Relative Clauses: a Linguistic Marker of Developmental Dyslexia and SLI in Romanian?

Anca Sevcenco, Larisa Avram & Ioana Stoicescu
University of Bucharest

Introduction

Relative clause production represents a vulnerable domain in language acquisition cross-linguistically:

- TD children produce and comprehend direct object relatives (DORs) less accurately than subject relatives (SRs) - Italian, Hebrew, French, Spanish, English (Arosio, Adami, Guasti 2009, Friedman, Novogrodsky 2007 a.o.),
- Dyslexic (Fiorin 2010, Vender 2011) and SLI children (Stavrakaki 2001, Friedman, Novogrodsky 2004) have even more difficulties when acquiring relative clauses.
- Romanian

The available acquisition studies reveal a SR – DOR asymmetry both in production and in comprehension, with TD children (Sevcenco, Avram, Stoicescu 2009).

Research question

Is right-branching relative clause production and/or comprehension a linguistic marker of developmental dyslexia and/or SLI in Romanian?

Experimental Data

Relative Clause production

- Elision task (preference task (Novogrodsky & Friedman 2006, COST A 33))
- 20 questions per participant (10 SR, 10 DOR)
- reversible and non-reversible predicates
1) Un copil bea apă. Un copil bea apa. Tu care copil ai vrea să fii?
A child drinks water. A child drinks cola. Which child would you rather be?
- Expected answer
As vrea să fiu copilul care bea apa. “I’d rather be the child who drinks water”.
2) Tata trezește un copil. Cei al trezește un copil. Tu care copil ai vrea să fii?
Dad wakes up a child. The clock wakes up a child. Which child would you rather be?
- Expected answer
As vrea să fiu copilul care bea apa. “I’d rather be the child whom the clock wakes up.”

Relative Clause Comprehension

- Sentence–picture matching task (Arosio, Adami, Guasti 2006)
- 16 picture pairs (8 SR, 8 DOR), 2 warm up scenarios, 4 control sentences
- transitive reversible predicates
Aară-mi aricul care îl show me hedgehog the which him
piptână pe pisilo combs pe H cat.
“Show me the hedgehog which combs the cat.”
Aară-mi aricul pe care îl show me hedgehog the pe ACC him
piptână pisilo combs cat the.
“Show me the hedgehog which the cat combs.”

Participants

- RC Production:
20 dyslexic children (mean age: 8;7, STDV: 1.45) and 20 age-matched TD children (mean age: 8;8, STDV: 1.54)
6 SLI children (mean age: 8;3, STDV: 1.63) and 6 age-matched children (mean age: 8;3, STDV: 1.63)

- RC Comprehension:
22 dyslexic children (mean age: 8;9, STDV: 1.47) and 22 age-matched TD children (mean age: 8;9, STDV: 1.43)

Results

Figure 1: RC Production TD vs Dyslexic children

Significant difference between the dyslexic children and their age-matched peers in the RC production task (t(38)=2.58, p<.05) and marginally significant difference in the DOR production task (t(38)=2.71, p=.06).

Figure 2: RC Comprehension TD vs Dyslexic children

Marginaly significant difference between the dyslexic children and the TD age-matched controls both in the SR and the DOR comprehension task (SR: t(42)=-.84, p=.06, DOR: t(42)=-.85, p=.05).

Discussion

- Relative clause production is a possible marker for both dyslexia and SLI in Romanian. Dyslexic children are less accurate than their age-matched peers in producing both SR and DOR. Five out of six SLI children did not produce any SR and DOR.
- Relativ clause production may discriminate between SLI and dyslexia. With dyslexic children, there is an asymmetry between SR and DOR production (see the percentages in Table 1: 80% vs. 18.5%, respectively). With SLI children, both relative clause types are a vulnerable domain (see Table 1).
- (right branching) relative clause comprehension is not a linguistic marker of dyslexia in Romanian. There is only a marginally significant difference in SR and OR comprehension between the dyslexic group and their corresponding age-matched controls. This conclusion contrasts with findings reported for other languages (Stem, Cairns, Zuff 1994, Florin 2010).

Conclusions

Table 1: RC production

<table>
<thead>
<tr>
<th>Subject</th>
<th>Age</th>
<th>SR</th>
<th>DOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>6.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PT</td>
<td>7.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>8.9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>C</td>
<td>9.3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>V</td>
<td>10.2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>M</td>
<td>10.3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- SLI children have problems with syntactically complex structures (van der Lely 1998). SR production requires constructing a chain between the relativization site and the RC antecedent. DOR production is even more complex: it involves (i) a dependency between the RC antecedent and the relativization site and (ii) a dependency between an obligatory ACC clitic and the RC antecedent:

1) antecedent, pe ACC who/which; clitic ACC verb < antecedent,;
2) Recent studies on dyslexia show that this disorder does not involve impairment only in the phonological domain (Vender 2011). The SR –
DOR asymmetry in production reported for TD children also holds for dyslexics; in their case, the asymmetry is even steeper. We conjecture that instead, dependency (ii) (above) hinders DOR production; Dyslexic children avoid producing ACC clitics in root clauses, they tend to use a DP instead. They might also find it hard to deal with the clitic – RC antecedent dependency in DORS. It is syntax impaired in dyslexia?

The production – comprehension asymmetry evoked by the dyslexic group may stem from task design. The comprehension task included picture support whereas the production one did not. When solving the production task, the dyslexic participants had to use more verbal working memory resources > verbal working memory is impaired in dyslexia (see also Vender & Dellitto 2010, Florin 2010).


Acknowledgment: Work on this study was part of the research project ‘Crosslinguistic Language Diagnosis (CLAD).’

Address for correspondence: anca.sevcenco@g.unibuc.ro