Processing COMP-trace violations in German: implications for syntax

Ankelien Schippers, Margreet Vogelzang & Esther Ruigendijk

The facts

- German LD subject questions are less acceptable than LD object questions, likely caused by a COMP-trace violation.

[Welch-er Schriftsteller]$_i$ denkst du, dass t$_i$ den   Verleger geschätzt hat?
Which-NOM author   think du, that   the.ACC publisher appreciated has
'Which author do you think (*that) respected the publisher?'

[Welch-en   Schriftsteller]$_i$ denkst du, dass der   Verleger t$_i$ geschätzt hat?
Which-ACC   author   think you that   the.NOM publisher appreciated has
'Which author do you think (that) the publisher respected?'

- Difference in acceptability reduces when the wh-phrase or embedded DP is case-ambiguous (Kiziak 2010).
- German differs from English, where COMP-trace violations are categorically rejected.
- **What causes this difference between German and English? What role do local case-ambiguities play?**

Hypotheses

A. German doesn't have COMP-trace violations, subject/object asymmetry is purely parsing-related, due to a matrix clause agreement clash (Haider 2007).

B. German does have COMP-trace violations, but these violations are harder to detect (Featherston 2005, Kiziak 2010).

   - German word order doesn't differentiate between subject and object readings, case marking is crucial.
   - Case marking is often ambiguous, leading to local ambiguities.
   - Local ambiguities may lead to global ambiguities under the assumption of 'good enough processing' (Ferreira & Patson 2007).

Research questions:

1. Do parsing problems occur in the main clause (Hypothesis A) or in the embedded clause (Hypothesis B)?
2. Do readers misinterpret LD subject as LD object questions and vice versa (Hypothesis B)?
3. Do local case ambiguities cause misinterpretations (Hypothesis B)?

Method

- Self-paced reading followed by comprehension task
- Factors:
   1. Ambiguity: No Ambiguity (NoAmb) vs. Embedded ambiguity (EmbAmb).
   2. Argument: Subject vs. object.

Design

- 8 items per condition, divided over 2 lists
- 48 filler items
- 30 native speakers of German (23 female, mean age 22 years)
- Segments presented non-cumulatively in the centre of the screen.

Segment	1	2	3	4	5	6	7	8
Stimulus	Which X	think	you	that	the Y	VERBed	has	?

- Each question was followed by two statements corresponding to a subject or an object reading from which participants had to choose.

Example of materials

Question (EmbAmb subject)

