

# What makes a shape /baba/to a child versus an adult?

Changing contributions from shape contour, protrusion number and protrusion size in sound-shape correspondence

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## INTRODUCTION

Sound-shape correspondence is the association between abstract shapes and sounds. One example is the bouba/kiki effect, in which a round shape is associated with a sound like /bouba/ whereas a spikey shape is associated with a sound like /kiki/. Shape features like contour and the number and size of protrusions have been identified as relevant visual features<sup>1</sup>. The weight assigned to a particular visual feature can vary based on the perceptual processing style an adult adopts.

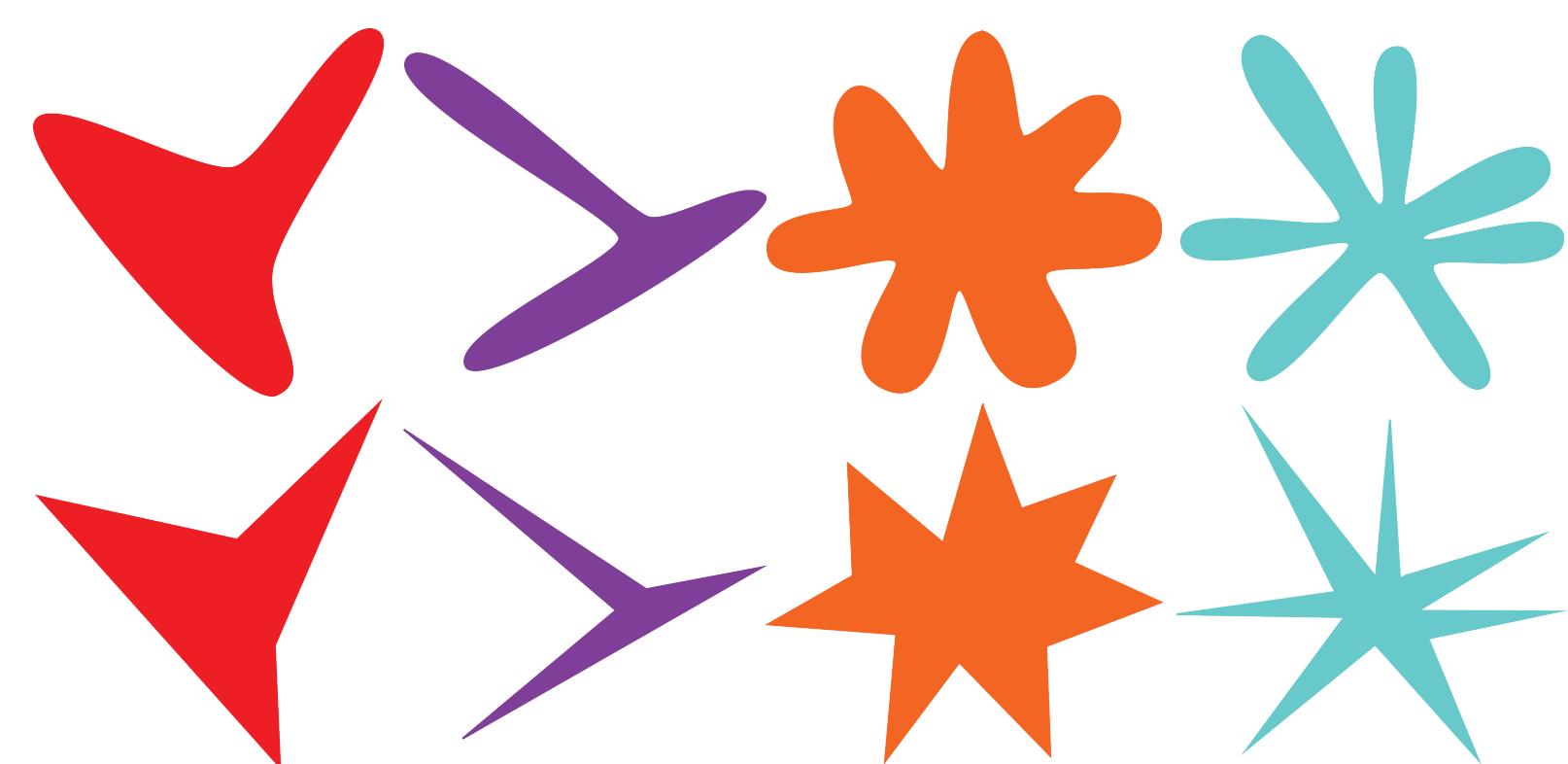
## GENERAL METHOD

Set-up



