

Interference from an irrelevant symmetric pattern in a color symmetry detection task: Evidence against the Boolean map theory

Boolean map theory (Huang & Pashler):

At one moment awareness is limited to **one feature per dimension**, but those feature values can be associated with **multiple locations**.

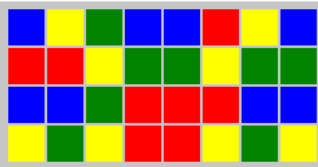
- color
- shape
- motion
- orientation
- ...

Task:

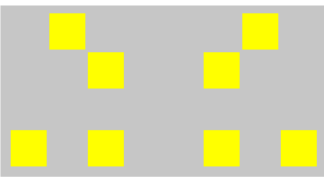
- Indicate as fast and accurate as possible whether the pattern in **target color** is symmetric
- An irrelevant color pattern could be symmetric

- red
- green
- yellow
- blue
- ...

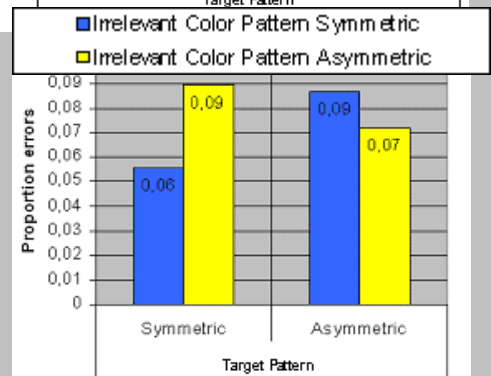
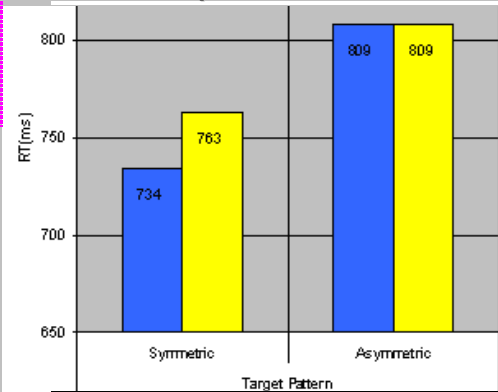
Example display Experiment 1:



According to theory only the **target pattern** can be seen:



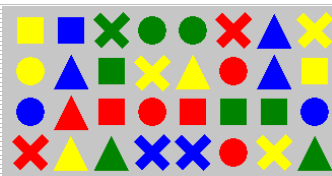
Results Experiment 1:



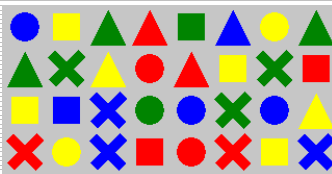
Results Experiment 2:

Example displays Experiment 2:

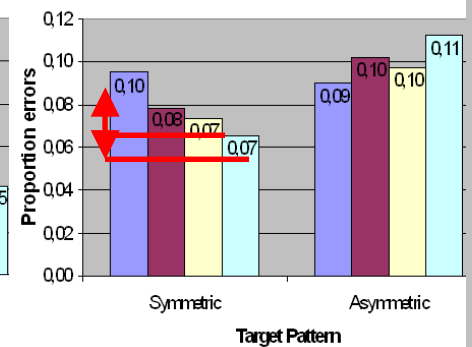
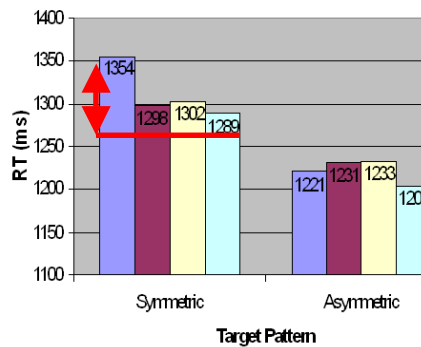
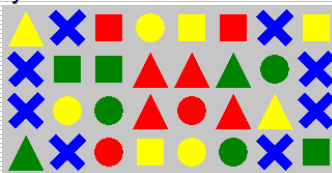
Irrelevant color pattern symmetric:



Irrelevant shape pattern symmetric:



Irrelevant shape and color pattern symmetric:



Conclusions:

- Influence of irrelevant symmetric patterns
- Evidence against Boolean map theory
- Greater influence irrelevant shape *and* color pattern than influence irrelevant shape *or* color pattern

- Irrelevant Color Pattern Asymmetric / Irrelevant Shape Pattern Asymmetric
- Irrelevant Color Pattern Asymmetric / Irrelevant Shape Pattern Symmetric
- Irrelevant Color Pattern Symmetric / Irrelevant Shape Pattern Asymmetric
- Irrelevant Color Pattern Symmetric / Irrelevant Shape Pattern Symmetric
- Significant difference

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