Semantic Priming Influences Object Detection

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Background

Object Memories Influence Figure Assignment

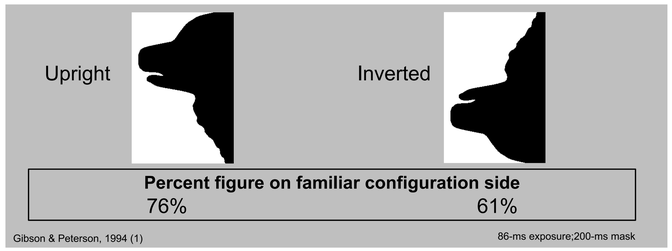


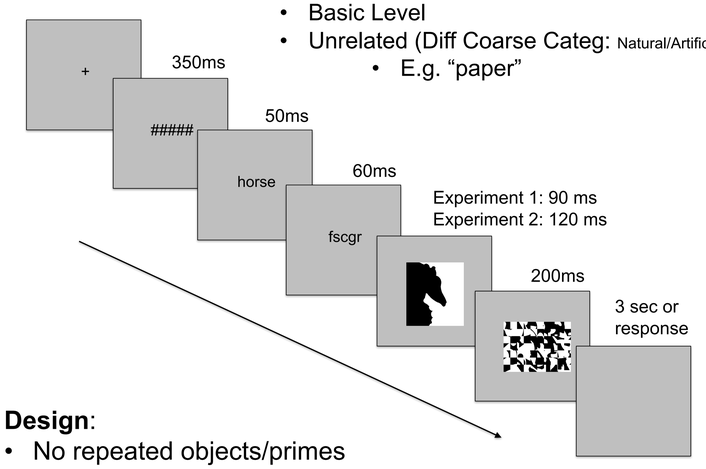
Figure assignment = object detection (know where object is wrt border)

Semantics are also activated during fig assign/ object detection[2-4]
Shown by word categorization RTs (Natural/Artificial)

Question

Can semantic activation from a word prime influence the probability of perceiving the figure on the familiar side?
If so, semantics can affect **object detection**
(as opposed to recognition[5]).

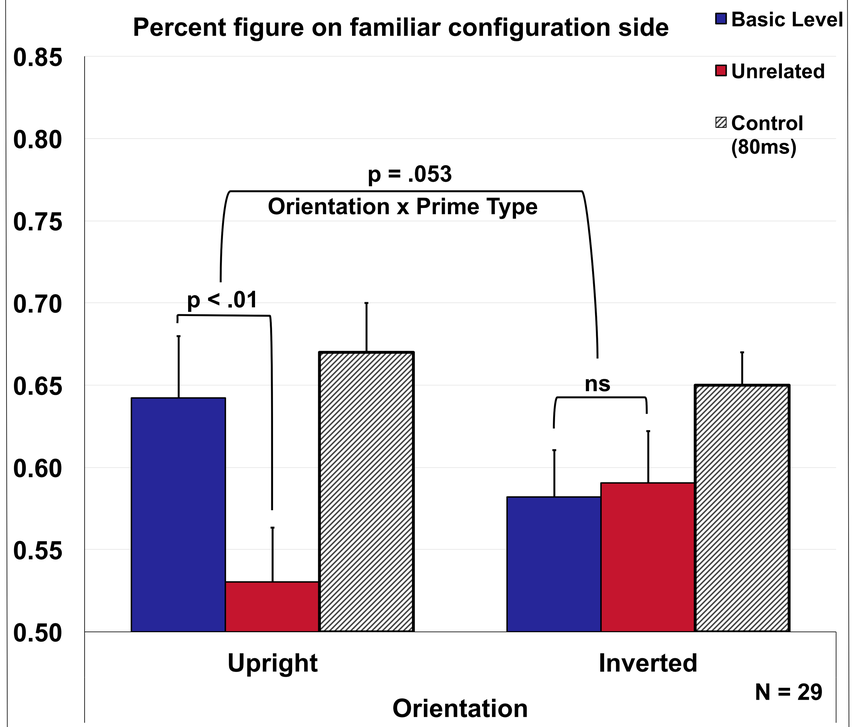
Experiments 1 & 2: Method



Primes:
Masked Words
- Basic Level
- Unrelated (Diff Coarse Categ: Natural/Artificial)
  - E.g. "paper"

