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

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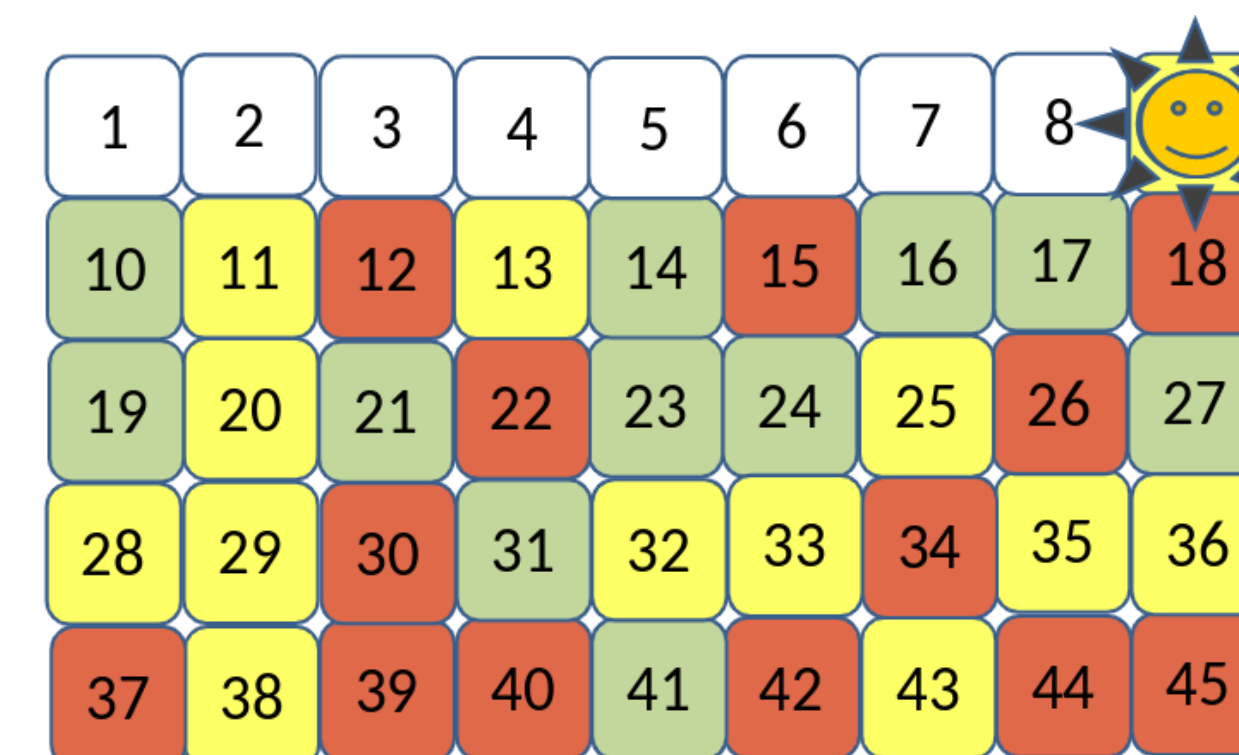
Materials
- German-SRT
- German-MAIN: cat/dog and BB/BG (telling and comprehension questions)
- iPad and headphones

