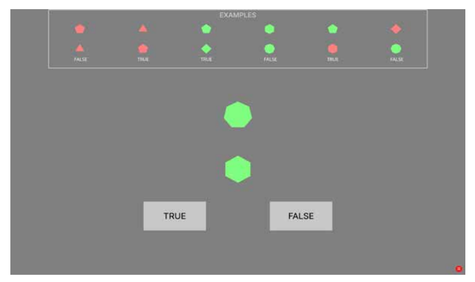
Task: Bugs
Case: Mixed



Task: Dots
Case: Red

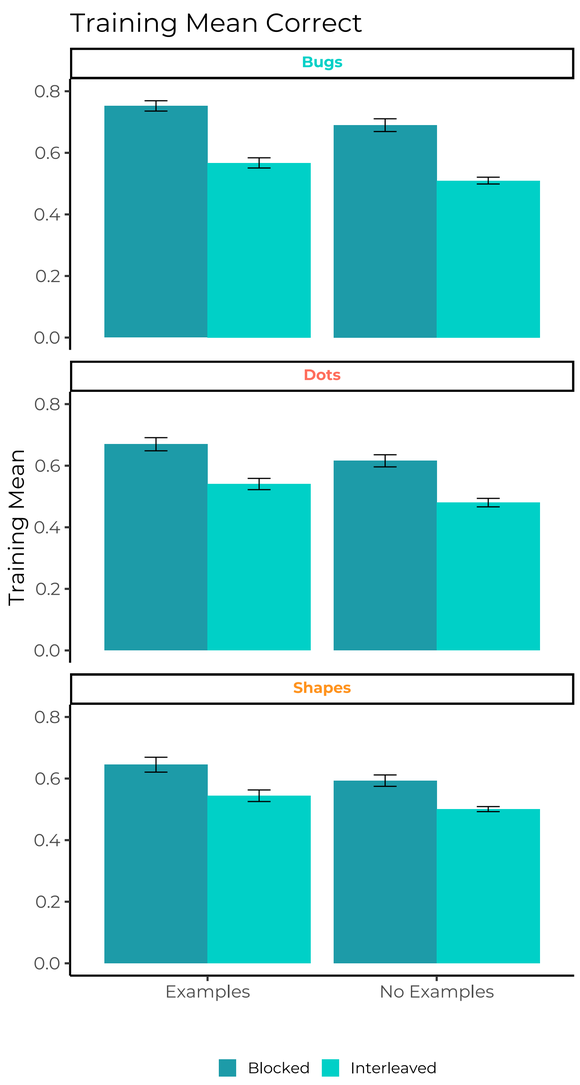


Task: Shapes
Case: Green



Participants in the **Bugs** task were given extra context (classifing alien insects) and told to use no. of sides, color, and spatial arrangment.

Those in the **Dots** and **Shapes** task were not.

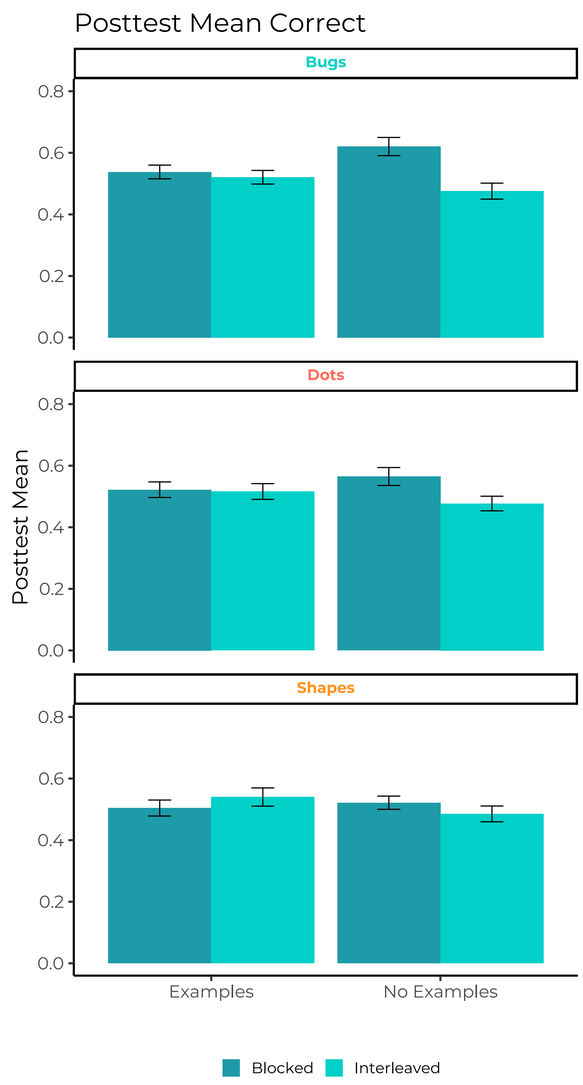


Training Performance

Blocking > Interleaving
Examples > None

Posttest Performance

Blocking > Interleaving
No main effect of Examples



Complex relational rules need to be discovered in context
Blocking can direct attention to relevant features - Interleaving leaves too much to guessing
The extent to which examples support transfer may be dependent on task difficulty