# Don't label me!: Search for familiar, nameable objects vs. search for unfamiliar, novel objects



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# Does knowing the name of an object help you locate it more efficiently?

The Conceptual Hook (Brady, Konkle, & Alvarez, 2011)

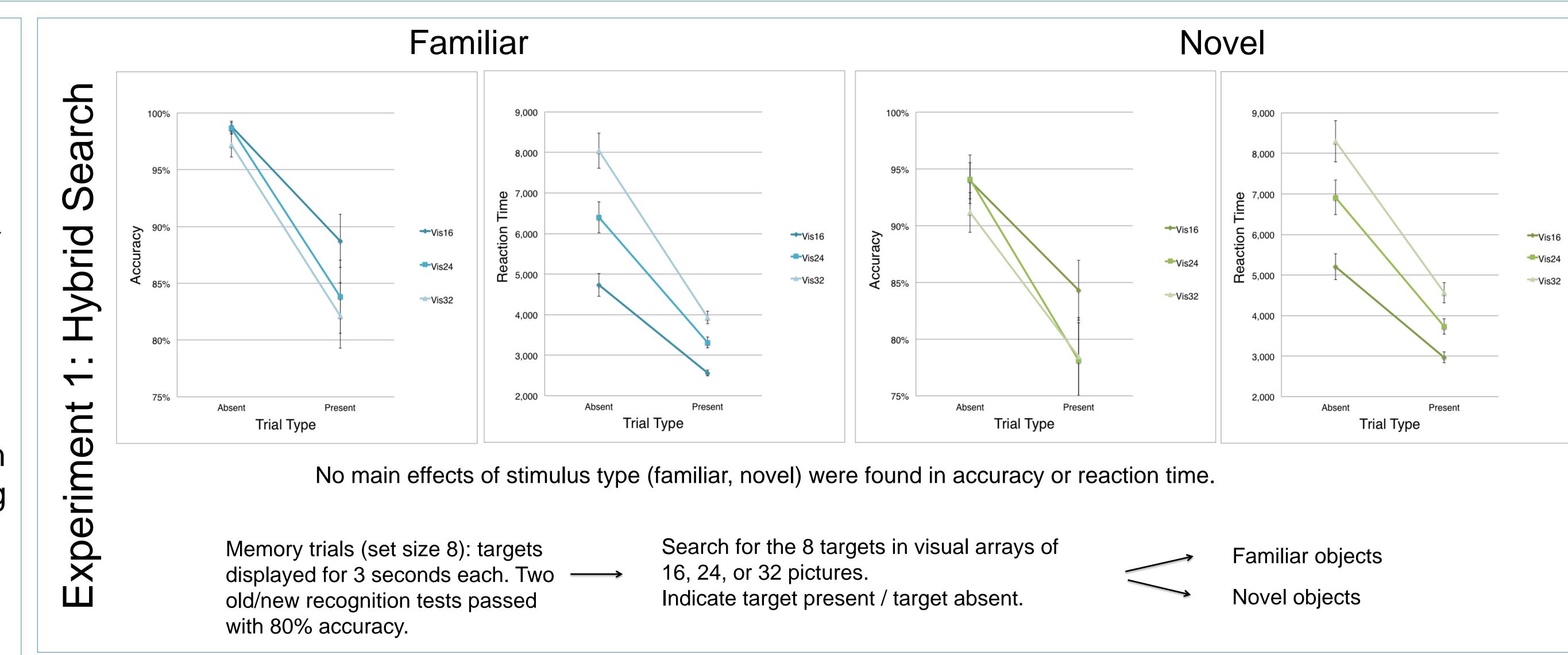
- Memory for images is better when they are semantically recognizable and nameable (Koutstaal et al., 2003).
- PET imaging has revealed activation of the occipital region when retrieving novel objects, but activation of prefrontal regions when retrieving familiar objects (Simons et al., 2011).

