

## Introduction

### Difficulty in adjective interpretation:

- There are different types of adjectives which may require contextual information to be interpreted
  - “Large cup vs. “Metal cup”
- Children treat some adjective types as variable depending on contextual factors<sup>1</sup>

### Hypothesis:

- Children differ from adults in the evaluation of adjective meanings **in context**
  - 1) They may rely less on contextual information when necessary
  - 2) They may be more susceptible to contextual information when it is in fact irrelevant

## Experiment 1:

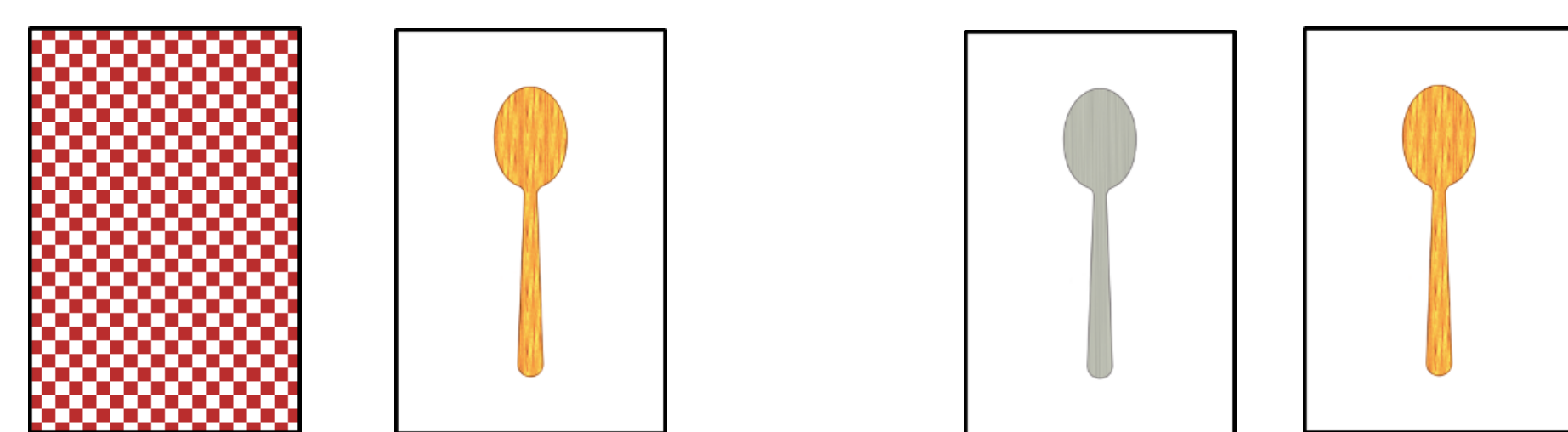
### Do adults and children appropriately seek out information when needed to interpret adjectives?

#### Question

My sticker has a metal spoon on it. Which card has a metal spoon on it?

#### Before Flipping

#### After Flipping



**Correct No Flip: 2 Stickers**  
**Correct With Flip: 1 Sticker**  
**Incorrect: 0 Stickers**

**Children (n=20):** Ages (4;0-5;6).

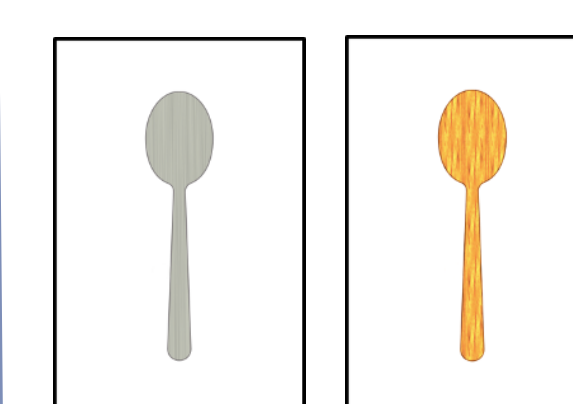
**Adults (n=20):** Tested through MTurk.

Correct no flipping: bonus of \$0.02; Incorrect: penalty of \$0.05.

