The interpretations of scalar implicatures, presuppositions, and implicated presupposition by Thai children with autism

Experiments in Linguistic Meaning 1 — September 16-18, 2020
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Background

- In addition to literal, truth-conditional meaning, meaning in language can also be obtained via
  - Pragmatic inference
  - Generalized conversational implicatures, including scalar implicatures
  - Particularized conversational implicatures
  - Lexical presupposition
  - Implicated presupposition

- Heim’s (1991) Maximizer Presupposition
  - The acquisition of scalar implicatures and presuppositions
    - Early studies suggest that children favor a logical, literal meaning interpretation over a pragmatically implicated meaning.
    - Disjunction: (Brain & Rumain 1981)
      - Adults – either p or q
      - 7-9yo children – ‘p or q and perhaps both’
    - Quantified expressions: A more logical reasoning in 4-7yo children, some being compatible with all, e.g., Some giraffes have long necks. (Smith 1980; Noveck 2011)
    - Presuppositions: background information
      - Lexical presupposition
      - Implicated presupposition

- Pragmatic deficits and autism:
  - Pragmatics difficulties are consistently found across the autism spectrum disorders (ASD).
    - Kim et al. 2014; Volkmar et al. 1987; a.o.)
  - No significant difference between adolescents with autism and their typically developing (TD) controls in their interpretation of scalar implicatures.
    - Some sparrows are birds.
    - Zebras have black or white stripes.
    - Zebras have black and white stripes.
  - Adolescents with autism over-computed scalar implicatures pattern together in their acquisition path, being acquired later than lexical presuppositions. (Yatsushiro 2008)

- Directly comparing semantic and pragmatic meanings:
  - ‘Not every monkey is holding an ice cream.’
    - \( \exists x \) (Dom): Existential presupposition for the domain
    - There is a monkey.
  - \( \exists x \) (Restr \( \cap \) Scope): Restrictor-nuclear scope intersection implicature
    - There is a monkey holding an ice cream.
  - \( \exists! \) (ImpPs: Dom): Anti-uniqueness implicated presupposition
    - There is more than one monkey.
    - \( \| \) Literal, Not! All meaning
    - It is not true that every monkey is holding a banana.

Methods (Cont.)

Methods

- This study adapted the Covered Box paradigm (Huang et al., 2013). After the context, the participants were instructed to choose either the visible picture or the covered box to map with the auditory description.

Results (Cont.)

Inclusion criteria:

- Accuracy score over 50% in the AllMet condition
- Accuracy score over 50% in the Filler 3 condition
- Accuracy score over 50% on average between AllMet and Filler 3

Table 1: Participant information

<table>
<thead>
<tr>
<th></th>
<th>Adults</th>
<th>Enfolded</th>
<th>ASD</th>
<th>Group 1</th>
<th>Group 2</th>
<th>TD</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>M NVIQ</td>
<td>NA</td>
<td>NA</td>
<td>98.79</td>
<td>60:24:1</td>
<td>8:7:1</td>
<td>7:5</td>
<td>12:7:1</td>
<td>11:5:7</td>
</tr>
</tbody>
</table>

Results

ADULTS’ ACCURACY -

- Further empirical evidence to the literature (Chevallier et al. 2010; Hochstein et al. 2017; Pijnacker et al. 2009) that not only do adolescents with ASD perform on par with TD adolescents, children with ASD are also age-appropriate in their performance on deriving scalar implicatures.

Adult Data:

- the AllViolated and the ImpImpPsViolated conditions – empirical evidence for their access the derived meaning from existential lexical presupposition
- the ImpViolated and the AllMet conditions – their computation of scalar implicature
- No significant additive effects were obtained from the anti-uniqueness implicated presupposition in this experiment.

Child Data:

- While high proportions of children were excluded from the main statistical analyses, the included children display the means pattern as adults.
- Both children with ASD and TD children can access the meaning derived from lexical presupposition and scalar implicature.
- The most indicative of group difference between children with ASD and TD children is the children with ASD’s higher acceptance of literal meaning in the AllViolated condition.

Implications

- It is still worth noting, though, that the effect of implicated presupposition in this task is an additional effect, on top of the incompatibility with the scalar implicature reading.

Results

Mixed-effects logistic regression model were fitted to the covered box responses.

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Implications

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- However, children with ASD still tend to give more logical, literal responses, compared to their peers.

- Additionally, the current results adds to the literature (Legendre et al., 2011; Yatsushiro, 2008) that types of implicated presupposition matter in the acquisition pattern, considering their performance on another task in the same data collection.

- Rates of deriving scalar implicatures were also previously observed to differ by scalar terms (Papafragou and Musolino, 2003).

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