Prediction in L1 and L2 German based on semantic and gender cues

A reaction-time (RT) study implementing the Visual World Paradigm

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Theoretical background

L2ers can predict, but …

- … less consistently than L1ers (e.g. Grüter et al. 2012)
- … use semantic cues <u>if</u> semantic contrast, i.e. *put.LIE* vs. *put.STAND,* present in L1 (van Bergen & Flecken 2017)
- … use semantic cues but not morphosyntactic cues, i.e. case (Hopp 2015)
  - but in Hopp's study, case *absent* in L1 while semantic cues *present* in L1!

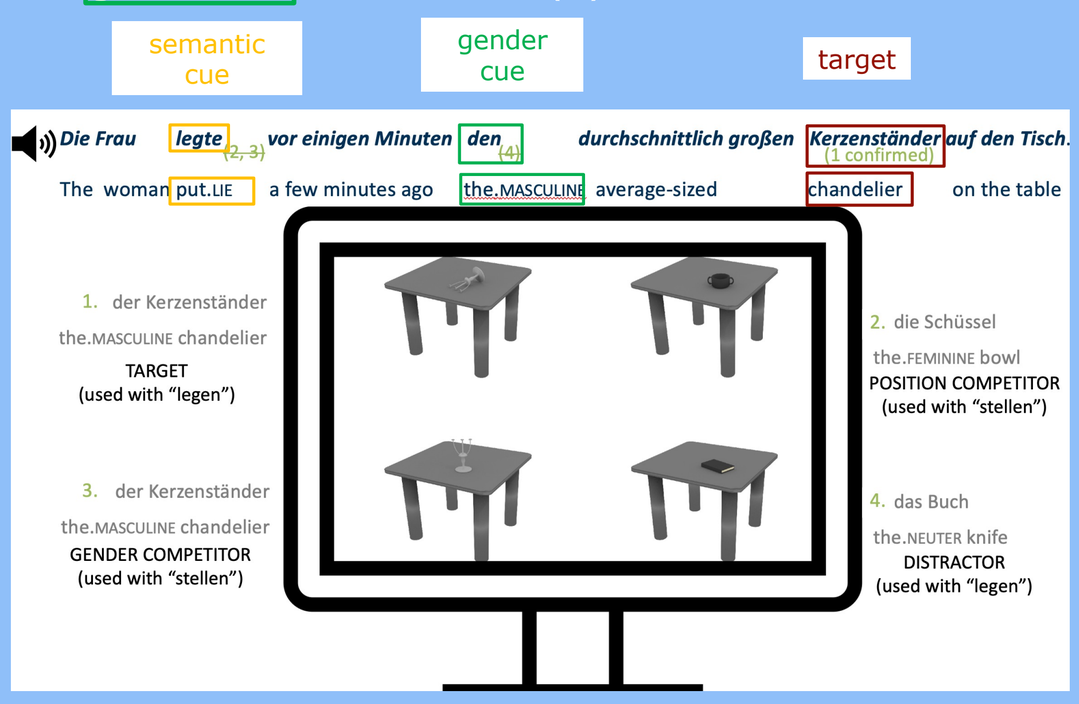
Research questions

1. Do German **L2ers predict** based on **semantic cues** and/or 'morphosyntactic' cues (**gender**) if the relevant semantic contrast is absent from their L1 but gender marking is present in their L1 (French)?
2. Does **proficiency** affect L2ers' prediction ability?

