Background & Objectives

• Previous studies have found that gist perception requires attention (Cohen et al., 2011; Mack & Clarke, 2011).
• However, a recent study (Bronfman et al., 2014) found that a gist-like ensemble statistic, “color diversity”, was immune to dual-task interference.
• To test whether this gist-like statistic can be perceived without attention, we combined a variant of Mack & Rock’s (1998) inattentional blindness paradigm with Bronfman et al.’s (2014), and asked:
  1) Can inattentional blindness occur for the color diversity gist-statistic (and other statistics)?
  2) Are these gist-like percepts really immune to dual-task interference?

Methods & Results – Experiment 1

(N = 50)

Methods & Results – Experiment 2

Methods:

Identical to Experiment 1 except...

1) color diversity changed from low to high in Critical Trial 1
2) size diversity changed from low to high in Critical Trial 2.

(N = 24)

Methods & Results – Experiment 3

Methods:

Identical to Experiments 1 & 2 except...

1) color diversity changed from low to high in Critical Trial 1
2) mean size was manipulated instead of size diversity (Haberman & Whitney, 2012)
3) size diversity changed randomly on all lead-up trials, and was either high or low on Critical Trial 2.

(N = 24)

Methods & Results – Experiment 4

Methods:

Identical to Experiment 3 except...

1) subjects trained to discriminate high vs. low color diversity on the first 7 trials (single-task color)
2) subjects then trained to discriminate high vs. low mean size on the next 7 trials (single-task size)
3) Exp 3 was then repeated, but at the very end, on a 3rd critical trial, we asked about color again.

(N = 30)

Conclusions

1) Across the 4 experiments, >50% of subjects were inattentionally blind to the color and size gist-like statistics. Thus, awareness of gist appears to require at least a minimal amount of attention.
2) Dual-task interference was observed with the color and size tasks. Therefore, an attentional cost is associated with color (& size) phenomenality. Attention is necessary for conscious perception, even for basic ensemble percepts such as color and size.

References