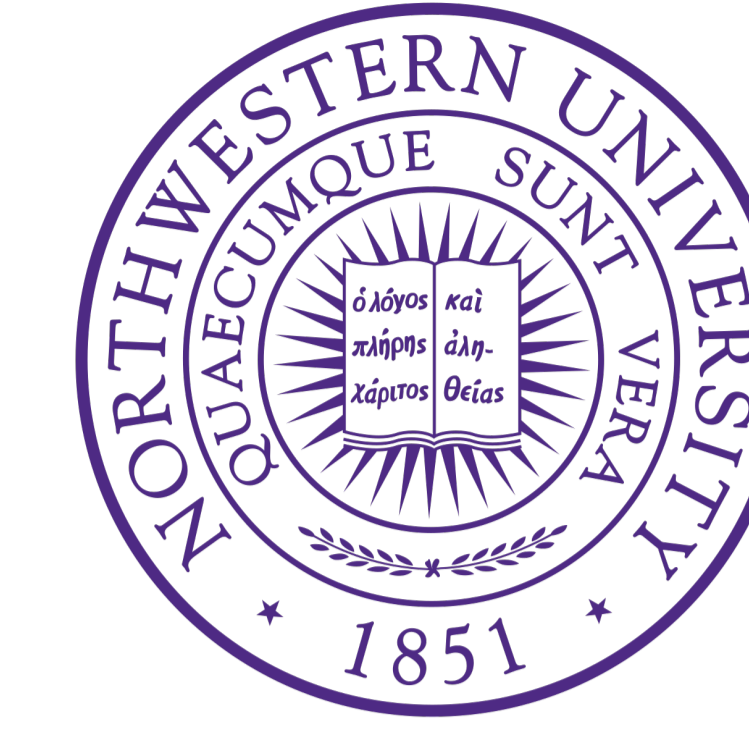# The Scope of Conventionality

Do Children Expect Newly-Learned Words to be Mutually Known?

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Introduction

- For words to function properly, they have to be understood as *social conventions* (Lewis, 1969).

- **Learning Problem:** Words vary in how widely they are shared within a language community (Clark, 1998)

**How do children come to expect whether words they know will be known by others?**
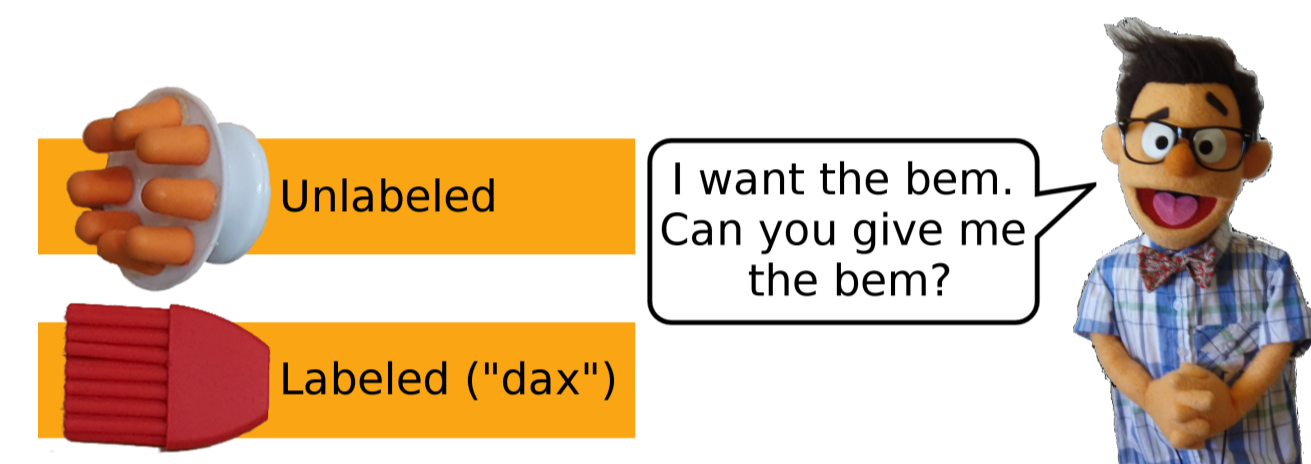
- Children choose unlabeled object even when puppet had been absent during teaching of 1st label (Diesendruck and Markson, 2001)
  - Interpretation: *Puppet **knows** labeled object is a "dax", so when he asks for a "bem" he must want unlabeled object* (Clark, 1988)

