



Fatal attraction or reluctance to part: Is oculomotor disengagement independent of the initial capture of the eyes?



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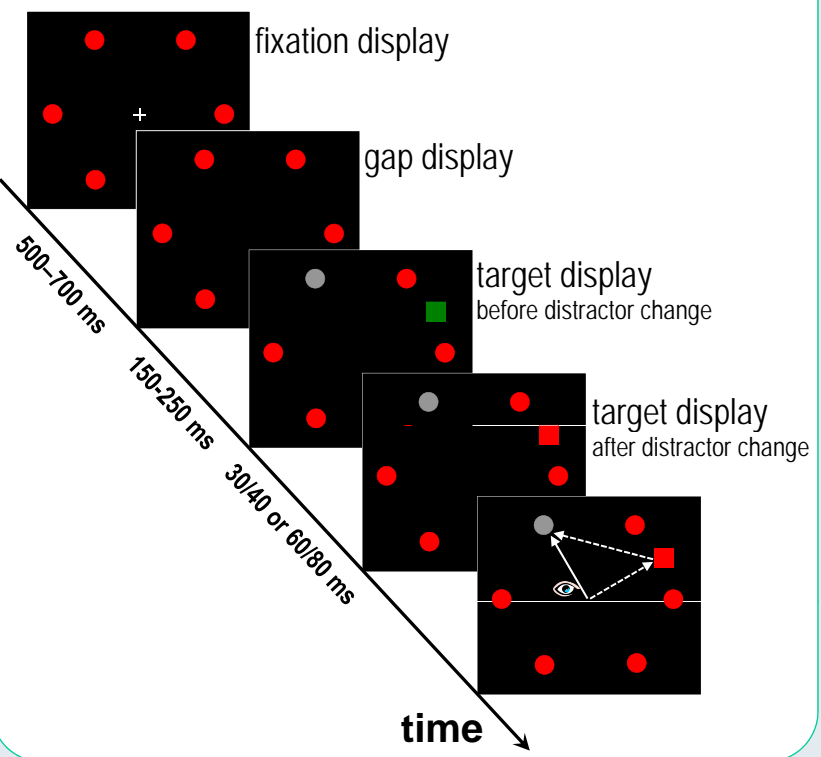
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Are oculomotor capture and oculomotor disengagement controlled by the same underlying processes?

- Previous research: Distractors that share relevant features with the target provoke more oculomotor capture and subsequently longer gaze dwell times on the distractor than distractors dissimilar from the target (e.g. Becker et al., JEP:HPP, 2009; Mulckhuysen et al., EBR, 2008)
- Close coupling between capture and disengagement? Do distractors that produce the highest proportion of capture always produce the longest dwell times?
- Hypothesis: Capture may be more strongly driven by bottom-up signals (especially for fast saccades); disengagement should always be under top-down control

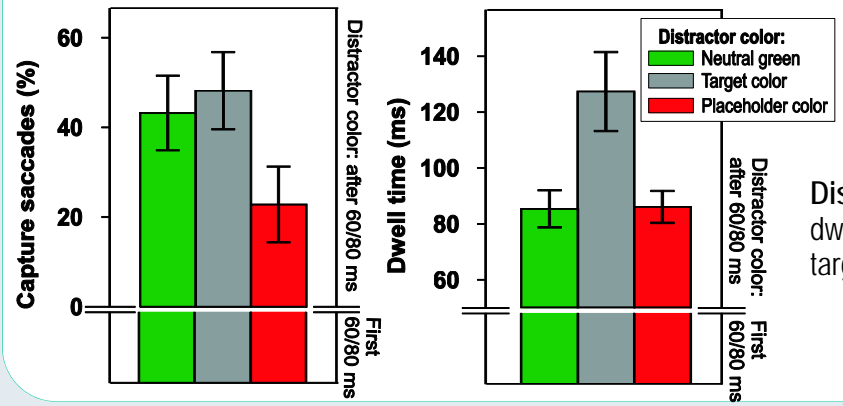
Oculomotor capture task

- task: execute a saccade towards the circle that changes to gray
- sudden onset distractor square: captures the eyes on some trials
- gap manipulation to facilitate capture and speed up saccades
- distractor color: neutral (green), target (gray), placeholder (red)
- distractor color change: short (30/40 ms) vs. long (60/80 ms) delay



No distractor color change

compare green (neutral color), gray (target color) and red (placeholder color) distractors



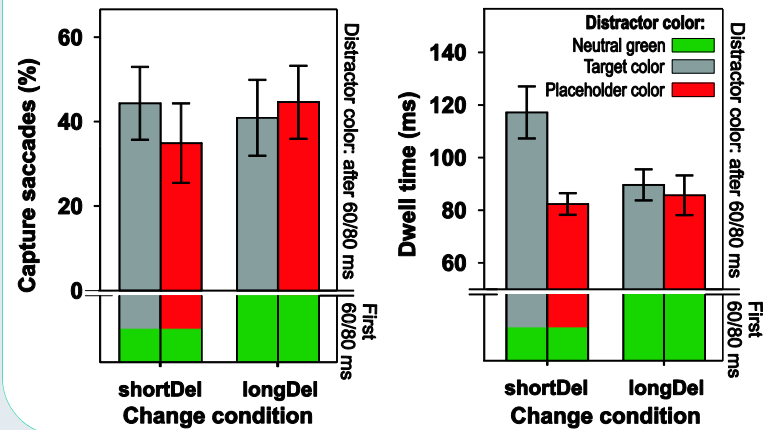
Capture: bottom-up controlled
pop-out distractors (gray/green) provoke more capture

Disengagement: top-down controlled
dwell times longer for the distractor sharing the target color

Dissociation possible!

Distractor color change

distractor initially green, then changes to gray or red after a short (30/40ms) or long (60/80 ms) delay



Capture: relies on the earliest signals
hardly any effect of change, even with short delay

Disengagement: longer integration window
the change does affect dwell times in the short, but not in the long delay condition

No effect of the change even though it occurs ~100ms before the eyes land on the distractor!

- parallel programming of saccades
- early "dead time" for corrective saccades?