Welch-er   Schriftsteller denkst du, dass die   Verleger-in   geschätzt   hat?
Which-NOM author   think you that   the.? publisher-FEM appreciated has?
'Which author do you think respected the publisher?'
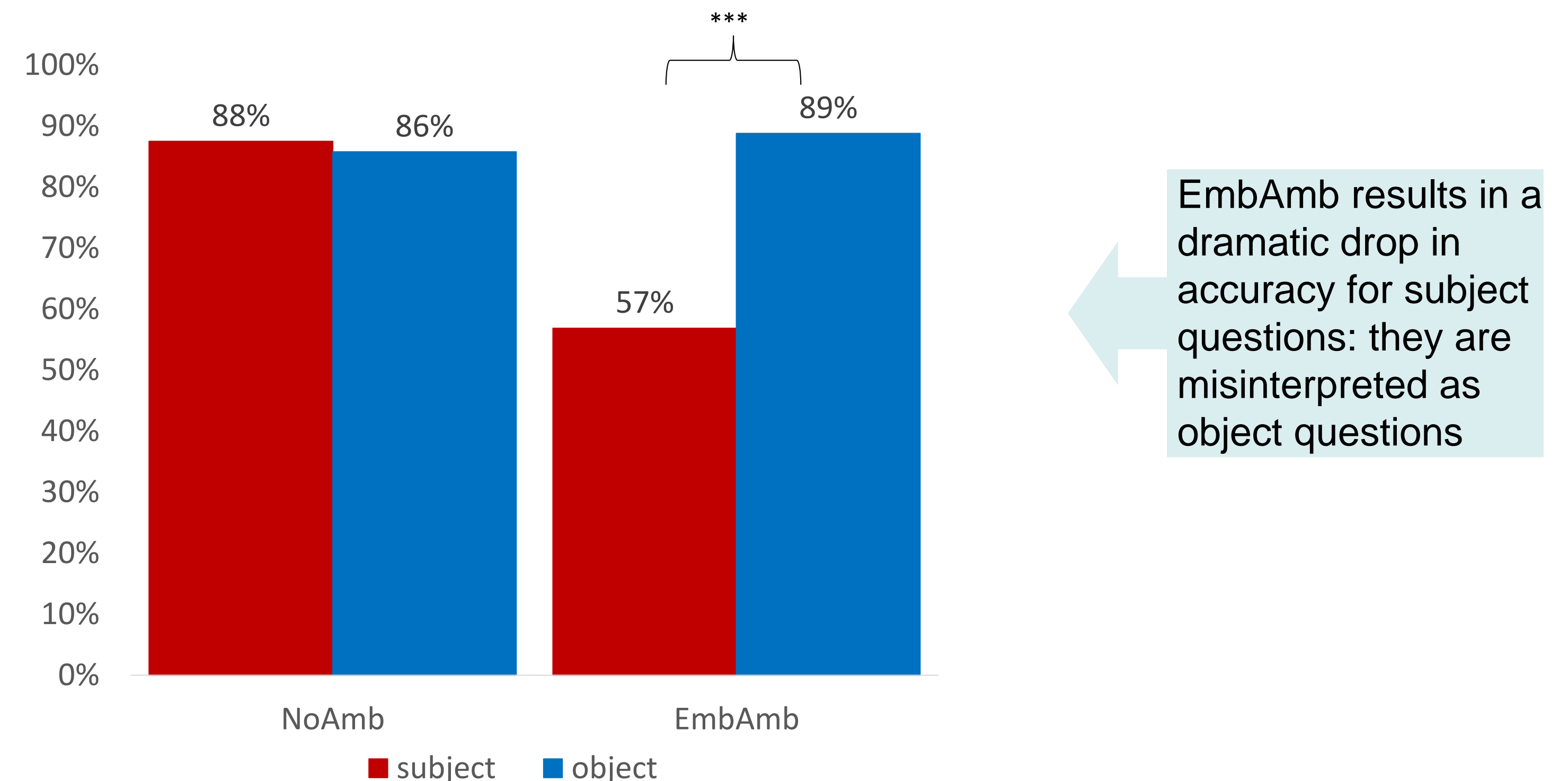
Comprehension statement

(A) Ich denke, dass der britische Schriftsteller die Verlegerin geschätzt hat   Correct
    'I think that the British author appreciated the publisher'
(B) Ich denke, dass die Verlegerin den britischen Schriftsteller geschätzt hat   Incorrect
    'I think that the publisher appreciated the British author'

