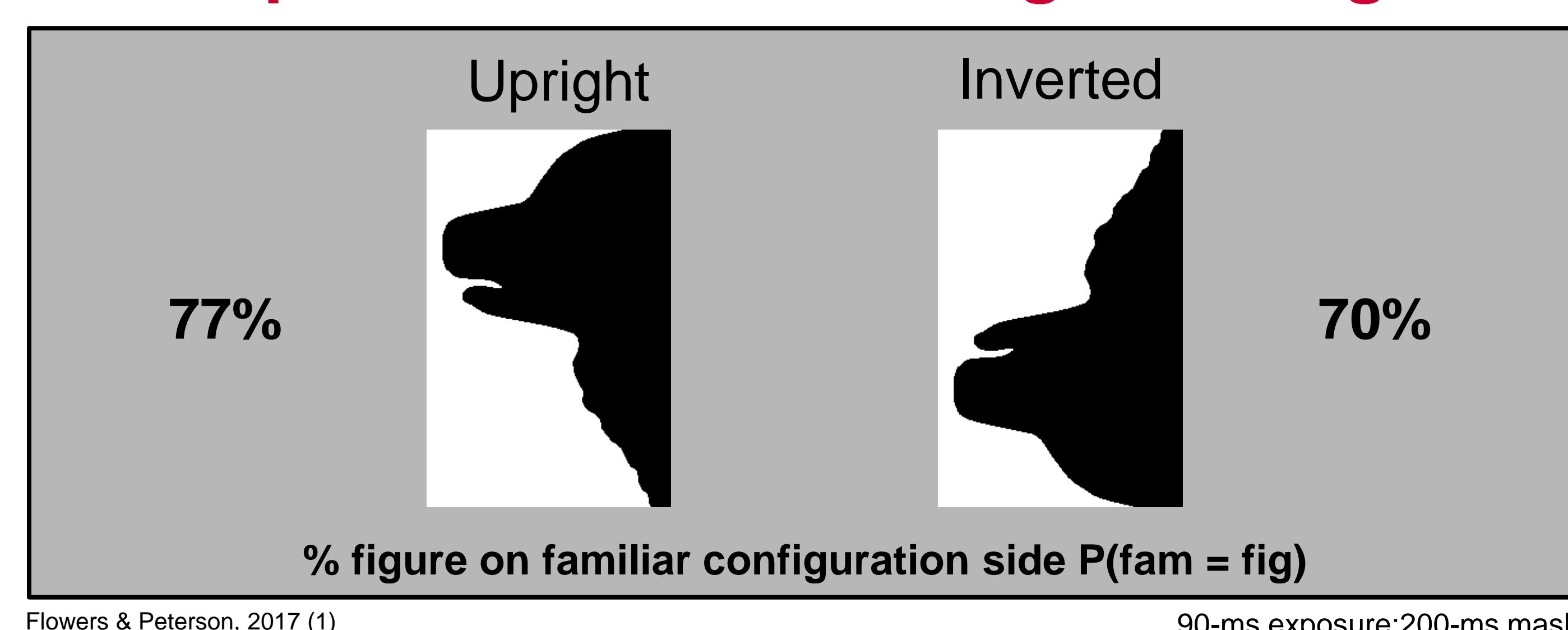


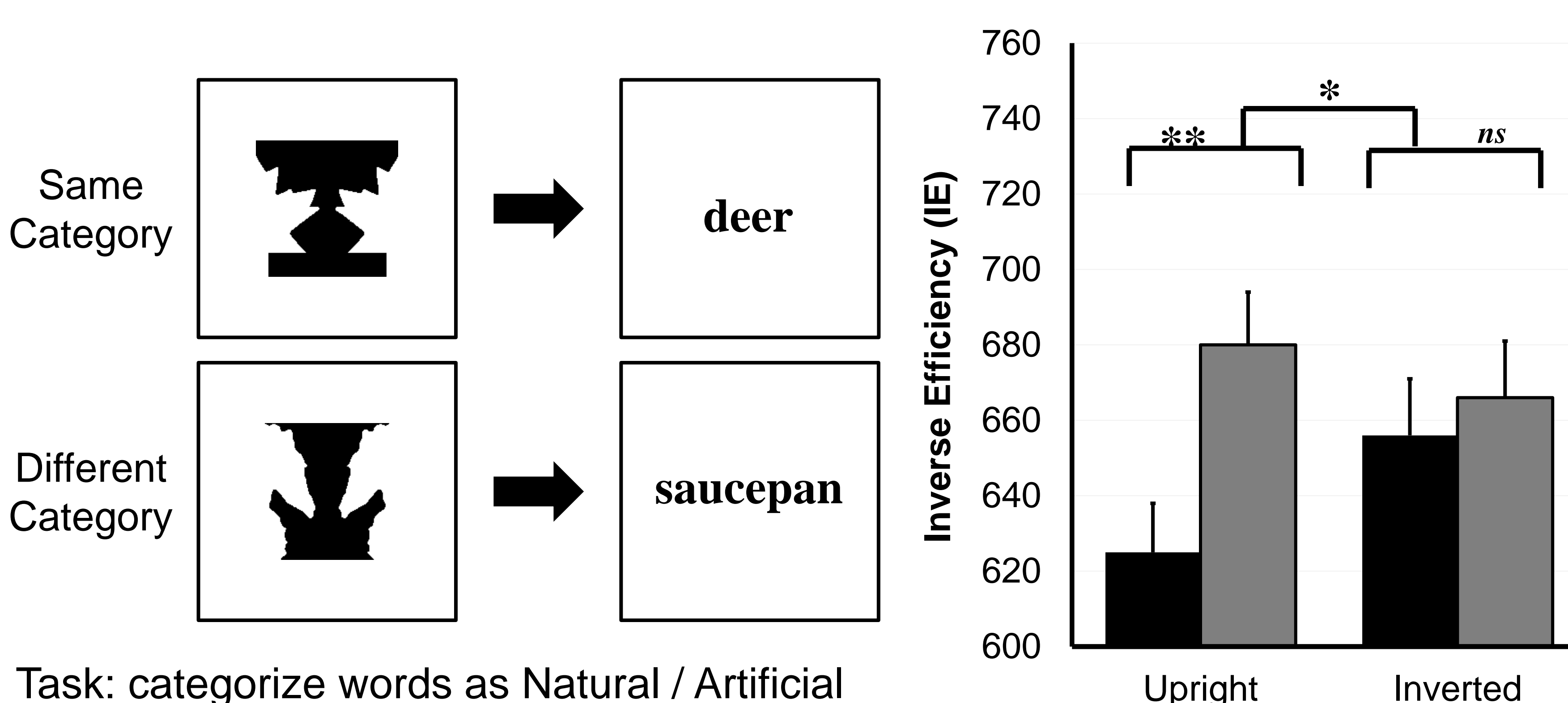
63.430 Do Semantic Expectations Arising From Masked WordPrimes Aid Object Detection At The Earliest Level?

