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Attentional Guidance in Visual Search

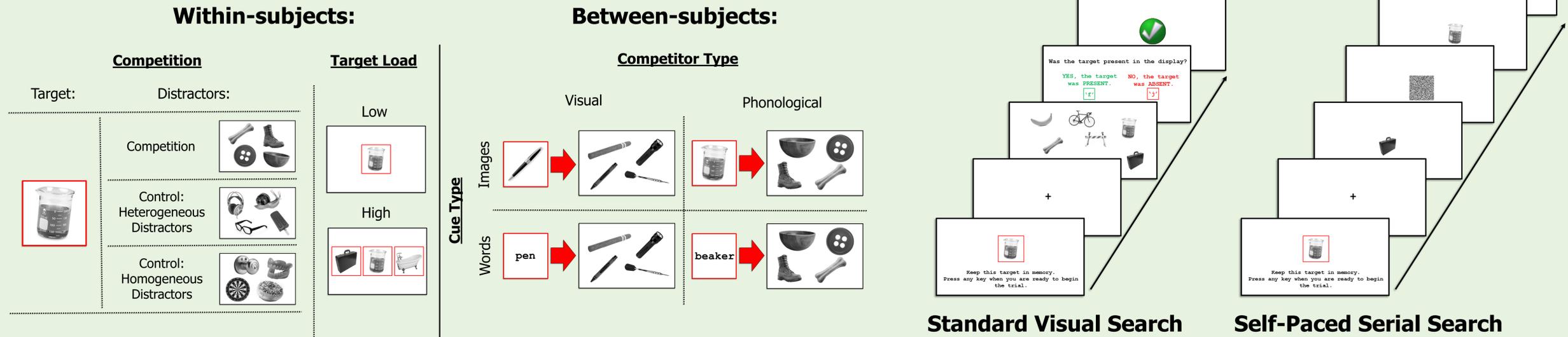
- Single-feature search can be efficient ("pop out"), while conjunction search is effortful (Treisman & Gelade, 1980).
- However, relevant physical features can bias attention in guided search (Wolfe, 2007; Wolfe, Cave & Franzel, 1989).
- Categorical information about physical stimulus characteristics (Schmidt & Zelinsky, 2009), as well as conceptual (Dahan & Tanenhaus, 2005), semantic (Huettig & Altmann, 2005) and phonological (Huettig & McQueen, 2007; Meyer, et al., 2007) information can also influence search guidance.
- The nature of the task also influences target representations: Encoding multiple images encourages implicit naming (Zelinsky & Murphy, 2000), and phonological competition occurs between search targets and distractors when participants are initially familiarized with the names of the stimuli (Gorges, et al., 2013; Meyer, et al., 2007).

The Present Investigation

- Implicit naming demands should be minimal in single-target search: Subjects should represent targets visually when given image cues, and generate visual representations when given word cues.
- Subjects may convert to a less memory-taxing verbal code to represent targets in multiple-target search with image cues, rather than maintaining multiple image templates in memory. With word cues, subjects may simply retain the verbal code, rather than generating visual representations from the target names.
- Interference from phonologically-similar distractors should be greater under increased target load, where subjects are more likely to incidentally encode distractors (Hout & Goldinger, 2010; 2012).