- Following *this logic*, other findings have been taken to show that children:
  - Expect object labels and functions to be shared *but not* proper nouns or idiosyncratic facts (Diesendruck and Markson, 2001; Diesendruck, 2005; Diesendruck et al., 2010)
  - Suspend assumption of shared knowledge for ignorant speakers or speakers of other languages (Diesendruck, 2005; Diesendruck et al., 2010)

- However, children could have behaved identically **without attributing knowledge** to puppet:
  - *I know "bem" can't refer to labeled object, since it's a "dax", and because objects tend to have one label; Unlabeled object must be the "bem"* (Markman and Wachtel, 1988)
  - Assume absent puppet uses **same symbolic system**, but may not share knowledge of specific words

Our approach

- Does choice of unlabeled object depend on assuming puppet *knows* first object label?
  - Compare **pedagogical** labeling ("This is a dax!") to **coined** labeling with child's input ("What should we call this? A dax or a zev?")
  - Directly assess assumptions of shared knowledge and relation to theory of mind development (Sabbagh and Henderson, 2007)
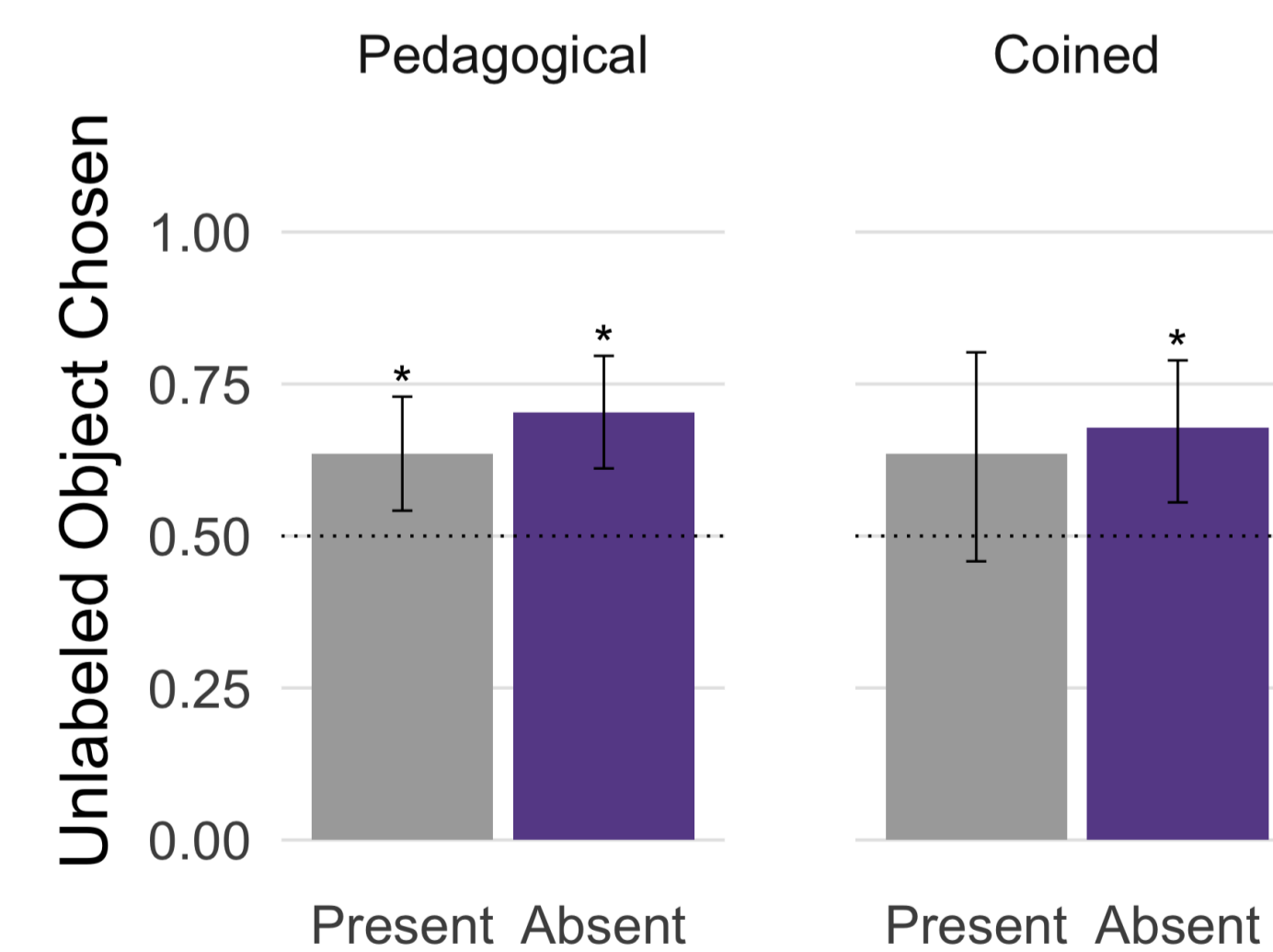

