

Influence of Speakers' Gaze on Listeners' Comprehension: Evidence from Event Related Potentials (ERP)



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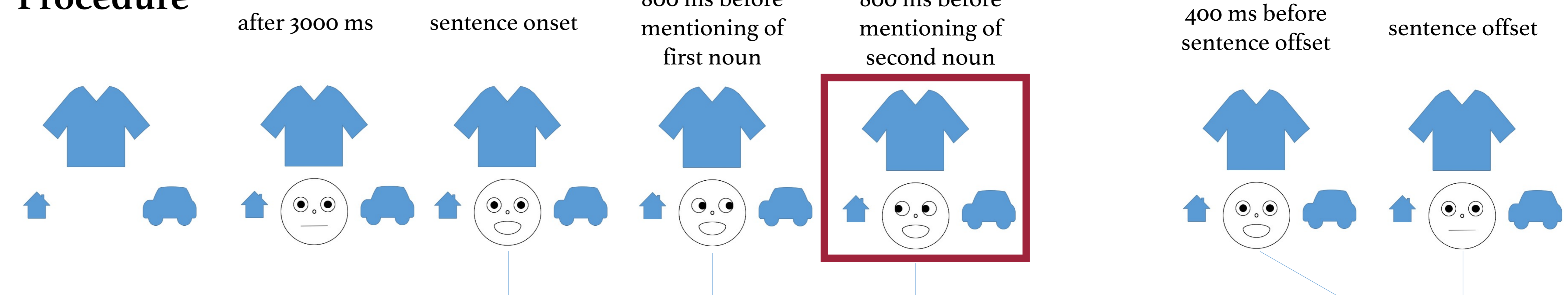
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Gaze Cues in face-to-face interactions

- Speakers' direct their gaze toward an object approximately 800ms before mentioning. (Griffin & Bock, 2000; Kreysa, 2006)
- Eye-tracking studies provided evidence that speaker gaze cues are interpreted by listeners to contain referential intentions (Staudte & Crocker, 2011; Staudte et al., 2014)
- Do listeners utilize this external cue as soon as it is available to make predictions about the unfolding sentence?

Procedure



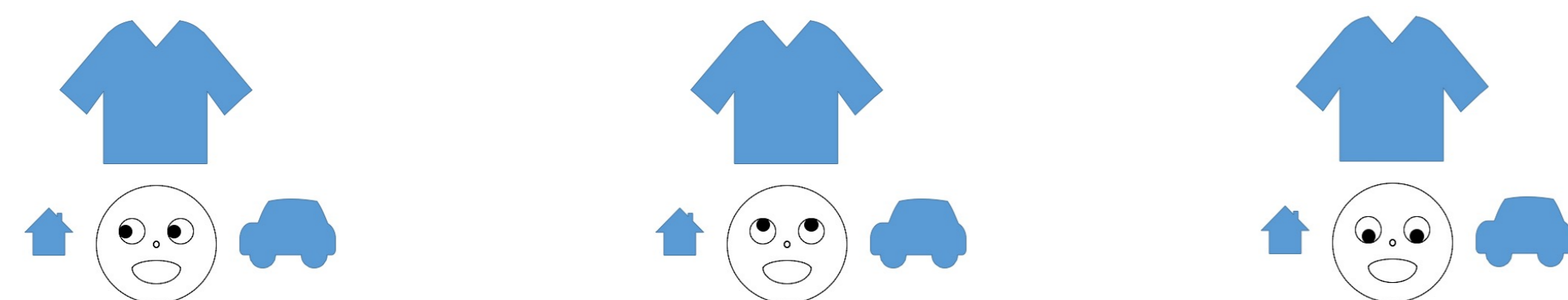
- The red box indicates the manipulated gaze cue
- The highlighted word indicates the region of interest

Verglichen mit dem Auto, ist das **Haus** verhältnismäßig klein, denke ich.
Compared to the car, the **house** is relatively small, I think.