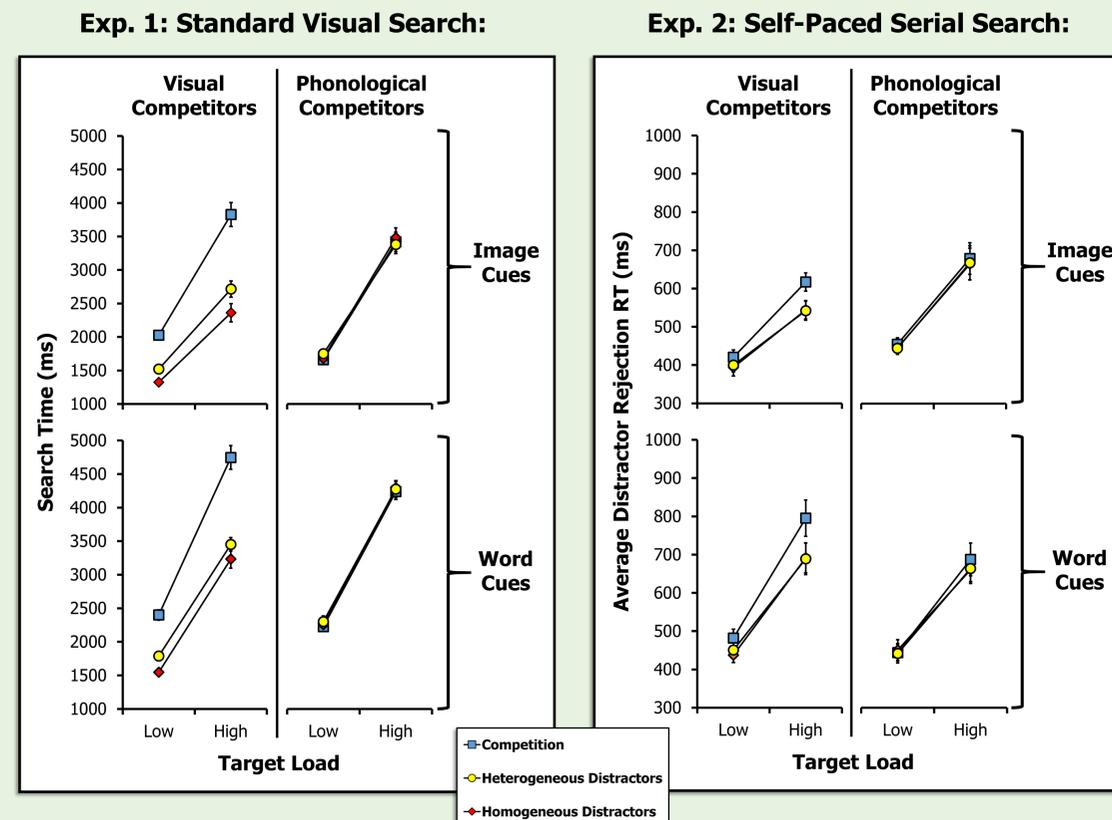
Method:

Subjects initially familiarized with the names of all stimuli.



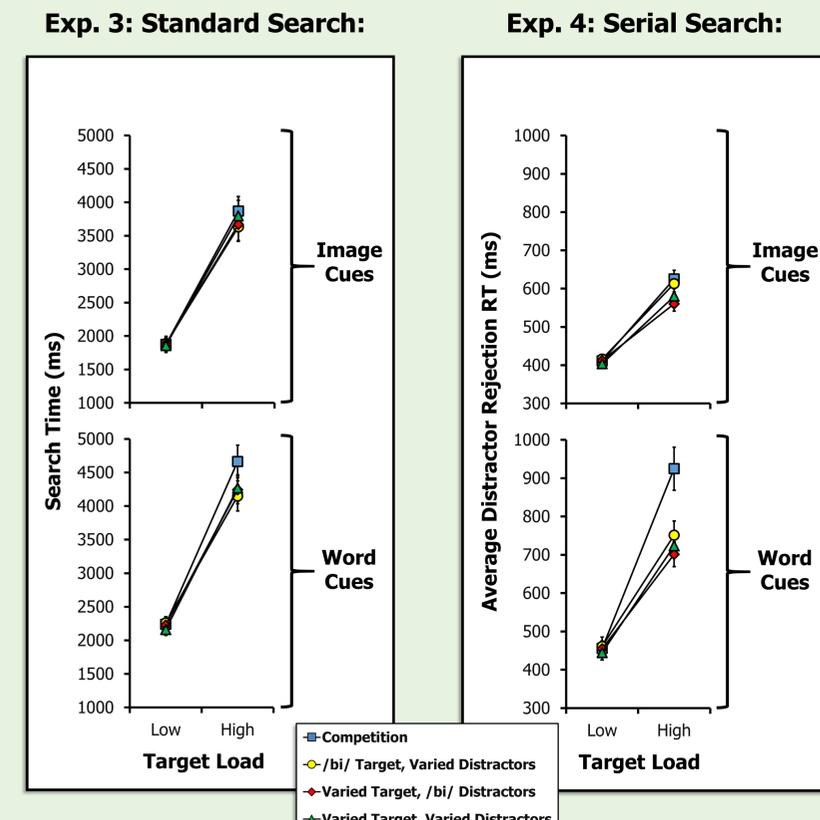
Results: Weak Phonological Competitors

Shape competitors and /b/, /c/, /d/, /f/ onset competitors.



Results: Strong Phonological Competitors

Competitors shared /bi/ onset with the target(s). **Cue Type** is the only between-subjects variable; only phonological competition was examined.



Conclusions:

- The effect of phonological competition emerges in multiple-target search with strong, but not weak, competitors.
- Word cues encourage subjects to implicitly name targets under high target load (Gorges, et al., 2013; Zelinsky & Murphy, 2000).
- Linguistic information is useful in rejecting non-targets in visual search.

References

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