Effects of stimulus energy on the attentional blink
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Background

- The attentional blink effect is commonly attributed to high level visual processes.
- Newer evidence suggests that low level processes contribute to the blink.\textsuperscript{1,2}

**How does changes in stimulus energy of all elements in the RSVP affect the AB?**

**Question:** Does stimulus energy modulate the blink?

Experiment 1

Task: Standard attentional blink task.
Stimuli: Digit-targets amongst letter-distractors in high contrast RSVP.
Timing: SOA of 100 ms in all trials.

Two conditions
1. No ISI condition: Exposure duration is 100 ms.
2. ISI condition: Exposure duration is 30 ms and ISI is 70 ms.

Experiment 2

Task: Standard attentional blink task.
Stimuli: Digit-targets amongst letter-distractors in RSVP.
Timing: Exposure duration and SOA is 100 ms in all trials.

Two conditions
1. High contrast condition: Black on white ($C_w = 0.99$).
2. Low contrast condition: Dark grey on light grey ($C_w = 0.27$).

Results

1. Blink magnitude increases with decreased exposure duration.
2. Blink magnitude increases with decreased contrast.

Thus, Blink magnitude increases with decreased stimulus energy.

Analysis

- Blink magnitude ($AB_{mag}$) was calculated by dividing the area above mean $p(T2|T1)$ with the maximum possible blink area.
- Repeated measures ANOVAs of arcsin[$p(T2|T1)$] revealed a significant main effect of lag in both experiments ($p < 0.001$).
- Main effects of condition were also significant in both experiments:
  - Experiment 1 (ISI): $p = 0.029$
  - Experiment 2 (Contrast): $p = 0.038$

References