Background

Past Experience Influences Figure Assignment



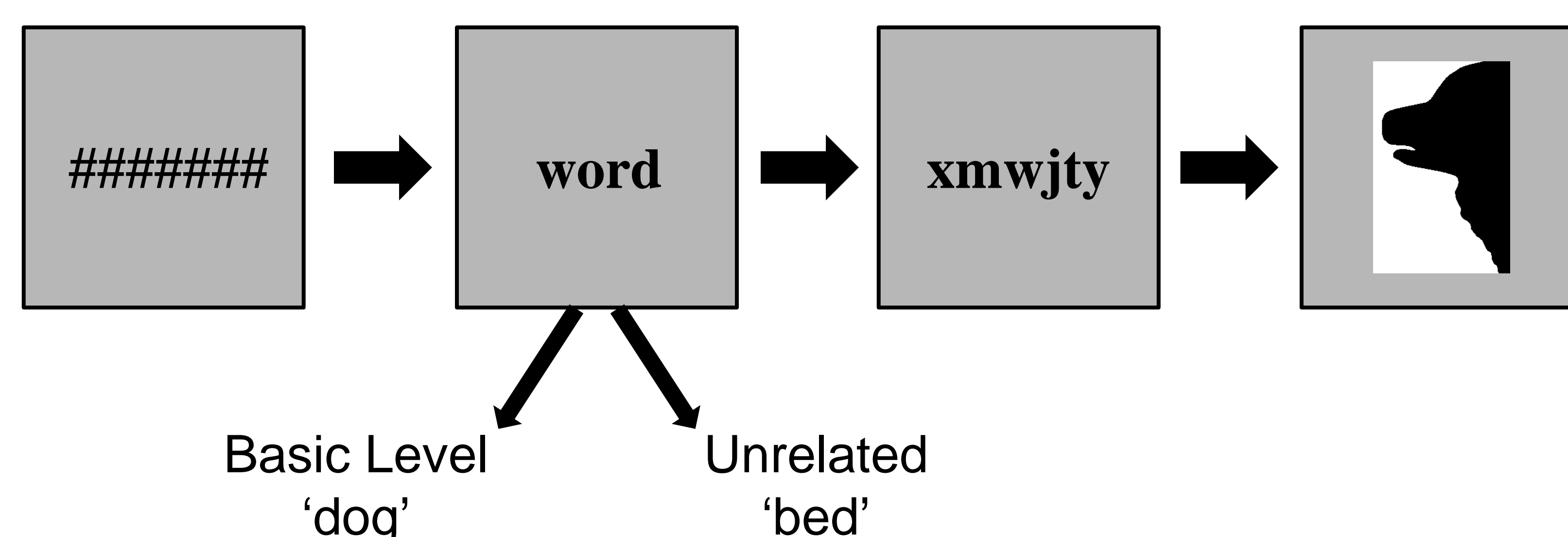
Semantics Activated During Figure Assignment²⁻⁴



Question

Can semantic activation from a word prime increase $P(\text{fam} = \text{fig})$?

3 Previous Experiments:



No semantic priming (i.e., BL = Unr) & low $P(\text{fam} = \text{fig})$: ~65%

Why? Hypothesis:

- Task set engages relevant processing networks⁵⁻⁷
 - R/L figure task has no obvious semantic component
 - Semantic processing networks not engaged⁸

Solution:

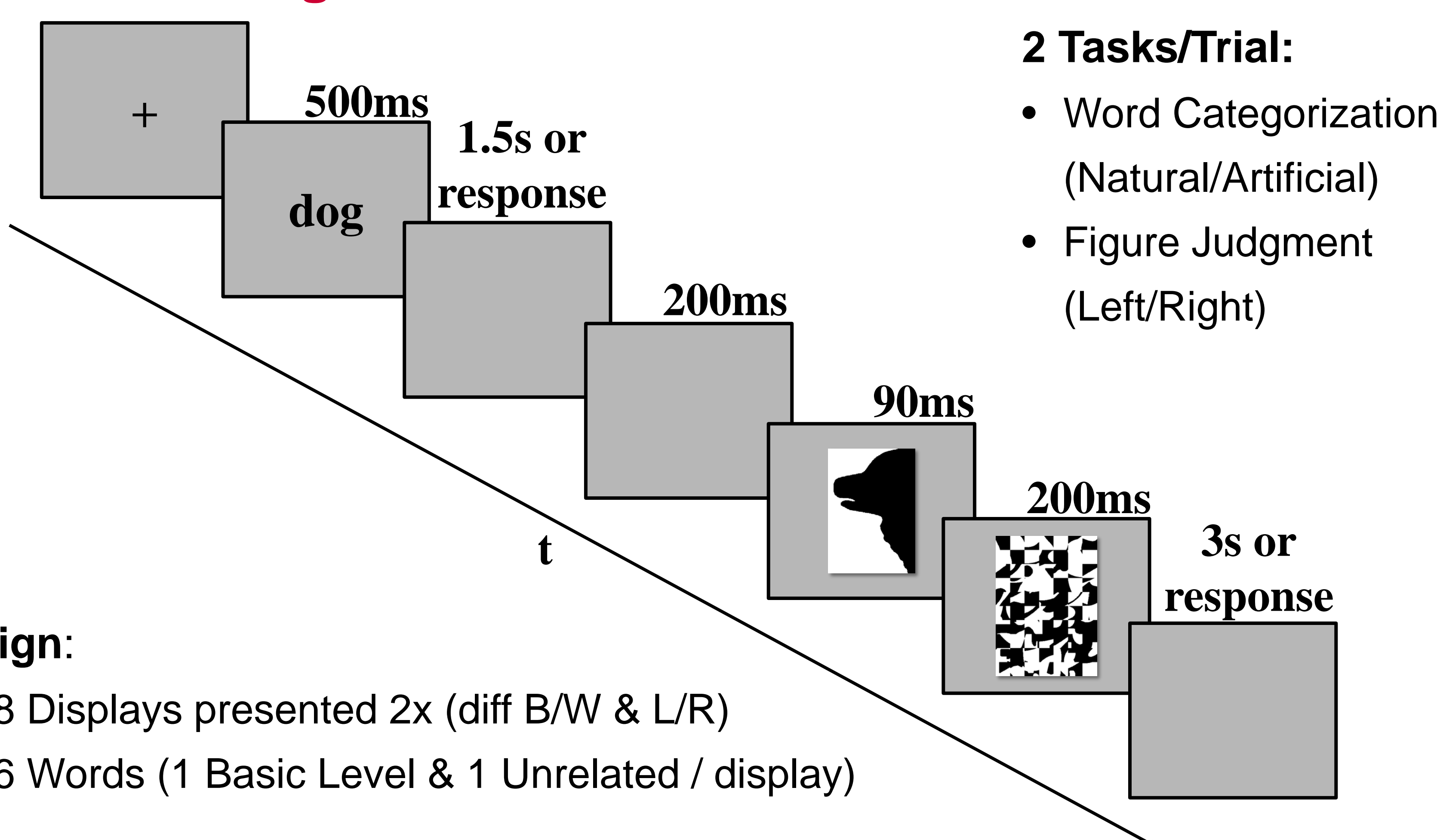
- Incorporate a semantic induction task^{6,7}

