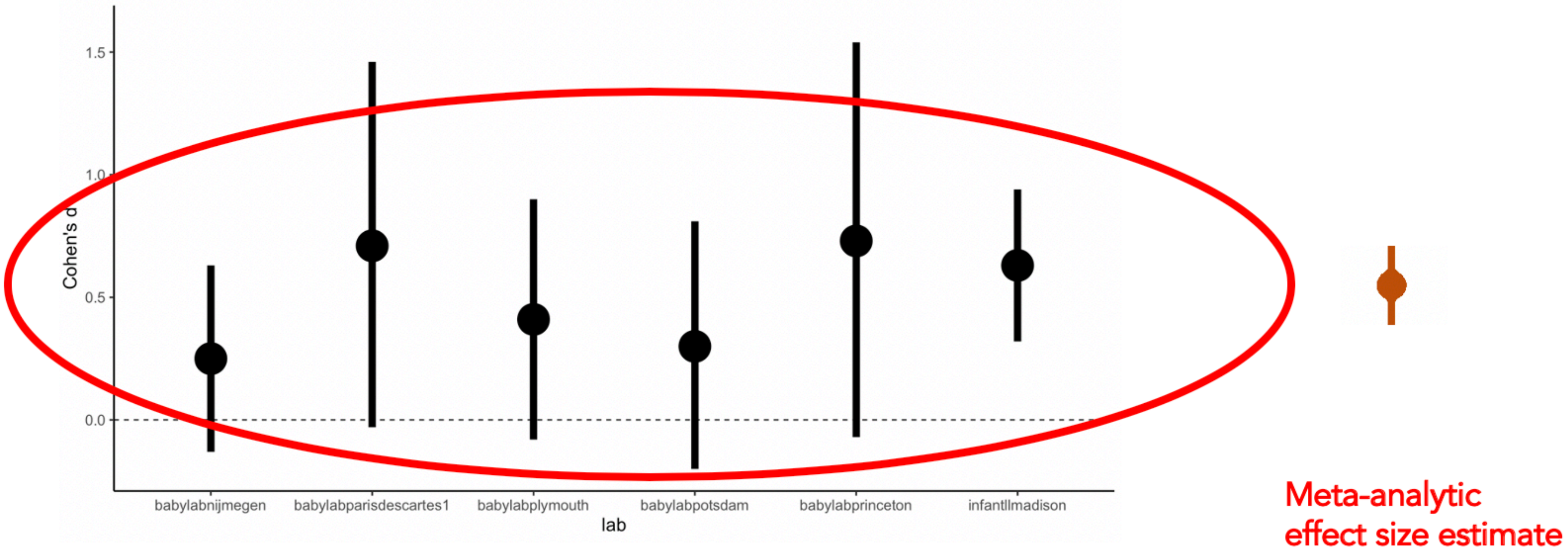
Conducting your own MA

25 March 2020

Modern Research Methods

Last time: Intro to meta-analysis

A quantitative approach to summarizing results across studies



Today

- Wrap-up coding of Deak paper
- More on mutual exclusivity meta-analysis
- Introduction to final project/choosing a topic

More practice coding effect sizes from papers

J. Child Lang. **28** (2001), 787–804.
DOI: 10.1017/S0305000901004858 Printed in the United Kingdom

NOTE

By any other name: when will preschoolers produce several labels for a referent?*

GEDEON O. DEÁK AND LOULEE YEN
Vanderbilt University

JEREMY PETTIT
David Lipscomb University

(*Received* 23 *February* 2000. *Revised* 8 *December* 2000)

