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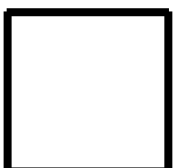
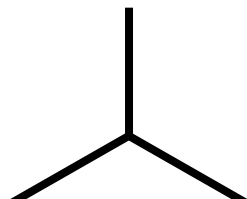
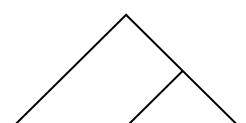
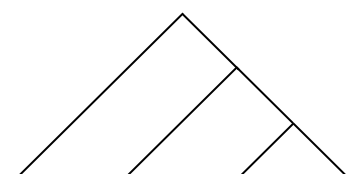
trace
segment







repeat 4 times **trace** segment **turn** 90°



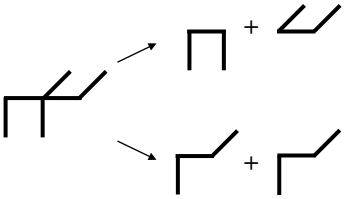
repeat 3 times **execute** & **return** **trace** segment **turn** 120°


PREREGISTERED

Different structured representations can be induced for the same shape

Samples

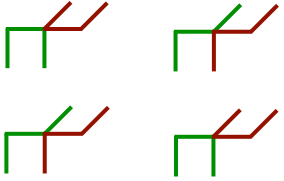
Shape Structure



Targets

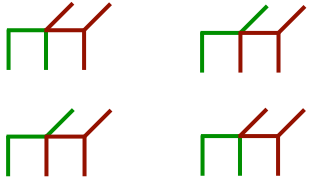
Matches

Congruent Incongruent



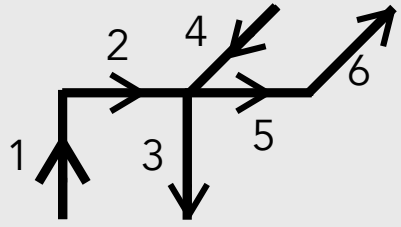
Deviants

Modified congruent Modified incongruent

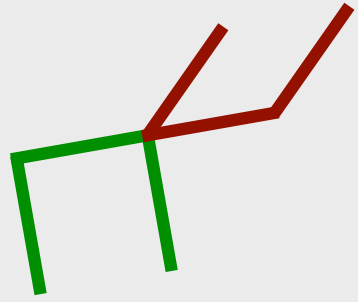


Experiment 1: Structural Ambiguity

Sample: Encode



Target: Same shape?



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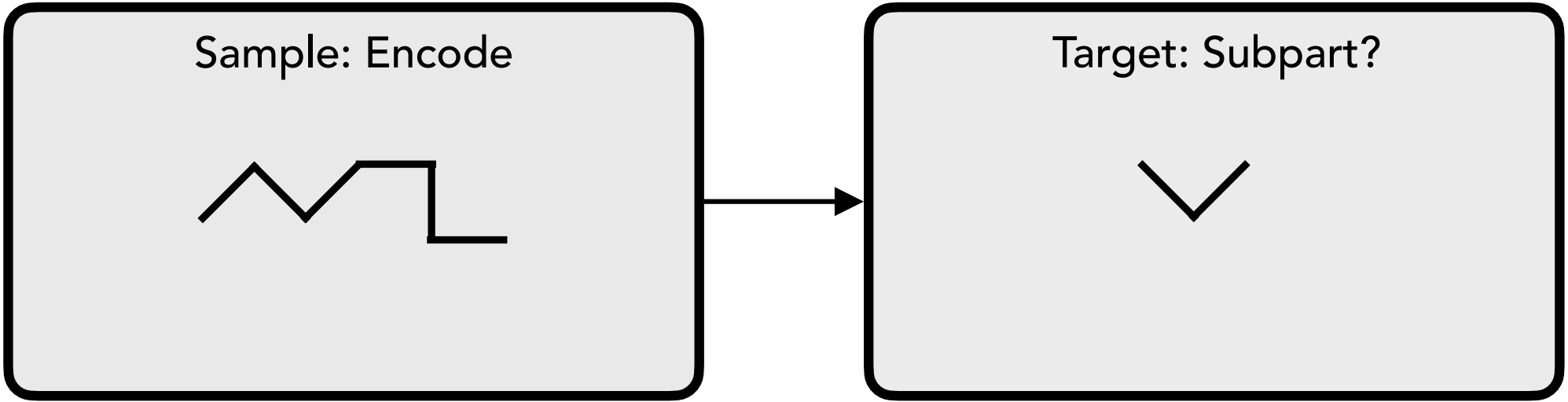
Subparts are easier to recognize when they belong to the same subtree