→ engage semantic processing networks

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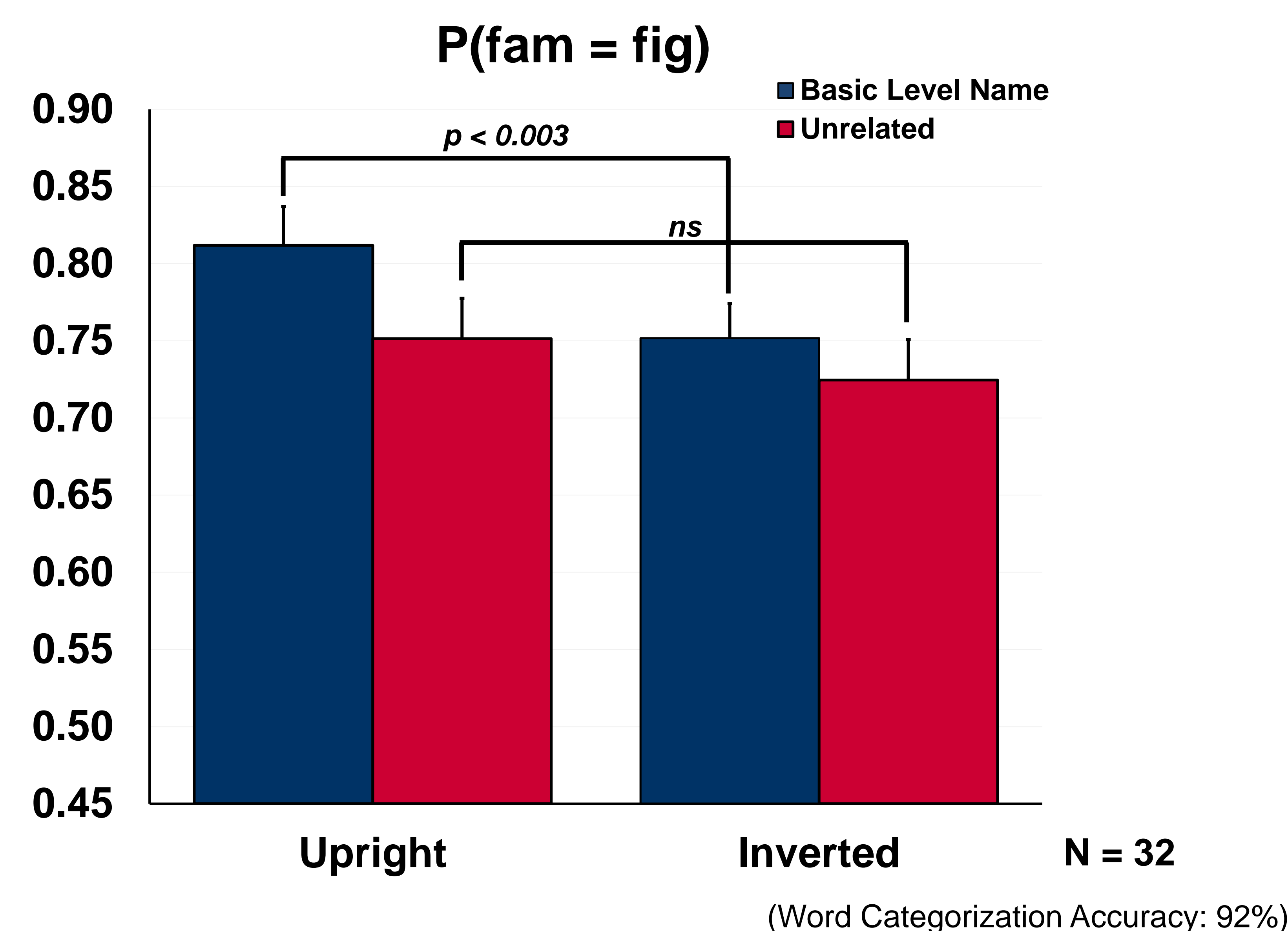
Experiment 1

Introducing an Induction Task with Visible Primes



Design:

- 38 Displays presented 2x (diff B/W & L/R)
- 76 Words (1 Basic Level & 1 Unrelated / display)