Methodology (online via www.Gorilla.sc)

- 32 German L1ers + 34 L1-French (FR) L2-German (GE) bilinguals (intermediate – advanced in German)
- Task: Choose picture (button press) corresponding to what you hear <u>as soon as you can</u>
- RTs of button press collected from start of audio
- Visual displays + GE audio sentences (adapted from van Bergen & Flecken 2017) → 4 CONDITIONS:

1. *SEMANTIC+GENDER*: *[Display]:* 1 target object (fem. or masc.) in lying or standing position + same object in other position + gender competitor + distractor (neuter) *[Audio]:* semantic cue (absent in FR) in Verb (V) and gender cue in Determiner (D)

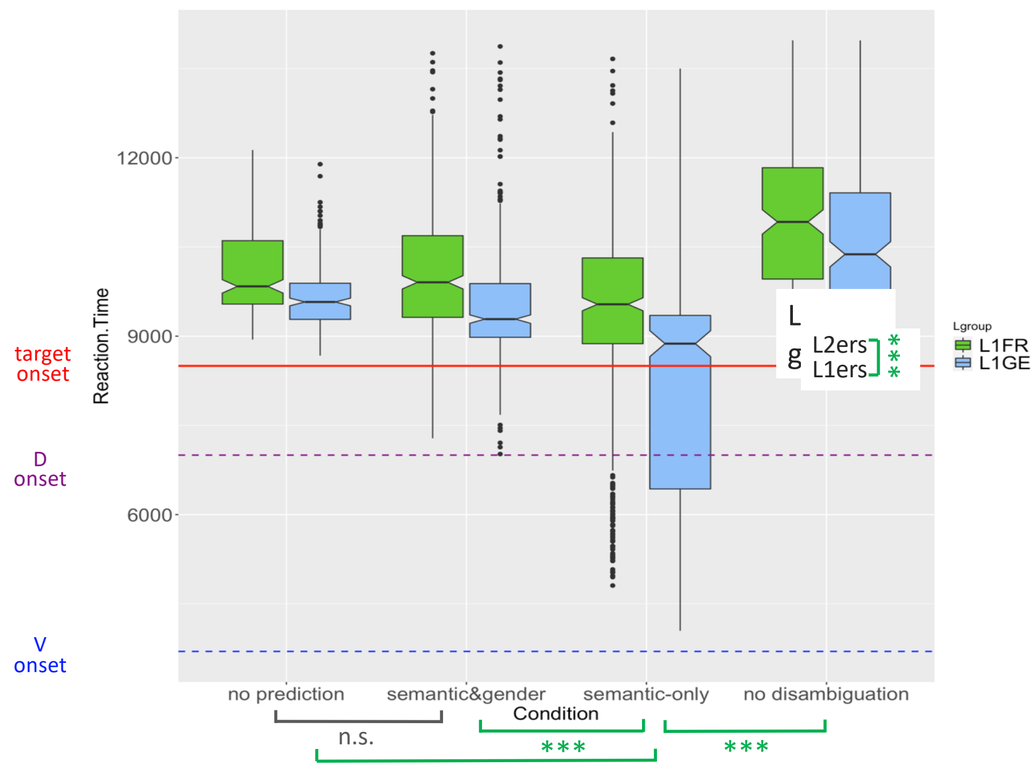


2. *SEMANTIC-ONLY:* target can immediately be predicted from semantic cue in V (direct translation available in French)
3. *NO PREDICTION:* target cannot be predicted
4. *NO DISAMBIGUATION:* 2 alternatives remain possible upon hearing the full sentence

