

Short-Term Malleability of the Agent Preference: Priming in German Verb-Final Clauses

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The Agent Preference

If a sentence-initial NP has a temporarily ambiguous semantic role, the parser assigns **Agent** until proven otherwise [1]

Case marker **die** for German FEM nouns is ambiguous between NOM & ACC

- (1) Als **die** Studentin **die** Professorinnen...
When the student.FEM.SG the professor.FEM.PL...

Student in (1) can be either the Agent or Patient

→ Comprehenders will later be surprised if *student* is a Patient

Agent Preference is very stable across languages. Holds in:

- Ergative case languages [2]
- OSV languages [3]

even though both types of grammars *should bias against Agent role for an unmarked initial NP*

Central Question

Does the long-term stability of the Agent Preference imply that it is also resistant to short-term variability?

Syntactic Priming

Priming: Encountering a syntactic structure once (the prime) makes it easier to comprehend/more likely to be produced in the future (the target) [4]

→ Provides a test of short-term malleability

Two types:

- **Lexical Boost:** Prime and target share a lexical item — as in (2)
- **Abstract:** Prime and target do not share any lexical items

In comprehension, abstract priming disappears [5,6,7]

Secondary Question: Comprehension Priming

Is the reason that abstract priming disappears in comprehension a reflex of building structure via the lexical input?

→ If so, reducing information in the input should bring abstract priming back

Eyetracking

Duration of gaze is an index of processing difficulty [8]

- Measure reported here is **Go Past:**

Total duration of all fixations on a region from the first entry to a region from the left to the first exit to the right

Includes regressive fixations out of the region to the left

Stimuli Sentences

German SOV subordinate clauses

Exp. 1 - Lexical Boost: NP1, *die Studentin*, is the same within a Prime and Target pair

Exp. 2 - Abstract Priming: NP1 differs between Prime and Target

- *die Studentin* → *die Parlamentarierin* in (2b)

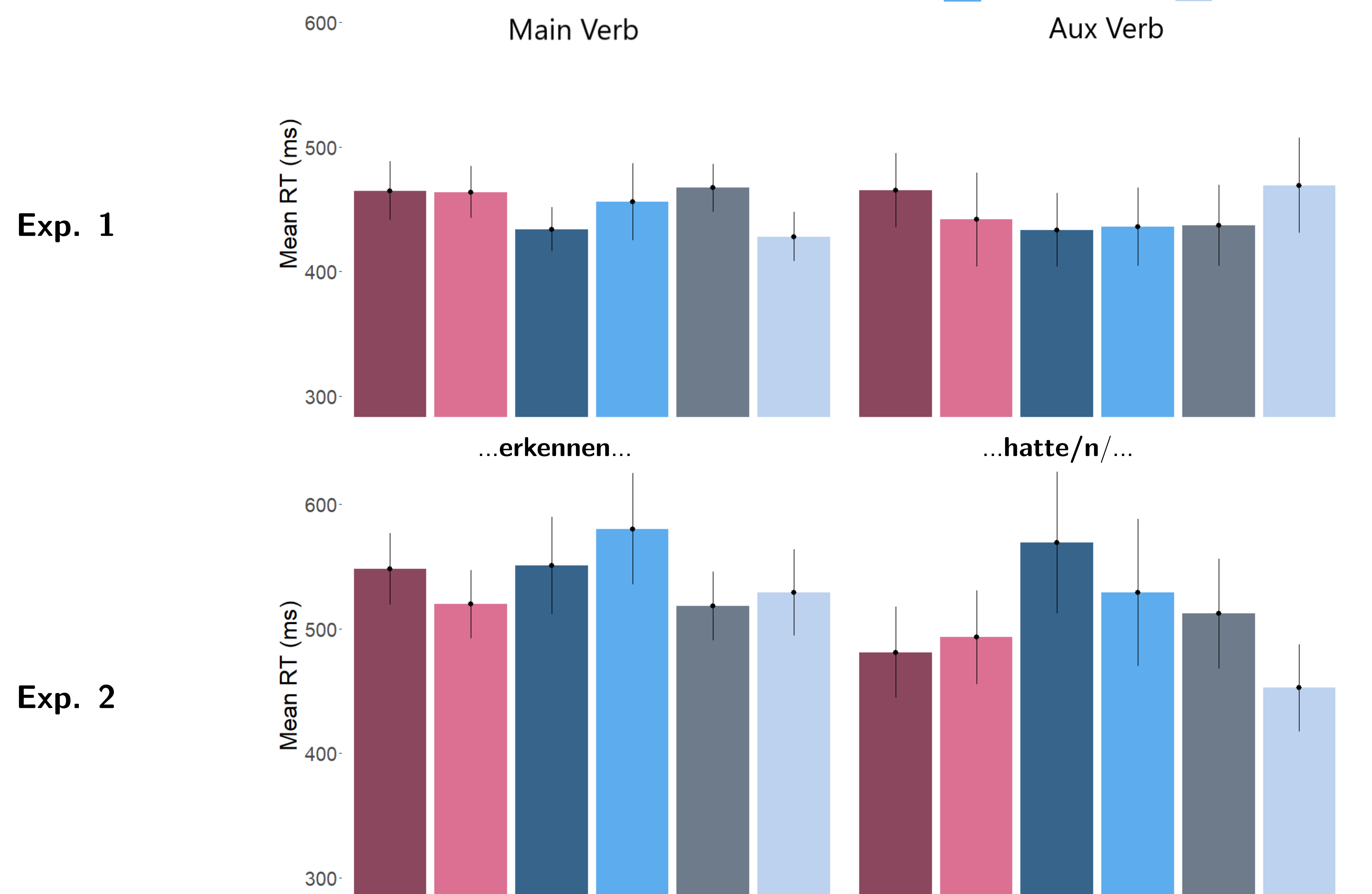
All nouns FEM, where NOM and ACC are syncretic