https://cumulativescience.netlify.c
m/readings/deak2001.pdf

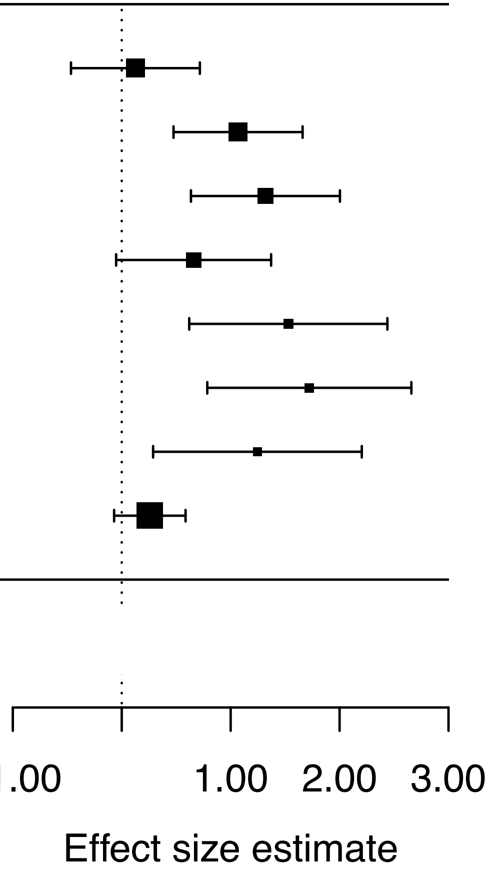
Your job #2

- In your breakout groups, calculate an effect size for the two age groups in Deak, et al. (2001) in Experiment 1.
- If you have time, you can also calculate the confidence intervals on the effect sizes.
- Disambiguation effect

Mutual exclusivity meta-analysis

First author	Year	Age (m.)	N
1. bion	2013	18	22
2. bion	2013	24	25
3. bion	2013	30	20
4. byers	2009	17	16
5. grassman	2010	24	12
6. grassman	2010	48	12
7. markman	1988	45	10
8. spiegel	2011	30	72

Grand effect size



"Forest plot"

Grand effect size estimate

Pool effect sizes across studies, weighting by sample size

Actual Meta-Analysis

Contents lists available at ScienceDirect

Cognition

journal homepage: www.elsevier.com/locate/cognit

Original Articles

The role of developmental change and linguistic experience in the mutual exclusivity effect☆

Molly Lewis[a,*], Veronica Cristiano[b], Brenden M. Lake[c,d], Tammy Kwan[c,d], Michael C. Frank[e]

[a] *Carnegie Mellon University, United States of America*
[b] *Gallaudet University, United States of America*
[c] *New York University, United States of America*
[d] *Cognitive ToyBox, Inc., United States of America*
[e] *Stanford University, United States of America*

Meta-Analysis details

- Take 5 minutes to read the Methods section of this MA (pg. 3 – 4)
- Link on website
- Starting with "2. Meta-analysis"
- Then, we'll discuss the results together