#### Prediction:

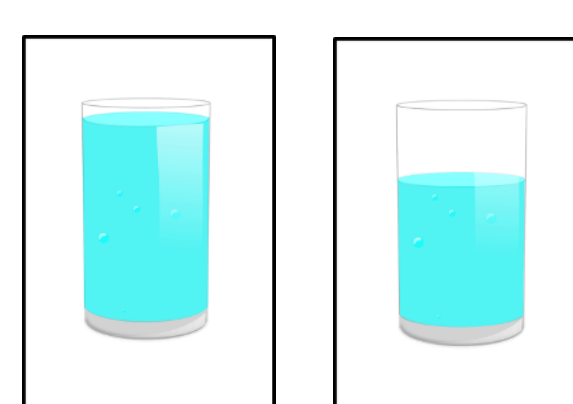
- 1) Both children and adults should flip more for relative-scalars
- 2) Children, compared to adults, should flip less for relative scalars

#### Non-Scalar



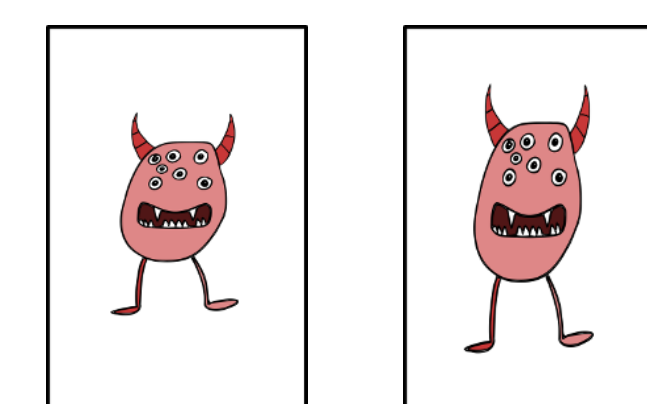
Smiley, Green, Metal, Yellow

#### Bound-Scalar

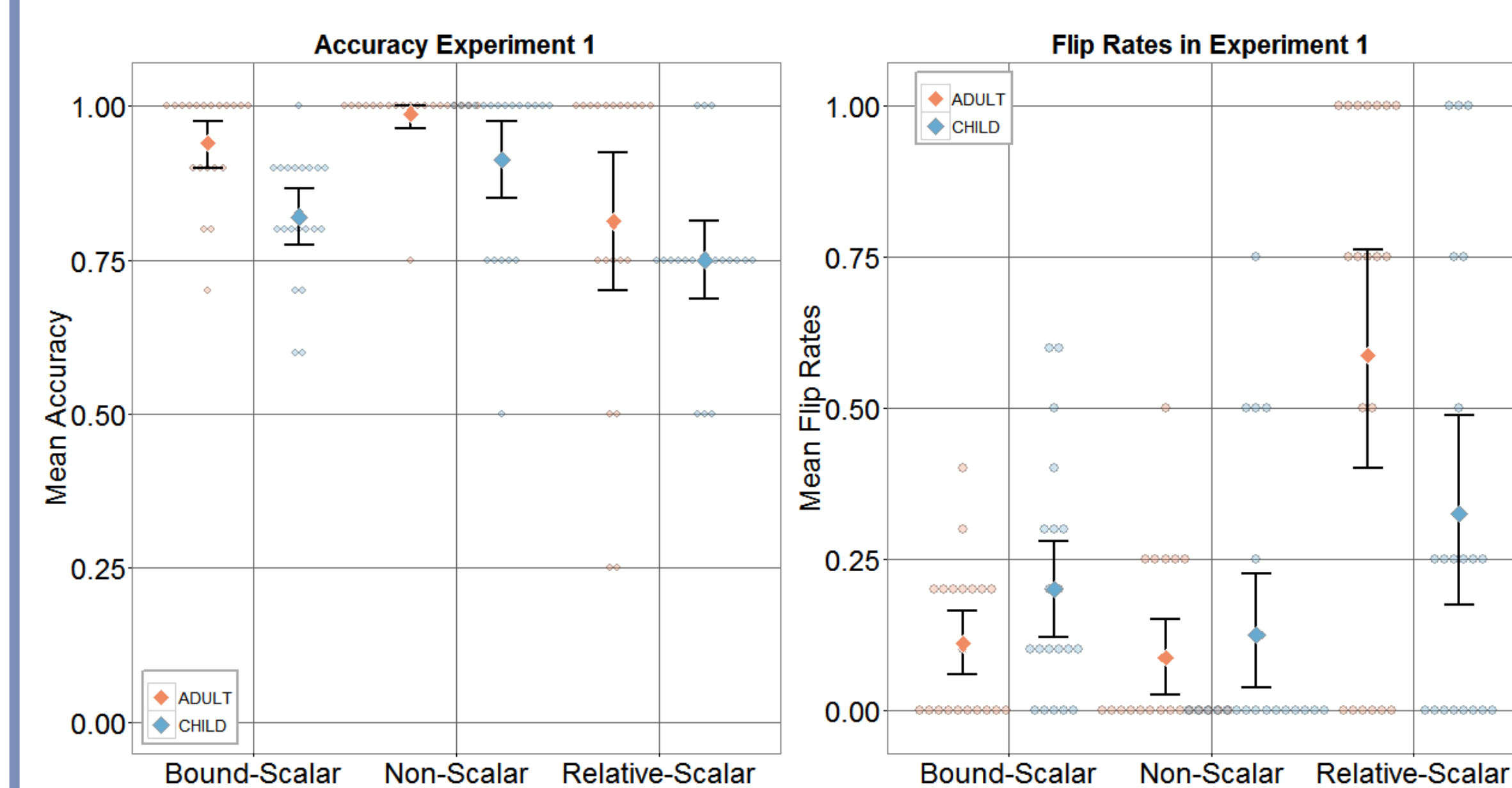


Open, Spotted, Striped, Full, Clean, Bent

#### Relative-Scalar



Tall, Small, Big



**Children:** Lower flip rates for Bound-Scalar and Non-Scalar Adjectives than Relative-Scalar Adjectives.

**Adults:** Lower flip rates for Bound-Scalar and Non-Scalar Adjectives than Relative-Scalar Adjectives.

