Overgeneration of Indefinite Articles in Autism and SLI

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Abstract
This study investigates the question as to whether SLI and Autism have overlapping etiologies (cf. Bishop, 2003; 2010) or not. We report experimental data on the choice between a definite and an indefinite article by Dutch-speaking children with High Functioning Autism (HFA) and children with Specific Language Impairment (SLI). Our results show that subgroups of both children with HFA and children with SLI overgenerate the indefinite article a in definite contexts. However, despite the HFA - SLI resemblance in terms of article choice, their profiles differ regarding grammar and cognition, suggesting distinct etiologies. We propose that in the HFA group overgeneration of a is due to the lack of Grice’s (1975) Maxim of Quantity, whereas in the SLI group it is due to impaired Working Memory (WM).

Theoretical background
Article choice depends on speaker/hearer assumptions → part of pragmatics:

<table>
<thead>
<tr>
<th>Referent assumed to exist by</th>
<th>Article</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaker and hearer</td>
<td>do/het (the)</td>
</tr>
<tr>
<td>Speaker only</td>
<td>een (a)</td>
</tr>
</tbody>
</table>

- Concept of Non-Shared Assumptions (CNSA): Speaker and hearer assumptions are always independent. Young children lack CNSA → TD children sometimes attribute their own assumptions to hearer → the instead of a (in B-context) in production (Schaeffer & Mattheoson, 2005).
- Maxim of Quantity (Grice, 1975): Be as informative as required/necessary
- Definiteness Scale: Horn, 2006: <a, the>
- Scalar implicature: choice of weaker term a suggests that stronger term the does not hold. Young TD children fail to draw scalar implicatures → a can refer to referent known to both speaker and hearer (A-context) in comprehension (Van Hout et al., 2010).

Hypotheses
H₃: Children with HFA and children with SLI have overlapping etiologies and therefore perform similarly on Article Choice.
H₄: Children with HFA and children with SLI have different etiologies and therefore perform differently on Article Choice:
   a) Children with HFA have impaired pragmatics, and therefore lack CNSA and/or Maxim of Quantity
   b) Children with SLI do not have impaired pragmatics, and therefore do not lack CNSA or Maxim of Quantity

Predictions
H₅: Children with HFA and children with SLI make similar errors, or no errors at all on Article Choice in production.
H₆: Children with HFA overuse the in B-contexts and a in A-contexts.
H₇: Children with SLI do not overuse the and a

Methods
Participants

<table>
<thead>
<tr>
<th>N</th>
<th>Age range (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFA</td>
<td>28</td>
</tr>
<tr>
<td>SLI</td>
<td>28</td>
</tr>
<tr>
<td>TD</td>
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Results

Discussion – cont’d

Grammar and cognitive profiles HFA and SLI

<table>
<thead>
<tr>
<th>Article Choice</th>
<th>N</th>
<th>CELF</th>
<th>Mass-Count</th>
<th>Subj-V Agr.</th>
<th>WM</th>
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<tr>
<td>HFA failers</td>
<td>6</td>
<td>55%*</td>
<td>90%**</td>
<td>95%**</td>
<td>4.2</td>
</tr>
<tr>
<td>SLI failers</td>
<td>4</td>
<td>9%*</td>
<td>79%*</td>
<td>91%*</td>
<td>4.0</td>
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<tr>
<td>TD</td>
<td>26</td>
<td>72%</td>
<td>92%</td>
<td>96%</td>
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</tr>
</tbody>
</table>

HFA failers: Lack of Maxim of Quantity.
Suriain, Barcohen & van der Lely (1996): Children with ASD perform significantly worse than TD (and SLI) on Gricean Maxims.
SLI failers: Vulnerable WM causes difficulty to calculate scalar implicature (too much to hold in WM).

Conclusion
1. Lack of the overuse: no evidence for lack of CNSA in either SLI or HFA group.
2. a overuse in HFA: Lack of Maxim of Quantity
3. a overuse in SLI: Failure to calculate scalar implicature due to vulnerable WM.
4. Different profiles in terms of grammar and cognition suggest distinct etiologies for HFA article choice failers and SLI article choice failers.

Future research
Test simple scalar implicature (without high load for WM). Predictions:
- Children with HFA perform badly (lack of MoQ)
- Children with SLI perform well (no WM issues)

References

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- Iris Duijmeijer (PhD candidate, University of Amsterdam)
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- The Priority Program Brain & Cognition (University of Amsterdam, Faculty of Humanities) for financial support
- All schools, teachers, parents and the children that participated in this study.

Grammatical and cognitive profiles HFA and SLI

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