Design of Studies 1 through 3
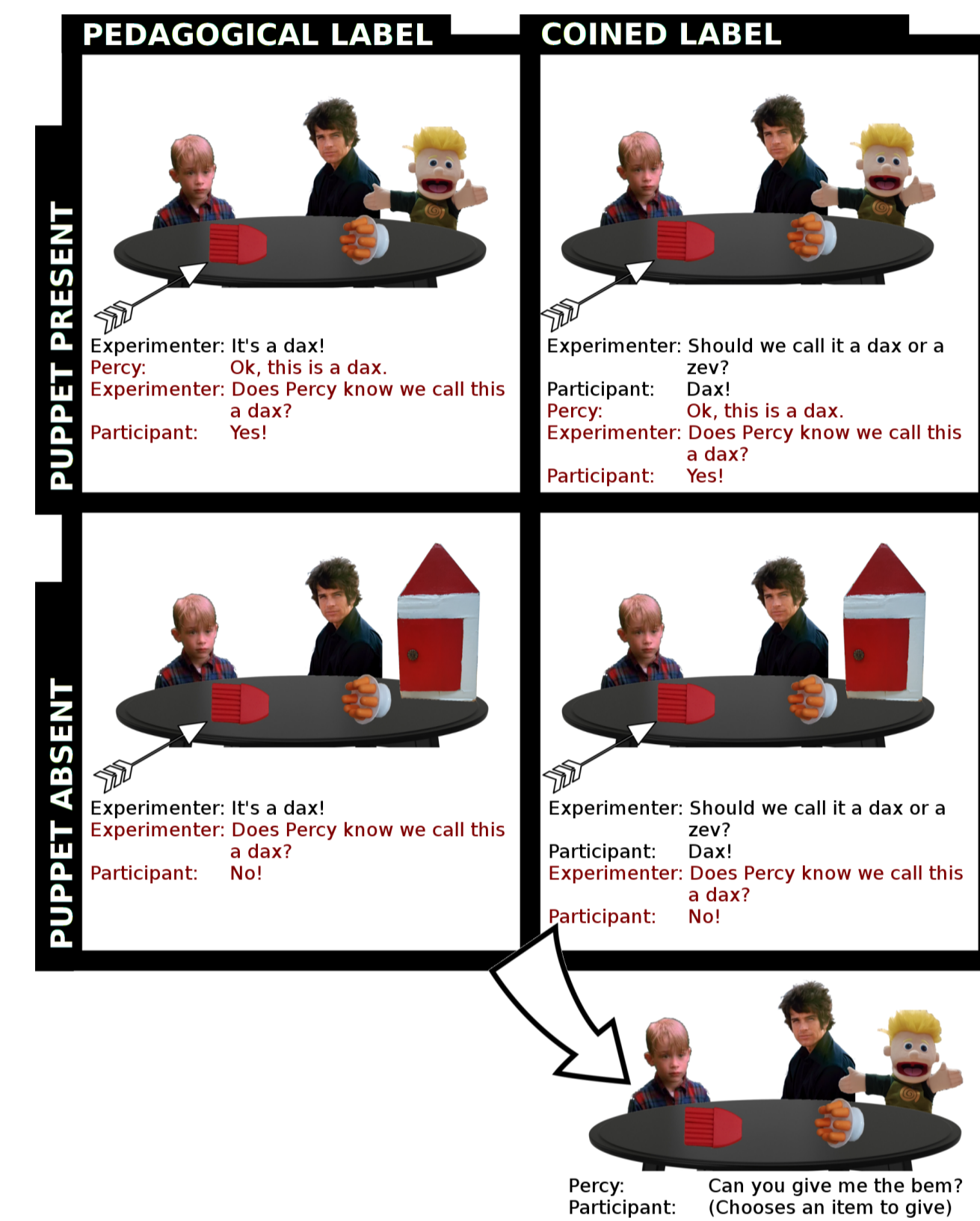
Dialogue in red: Studies 2 and 3 only.