Experiment 2: Subtree Facilitation

Experiment 3: Movement Depth

Shapes are easier to reconfigure when they are split higher up in the tree


Sample: Encode
Target: Subpart?

Samples

Shape

Structure

Overlap

Targets

Matches

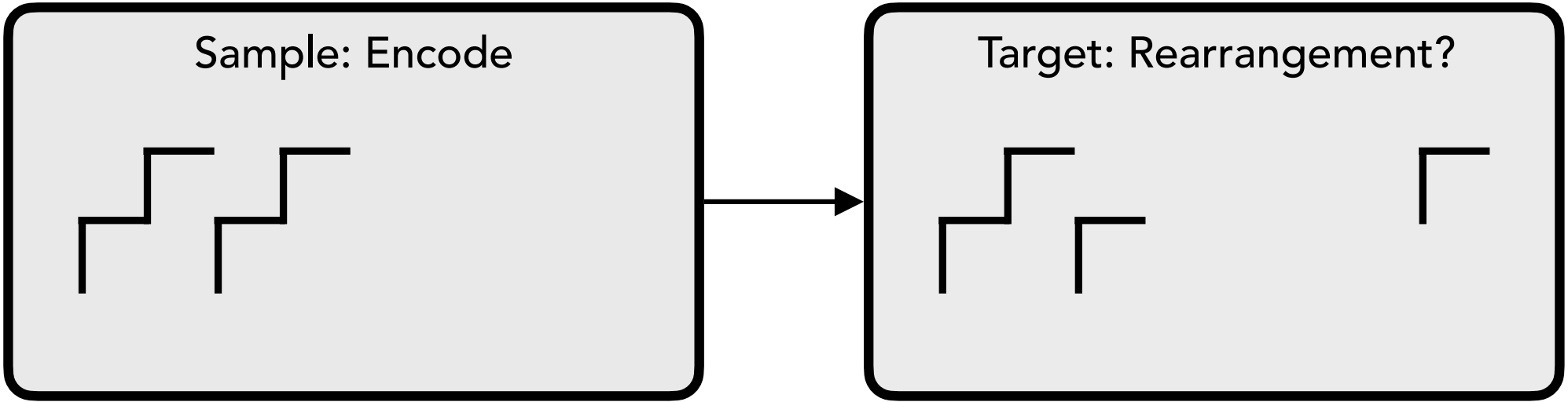
Same subtree

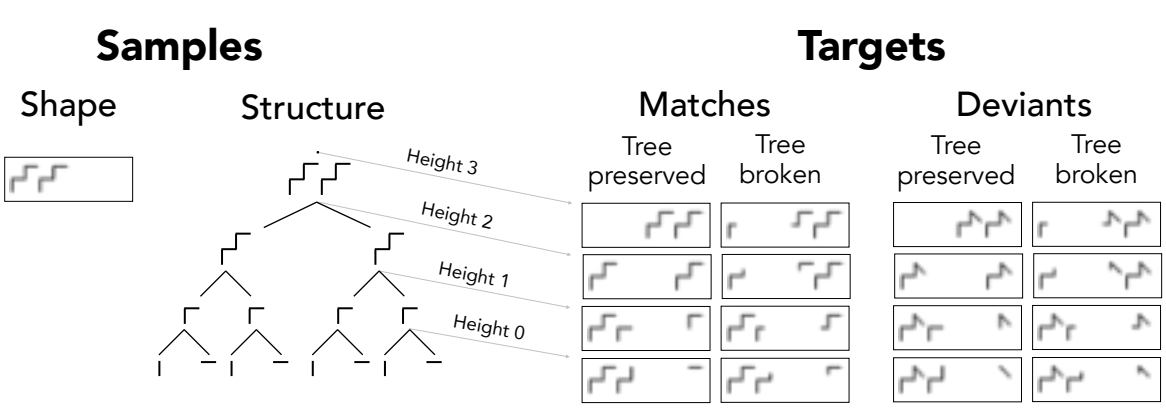
Different subtrees

