How Exact is Exact?
In visual search a re-sized, re-oriented, or mirrored cue is just as effective as an exact cue.

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Procedure

Conditions

Mixed Targets (with cue):
Target changes from trial to trial, cue is needed to identify weight.
Blocked Target (no cue):
Target is the same on every trial, cue is needed to identify weight.

If your target is:

You could be one of these:

Results

Conclusions

The present results show that “Exact” does not mean a pixel by pixel match. Some degree of change can be tolerated.

Specifically, cue use is not based on a cue-target percept match of size, orientation, or left-right reflection.

However, it may be somewhat based on color.

Future Directions

What other mutations can be tolerated?
To what extent are observers identifying the cued objects?
Were orientation, size, and reflection manipulations tolerated here only because color was diagnostic? Would we get the same results with achromatic stimuli?

Introduction

1) Knowing what you’re looking for helps you find it faster.

Even though you can quickly find the orange one even in visual search, without knowing where it will be ahead of time you will be slowed down by some time it would take to search.

2) Exact Picture Cues become as useful as Blocked Targets by 200 ms. Abstract descriptions (words, type pictures) are not enough.

In search among heterogeneous items (photorealistic pictures, as here, or rectangles, as above), you need the cue to know what the target is - there is no useful bottom-up information.

Even though you can quickly find the incongruent item in oddball conjunction search, knowing what it will be ahead of time makes your search go quicker.

In visual search a re-sized, re-oriented, or mirrored cue is just as effective as an exact cue.

The present results show that “Exact” does not mean a pixel by pixel match. Some degree of change can be tolerated.

Specifically, cue use is not based on a cue-target percept match of size, orientation, or left-right reflection.

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More Questions

1) Is guidance following the same rules as object recognition?

No - speed of object recognition is sensitive to rotation (Jolicoeur 1985) but our results suggest that guidance of attention during visual search is not.

2) Is color the only effective source of guidance?

No - in previous experiments, when observers searched for color-orientation conjunctions (as, “green horizontal” in Intros Box 1), knowing color AND orientation was more effective that just knowing color.

References

This work is supported by a grant from the TSA F-106