

**Background**

- Categorical induction (CatInd): process of extending trait from a known category to new category members\(^1\)
  - E.g., dogs bark, so a new dog we encounter also barks
- CatInd skills evident early in typically developing (TD) children
  - 4-year-old TD children performed above chance on an easy CatInd task\(^1\) (see Fig. 1)
- TD children aged 8-15 yrs performed above chance\(^1\) on a challenging CatInd task\(^2\) (see Fig. 2)
- Autism Spectrum Disorder (ASD) associated with weaker CatInd: Categorical induction (CatInd)
- Did CatInd ability change over time?
- No study has examined CatInd longitudinally:

**Might the CatInd abilities of autistic individuals improve over time?**

**Participants**

- Subset of Longitudinal Study of Early Language (LSEL) participants\(^1\)
  - At 5-2 yrs old, TD and ASD groups matched on language ability
- Visited again at approx. 6 years old (T1; Table 1)
  - Visited again as teenagers/young adults, now more widely ranging in language ability (T2; Table 1)
- Analyzed as small longitudinal sample (T1 to T2) and larger cross-sectional sample (T2 only)

**Table 1. Participant Demographics and Language Scores**

<table>
<thead>
<tr>
<th>Age</th>
<th>Longitudinal (T1)</th>
<th>N</th>
<th>ASD</th>
<th>TD</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>14.50 (2.15)</td>
<td>12</td>
<td>8</td>
<td>6.24 (0.56)</td>
<td>.006 (1.43)</td>
</tr>
<tr>
<td>Cross-sectional (T2)</td>
<td>15.80 (2.73)</td>
<td>20</td>
<td>17</td>
<td>6.24 (0.56)</td>
<td>.006 (1.43)</td>
</tr>
</tbody>
</table>

Note. CELF-5: Clinical Evaluation of Language Fundamentals-Fifth Edition. Expressive Language Index (ELI) scores calculated from summed scaled scores on three subtests (Formulated Sentences, Recalling Sentences, Sentence Assembly).

**Procedure**

- TD and autistic children did easy CatInd task\(^2\) (see Fig. 1)
- T2: TD and autistic children did challenging CatInd task\(^2\) (see Fig. 2)

**Results**

- Cross-sectional sample: at T2, TD % CatInd > ASD % CatInd (Fig. 3)
  - T2 difference no longer significant when controlling for semantic ability\(^*\) (p = .827) and syntactic ability\(^*\) (p = .495)
  - *as measured by summed CELF raw scores on semantic and syntactic subtests
  - Longitudinal sample: ASD % CatInd < TD % CatInd at T1 (significantly, p = .031) and T2 (marginally, p = .051)
  - Only ASD % CatInd improved from T1 to T2 (Fig. 4)

**Conclusions**

- Did CatInd ability change over time?
  - For ASD: yes; improved
  - For TD: no; stayed high

- Did group differences persist despite ASD improvement? Yes, but; group differences in T2 longitudinal sample were qualified by language ability

**TAKAWAY**: Categorical induction is intrinsically linked to language