

IMPACT OF MORPHOSYNTACTIC COMPLEXITY ON SENTENCE COMPREHENSION IN CHILDREN WITH SLI

Anne-Lise Leclercq^{1,2}, Steve Majerus^{1,2}, Laura Jacob¹ & Christelle Maillart¹

¹ University of Liege, Belgium

² Belgian Funds of Scientific Research - FNRS

FNRS



INTRODUCTION

Children with specific language impairment (SLI) show important sentence comprehension deficits (e.g., Norbury, Bishop, & Briscoe, 2002). Sentence comprehension is a complex task requiring not only good syntactic abilities, but also good lexical access and short term memory (STM) abilities (Just & Carpenter, 1992). Previous studies have shown that children with SLI could be affected in all these domains (Friedmann & Novogrodsky, 2004; Montgomery, 1995; Seiger-Gardner & Schwatz, 2008). As the sentence processing problem in children with SLI has only received few research interest, the mechanisms at its root are still not clear.

AIM

→ This study assesses the impact of 3 factors on sentence comprehension in children with SLI: lexical access (lexical frequency), syntactic processing (type of relative clause) and STM capacities (sentence length).

METHODS

Participants : 15 children with SLI, 15 language controls (LC), and 15 age controls (AC)

Task : Off-line sentence comprehension

Length manipulation:

- Short « *The woman sees the boy who is gliding.* »
- Long « *This evening, the beautiful black woman calls the girl who is reading in the meadow.* »

Lexical frequency manipulation:

- Low frequency « *The policeman films the Apache who is skiing* »
- High frequency « *The woman sees the boy who is eating* »

Relative clause manipulation:

- Subject relative clause « *The man shows the woman who is riding.* »
- Object relative clause « *The man who the woman is seeing rides.* »



RESULTS

Response accuracy for the whole set of sentences:

Main effects

- Group effect: $SLI < LC < AC$, $F(2,42)=25.4$, $p<.001$
- Length effect: $F(1,42)=46.29$, $p<.001$
- Relative clause effect: $F(1,42)=198.37$, $p<.001$

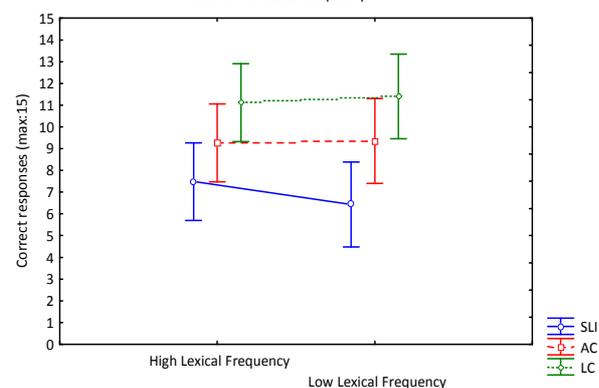
Interaction effects

- Group x lexical frequency: $F(2,42)=4.03$, $p<.05$
- Only children with SLI are affected by lexical frequency on response accuracy for the whole set of sentences

Response times for the first set of sentences:

- Relative clause effect: $F(1,27)=20.71$, $p<.001$
- Lexical frequency effect: $F(1,27)=4.53$, $p<.05$
- All children are affected by lexical frequency in their reaction times only for the first set of sentences

Figure 1. Correct response scores in sentence comprehension for each group (SLI, children with specific language impairment; AC, Age controls; LC, Linguistic controls) a function of lexical frequency



DISCUSSION

Our results confirm previous studies showing that children with SLI have poor sentence comprehension performances.

No specific impact of length and relative clause on sentence comprehension performances in children with SLI → Neither syntax nor verbal STM seem to be the core of their impairment.

Specific impact of lexical knowledge on sentence comprehension performances in children with SLI → Slow lexical access (Seiger-Gardner & Schwatz, 2008) or slow lexical learning rate, that is the need for a piece of vocabulary to be presented more often before becoming familiar to children with SLI (Riches, Tomasello, & Conti-Ramsden, 2005).

REFERENCES

- Friedmann, N., & Novogrodsky, R. (2004). The acquisition of relative clause comprehension in Hebrew: A study of SLI and normal development. *J Child Lang*, 31(3), 661-681.
- Just, M. A., & Carpenter, P. A. (1992). A capacity theory of comprehension: Individual differences in working memory. *Psychol Rev*, 99(1), 122-149.
- Montgomery, J. W. (1995). Sentence comprehension in children with specific language impairment: The role of phonological working memory. *J Speech Hear Res*, 38(1), 187-199.
- Norbury, C. F., Bishop, D. V., & Briscoe, J. (2002). Does impaired grammatical comprehension provide evidence for an innate grammar module? *Appl Psycholinguist*, 23(2), 247-268.
- Riches, N., Tomasello, M., Conti-Ramsden, G. (2005). Verb learning in children with SLI: Frequency and spacing effects. *J Speech Hear Res*, 48, 1397 - 1411.
- Seiger-Gardner, L., & Schwatz, R. (2008). Lexical access in children with and without specific language impairment: A cross-model picture-word interference study. *Int J Lang Comm Dis*, 43, 528-551.