Design

SRT:
Children are required to repeat sentences that are auditorily presented

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
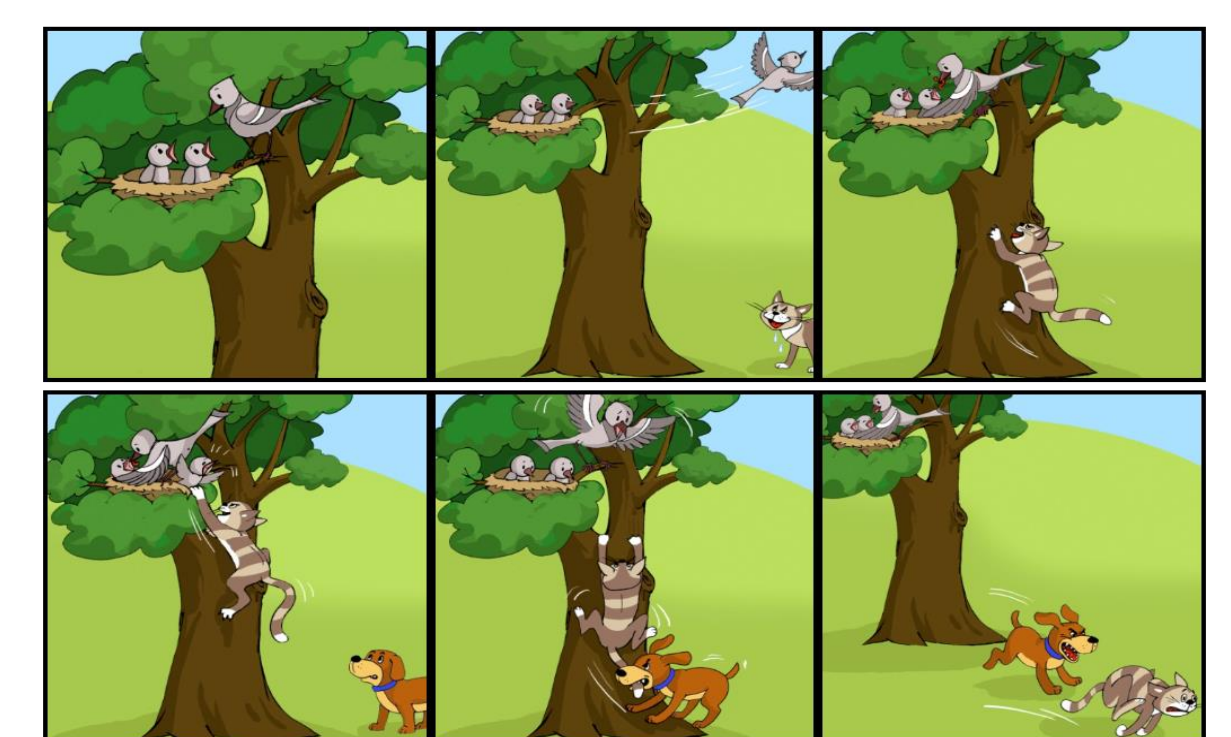

Fig.2. MAIN displaying on the iPad

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

[1]Schulz, P., Grimm, A., Schwarze, R., & Wojtecka, M. (2017). Spracherwerb bei Kindern mit Deutsch als Zweitsprache: Chancen und Herausforderungen. In U. Hartmann, M. Hasselhorn & A. Gold (Eds.), *Entwicklungsverläufe verstehen* (pp. 190-207). Kohlhammer.
[2]Scherger, A.-L. (2019). Elicited subject-verb agreement in German early L2 children with developmental language disorders. *Journal of the European Second Language Association, 3(1)*, 46–57. doi.org/10.22599/jesla.57
[3]Marinis, T. & Armon-Lotem, S. (2015). Sentence repetition. In: S. Armon-Lotem, J. de Jong, & N. Meir (Eds.), *Methods for assessing multilingual children: disentangling bilingualism from Language Impairment* (pp. 95–125). Bristol, Buffalo, Toronto: Multilingual Matters
[4]Hamann, C., Chilla, S., Ruigendijk, E. & Abed Ibrahim, L. (2013). A German sentence repetition task: testing bilingual Russian-German children. Poster presented at *the COST Action IS0806 Conference*, Crakow
[5]Gagarina, N., Klop, D., Kunnari, S., Tantele, K., Välimaa, T., Bohnacker, U., & Walters, J. (2019). MAIN: Multilingual Assessment Instrument for Narratives – Revised. *ZAS Papers in Linguistics, 63*, 20. https://doi.org/10.21248/zaspil.63.2019.516
[6]Gagarina, N., Gey, S., & Sürmeli, N. (2019). Identifying early preschool bilinguals at risk of DLD: a composite profile of narrative and sentence repetition skills. *ZAS Papers in Linguistics, 62*, 168–189. https://doi.org/10.21248/zaspil.62.2019.448