Living Laboratory,  
Museum of Science, Boston

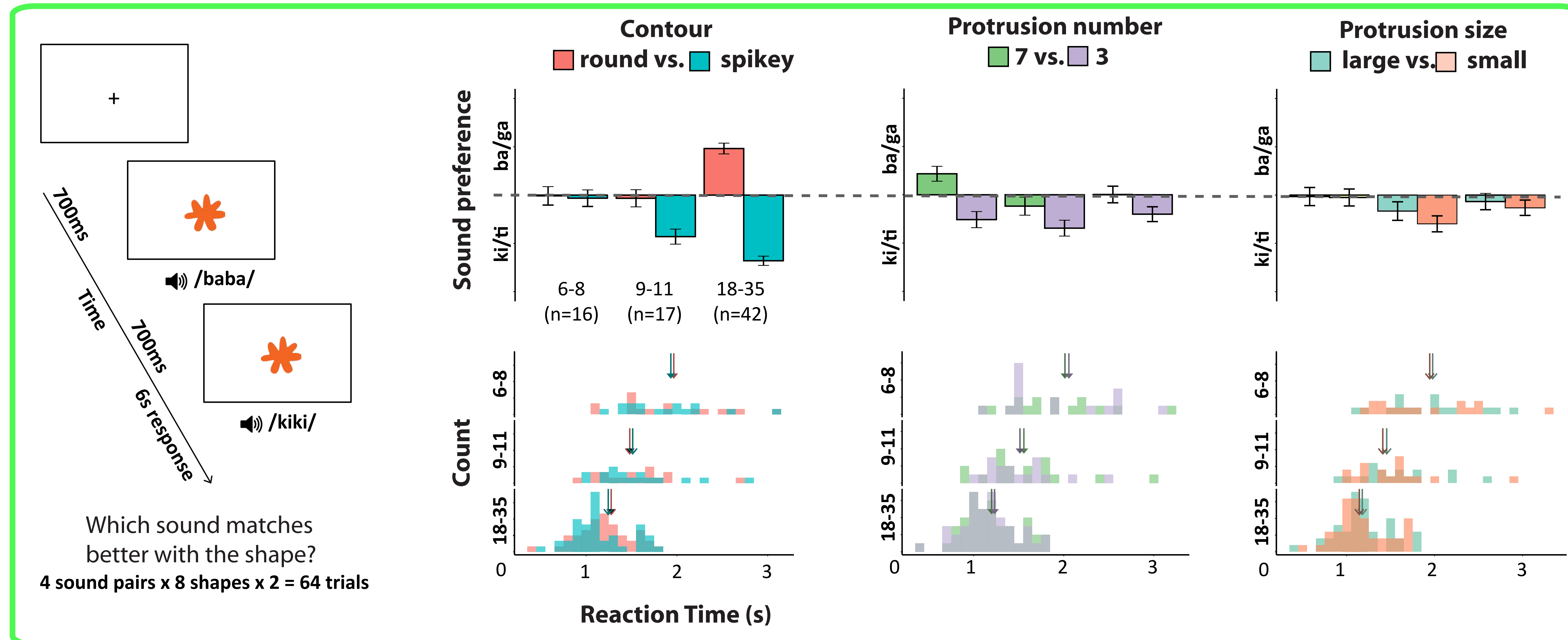
Stimuli



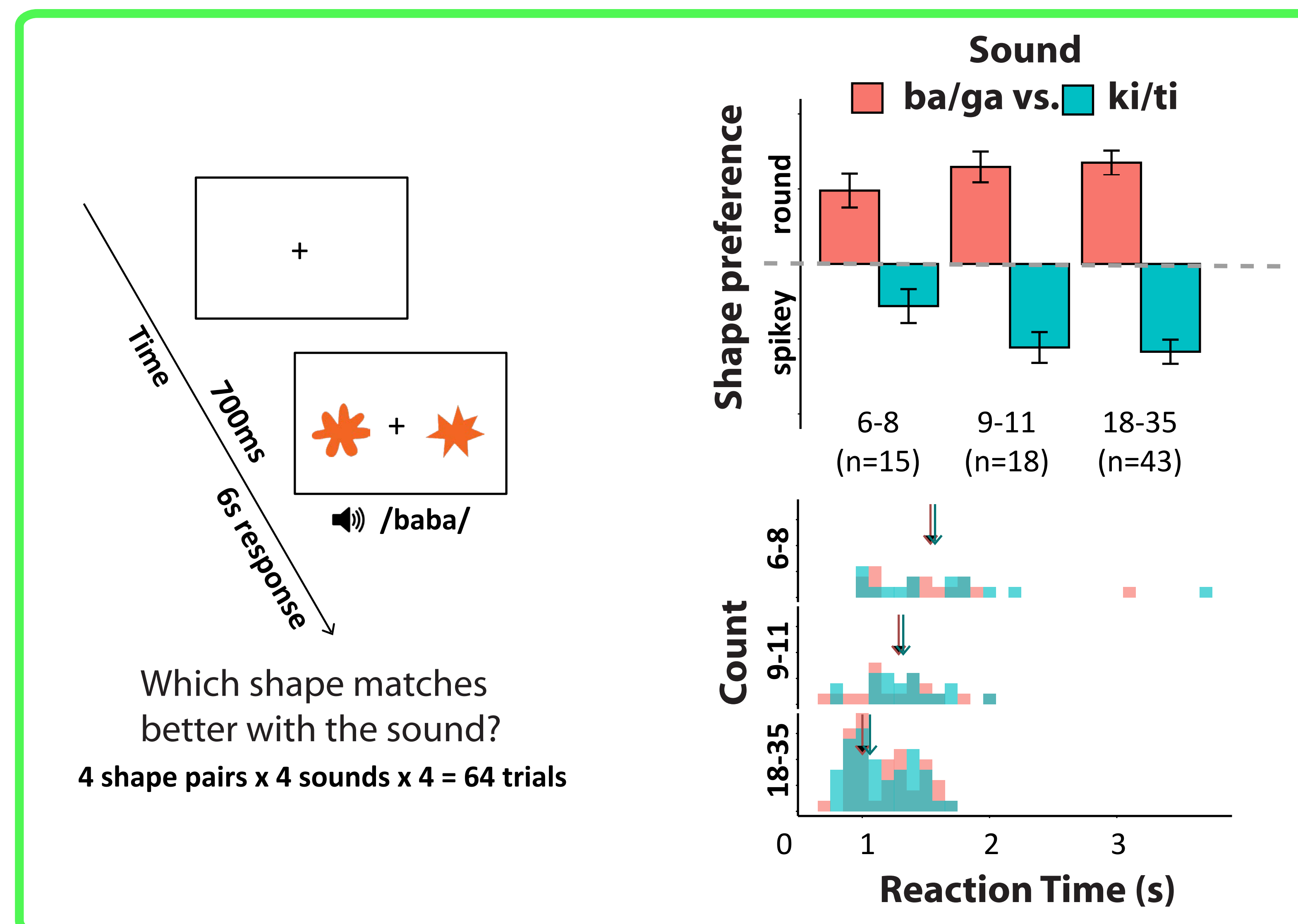
/baba/ /gaga/  
/kiki/ /titi/

Given literature suggesting that children adopt a different perceptual style than adults<sup>2,5</sup>, we hypothesized that children might prioritize shape features differently (e.g. number of protrusion more often) from adults.

## EXP1: Two-Interval Forced Choice



## EXP2: Two-Alternative Forced Choice



## CONCLUSION

We found that adults associated /i/ sounds with shapes having spiky contours and 3 small protrusions. Of these shape features, shape contour showed the strongest association. While 9-11 year-olds showed adult-like shape processing biases, 6-8 year-olds prioritized protrusion number, not shape contour. Yet, 6-8 year-olds could make associations based on shape contour when shape contour was highlighted by presenting round and spikey shapes side-by-side in a follow-up exp2.

Our findings suggest different features of a shape are prioritized when making sound-shape correspondence by 6-8 year-olds versus adults. Importantly, shape processing biases can be altered by context such that children can resemble adults when the relevant shape features are highlighted.

**Abbreviated References:** <sup>1</sup>Chen et al., (2016). Sci. Rep. <sup>2</sup>Dukette & Stiles (2001). Dev. Sci. <sup>3</sup>Nayar et al., (2015). J Exp Child Psychol <sup>4</sup>Poirel et al., (2008). Dev. Psychol <sup>5</sup>Poirel et al., (2011). PLoS ONE. Note: This work was supported by a UMB Dean's Office Grant to VMC.