Deviants

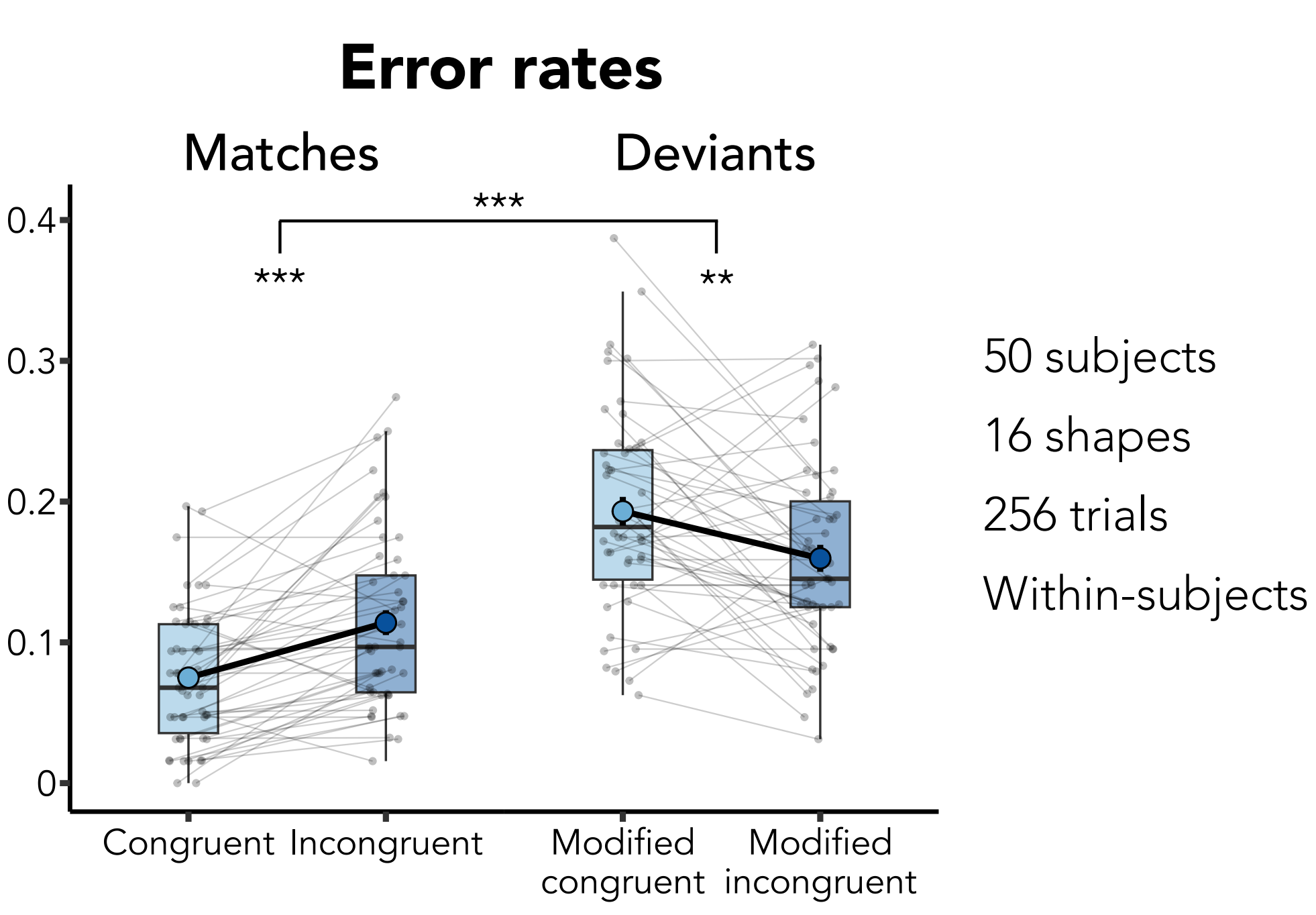
Rotated same

Rotated different

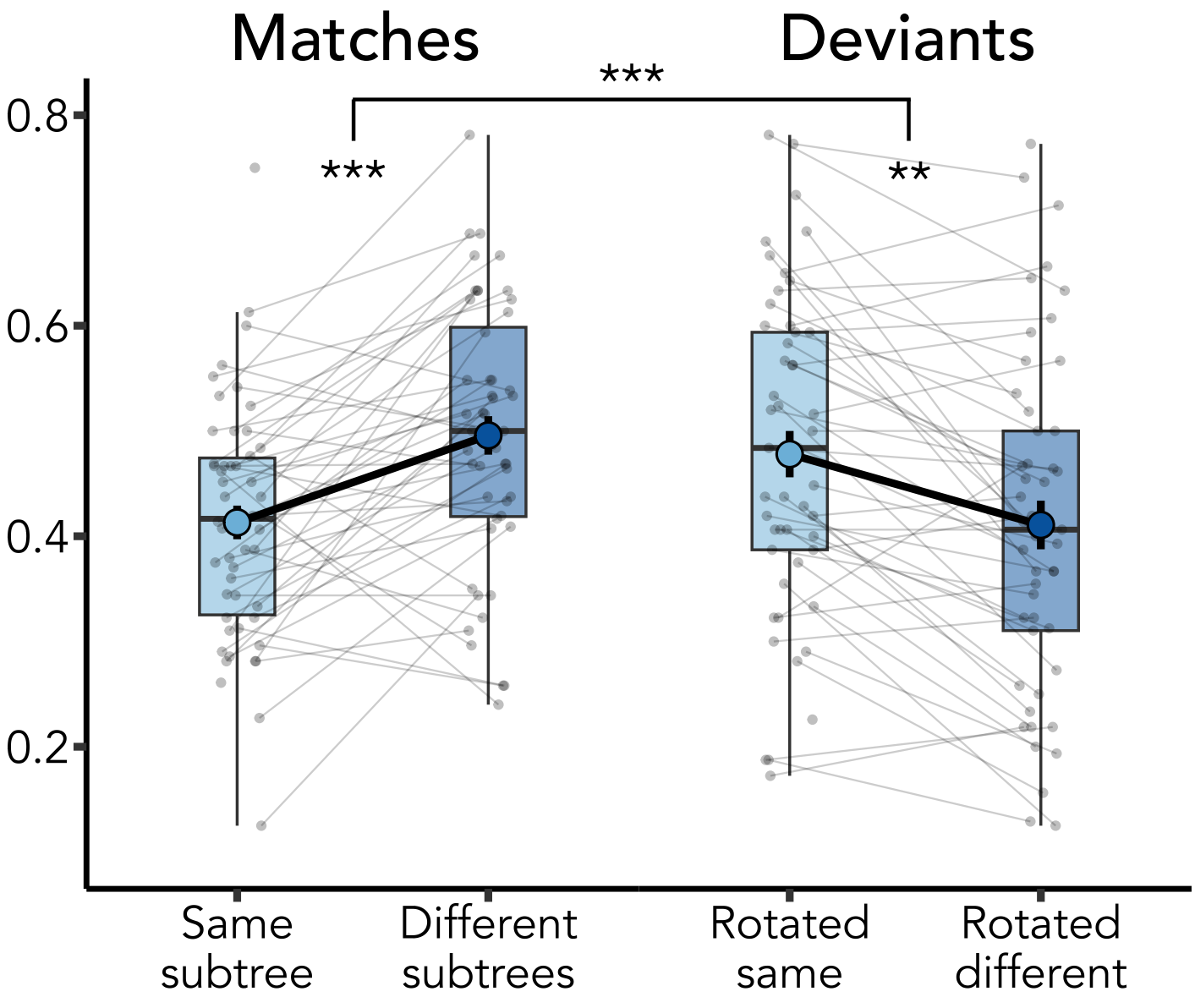

Sample: Encode
Target: Rearrangement?