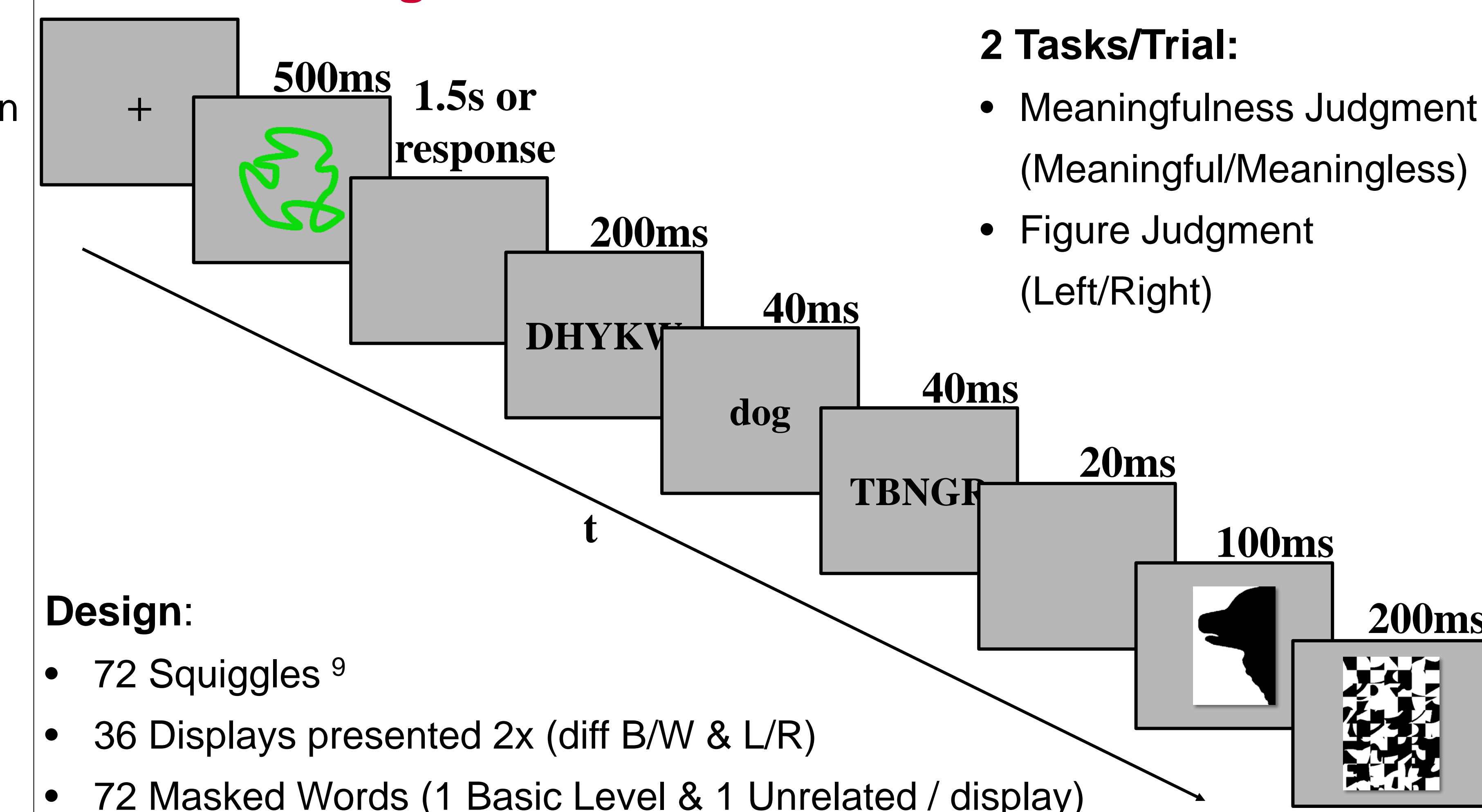


Induction task engages semantic networks for:

- Prime Word Processing**
 - Word establishes prediction for object in typical upright
 - BL Name Upright prediction confirmed: $\uparrow P(\text{fam} = \text{fig})$
 - All Other Conditions: Prediction not confirmed; display-generated activity alone determines figure assignment
- Figure Assignment Overall:** $\uparrow P(\text{fam} = \text{fig})$: 76%
- Prioritizes semantic/familiarity contributions to figure assignment (for both upright and inverted displays)