→ Roles are only disambiguated by *subject agreement on the auxiliary verb*

- (2) a. **Prime:** Nachdem **die Studentin** die Professorinnen auf dem Gang / gesehen / **hatte/n**, ...
After the student.FEM.SG the professor.FEM.PL in the hallway seen **has.sg/pl**, ...
After $\left\{ \begin{array}{l} A - P : \text{the student saw the professors} \\ P - A : \text{the professors saw the student} \end{array} \right\}$ in the hallway, ...
- b. **Target:** Bevor **die Studentin** die Managerinnen auf der Job-Börse / erkennen / **konnte/n**, ...
Before the student.FEM.SG the manager.FEM.PL at the job.fair recognize could.sg/.pl, ...
Before $\left\{ \begin{array}{l} A - P : \text{the student could recognize the managers} \\ P - A : \text{the managers could recognize the student} \end{array} \right\}$ at the job fair, ...

- 36 stimuli of the form in (2)
- N=48 UZH community members for each experiment

- Prime: A-P
- Prime: P-A
- Target: A-P:A-P
- Target: A-P:P-A
- Target: P-A:A-P
- Target: P-A:P-A



Exp. 1

Exp. 2

Notable Effects:

Exgaussian Bayesian Models

*Statistic is the percent of posterior on the side of zero with the largest probability mass

