Processing limitations on acquisition of complex wh-questions in German

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Errors as evidence

- Children make errors and we can use these errors as windows into their learning process

- "**Who/What** do you think **who** is the good fairy?"

- Q: "**How** did Lewis tell Sally **what** he picked?"
- A: Apples!

What might cause these errors?

e.g. Thornton, 1990; DeVilliers & Roeper, 1995; Lutken, Legendre & Omaki, 2020

Errors as evidence

"**How** did Lewis tell Sally **what** he picked?" "Apples!"

"**Who/What** do you think **who** is the good fairy?"

Superficially *similar to a Wh-Scope Marking (WSM) construction used in German*

"**Was** glaubst Du, **wer** die gute Fee ist?"

What think you, who the good fairy is?"

e.g. Lutz, Muller, & von Stechow. (2000)

Errors as Evidence

"**How** did Lewis tell Sally **what** he picked?" "Strawberries!"

"Who/What do you think **who** is the good fairy?"

Potential explanations:

Temporary adoption of a German-like grammar?

Two questions in a row?

Maybe biclausal questions are just hard?

Immature processing?

What do German-speaking children do?

Potential Explanations and Predictions

Temporary adoption of a German-like grammar?

- Maybe German is the default and German-speaking kids will perform without error
- Maybe German speaking children will show evidence of adopting another grammar

Two questions in a row?

- It's unclear if English-speaking children are asking two questions in a row, but German-speaking children have an aptitude for verb-placement in embedded clauses (Clahsen, 1982).
- If German speaking children are asking two monoclausal questions, it stands to reason English-speaking children would do the same.

Potential Explanations and Predictions

Maybe biclausal questions are just hard?

- If answering questions with extraction from embedded clauses is just hard, we should see plenty of errors from German-speaking children

Immature processing?

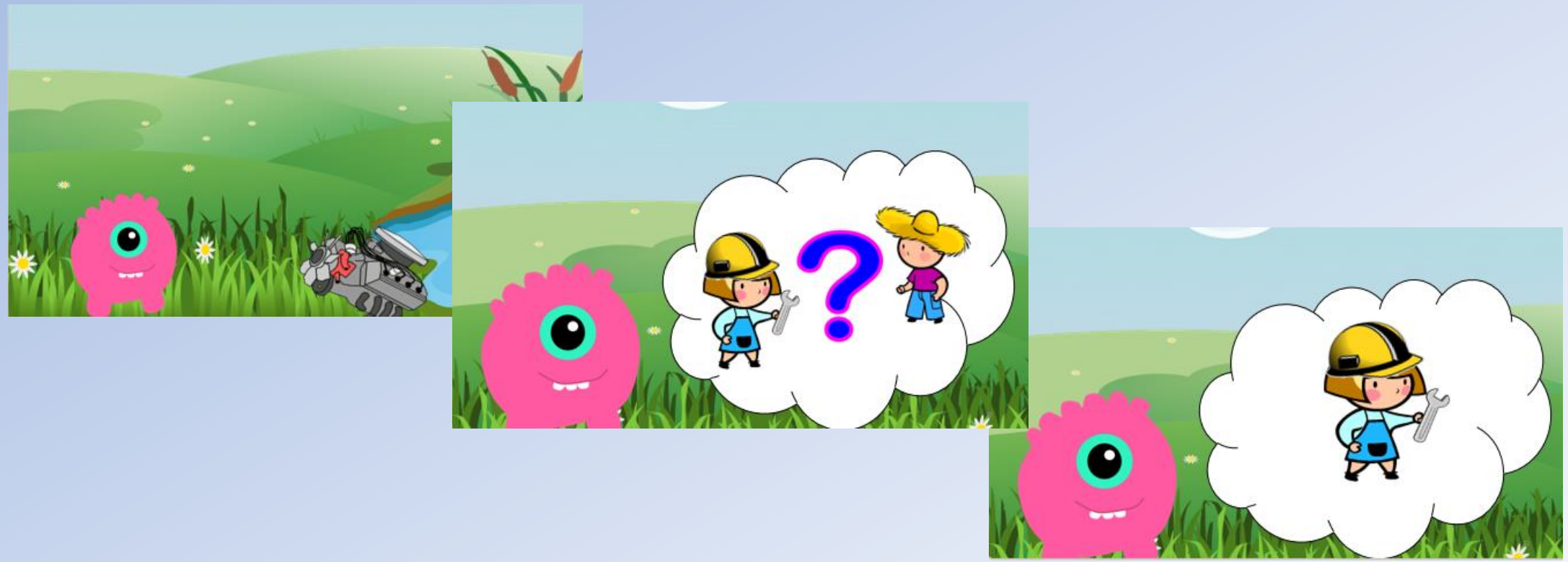
- If immature processing causes errors in English-speaking children, we would expect German-speaking children to show evidence of processing errors as well.