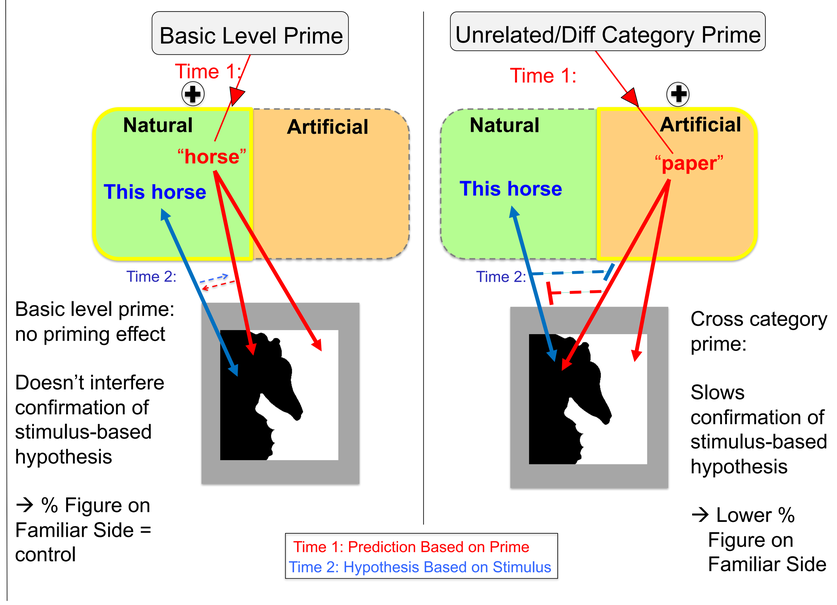
Design:
- No repeated objects/primes
- 32 Stimuli each with 2 primes

Experiment 1: 90-ms displays



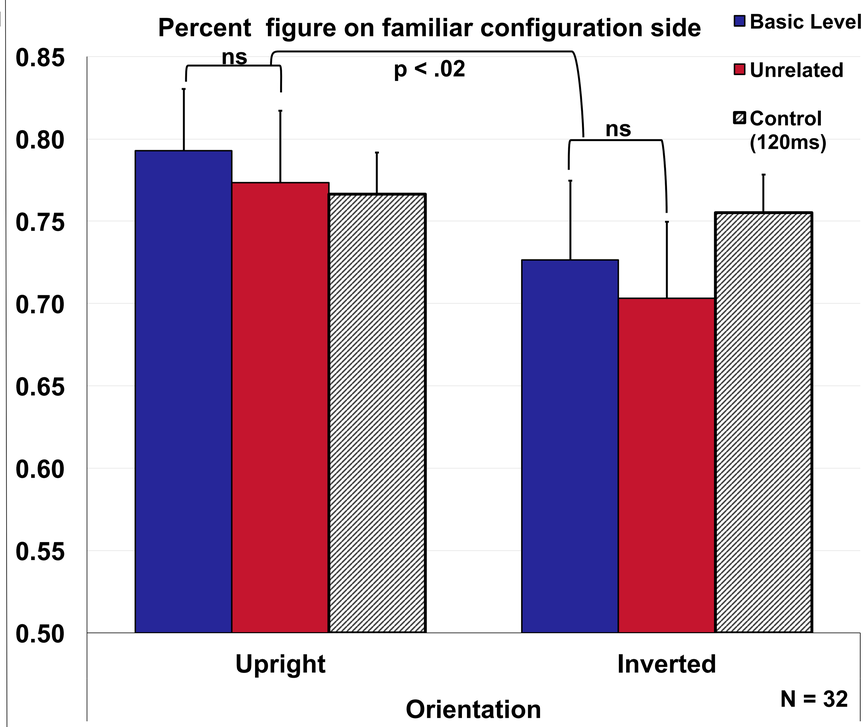
Different category prime reduces % Figure on Familiar Side

Model of How Prime-based Prediction Interacts With Display-based Hypothesis



Inverted display weakly activates "This horse" → slower object detection → Lower % fig on fam side

Experiment 2: 120-ms displays



Conclusions

A different coarse category prime interferes with the stimulus-based hypothesis

With enough display time the stimulus-based hypothesis can be confirmed

Implies intact representation of display is necessary for hypothesis confirmation
→ Feedback?

Scan for a PDF of the poster

References

1) Gibson, B.S., & Peterson, M.A. (1994). *JEP:HPP, 26(2)*, 299-316.
2) Peterson, M. A., et al. (2012). *Gestalt Theory*, *34*(3/4), 297–314.
3) Sanguinetti, J. L., et al. (2014). *Psychological Science*, *25*(1), 256–264.
4) Cacciamani, L., et al. (2014). *AP&P, 76*, 2531- 2547.
5) Lupyan, G., & Ward, E. J. (2013). *PNAS*, *110*(35), 14196–14201.

Support: MAP ONR N00014-14-1-067

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