Study 1: Does choice of unlabeled object depend on whether 1st label is taught vs. coined?

65 4-year-olds (M = 3;10)

Error bars represent bootstrapped 95% confidence intervals

- Children select unlabeled object even when 1st label was coined
  - Choices do not differ as function of puppet's presence; $z = .55, p = 0.59$
  - Or whether label was taught or coined; $z = 0.29, p = 0.78$

- Perhaps children assumed that Percy knew 1st label even when it was coined in his absence?

Study 2: Do children think Percy knows 1st object label when it was coined?

Experimenter **directly asks** child if they think puppet knows label after it is coined

- Measure children's theory-of-mind after task (Wellman and Liu, 2004)

- 34 3 - 4.5 year-olds (M = 3;10); 33 4.5 - 6 year-olds (M = 5;1); 33 adults
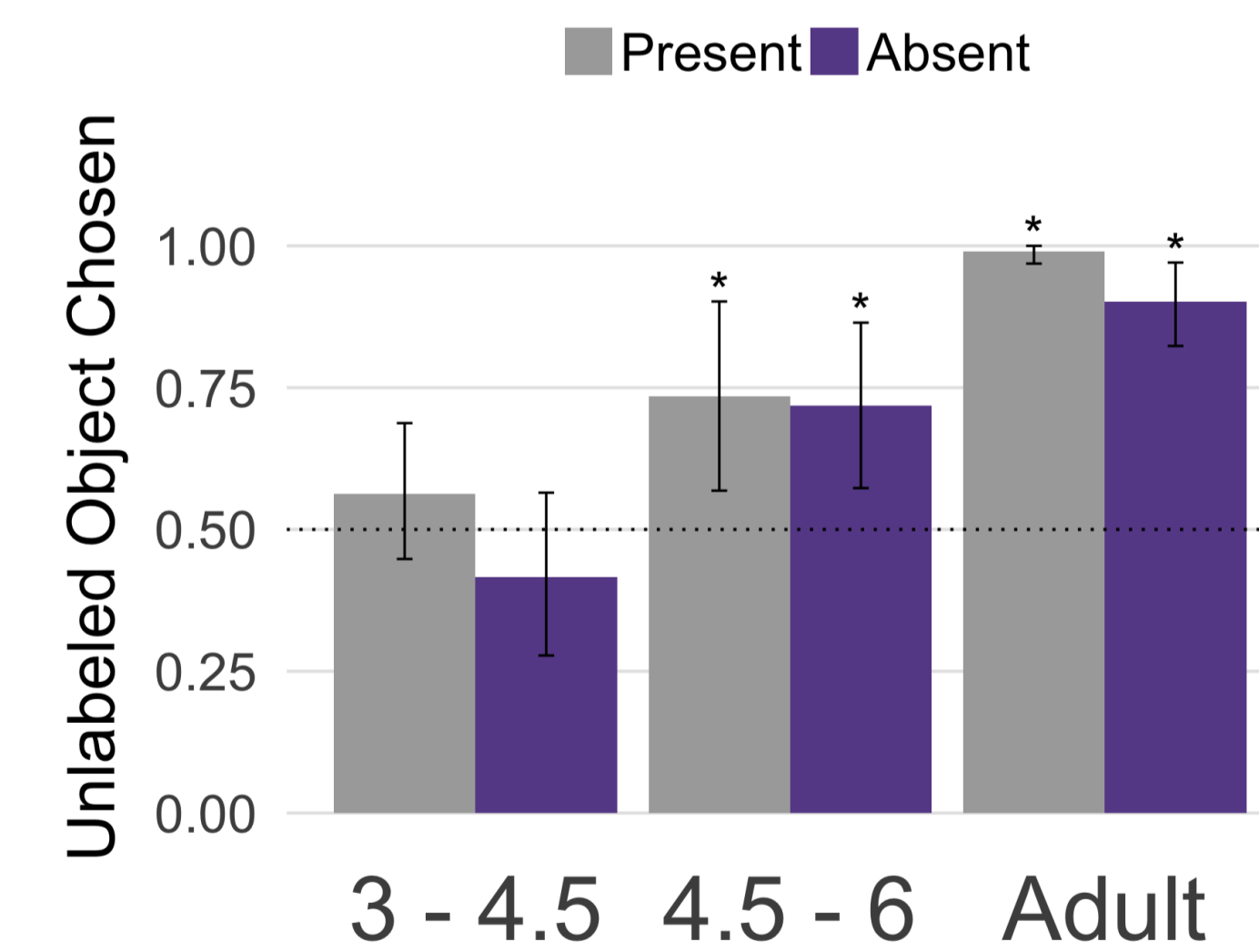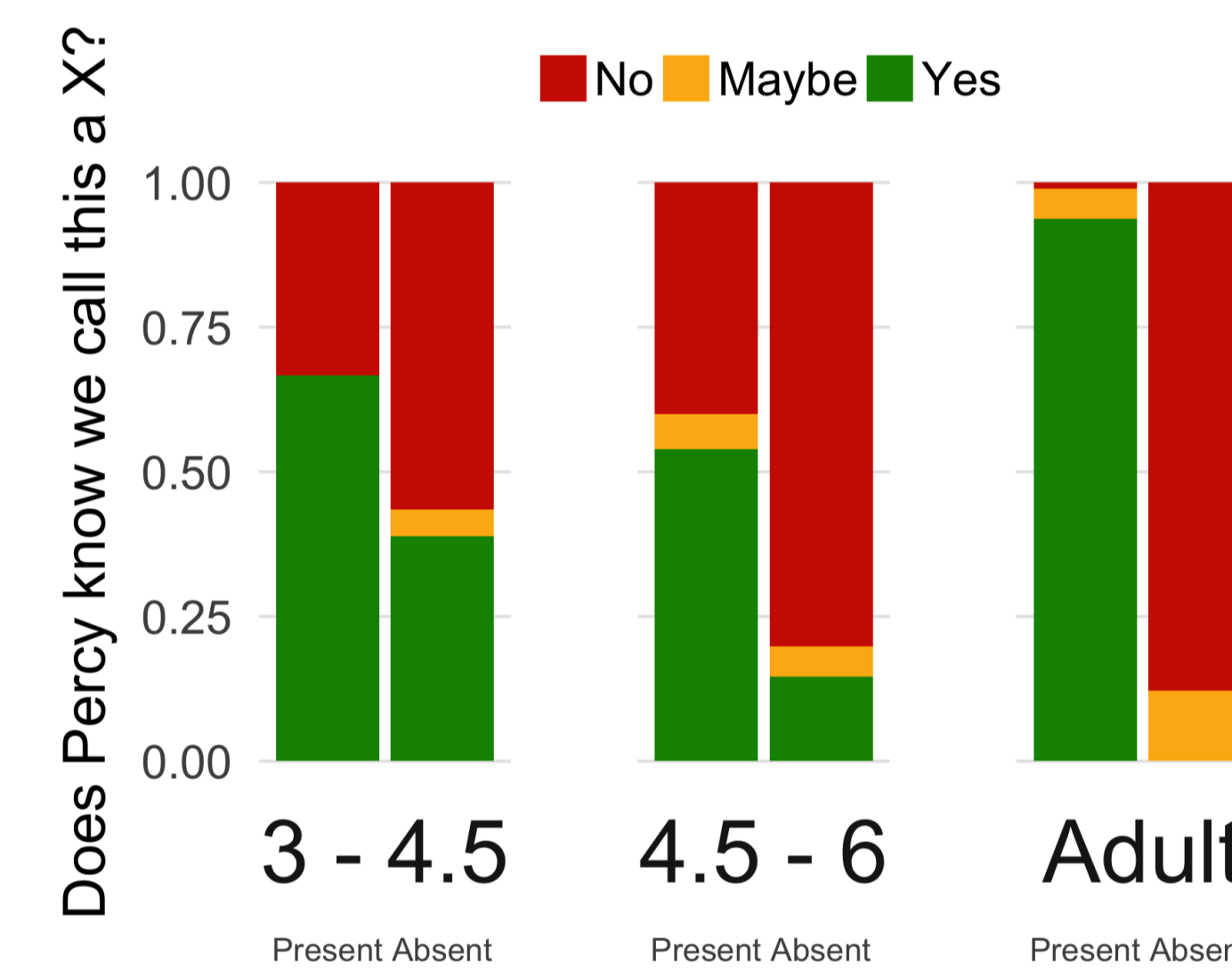

- Older children and adults select unlabeled object more often than chance

- Knowledge attribution **does not** predict object choice; $z = -0.16, p = 0.87$

- With stronger ToM, children more likely to say absent puppet doesn't know 1st object's label; $z = -3.37, p < 0.001$

Study 3: Do children think Percy knows 1st object label when it was taught?

