

# The Blowfish Effect: Do children use exemplar typicality to determine the intended taxonomic level?



Carolyn Mazzei, Nicole Loncar, Adele Goldberg, Lauren Emberson  
Department of Psychology, Princeton University



## Background

- Word learners rely on inference heuristics:
- 1. Number of exemplars
- 2. Exemplar typicality
- Suspicious Coincidence (Xu and Tenebaum, 2007)
- Blowfish Effect (Goldberg, Emberson and Treves, under review)



- Atypical exemplars are given subordinate labels (Murphy & Brownell, 1985)

## Current Study

Do children use both type of exemplar and number of exemplar when inferring level of taxonomic categorization?

## Methods

- Participants  
N = 46 (16 male, M = 4.34 yrs)  
> 80% English Exposure
- 1. Familiarization  
Familiarized to pressing iPad and searching screen

## Methods (cont.)

- Word Learning  
4 categories  
Number of exemplars between subjects  
Typicality of exemplars within subjects

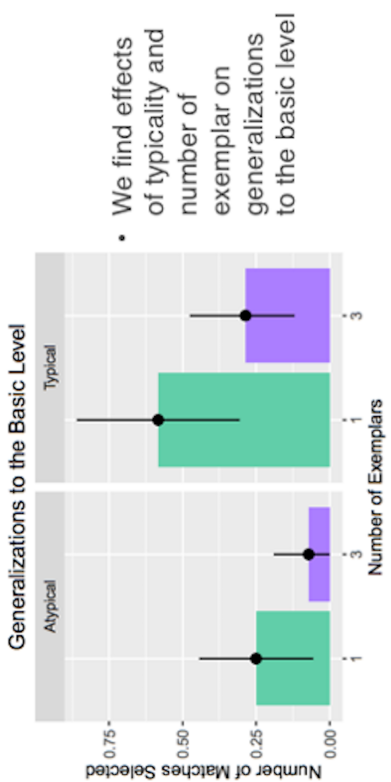


Following Xu and Tenebaum design (2007)

- Categorization  
4 categories  
Single typical exemplar

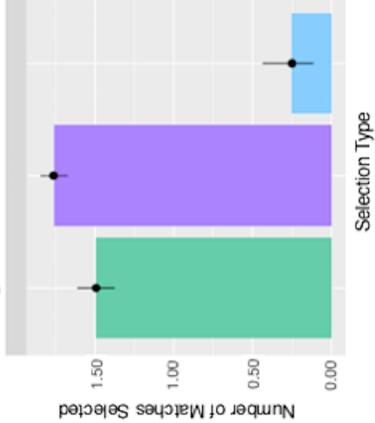


## Results



- We find effects of typicality and number of exemplar on generalizations to the basic level

## Categorization Trial Generalizations



- Children recognize atypical exemplars as being members of the category

## Conclusions

- Do we replicate the suspicious coincidence? **Yes**
- Are children sensitive to exemplar typicality? **Yes**
- Is this typicality sensitivity seen because children do not recognize the atypical items as category members? **No**

## References

Goldberg, A., Emberson, L. L., & Treves, I. N. (2017). The blowfish effect: Subordinate categories are inferred from atypical exemplars of a basic level category. *Manuscript submitted for publication*.

Murphy, G., & Brownell, H. (1985). Category differentiation in object recognition: Typicality constraints on the basic category advantage. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, Vol 11(1), 70-84.

Xu, F., & Tenebaum, J. B. (2007). Word learning as Bayesian inference. *Psychological Review*, 114(2), 245-272.

• Thank you to all families and children who volunteered their time!

• This study was funded by The Eunice Kennedy Shriver National Institute of Child Health and Human Development: 4R00HD076166-02