Results

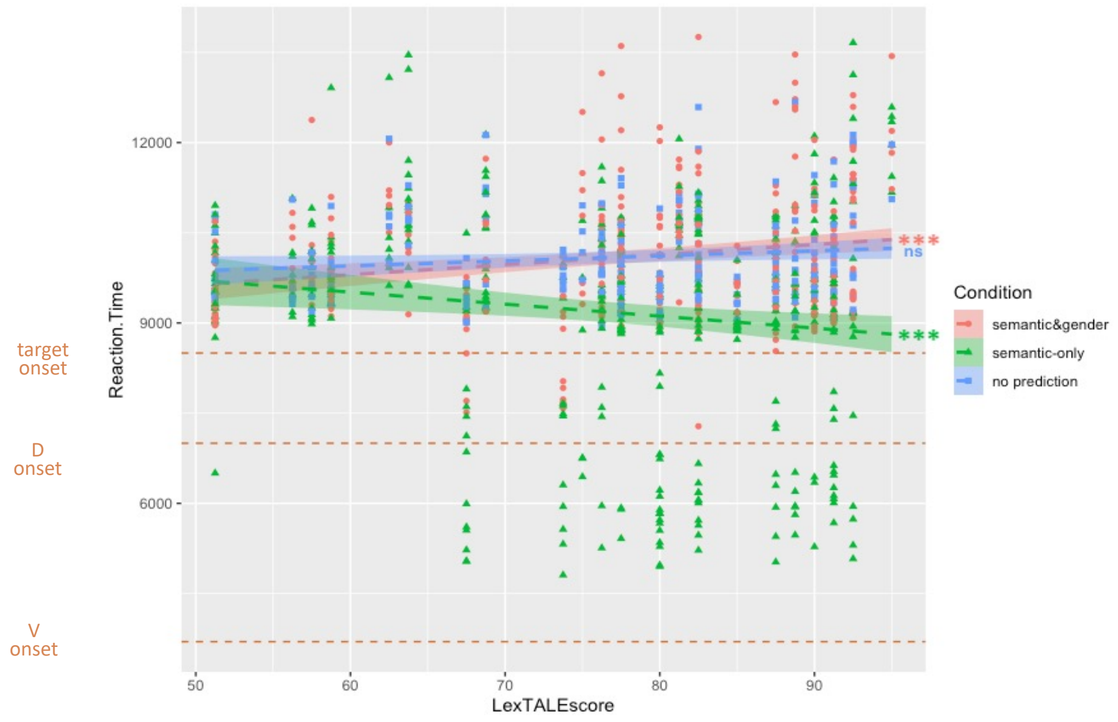
- Analyses: bootstrapped linear mixed models & Mann-Whitney U tests
- Results controlled for individual productive knowledge of target words
- **Accuracy rates**: L1ers **=** L2ers in *SEMANTIC+GENDER* (*M* = 86%) but L2ers **>** L1ers in *SEMANTIC-ONLY* & *NO PREDICTION* (*M* = 99% & 95%, resp., in both conditions)
- **RTs:** L2ers **>** L1ers
  NO PREDICTION **=** *SEMANTIC&GENDER* **>** *SEMANTIC-ONLY*

Figure 1. RTs broken down by Language group & Condition (n = 66).



- **RTs:** more **proficient** L2ers → lower RTs in *SEMANTIC-ONLY*, but higher RTs in *SEMANTIC&GENDER* condition

Figure 2. L2ers' RTs plotted against LexTALE scores broken down by & Condition (n = 34).



Conclusion & next steps

This conscious *decision-making task* contradicts previous results: neither L1ers nor L2ers integrated gender & semantic cues to predict
+ only short prediction for L1ers based on semantics.
→ L2ers too challenged vs. L1ers too "lazy" to make the effort**?** → utility of prediction (Kuperberg & Jaeger 2016).

Next step: eye-tracking study (no active decision-making) with GENDER-ONLY instead of NO DISAMBIGUATION condition to disentangle relative use of gender & semantic cues vs. integration of both types of cues.

Sources:
Grüter, T., Lew-Williams, C., & Fernald, A. (2012). Grammatical gender in L2: A production or a real-time processing problem? Second Language Research, 28(2), 191-215.
Hopp, H. (2015). Semantics and morphosyntax in predictive L2 sentence processing. International Review of Applied Linguistics in Language Teaching, 53(3), 277-306.
Kuperberg, G. R., & Jaeger, T. F. (2016). What do we mean by prediction in language comprehension?. Language, Cognition and Neuroscience, 31(1), 32-59.
van Bergen, G., & Flecken, M. (2017). Putting things in new places: Linguistic experience modulates the predictive power of placement verb semantics. Journal of Memory and Language, 92, 26-42.