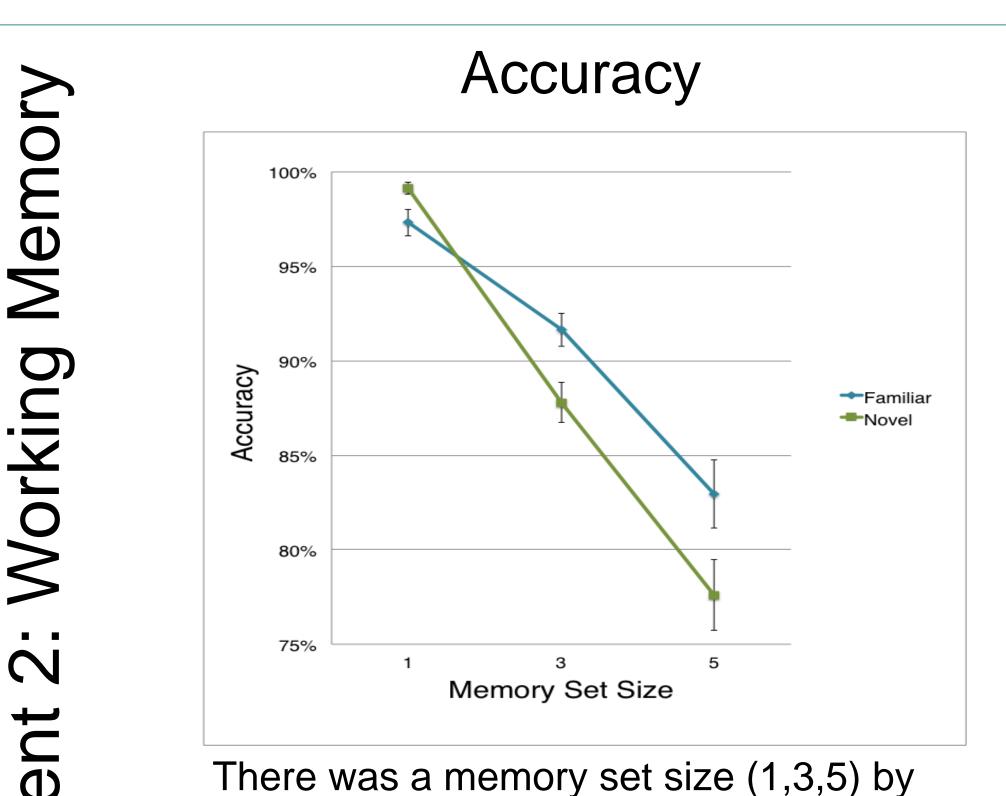
Hybrid Search and Activated Long-Term Memory

- Research on hybrid search (Wolfe, 2012) relies on photorealistic, nameable stimuli, allowing search with memory sets that far exceed the capacity of working memory.
- The memorized items in hybrid search may reside in an area akin to Cowan's (1995) concept of activated long-term memory.

## Current Study

- Under what circumstances do linguistic labels affect search?
- If semantic labels are beneficial for visual long-term memory, the ability to name an item should affect hybrid search performance but not necessarily search performance that relies on working memory.
- To this end, we tested the effects of semantic labels across a wide range of search tasks. These include hybrid and more classic (working memory) search, as well as search for varying target set sizes and varying identity consistency across trials.





Memory Set Size

We found an interaction between consistency (consistent, varied) and stimulus type.

There was a memory set size (1,3,5) by stimulus type (familiar, novel) interaction.

Memory trials (set size 1, 3, or 5): Targets displayed prior to each trial.

Search for the targets in visual arrays of 16, 24, or 32. Indicate target present / target absent.

Participants completed 12 blocks of trials, which constituted a full crossing of our experimental manipulations: 3 (set size: 1,3,5) x 2 (stimuli: novel, familiar) x 2 (consistent, varied).

Reaction Time

#### Stimuli

#### Familiar Novel

stimulus type (familiar, novel) interaction.



(Konkle et al., 2010) Stimuli from the Massive Memory Database (Horst & Hout, 2015) Stimuli from the **NOUN Database** 

### Conclusions

- Nearly identical performance (in accuracy and RT) in the hybrid search task indicates that semantic knowledge may be unnecessary when search relies on items that reside in a long-term memory store.
- Linguistic labels do seem to affect search performance when a relatively large number of items in working memory must be constantly updated.
- RTs were slower when searching for familiar objects, suggesting a possibly prohibitory effect of semantic information that may be due to implicit object naming (e.g., Walenchok, Hout, & Goldinger, 2013).