

Comparison between structure repetition in SRT and spontaneous structure production in MAIN in bilingual German-speaking children with DLD

Tina Ghaemi¹ & Jenny Thillmann¹

TU Dortmund University, Department of Rehabilitation Sciences, Research Unit of Language & Communication, Germany

tina.ghaemi@tu-dortmund.de & jenny.thillmann@tu-dortmund.de

Background

- Subject-verb agreement (SVA) and verb-second position (V2) tend to pose challenges in acquisition for bilingual German-speaking children with DLD [1]
- For the age of seven, the diagnostic accuracy of 81.8% has been obtained for bilingual German-speaking children with DLD producing SVA in V2 [2]
- Difficulty in number matching between subjects and verbs persists up to the age of seven [2]
- Some bilingual children with DLD at this age might overcome the difficulty acquiring SVA in V2 because this is an early acquisition phenomenon
- LITMUS-SRT taps into morpho-syntactic knowledge [3,4] via repetition while LITMUS-MAIN stimulates spontaneous narratives [5,6]

Goal

Our study aims to investigate SVA and V2, using LITMUS-SRT and MAIN
RQ1: To what extent does the accuracy of SVA and V2 differ in structure repetition in SRT and spontaneous structure production in MAIN?
RQ2: How do bilingual German-speaking children with DLD produce SVA and V2 on both SRT and MAIN?

Hypotheses

H0: SRT and MAIN would effectively detect potential deficits in SVA and V2
H1: According to the distinct architecture applied on SRT and MAIN, MAIN is cognitively more demanding than SRT due to self-initiation, which, in turn, yields fewer accurate responses

Method

Participants

- N=16 (6 girls, 10 boys)
- Age 6;8 – 8;8 ($M=7;6$ $SD=0;8$)
- 68<IQ score <108 ($M=87.62$ $SD=11.11$)
- All children are attending a specialized school for language support

Materials

- German-SRT
- German-MAIN: cat/dog and BB/BG (telling and comprehension questions)
- iPad and headphones

Design

SRT:

Children are required to repeat sentences that are auditorily presented

1	2	3	4	5	6	7	8	☀
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45

Fig.1. SRT displaying on the iPad

MAIN:

Children look at the picture-story, tell the story and are asked to answer wh-questions related to the story

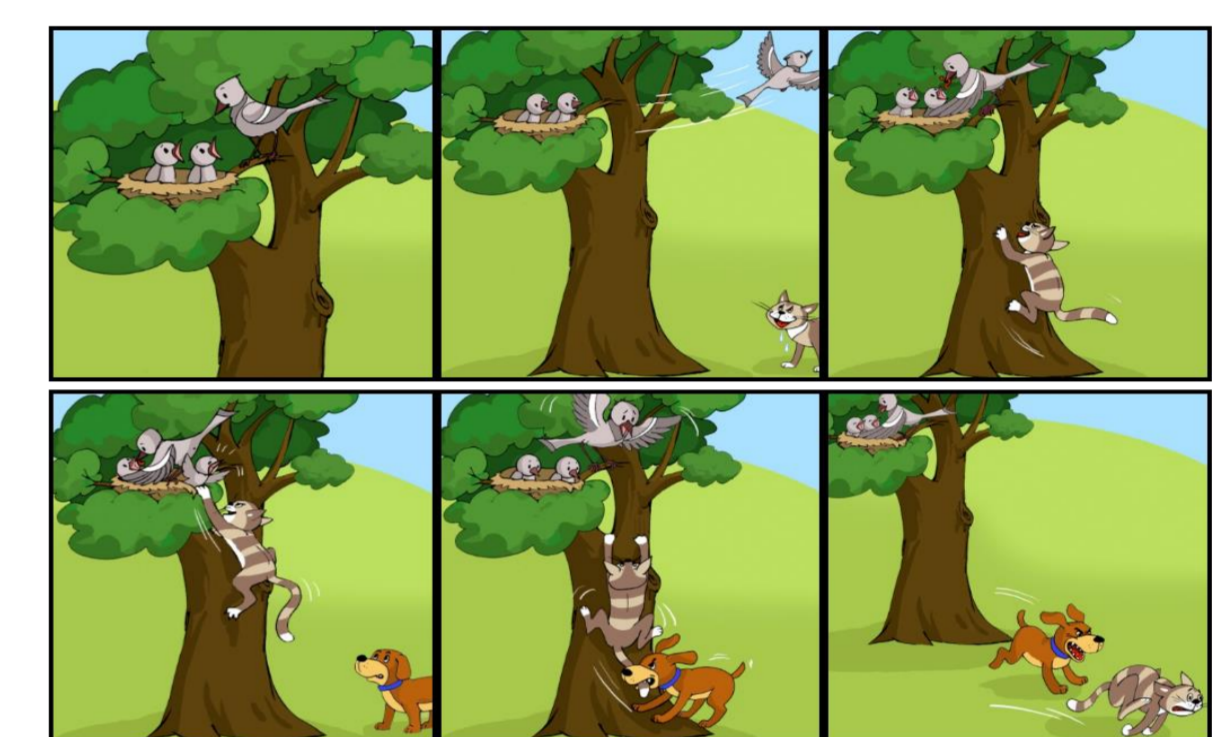


Fig.2. MAIN displaying on the iPad

Analysis

- Accuracy of SVA and V2 on SRT and MAIN is coded by correct (1) and incorrect (0)
- Analysis by Wilcoxon signed rank test (non-parametric test)
- Plots are generated using ggplot2 in R
- Sentences with intransitive verbs and sentences with low intelligibility were excluded
- Two children were excluded: one didn't produce any sentences with MLU longer than 2 and another one had low intelligibility

Results

- Bilingual German-speaking children with DLD score higher on MAIN than on SRT, when the overall accuracy of SVA is considered (Wilcoxon test, $p < 0.001$)
- Children perform similarly on MAIN and SRT when the accuracy of SVA and V2 is considered (Wilcoxon test, $p > .05$)
- There is no difference between children with IQ scores <80 and children >80 (Mann Whitney-U-test, $p > .05$), therefore all children are included in one group



Fig. 3. Overall accuracy of SVA vs. accuracy of SVA with V2. The bars represent the standard error to the mean

Discussion

- Children produce more accurate SVA on MAIN than on SRT:
 - Finding contradicts hypothesis: MAIN architecture was expected to result in lower accuracy
 - This cannot be taken to mean that MAIN is not indeed, more cognitively demanding than SRT
 - A closer investigation: Children tend to produce sentences with lower complexity in MAIN, resulting in easier subject-verb-mapping
 - SRT complexity variation prevents similar simplification by children
 - Children perform equally well regarding SVA and V2 on the two tests
 - Combining SVA and V2 narrows our examination down to only main-clauses, reflecting an early acquisition phenomenon
- This study shows that the efficacy of SRT and MAIN depends on the investigated phenomena, and future studies must focus more on late acquisition phenomena

References

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