Methods

Design:

- 72 experimental trials / 72 filler
- 3 lists (Latin square)
- 30 participants (age: 18–32 / mean age: 24 / male: 8)
- Comparisons between objects uttered by a TTS
- Gaze cue preceding second noun in the sentence by 800ms manipulated
- 3 conditions:



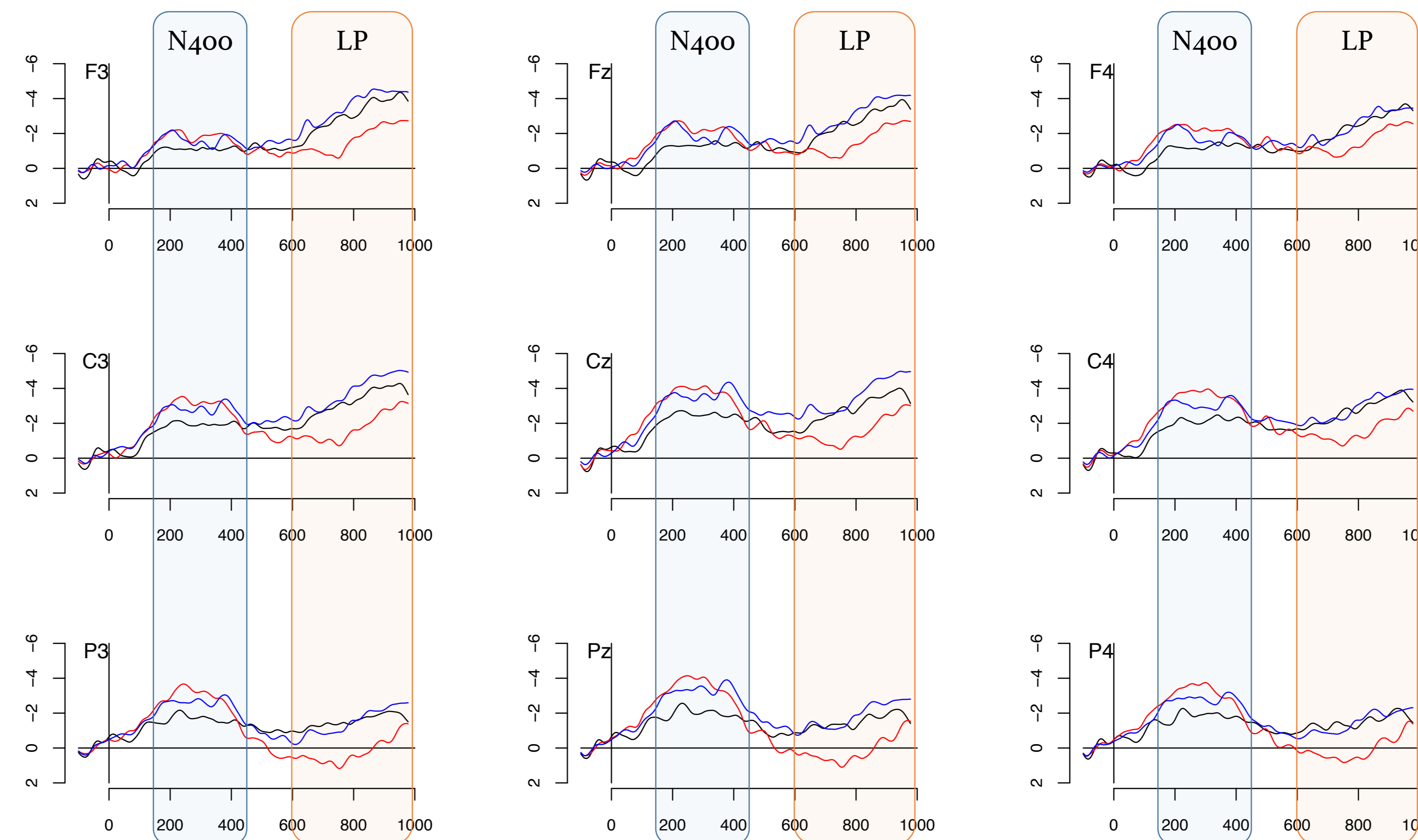
Congruent

Incongruent

Neutral

800 ms prior to "Auto" (car)

Results (second noun onset)



Congruent (black) – Incongruent (red) – Neutral (blue)

	Time Window	C - I	C - N	I - N
N400	150 – 450 ms	*	*	n.s.
LP	600 – 1000 ms	*	n.s.	*

Discussion

Congruent gaze facilitates comprehension, expressed by a reduced negativity (N400) (Kutas & Federmeier, 2011)

N400	
Neutral	Incongruent
2 active candidates	wrong candidate
selection	prediction violation

Update of the situation built on the preceding visual information expressed by a late positivity

LP	
Neutral	Incongruent
2 active candidates	wrong candidate
correct candidate in set of predictions	correct candidate discarded based on gaze cue
effortless integration	situation update

References

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