Samples
Targets
Shape
Structure
Matches
Deviants
Tree preserved
Tree broken
Tree preserved
Tree broken
Height 3
Height 2
Height 1
Height 0

Error rates


Matches
Deviants
***
***
**
0.4
0.3
0.2
0.1
0
Congruent
Incongruent
Modified congruent
Modified incongruent
50 subjects
16 shapes
256 trials
Within-subjects

Error rates



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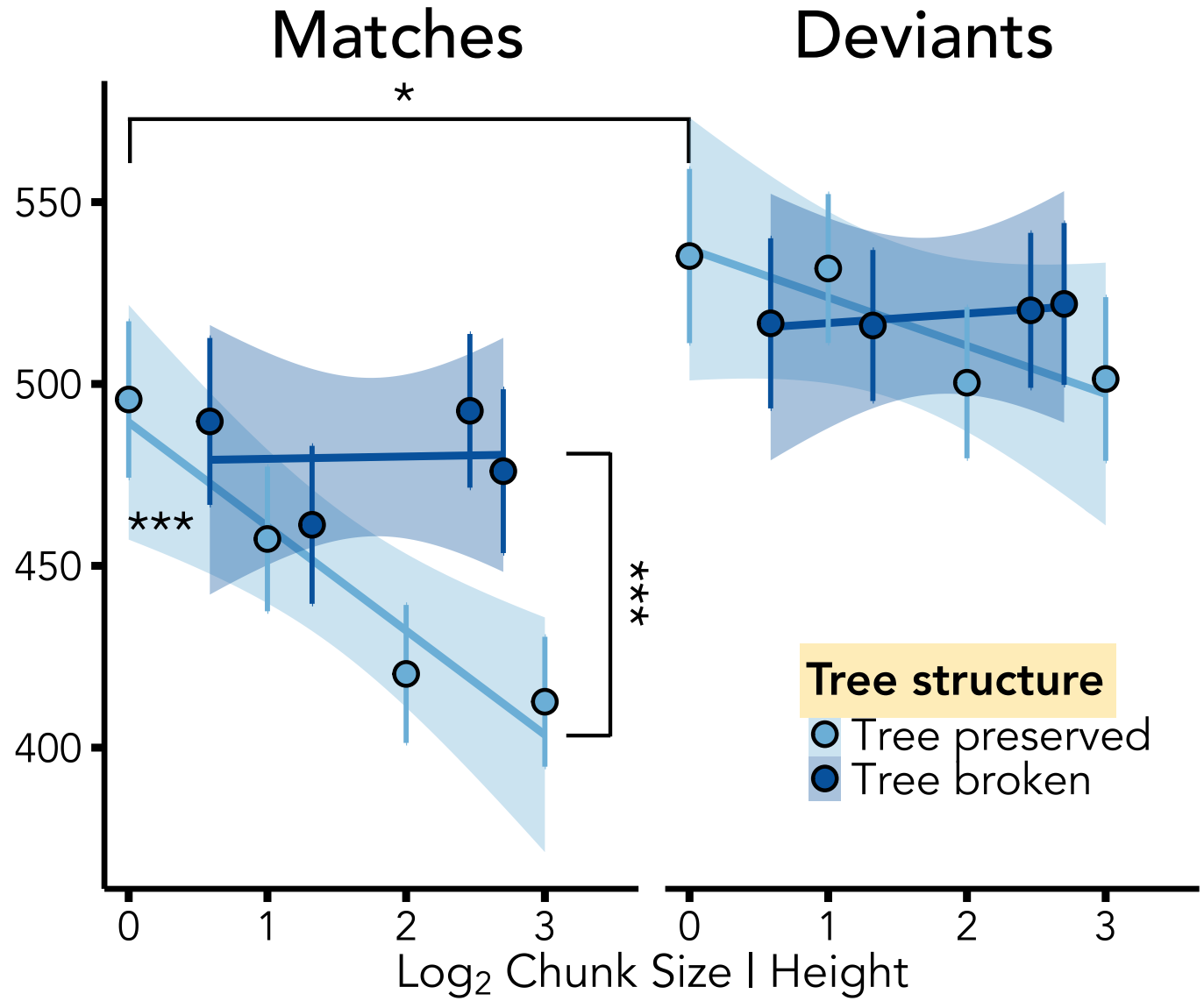
128 trials