Table 1: Examples of conditions

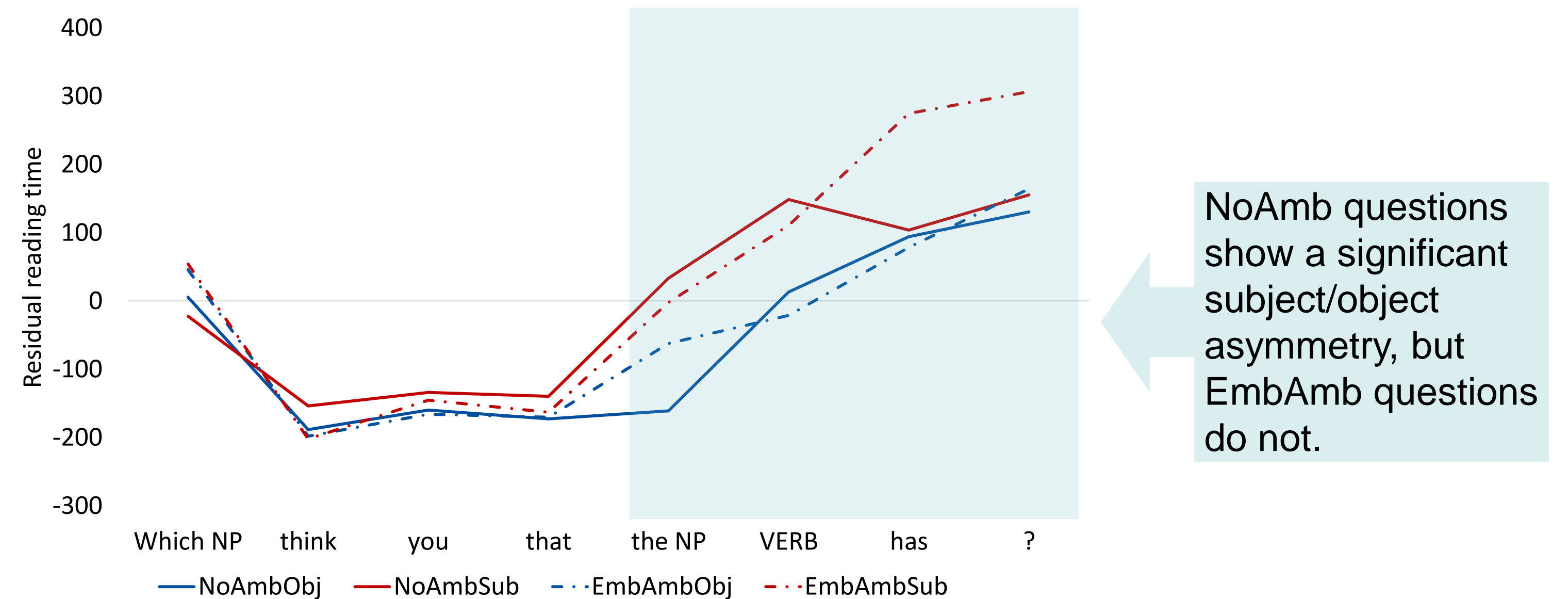| Condition	Example
NoAmb Sub/Obj	Welch-er/welch-en Schriftsteller denkst du, dass den/der Verleger geschätzt hat? Which-NOM/wich-ACC author think you that the.ACC/the.NOM publisher appreciated has 'Which author do you think appreciated the publisher/the publisher appreciated?'
EmbAmb Sub/Obj	Welch-er/welch-en Schriftsteller denkst du, dass die Verleger-in geschätzt hat? Which-NOM/wich-ACC author think you that the.? publisher-FEM appreciated has 'Which author do you think appreciated the publisher/the publisher appreciated?'

Results

Fig. 1 Accuracy Comprehension

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	subject	object
NoAmb	88%	86%
EmbAmb	57%	89%

EmbAmb results in a dramatic drop in accuracy for subject questions: they are misinterpreted as object questions

Figure 2: NoAmb vs. EmbAmb conditions

Residual reading time

Which NP — think — you — that — the NP — VERB — has — ?

— NoAmbObj — NoAmbSub -·- EmbAmbObj -·- EmbAmbSub

NoAmb questions show a significant subject/object asymmetry, but EmbAmb questions do not.

Discussion & conclusions

- Parsing problems located in the embedded clause, not in the main clause: contra Hypothesis A and **in favor of Hypothesis B.**
- Case-ambiguous DPs are frequently interpreted as subjects, leading to global misinterpretations, effectively **diminishing** the subject/object asymmetry and thus the strength of **the COMP-trace effect**.
- Good enough processing can partly explain why COMP-trace violations are less severe in German.
- Although **COMP-trace** effect is clearly present in German, it **does not lead to outright ungrammaticality**: difficult to explain under syntactic analyses of the COMP-trace effect.
- Following McDaniel et al. (2015), we propose **COMP-trace is a matter of accessibility:** embedded subject gaps are less accessible than embedded object gaps, because clause-initial gaps cause a production challenge. Embedded gaps show a 'mirror asymmetry' w.r.t. to the traditional accessibility hierarchy for non-embedded gaps.

References: ■ FEATHERSTON, S. (2005). *That-trace in German. Lingua*, 115, 1277-1302. ■ FERREIRA, F., & PATSON, N. (2007). The 'good enough' approach to language comprehension. *Language and Linguistics Compass*, *1*, 71-83. ■ Haider, H. (2007). As a matter of facts – comments on Featherston's sticks and carrots. Theoretical Linguistics, 33, 381–394. ■ Kiziak, T. (2010). Extraction Asymmetries: Experimental Evidence from German. Amsterdam & Philadelphia: John Benjamins. ■ McDaniel, D. et al. (2015). The role of the language production system in shaping grammars. Language, 91(2), 415-441.