Meta-analysis details

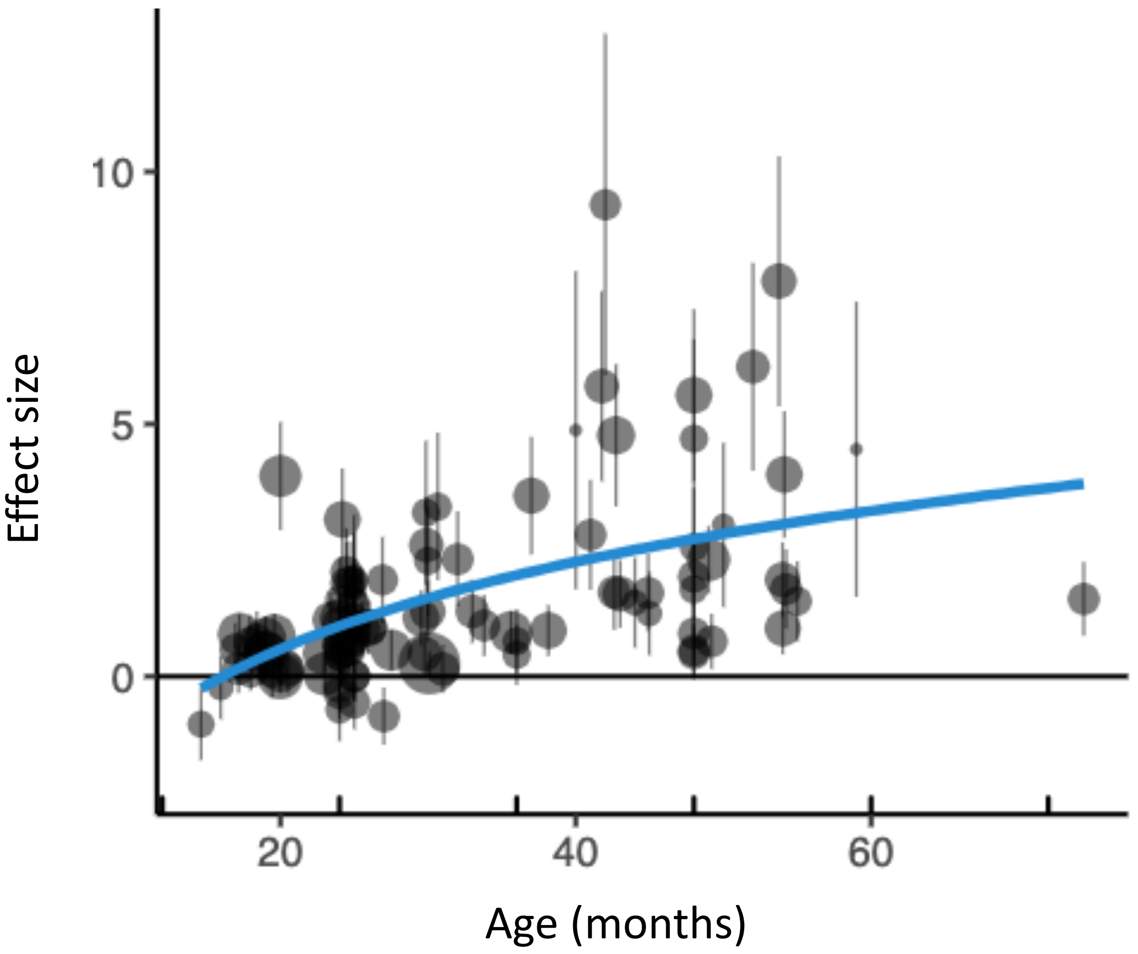
- Search strategy?
- Coding?
  - How many effect sizes total?
  - What else did we code for? (i.e. “moderators”)
- Statistical approach?

Moderators

- = anything you think might influence the effect size

- Age
- Design
- Stimuli type
- # of languages spoken

Exploring a moderator of effect size: Age



Each point is a study

(Lewis et al, 2020)

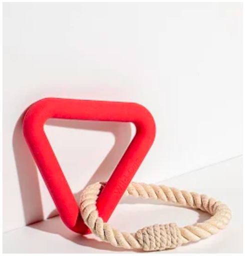
Design

Familiar-Novel Design

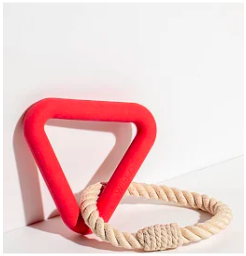
Can you find the “fep”?