Within-subjects

Reaction times



36 subjects

8 shapes

256 trials

Within-subjects


Fyssen

NeuroSpin
cea
Inserm

Geometric shape representations in human adults have syntactic structure

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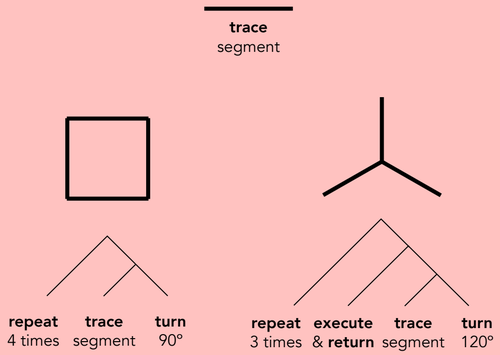

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PREREGISTERED

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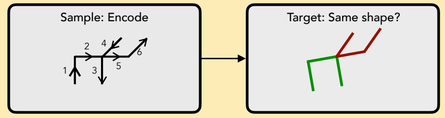

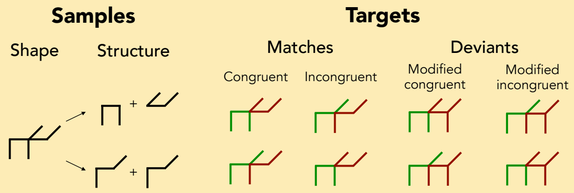

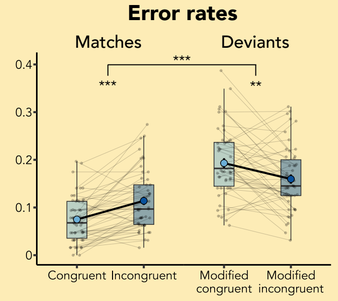

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16 shapes
256 trials
Within-subjects

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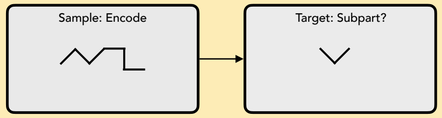
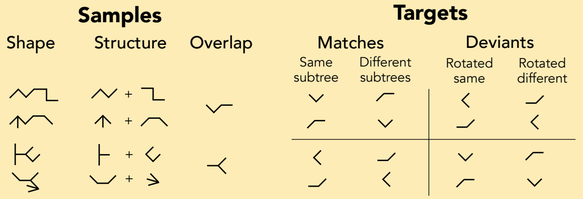
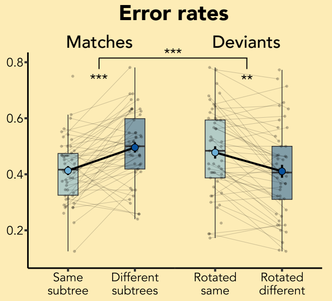
Subparts are easier to recognize when they belong to the same subtree







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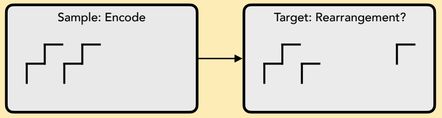

