

# 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**.

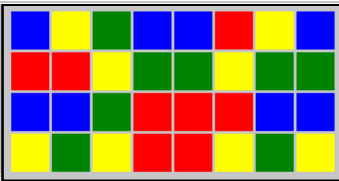
### Task:

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

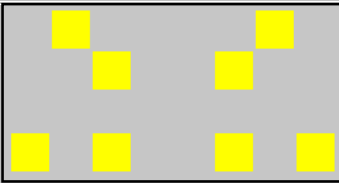
- color
- shape
- motion
- orientation
- ...

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

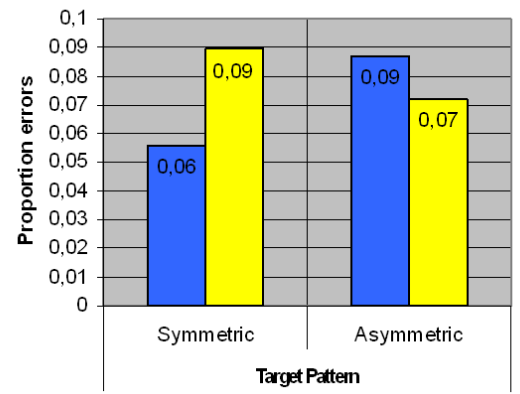
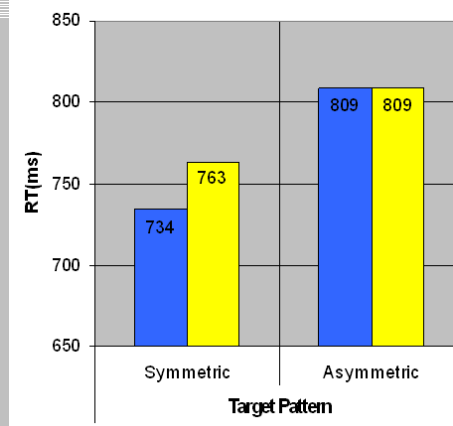
Example display **Experiment 1:**



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



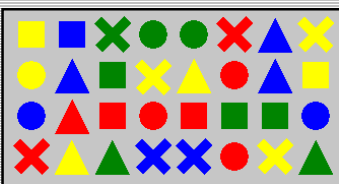
Results **Experiment 1:**



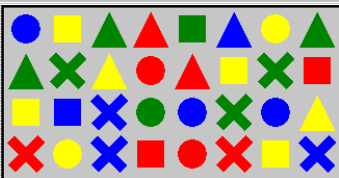
■ Irrelevant Color Pattern Symmetric  
■ Irrelevant Color Pattern Asymmetric

Example displays **Experiment 2:**

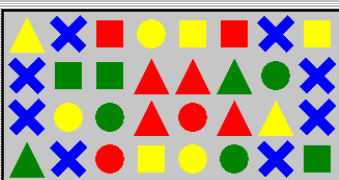
Irrelevant color pattern symmetric:



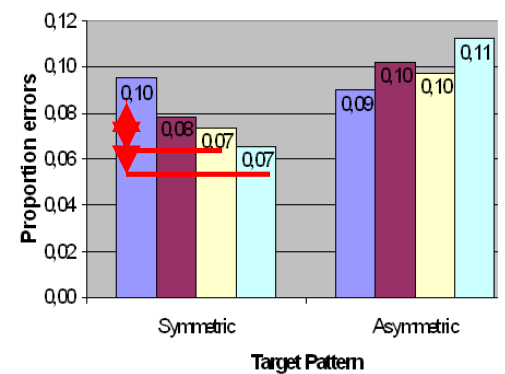
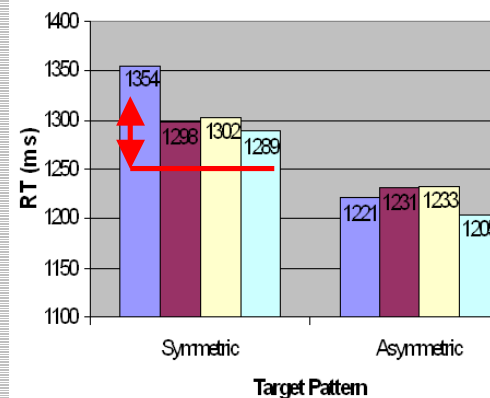
Irrelevant shape pattern symmetric:



Irrelevant shape and color pattern symmetric:



Results **Experiment 2:**



■ 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

## 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