Novel - Novel Design

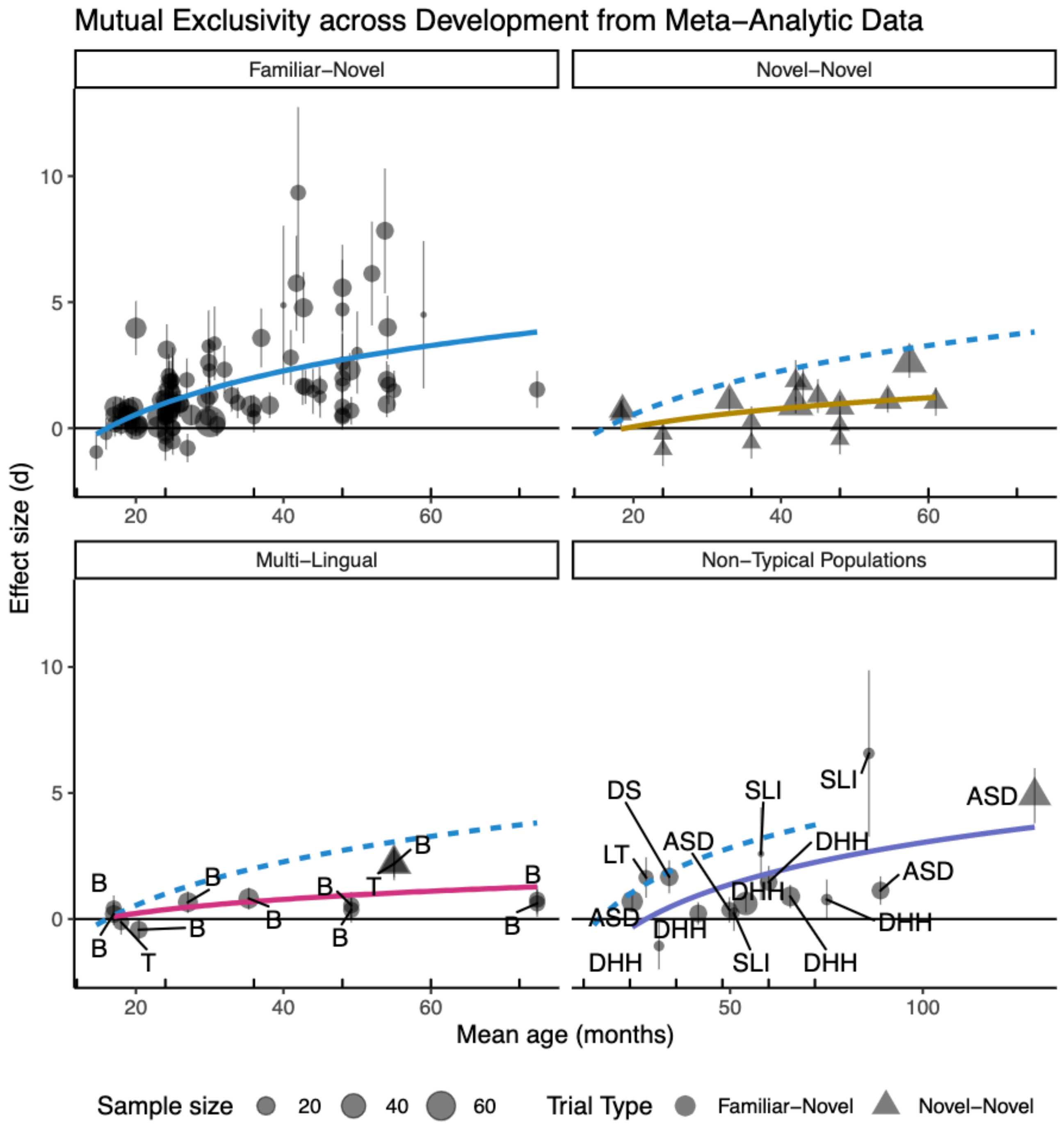
This is a “Dax”



Can you find the “fep”?



Exploring other moderators



MetaLab

- Aggregate of meta-analyses of different phenomena in cognitive development (focus on language acquisition)
- Interactive visualizations
- http://metalab.stanford.edu/

Next Time: Forming groups for final project

Before lab on Friday, look over papers that are possible topics for your final project.

In google drive folder.

	AGGREGATING MANY EXPERIMENTS	READING	SLIDES	ASSIGNMENT	NOTES
Week 10 [M, 3/23]	Intro to meta-analysis (MA)				
[W]	Choosing a MA topic				[FINAL PROJECT] [Lewis et al. 2020] [Seminal papers for final project]
[F]	*Lab: Choosing a MA topic*				Skills: papaja