Do pedagogical cues lead participants to think object labels are generic and shared (Csibra and Gergely, 2009)?

- Experimenter asks child if they think puppet knows label after it is taught

- 30 3 - 4.5 year-olds (M = 3;9); 36 4.5 - 6 year-olds (M = 5;0); 34 adults
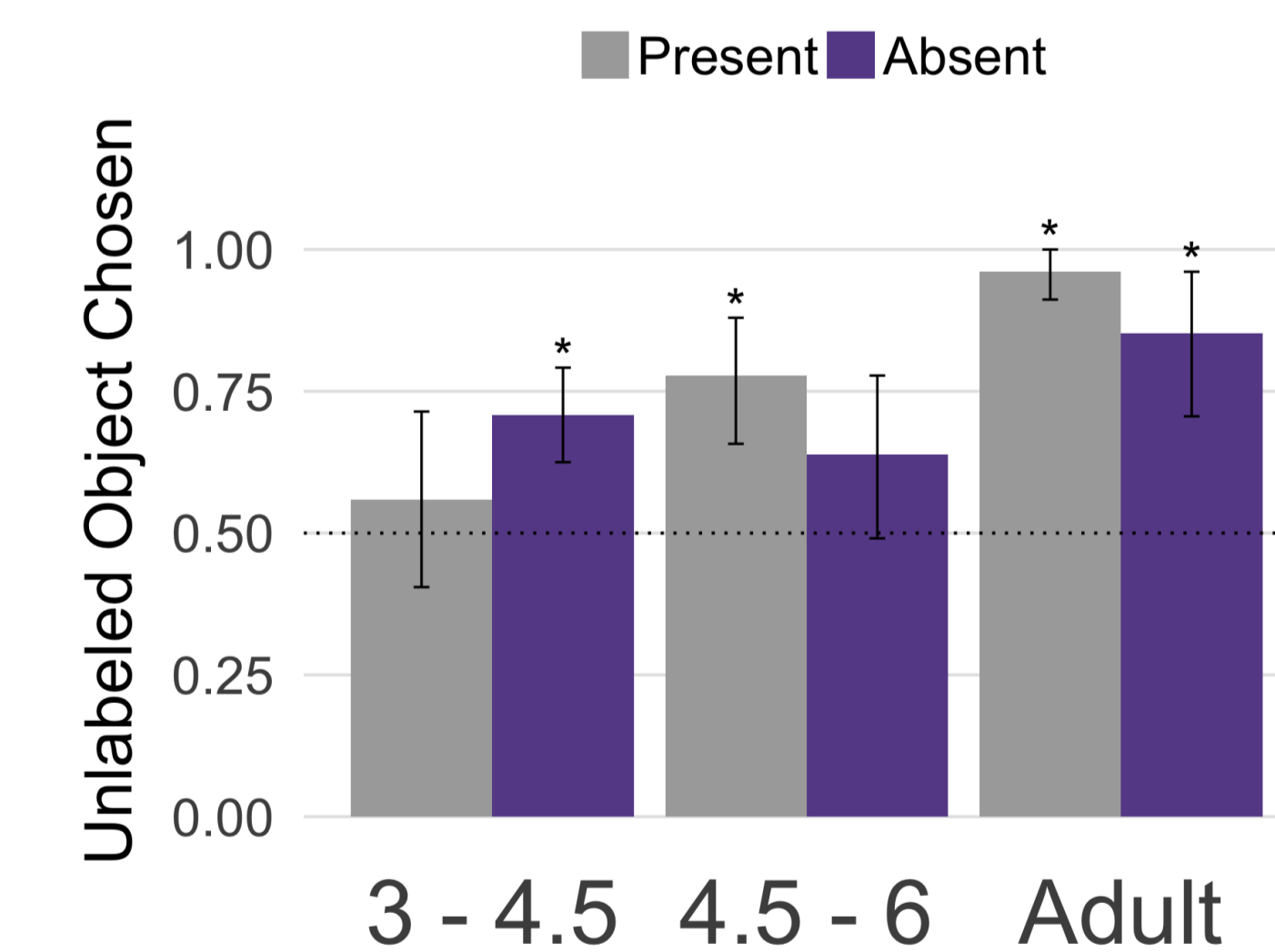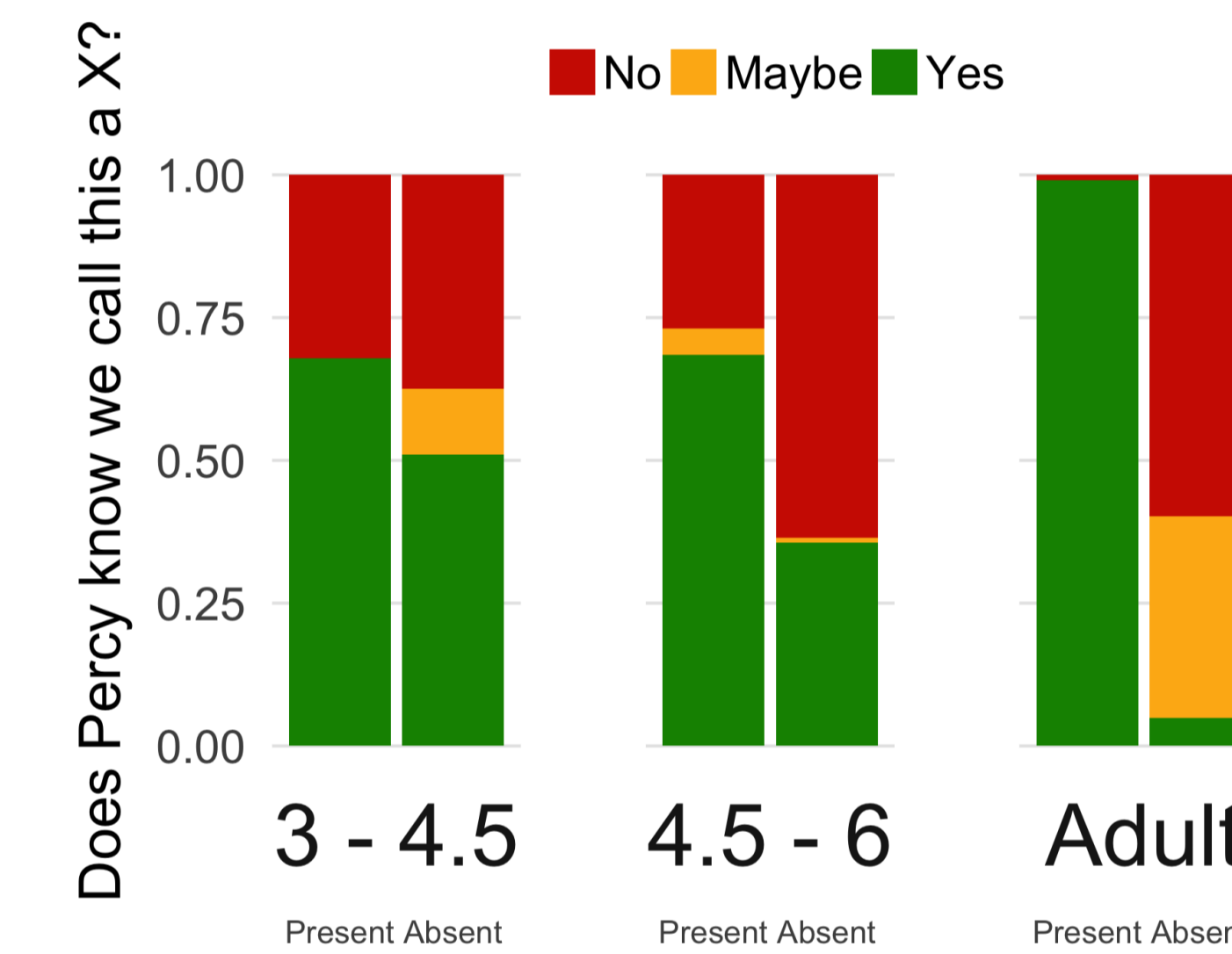
- Knowledge attribution **does not** predict object choice; $z = 1.45, p = 0.15$