Experiment 1: Lexical Boost

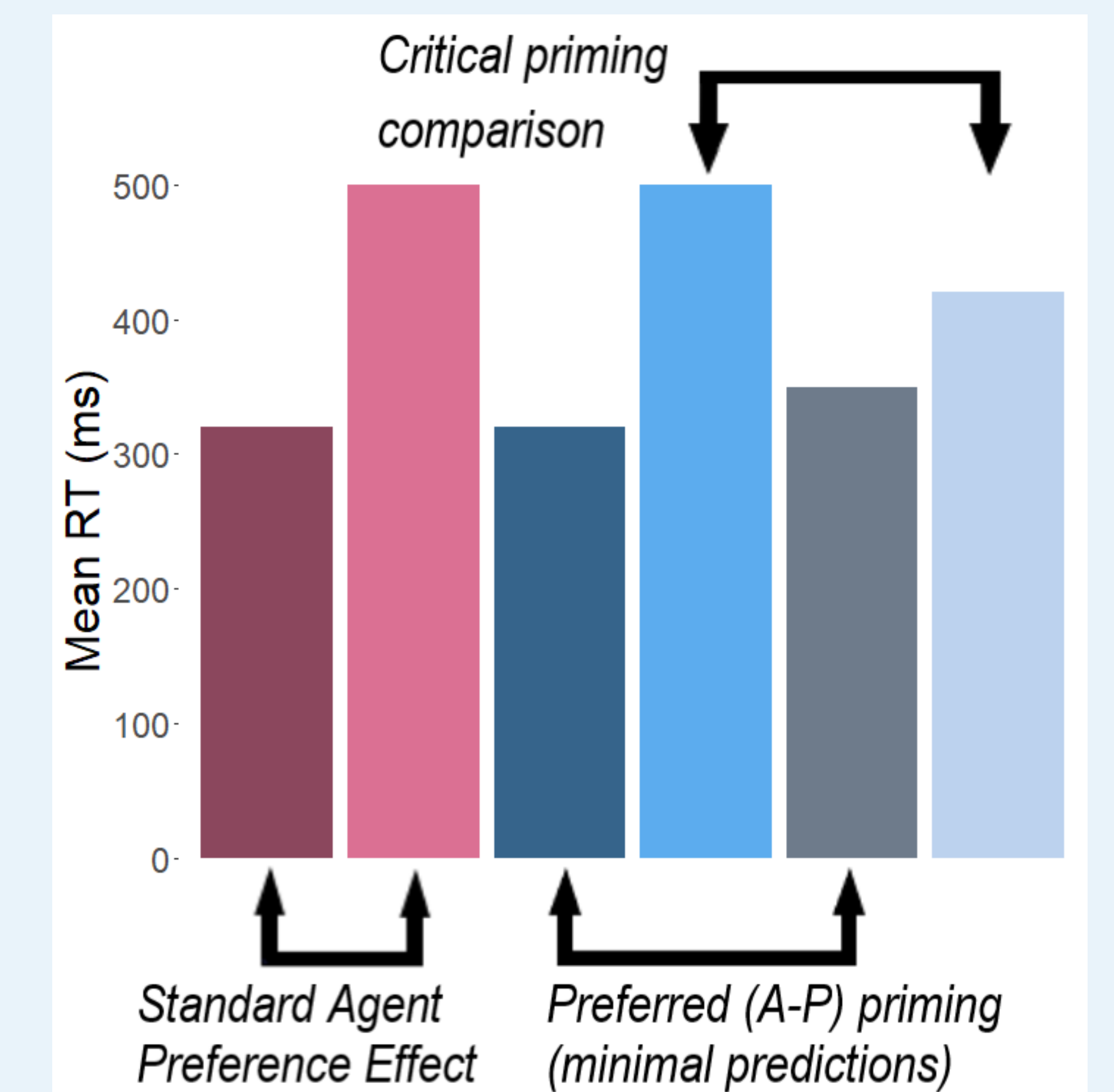
Main Verb	TARGET X PRIME	0.95
Aux Verb	TARGET	0.97
	TARGET X PRIME	0.79

Experiment 2: Abstract Priming

Main Verb	PRIME	0.97
	TARGET	0.9
	TARGET X PRIME	0.95
Aux Verb	NONE	

Predictions

If the Agent Preference is weakened via priming, the Target: A-P:P-A (primed) will be faster than the Target: P-A:P-A (unprimed)



Summary of Results

Consistent with priming, the primed P-A condition is read faster than unprimed P-A

- Effects are more consistent in the Main Verb region
 - Comprehenders use parafoveal preview
- But prime conditions do not show the expected pattern
 - No difference or A-P trends slower than P-A
- No strong predictions for Target: A-P:A-P & Target: P-A:A-P
 - However, in Exp 2 primed AP/Target trends slower than the unprimed AP/Target → unexpected

Conclusions

- Agent Preference is susceptible to short-term priming, despite its long-term stability across grammatical types
 - Although Prime and AP-Target conditions make interpretation complicated
- Abstract priming can exist in comprehension (Exp 2), if lexical input lacks information needed for a syntactic decision [9]

References

[1] Bornkessel & Schleewsky. (2006). *Psych Review*; [2] Bickel et al. (2015). *PLoS One*; [3] Sauppe et al. (2022). *HSP conference talk*; [4] Bock. (1986). *Cognitive Psychology*; [5] Arai, van Gompel, & Scheepers. (2007). *Cognitive Psychology*; [6] Tooley & Traxler. (2010). *Lang. and Ling. Compass*; [7] Andrews. (2021). *Dissertation* [8] Rayner, K., Pol-latsek, A., Ashby, J., Clifton Jr, C. (2012). *Psychology of Reading*; [9] Tooley & Bock. (2014) *Cognition*.

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