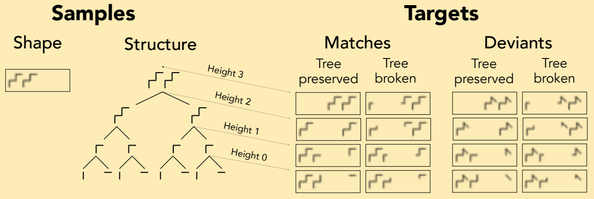

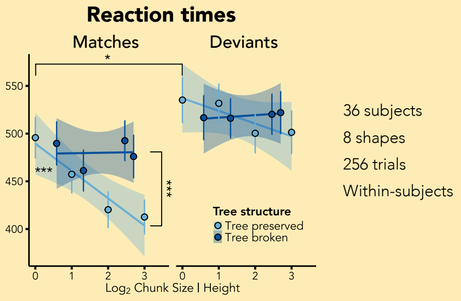

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Within-subjects

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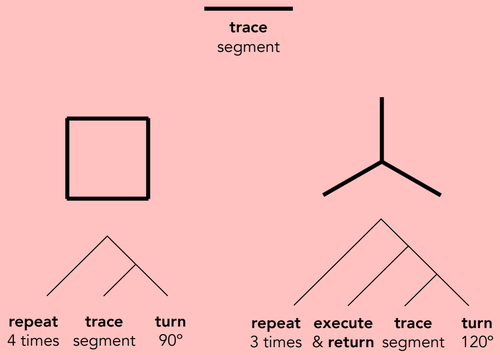

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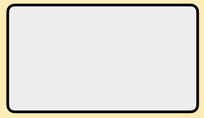

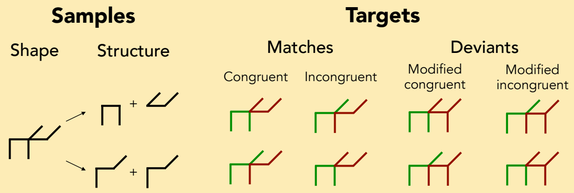

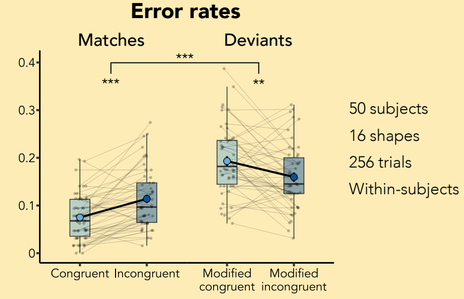

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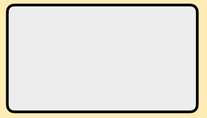

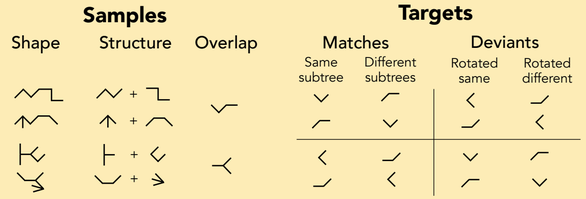

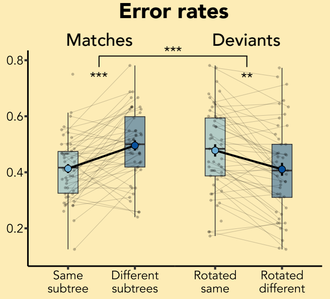

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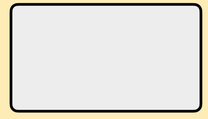

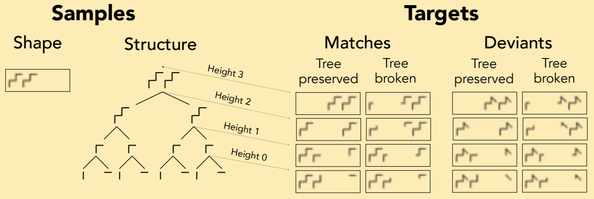

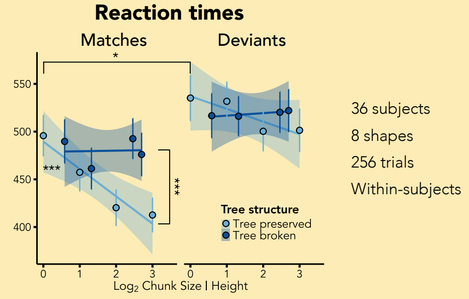

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