- Children not more likely to attribute knowledge of taught label to absent puppet (Study 3) than knowledge of coined label (Study 2); $z = -0.76, p = .45$

- With stronger ToM, children less likely to attribute knowledge to absent puppet; $z = -4.07, p < .001$

Relation between Theory of Mind and Knowledge Attribution
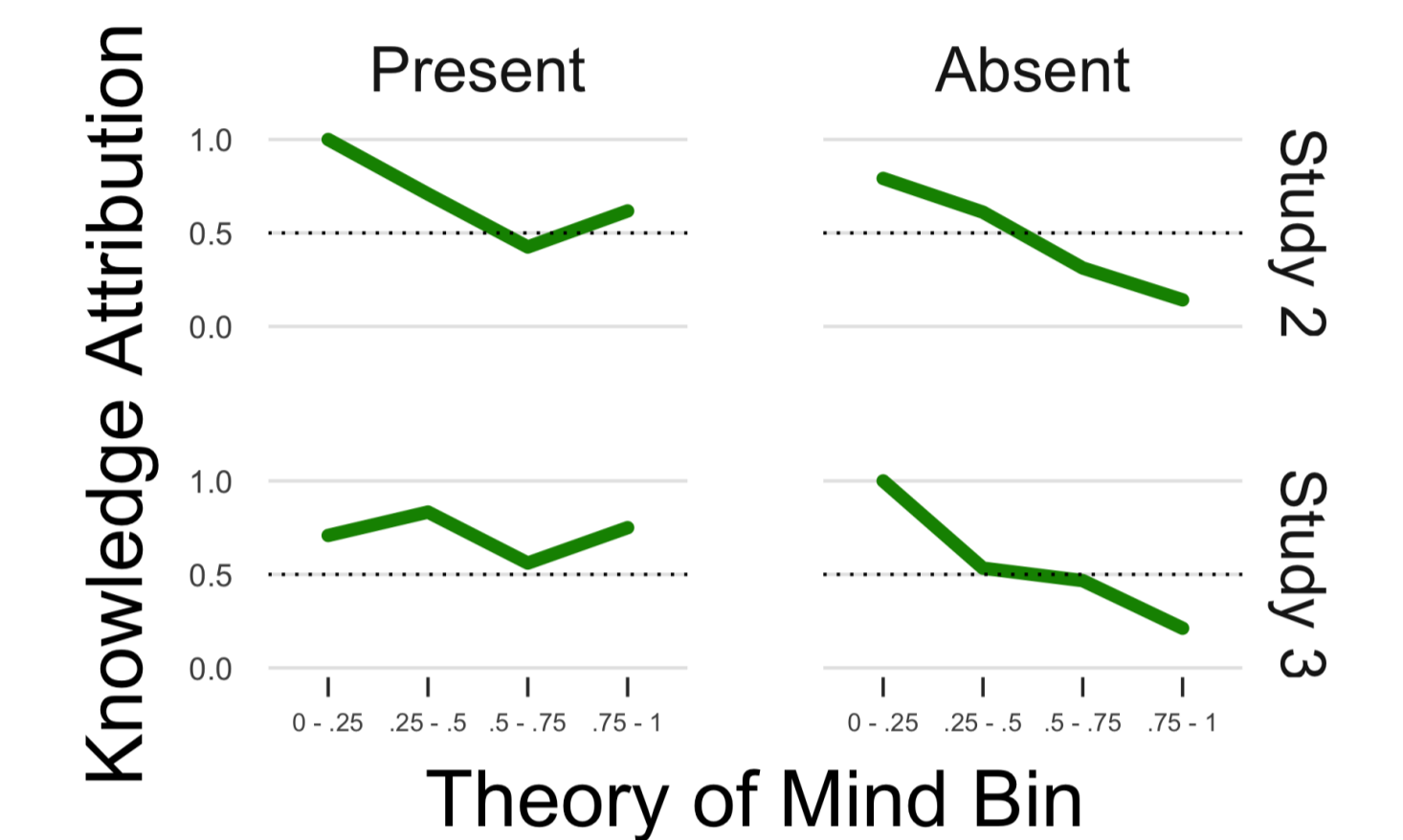
Discussion and Future Directions

- Children's responses in previous studies **do not reflect** assumptions of shared conventional knowledge

- Limitations in theory of mind initially prevent children from thinking others do not know the words they know; Children with stronger theory of mind are more conservative

- Re-opens question of how children reason about if a newly-learned word will be known by others

- Children's selection of previously-unlabeled object may depend in part on *domain-specific expectation* that each object will have one label (Markman and Wachtel, 1988; Diesendruck and Markson, 2001)

- Why select unlabeled object in *coined label* conditions?
  - Egocentrism (Label I made up for 1st object is that object's label)
  - Experimenter's ignorance (1st object may not have a label since experimenter didnt know it)
  - Exhaustivity inference (1st object is either a dax or a zev; It can't be a bem)

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