Preschoolers’ use of Mutual Exclusivity in a social context
Mariko Yamaguchi, Rachel Austin, Justin Halberda & Lisa Feigenson
The Johns Hopkins University
*mariko.yamaguchi@jhu.edu

Introduction
Children do not learn to recognize unfamiliar faces and voices at adult levels until 10 years of age in delayed match-to-sample tasks. Yet, they form stable representations of the individuals they encounter in daily life. By taking advantage of a one-to-one mapping principle between faces and voices, might they be able to spontaneously form mappings?
• Can preschoolers learn to map new faces and voices together to form stable pairings?
• Can children use Mutual Exclusivity (ME) to spontaneously create new face-voice pairings?
• How robust are the newly-formed pairings?

Methods
Subjects: 4 to 5.5 year-old children
Stimuli:
• Faces: static photographs of women’s faces
• Voices: recordings of women saying, “Can you touch my nose?”

Two blocks:
• 16 Training trials
  • learn 3 face-voice pairings
  • 14-18 Test trials
    • tested on knowledge of trained pairings
    • exposure to new faces and voices

Training Trials
• Learn 3 face-voice pairings, given explicit feedback on each trial
• 16 trials, 5-6 exposures per face
• Training criterion: 6 of last 8 trials correct

Experiment 1
Can children learn face-voice pairings? Can they use ME to spontaneously make new mappings?

N=16

<table>
<thead>
<tr>
<th>Trial type</th>
<th>Training</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target</td>
<td>Learned</td>
<td>Learned</td>
</tr>
<tr>
<td>Distractor</td>
<td>Learned</td>
<td>Novel</td>
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Did they learn the face-voice pairings? (LL & LN trials)
Yes. Children learned the pairings presented during training.

Can they infer new pairings? (NL trials)
Yes. Children spontaneously inferred new pairings during test, with no feedback.

Experiment 2
Can children create stable face-voice pairings even if they are given multiple tokens for each individual?

Exp1: 1 photograph / individual
Exp2: multiple photographs of each individual, participants only saw each picture once

Met training criterion
Group 1: proceeded directly to test trials (n=10)
Group 2: proceeded directly to test trials (n=10)

Failed to meet training criterion
Group 3: received extra training trials (n=10) (until crit met, max 24 trials)

Conclusions
4 to 5-year-olds can:
• learn 3 face-voice pairings during a short training session
• spontaneously create new face-voice pairings during test using Mutual Exclusivity, with no feedback
• re-identify the newly-made pairings, and make additional inferences based on these pairings

References