**Overall:** Using a mixed-effects logistic regression we find both children and adults flip more for Relative-Scalar Adjectives ( $\beta=3.291, p<.0001$ ). Adults flip more for Relative-Scalar Adjectives than children ( $\beta=-2.230, p<.0001$ ). The similar pattern suggests children treat these adjectives like adults but have not quite matched their performance.

## Experiment 2:

### Do adults and children ignore irrelevant contextual information when making adjective decisions?

#### Question

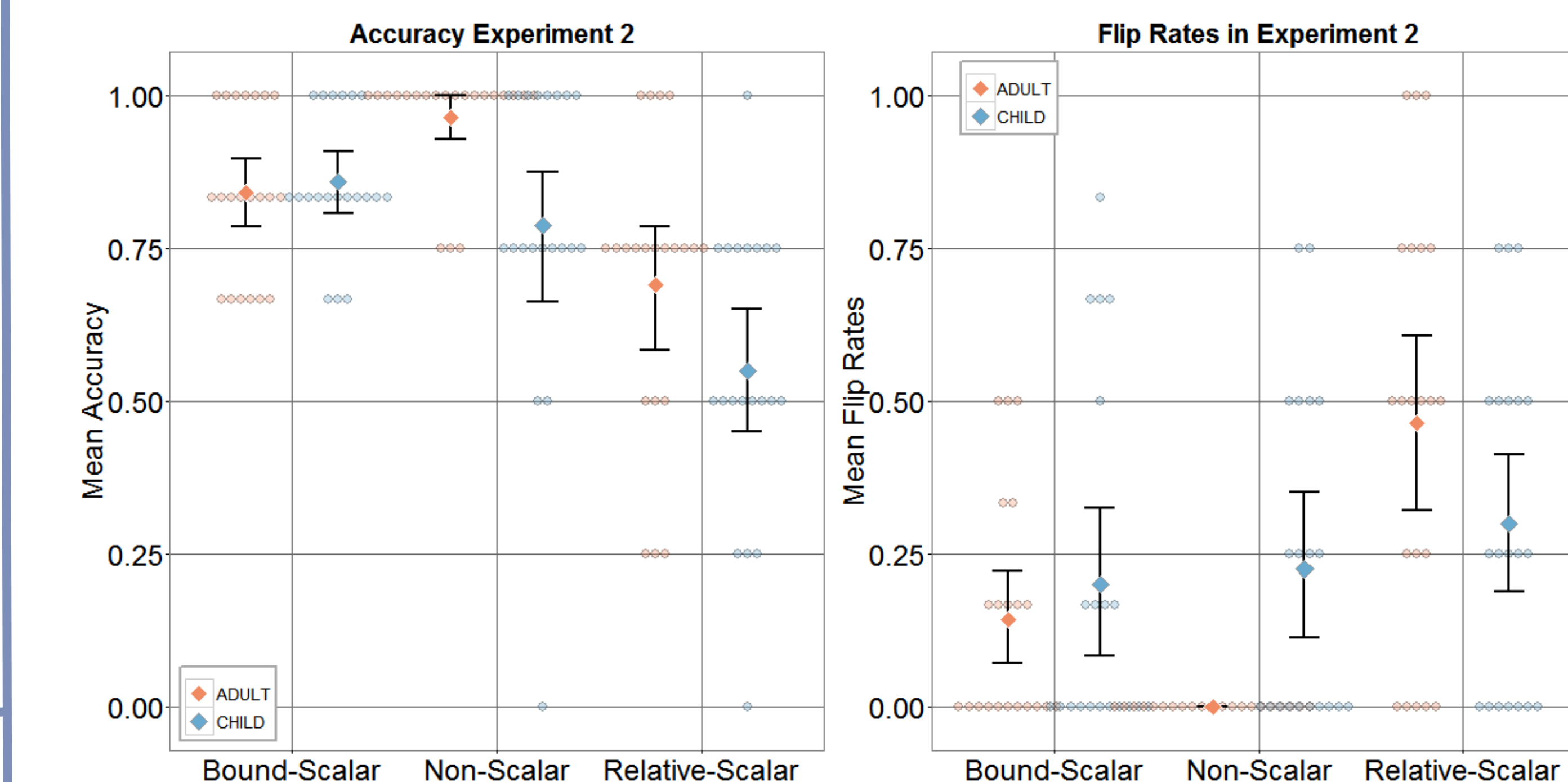
My sticker has a metal spoon on it. Which card has a metal spoon on it?

