It's all shapes to me: Blocking aids discovery of complex relational structures

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Relational problems are hard

$3 > -4$

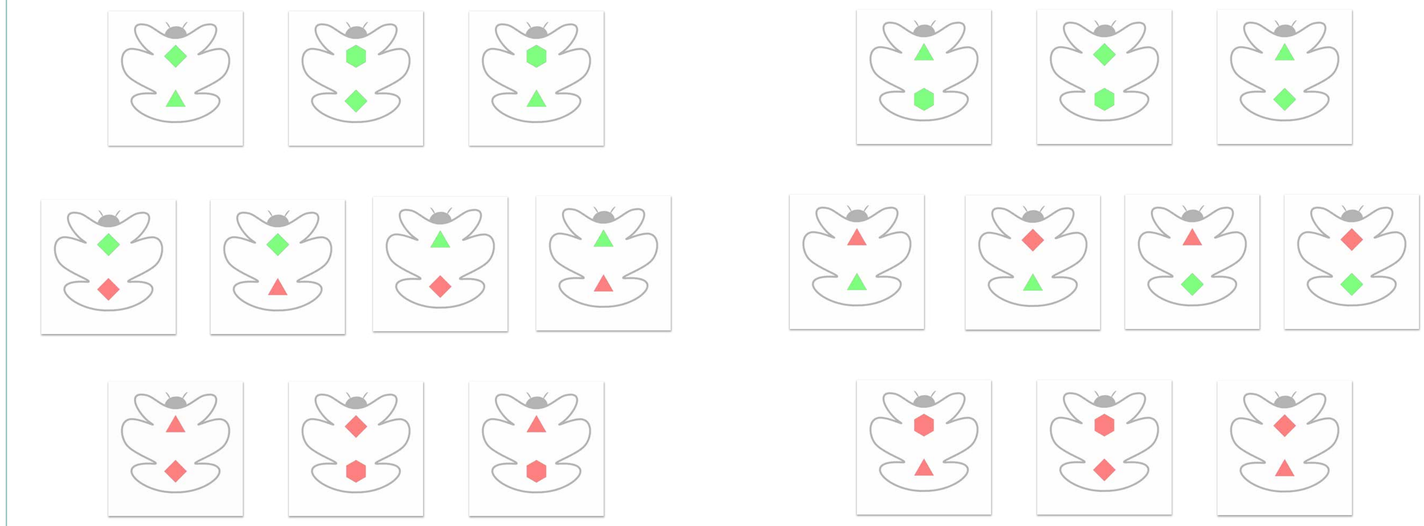
And they only get harder...

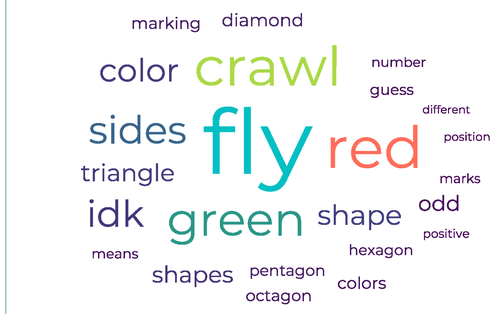
$-3 + 5 > 3 - 4$

Tackling relational complexity is key to real-world inferences

What environments facilitate discovery of relational rules?

In this task, number of sides represents the integer and color represents the sign





Participants in the **Bugs** task recorded their current strategy each trial

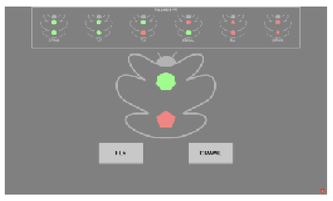
Hypotheses

Examples > No Examples
Blocking > Interleaving

Complex relational rules need to be discovered in context and in parts
Blocking can direct attention to relevant features

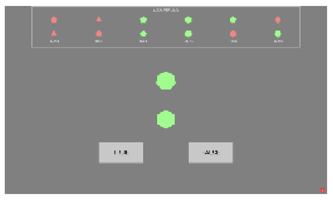
The extent to which examples support transfer may be dependent on task difficulty

Task: Bugs
Case: Mixed



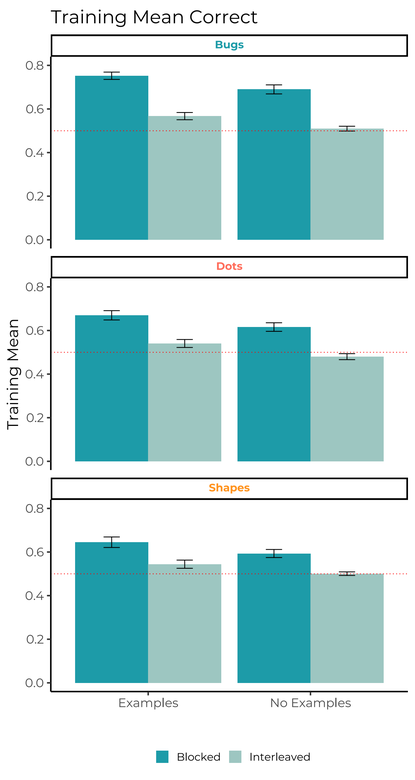
Task: Dots
Case: Red

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 (p<.001)
Examples > None (p<.001)

Bugs
Examples > No Examples (p<.001)
Blocking > Interleaving (p<.001)
Presentation * Examples (n.s.)

Dots
Examples > No Examples (p<.01)
Blocking > Interleaving (p<.001)
Presentation * Examples (n.s.)

Shapes
Examples > No Examples (p<.01)
Blocking > Interleaving (p<.001)
Presentation * Examples (n.s.)

Presentation x Examples (n.s)

Posttest Performance

Blocking > Interleaving (p<.01)
No main effect of Examples

Bugs
Examples = No Examples (n.s.)
Blocking > Interleaving (p<.01)
Presentation * Examples (p<.05)

Dots
Examples = No Examples (n.s.)
Blocking > Interleaving (p=.076)
Presentation * Examples (n.s)

Shapes
Examples = No Examples (n.s.)
Blocking = Interleaving (n.s)
Presentation * Examples (p=.17)

Presentation x Examples (p<.01)