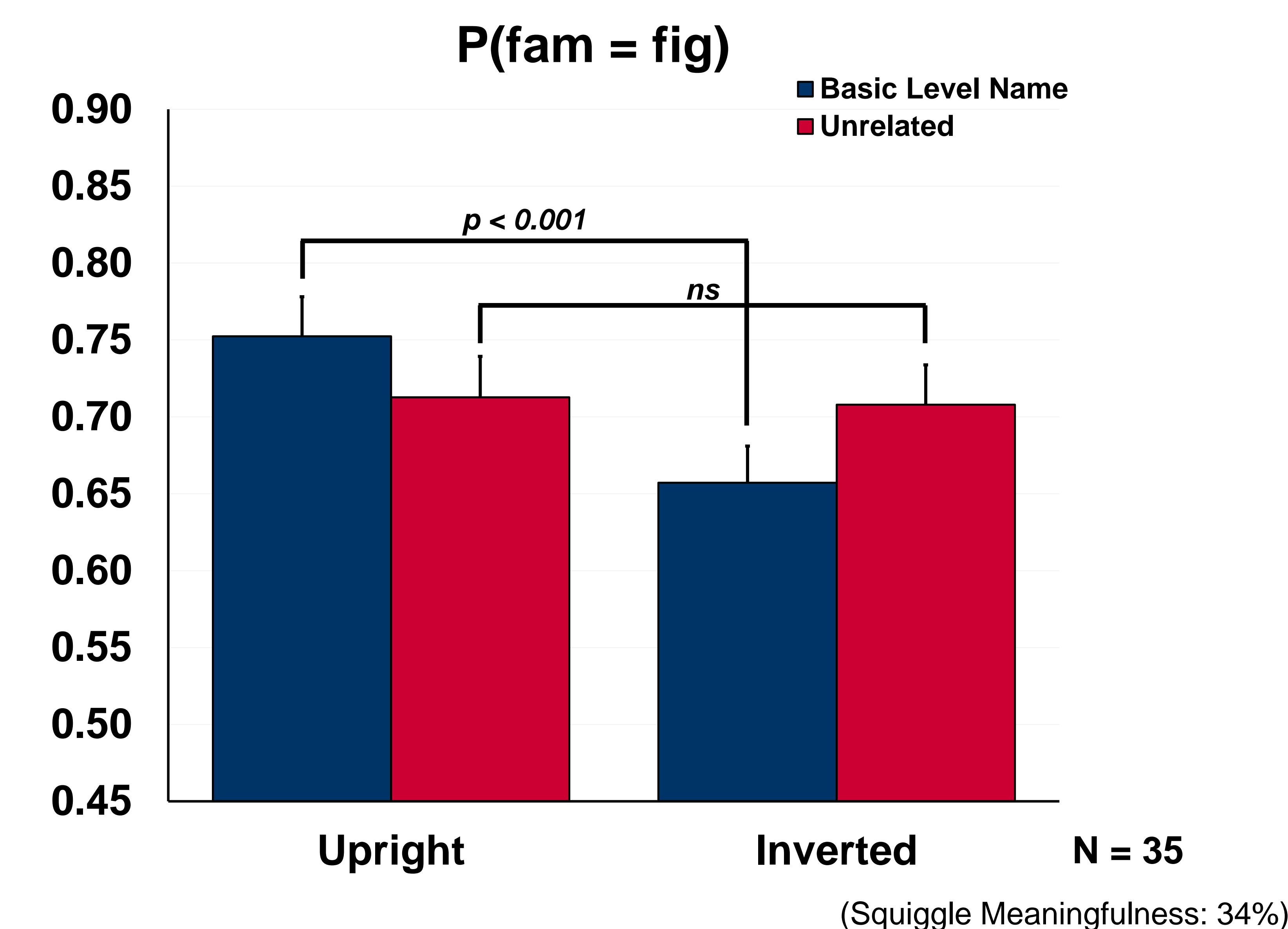
Experiment 2

Extending the Induction Task to Masked Primes



Design:

- 72 Squiggles⁹
- 36 Displays presented 2x (diff B/W & L/R)
- 72 Masked Words (1 Basic Level & 1 Unrelated / display)



Replicates Experiment 1

Conclusion: Semantic activation from a word prime influences figure assignment

Future Directions:

- Change induction task to something non-semantic (e.g., a perceptual task: loop detection with squiggles)
 - w/o a semantic induction task, no semantic priming expected
- Change timing (e.g., increase duration between induction task & prime)
 - With ≥ 800 ms between induction task response & prime, sufficient time to disengage induction task networks & engage only R/L location networks. No semantic priming expected⁶

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