Study with German-speaking children

- University of Konstanz
- Data from 28 children (limited due to COVID) were examined
- Age 3;11- 6;8 (mean: 5;6) recruited and tested by native German-speakers BabySprachLabor NB **this age range is comparable to the child participants in Lutken et al. (2020)*
- Data from 38 adult speakers were also collected to establish a norm since these tasks are open-ended.

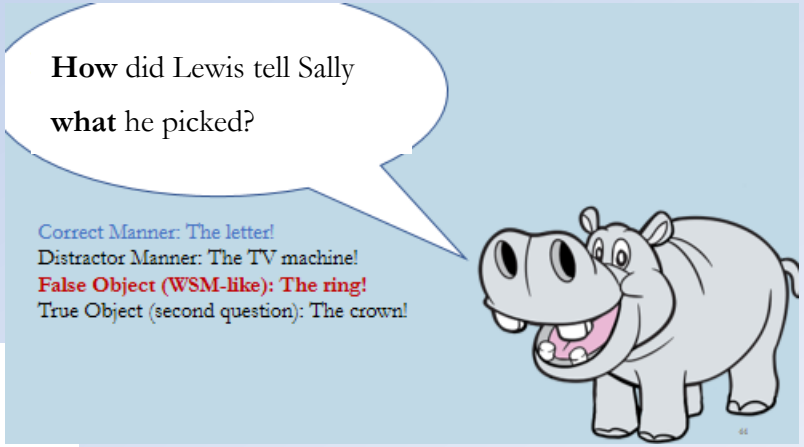
Study with German-Speaking children

- Two forms of production task designed to elicit questions with extraction from the embedded clause. One with a lead in, one without.



Study with German-Speaking children

- Two forms of comprehension task: Open ended "questions after stories". Either WSM construction OR "how+what" questions



