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Adults behaving badly: why do you think what that is?

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Introduction

English-speaking kindergarteners sometimes incorrectly answer questions with medial *wh*-relativizers as in (1) by saying what Lewis said he picked. In other words, they interpret it to mean (2).

(1) **How did Lewis tell Sally what he picked?**
Child response: apples
Correct response: On the phone

(2) **What did Lewis tell Sally that he picked?**

Children's errors resemble *wh*-scope marking (WSM) construction found in languages like German, as in (3) where the true *wh*-phrase appears medially while the scope of the *wh*-phrase is marked by an initial, contentless *wh*-phrase (Lutz, Muller, & von Stechow, 2000).

(3) **Was** glaubst Du, **wer** die gute Fee ist?
What think you, **who** the good fairy is?
Who do you think the good fairy is?

Some accounts of children's WSM-errors:

Hypothesis 1: Children have a WSM-like grammar (e.g., de Villiers and Roeper, 1995)

Hypothesis 2: Children have an adult-like grammar but make these errors due to immature processing (e.g., Lutken, Legendre, Omaki, 2020)

Predictions of Hypotheses:

H_1 If children's errors are due to an immature grammar, adults should never make WSM errors because adults' grammars are fully developed.

H_2 If children's WSM errors result from their language processor being overtaxed, adults might also make WSM errors if they are overtaxed.

Purpose of the Current Study:

Investigate whether H1 or H2 is correct by having adults do a task appropriately difficult for their greater processing abilities.

Study

- Two online, comprehension experiments
  - Written language
  - Read a story and answer a question
- **Exp 1: 24 native English-speaking college students**
  - free response
  - no WM task
- **Exp 2: 47 native English-speaking college students**
  - multiple choice response
  - WM task between story and question

Stimuli

Scenarios
- Balanced for event prominence of matrix & embedded clause verbs
- Exp 1: 48 scenarios
- Exp 2: 48 scenarios (Mean length 134 words; 8.3 sentences)

Questions
- Experimental (unambiguous): *Why did Al report who he invited?*
- Control (Ambiguous): *How did Luke report he invited Sam?*

Differences Between Adult and Child Experiments

- Written vs. spoken
- Online vs Interactive
- Adult task: longer, complex, abstract

Sample Scenario and Question

The local Boy Scouts are having their jamboree. Arthur was given the job of inviting someone to teach knot-tying and someone to teach fire-building. He's excited about who he's asked to do fire-building, but he's concerned that the knot-tying expert might not show up. He thinks about reporting his concerns to the director but decides to wait just a bit longer. The director sends around an email asking everyone to confirm who they have invited to speak. Arthur goes ahead and reports that he's invited the fire-building expert, but decides he'd better not mention the knot-tying expert yet in case he doesn't work out. Q: Why did Arthur report who he invited?

Results

In Exp 1, 4 participants made WSM errors.

Types of Response in Expt 2	Percentage
Correct Matrix (*The director asked everyone to confirm their invitations*)	74.9%
Wh-scope Marking (*He reported inviting the fire building expert*)	13.1%
Alternate Matrix (*He was concerned about the knot-tying expert*)	7.6 %
Embedded Clause (*He invited a fire building expert and knot-tying expert*)	4.3 %

In Exp 2, participants mostly gave correct matrix responses, but made WSM errors ~13% of the time. Twice as frequently as other errors.

In Exp 2, 34 participants made at least one WSM-error and no participant made WSM errors more than 38% of the time.

Errors were not evenly distributed across stories ($p < .05$) see Fig. 1

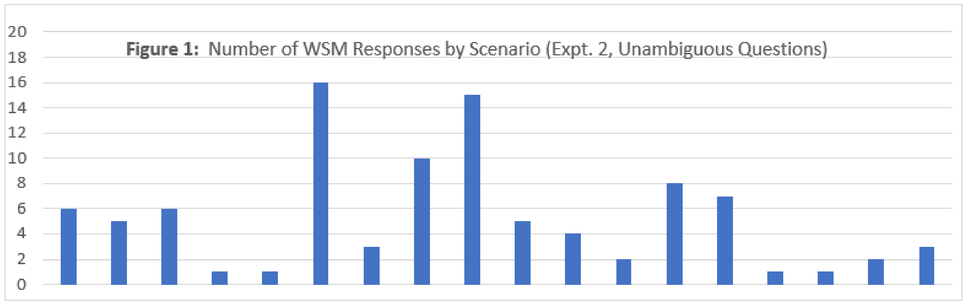

Figure 1. Shows the total number of WSM errors made for each scenario in the order of presentation. As is apparent, more WSM errors appeared in response to some scenarios than others, but every scenario elicited at least one error.

Discussion & Conclusion

General Discussion:

- Adults make WSM-errors when under processing strain.
- Lutken et al. (2020) found adults performed at ceiling for their child-directed tasks, but the changes we made elicited errors in adults
- Our findings support a processing analysis of children's errors reported previously.

Future Directions:

- Follow up study suggests more complex stories still elicit errors without WM task
- Future work should be spoken, free response rather than selection of preferred response

References:

De Villiers & Roeper. (1995). ***Journal of Child Language*****, 22. 389-404**

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Lutz, Muller, & von Stechow. (2000)