#### Before Flipping

#### After Flipping



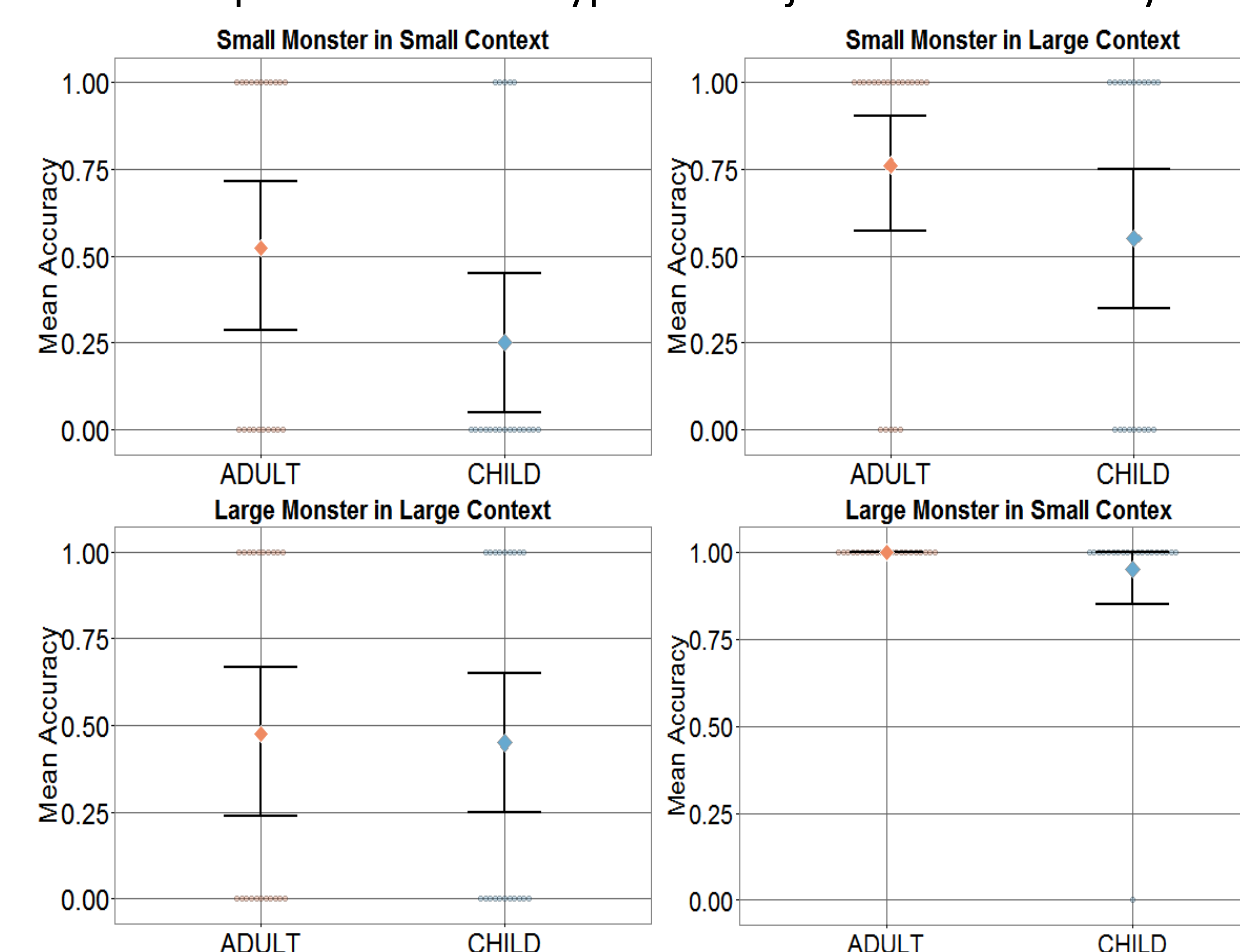
Reward: Same as Experiment 1



**Flip rates:** No significant changes in Flip Rate for both children and adults across experiments.

**Accuracy:** Effects for relative-scalar across age conditions and experiments ( $\beta=-1.666, p<.006$ ), effect on accuracy across experiments ( $\beta=0.963, p<.05$ ), and a three way interaction of relative-scalar, experiment, and age ( $\beta=-2.006, p<.007$ ). Suggests children are more impacted by extra contextual information.

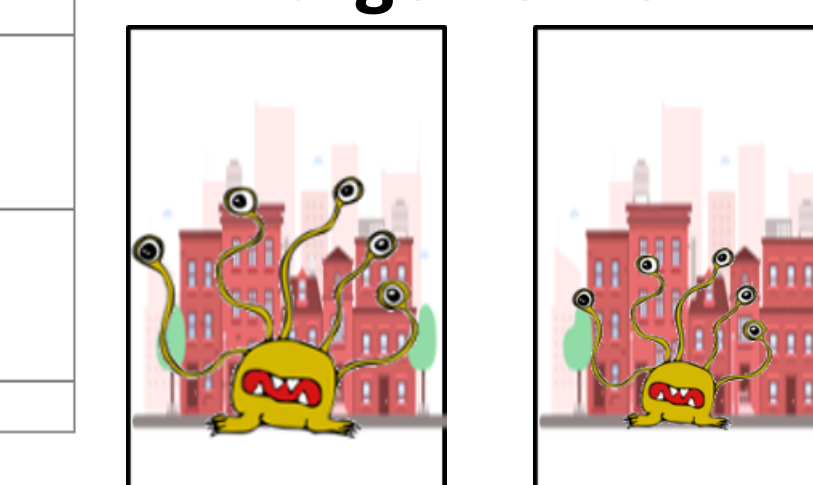
#### Impact of Context Type and Adjective on Accuracy



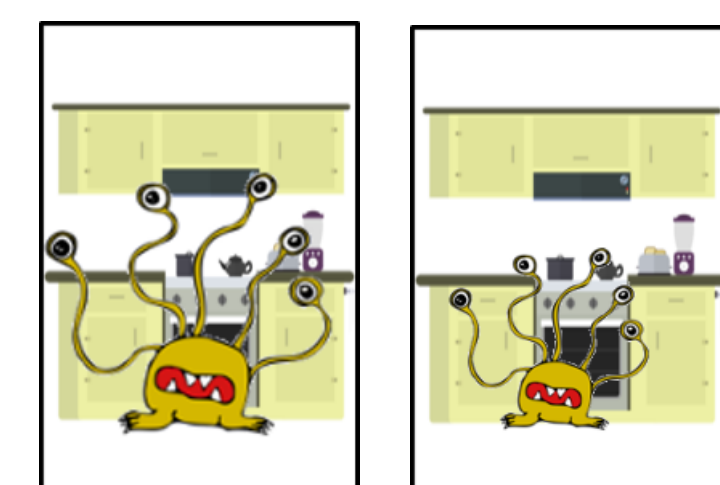
**Context Effect:** In these cases the intended target of the utterance was a face-down card. The object face-up was the same size in both contexts.

**Shared Sizing:** In the experiment there was a large context, a city block, and a small context, a kitchen. In cases where the face-up monster was small and was in the small context and where the face-up monster was large and in a large context there was a notable change in accuracy from cases where the background size was opposite the face-up monster's size.

#### Large Context



#### Small Context



## Findings

1. Adults and children share a similar pattern of information seeking behavior across adjective types and extreme context conditions can impact on both age groups.
2. 4 & 5 year olds are less likely to seek information in context when needed and have greater difficulty ignoring irrelevant contextual information than adults do ⇒ What changes in later developmental stages? [What's next?] More structured distributional information about relevant features (e.g., size, height, weight) of objects in the world may be a key to adult-like information seeking behaviors in relative-scalar interpretations.