Plus Forward and Backward Digit span as a measure of Working Memory

Findings: Comprehension

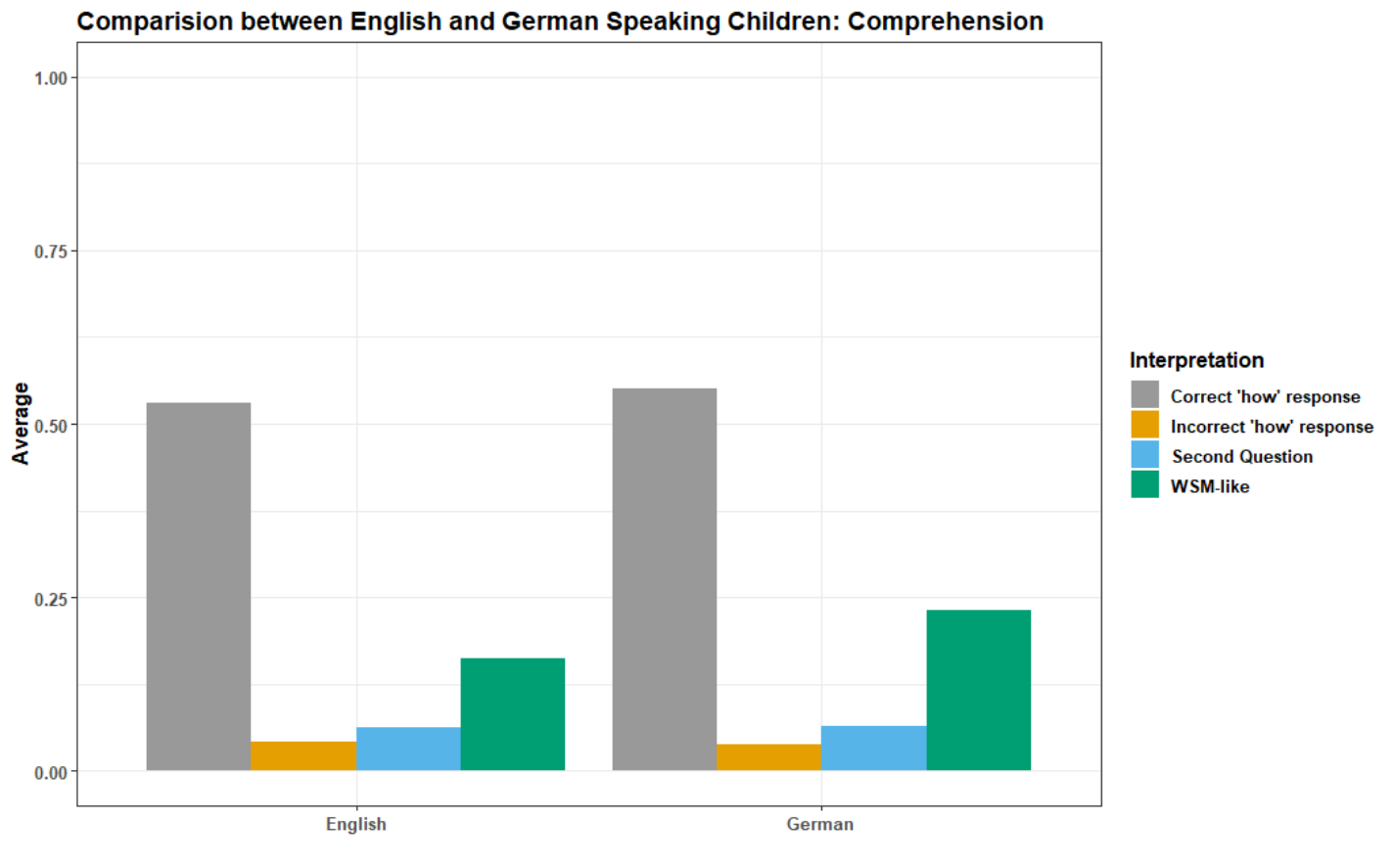
- In response to WSM questions (*What did Lewis tell Sally that he picked?*), 83% of responses were adult-like

- Reminiscent of English children's performance in response to LD questions in Lutken et al. (2020)

Findings: Comprehension

- In response to questions with a medial wh-relativizer

(***How*** *did Lewis tell Sally* ***what*** *he picked?*) :

