

Congruency Effects of Speaker's Gaze on Listeners' Sentence Comprehension

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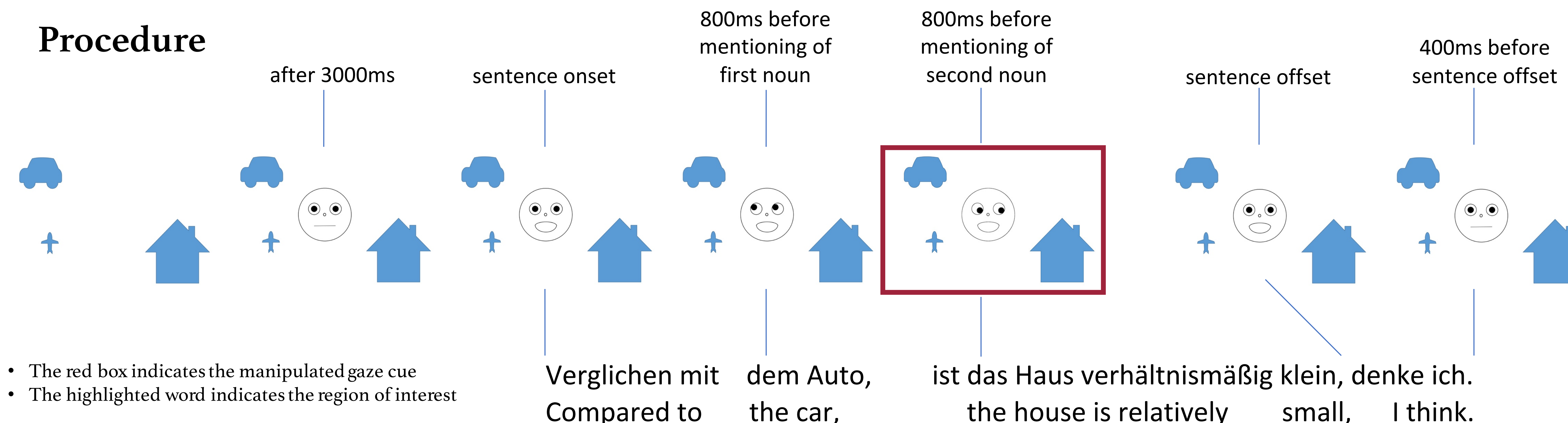
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Gaze Cues in face-to-face interactions

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

Procedure



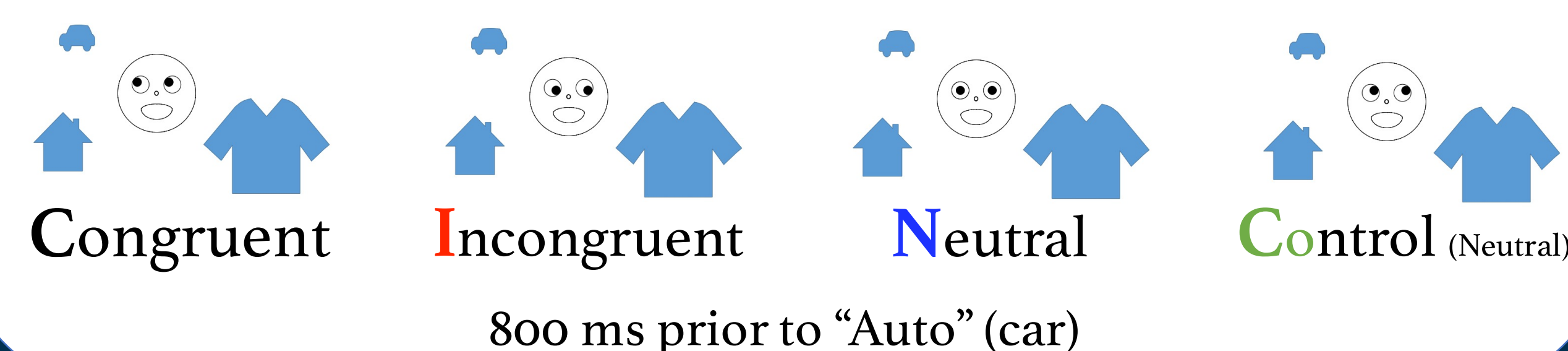
Methods

Design:

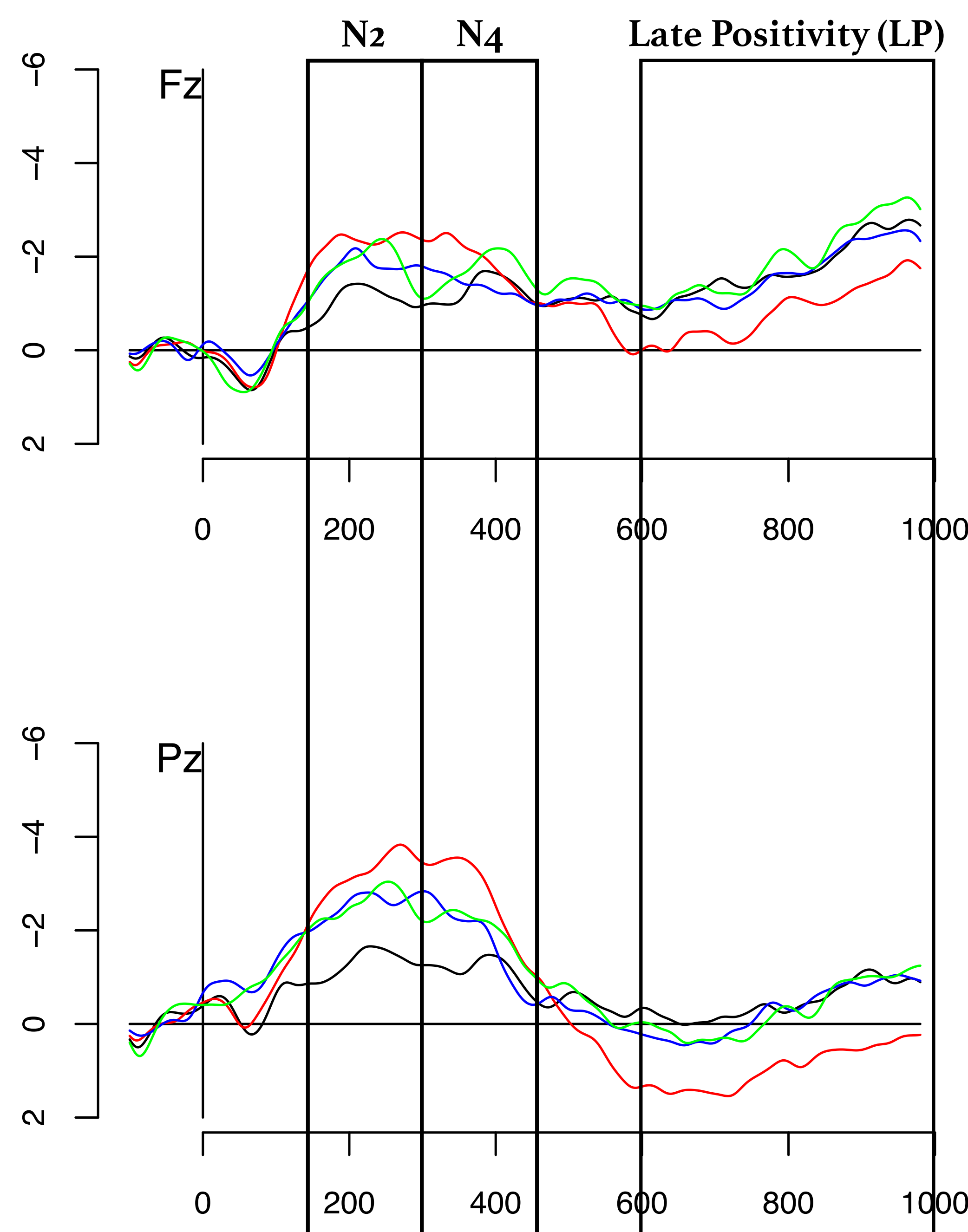
- 126 experimental trials / 126 filler
- 3 lists (Latin square)
- Diagonal placement of objects to keep angle the same
- Rotating empty position
- 30 participants (age: 18–32 / mean age: 24 / male: 8)
- Comparisons between objects uttered by a text-to-speech system
- Gaze cue preceding second noun in the sentence by 800ms manipulated
- 3 conditions + 1 control condition:

Distribution of gaze actions

C	58.3%
I	16.6%
N	25%



Results (second noun onset)



Time window	C - I	C - N	C - Co	I - N	I - Co	N - Co
150-450ms	*	*	*	*	*	n.s.
N2	*	*	*	*	*	n.s.
N4	*	n.s.	*	*	*	n.s.
LP	*	n.s.	n.s.	*	*	n.s.

Discussion

N2 (150-300ms) : PMN – “mismatch between the expected word form given a context and the actual activated word candidates given the speech signal listeners perceive” (Hagoort and Brown, 2000)

N4 (300-450ms) : Predictability driven N400 (Kutas, DeLong & Smith, 2011)
Difference between the two Neutral conditions

Late Positivity (600-1000ms): Update of the situation model built on the preceding visual information expressed by a late positivity (Polich, 2007)

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

References

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