I. BACKGROUND

- Feature sharing of items in working memory causes interference (Nairne 1990; Oberauer & Kliegl 2006; Lewandowsky, 2008).
- In sentence processing, feature sharing of linguistic constituents also leads to interference (e.g., Gordon et al., 2001, 2002, 2006; Van Dyke, 2007; Van Dyke & McElree, 2011; Sturt, 2003).
- It is not yet clear which features cause interference.
- It is not yet clear whether interference effects observed at the moment of retrieval are indeed due to the retrieval mechanism or due to interference having happened already at the stage of encoding.

II. RESEARCH QUESTIONS

Which features cause similarity-based interference?
→ Does grammatical gender overlap lead to interference?
What is the source of interference at the retrieval site?
→ Encoding interference or cue-overload at retrieval?

III. 2×2 DESIGN

Eye movements were measured while subjects were reading German sentences with a main clause (MC) containing a reflexive as object and a relative clause (RC) intervening between the main clause subject and its verb.

Factor I: Gender of MC subject
Factor II: Gender of RC subject

Critical Regions (points of retrieval): RC verb, MC verb, reflexive

Neither verbs nor reflexives are gender-marked in German.

IV. PREDICTIONS

If interference is due to …

i) RETRIAL:
No interference effect at any region: In German verbs and reflexives, gender is not a plausible retrieval cue.

ii) ENCODING:
Interference effect at the RC verb, the MC verb and the reflexive.

VI. PROCEDURE

- 16 items; 32 fillers.
- 151 participants.
- Eyelink 1000, Desktop mount.

VII. RESULTS

- First-pass reading times, regression-path durations, re-reading times as well as the proportion of first-pass regressions were analyzed using Linear Mixed Effects models.
- No main effect of gender-overlap in any measure at any of the critical regions.

VIII. DISCUSSION

- Our results are compatible with accounts assuming that interference effects in sentence processing are happening at the retrieval site rather than the encoding site (e.g., Van Dyke & McElree, 2006).
- As far as we can generalize from German to other languages, the absence of an interference effect at the reflexive sich indicates that the interference effect found at the reflexive in similar sentences but in languages like English with gender marking on the reflexive (e.g., Cunnings & Felser, 2011) are due to retrieval interference rather than encoding interference.

- In spite of very high statistical power, no interference effects due to overlapping gender were observed.
- These results suggest that grammatical gender is not a feature leading to encoding interference.

- • Eyelink 1000, Desktop mount.
- • No interference effect at any region: In German verbs and reflexives, gender is not a feature leading to encoding interference.
- • Invariance with accounts assuming that interference effects in sentence processing are happening at the retrieval site rather than the encoding site (e.g., Van Dyke & McElree, 2006).
- • As far as we can generalize from German to other languages, the absence of an interference effect at the reflexive sich indicates that the interference effect found at the reflexive in similar sentences but in languages like English with gender marking on the reflexive (e.g., Cunnings & Felser, 2011) are due to retrieval interference rather than encoding interference.

- A. Masc - masc (interference)
  Der Dieb, dem der Hehler…
  The thief masc whom the accomplice masc…

- B. Masc - fem (no interference)
  Der Dieb, dem die Hehlerin…
  The thief masc whom the accomplice fem…

- C. Fem - fem (interference)
  Diebin, der die Hehlerin…
  The thief fem whom the accomplice fem…

- D. Fem - masc (no interference)
  Diebin, der der Hehler…
  The thief fem whom the accomplice masc…

- • First-pass reading times, regression-path durations, re-reading times as well as the proportion of first-pass regressions were analyzed using Linear Mixed Effects models.
- • No main effect of gender-overlap in any measure at any of the critical regions.

- Gender MC subject
  • feminine
  • masculine

- First−pass reading time at the relative clause verb
  • interference
  • no interference

- First−pass reading time at the main clause verb
  • interference
  • no interference

- First−pass reading time at the reflexive
  • interference
  • no interference

- The thief masc/fem whom the accomplice masc/fem obliged to steal sadly denounced himself/herself and the colleagues […]”

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