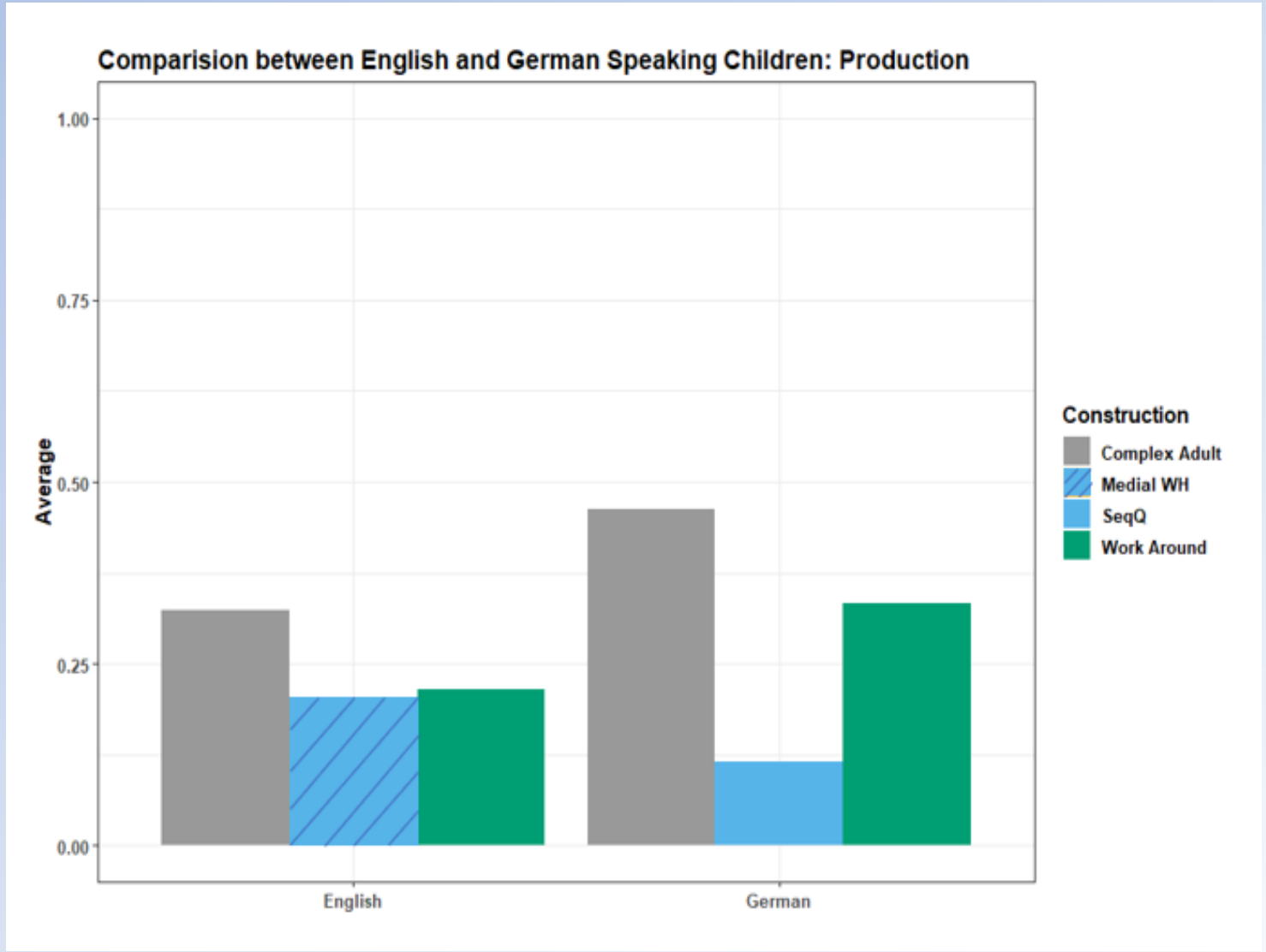


We propose that this similar error pattern is the result of immature processing, common to English and German-speaking children

WM predicted adult-like performance (p=.01)

Findings: Production

- **Mostly adult-like productions**
- **Many work arounds (like English-speakers)**
- **Used 2 questions in a row at a similar rate as English-speakers produced medial-wh…**
- **WM predicts disfluencies* in productions (p =.05)**



*Disfluencies measured a la McDaniel, McKee & Garrett, 2010

Study with German-speaking children

Temporary adoption of alternative grammar?

- No evidence they adopt an alternative grammar

Two monoclausal questions in a row?

- About 11% of productions were two questions in a row, suggesting we'd expect some productions like that from English-speakers as well

Study with German-speaking children

Maybe biclausal questions are just hard?

- German speaking children performed extremely well answering WSM questions
- Made mistakes in response to questions with medial wh-relativizers

Immature processing?

- We saw strikingly similar errors in comprehension to English-speaking kids
- We saw many disfluencies in German-speaking kids' productions, though few outright errors
- WM predicted adult-like comprehension AND disfluencies in production

Thank you!

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