The perception of multi-dimensional regularities
Sumeyye Cakal, Ru Qi Yu, Yu Luo & Jiaying Zhao
1Department of Psychology, 2Institute for Resources, Environment and Sustainability, University of British Columbia

How does the visual system extract structured information from multiple feature dimensions?

Experiment 1: How does the visual system extract regularities from color and shape dimensions?

Condition 1: Color regularities (red/blue)
Division: horizontal

Condition 2: Shape regularities (circle/square)
Division: vertical

Condition 3: Color+Shape regularities
Division: horizontal

Detection of two-dimensional regularities is as good as the detection of regularities on a more salient (color) dimension.

Experiment 2: Is the finding specific to the color dimension?
Boundary discrimination performance

Detection of three-dimensional regularities is as good as the detection of regularities on the most salient (surface) dimension.

Visual system relies on the most salient feature dimension to extract regularities, even though every dimension is equally informative.