



Children’s production and comprehension of Clausal Comparatives

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Introduction

- Comparison is a fundamental concept in human and even animal cognition (Dehaene et al., 1998).
- Human languages have developed different constructions related to such comparisons.
- Clausal comparatives are one such construction characterized by hosting a full clause (with a gap and usually also some ellipsis) in the *than*-phrase.

(1) The bear boiled more eggs than he fried.

Previous work on clausal comparative acquisition

- Given the fundamental nature of this concept, it is surprising that previous work on child language acquisition found no evidence of clausal comparatives in CHILDES (MacWhinney, 2000) corpus data from German-speaking children up to age 7;07 and English-speaking children up to age 5;01 (Hohaus et al., 2014).
- In fact, even for the simpler phrasal comparative in German, such as (2), Hohaus et al. (2014) report the relatively late age of acquisition of 6;04.

(2) The bear boiled more eggs than the lion.

- It is possible that the lack of clausal constructions is a result of a context in which their production is natural/called for occurring fairly rarely ‘in the wild’.
- Therefore, the paucity of data found by Hohaus et al. (2014) may well be explained by this rather than a lack of ability on the part of children.
- In the current study, we explored this possibility by conducting an experiment specifically designed to elicit clausal comparatives from German-speaking children.

Children’s productions and covert structure

- Linguistic analyses of different structures often posit covert elements. For example, all analysis of clausal comparatives posit that the object in the *than*-phrase is made covert through elision.

(4) The bear boiled more eggs than he fried (the eggs).

- According to Guasti et al. (2023), children’s productions can sometimes reveal covert structure that is usually/always covert in the adult language.
- An analysis of clausal comparatives that posits even more covert structure is known as the *A-not-A analysis* (Ross, 1969, a.o.).
- According to this analysis, a clausal comparative like (1) maps to the underlying form in (5).

(5) There is a degree *d* such that the bear boiled *d*-many eggs **and** did **not** fry ***d*-many eggs**.

- If this analysis is on the right track, we might expect children’s productions to reflect in a more transparent way some of the elements in (5) that are covert in the adult language. For example, conjunction, negation, and/or the *than*-clause object.

Research Questions

- **RQ1:** What is the acquisition trajectory of clausal comparatives in German?
- **RQ2:** Do children’s clausal comparative productions reveal anything about elements that are covert in the adult language?

Method

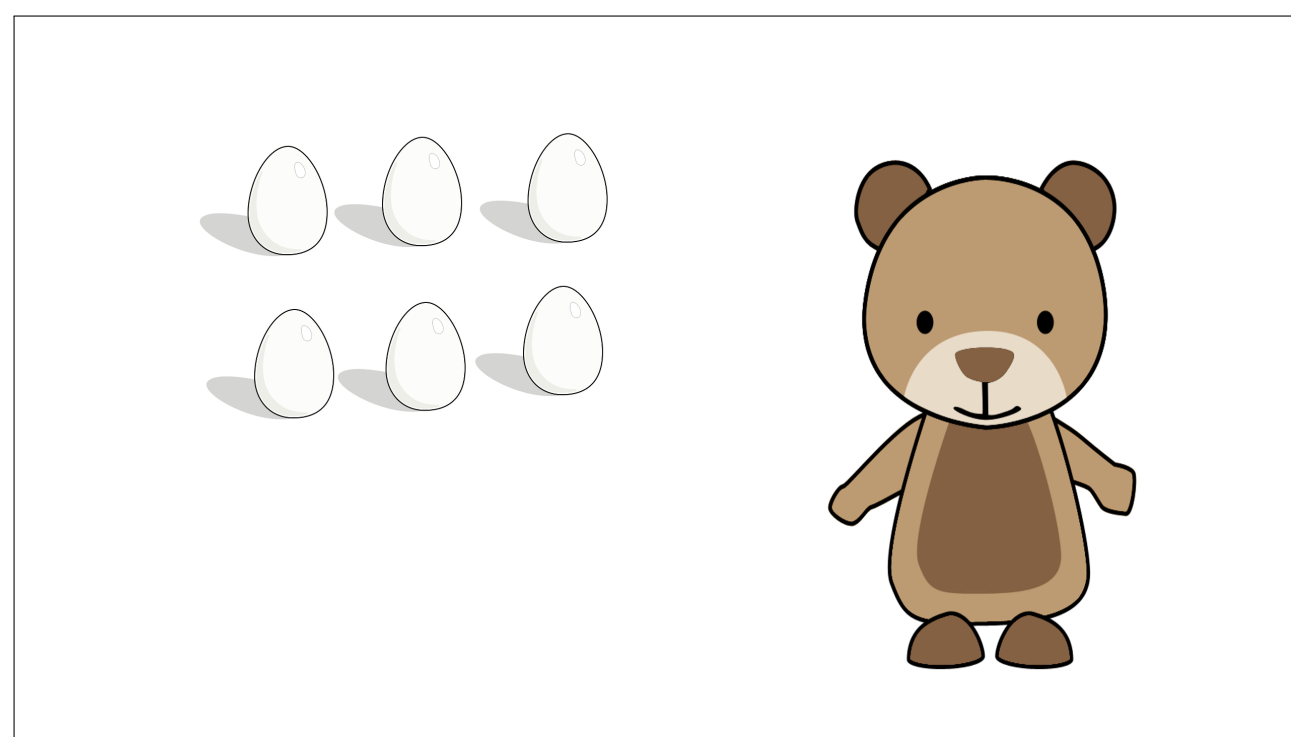
Participants:

- 63 German-speaking children
- Age: 4;0-6;04, M = 5;1, SD = 0;8

Design and Procedure:

- Sentence completion + (Completed) sentence repetition
- Participants needed to complete the sentence and then repeat it to the puppet Ellie.
- Practice block: 4 items
- Experimental block: 6 critical, 2 filler items

EXP: *Look, this bear has eggs that he would like to prepare in different ways. He wants to boil a few and he wants to fry the rest. Let’s see what happens...*



EXP: *Look, the bear boiled more eggs than he...*
CHI: *...fried.*
EXP: *Can you say that again for Ellie?*
CHI: *The bear boiled more eggs than he fried. (Der Bär hat mehr Eier gekocht als er gebraten hat.)*



Summary of the different trials presented in the experiment:

ID	Character	Objects	Outcome
Critical.1	Bear	Eggs	Boiled > Fried
Critical.2	Frog	Pictures	Put away > Hung up
Critical.3	Elephant	Chocolate	Froze > Melted
Critical.4	Giraffe	Candy	Gave away > Ate
Critical.5	Cat	Dirty shirts	Cleaned > Threw away
Critical.6	Dog	Glasses of juice	Emptied > Filled up
Filler.1	Monkey	Rock & Tree	Monkey climbed tree
Filler.2	Penguin	Two hats	Penguin wore both hats

• Sentence coding included:

- Task performance:
Completion only (1,0), Repetition (1,0)
- Target meaning (1,0)
- Clausal comparative (1,0)
- Sentences contained:
Conjunction (1,0), Negation (1,0), Antonym (1,0), Filled Object (1,0)

Results

Clausal Comparative Acquisition

- We excluded utterances that did not convey target meaning, resulting in the loss of 169 utterances.
- For the remaining utterances:

Response type	All trials	ClausalC
Completion Only	19	19 (100%)
Repetition	189	164 (87%)
Total	208	183 (88%)

- No age effect ($\chi^2(1) = 0.01, p = .934$).

Alternative Productions

- According to the A-not-A analysis, combined with the assumption that children produce covert structure (Guasti et al., 2023), we might expect children to produce something like (12).

(12) The bear boiled many eggs **and^A** he fried **not many/few^B eggs^C**.

- We identified the utterances containing these elements:

Feature code	Total Occurrences	
A: Conjunction	NA	24
B: Negation/Antonym	NA	25
C: Filled Object	NA	40
A or B or C	208	49 (24%)
A and B and C	208	15 (7%)

Discussion

Clausal Comparative Acquisition

- Not only did many of the children produce clausal comparatives, it was clearly the favored construction employed to convey the target meaning.
- The lack of an age effect indicates that this construction may be acquired at an even earlier age than we targeted.
- In any case, it clearly suggests that German-speaking children acquire clausal comparatives at a much earlier age (< 4y/o) than suggested by Hohaus et al. (2014) (> 7y/o).

A-Not-A analysis of clausal comparatives

- Approximately a quarter of the utterances contained a (covert) element proposed by the *A-not-A analysis* of clausal comparatives, and 7% of utterances contained some expression of all three covert elements.
- These productions provide unique support for the existence of the usually covert elements proposed by the *A-not-A analysis* of clausal comparatives.

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