Introduction

HYPOTHESES & PREDICTIONS
- Grouping color-orientation conjunctions via illusory contours should produce an overall grouping-related benefit to VWM performance.
- We also predicted that the VWM grouping benefit would be largest during tests of binding relative to single features.

Methods

Participants
- Experiment 1a: N = 66; Experiment 1b: N = 35
- Experiment 2a: N = 57; Experiment 2b: N = 46
- Age range for both experiments: 18-22
- All had normal or corrected-to-normal color vision as confirmed by the Ishihara Color Test administered prior to the experiment.

Experimental Design
- Both Experiments used a 2 (Grouping: Kanizsa, Random) X 3 (Test: Color, Orientation, Binding) within-subjects factorial design.
- 288 Trials (48 trials per block; 6 blocks total)
- Articulatory Suppression task performed during each trial
- Stimulus Array: 3 color-orientation conjunction stimuli (i.e., “pacman inducers”) with each item arranged to either form an illusory Kanizsa triangle (Kanizsa) or with each item randomly oriented to form no illusory percept (Random)
- Experiment 1a & 1b: Simultaneous presentation of inducer stimuli (each inducer stimulus was backward masked in Exp. 1b)
- Experiment 2a & 2b: Sequential presentation of inducer stimuli (each inducer stimulus was backward masked in Exp. 2b)

Conclusions
- There was an overall grouping-related benefit to VWM performance.
- This grouping-related benefit was selective to the orientation and binding conditions, with only marginal benefits for color in Exp. 2a.
- In contrast to our predictions, the grouping-related benefit was equivalent in both the orientation and the binding test conditions.

Implications
- These findings partially replicate previous grouping-related benefits found using illusory contours, which typically find larger grouping benefits when testing the feature of orientation compared to color.
- These findings suggest that grouping-related benefits in VWM are strongest for the stimulus feature that is relevant to the grouping cue being used (e.g., illusory contours in this suite of experiments).

References

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