

Background and rationale

Brain imaging studies show that reading highly visual words can activate visual and linguistic areas of the brain¹

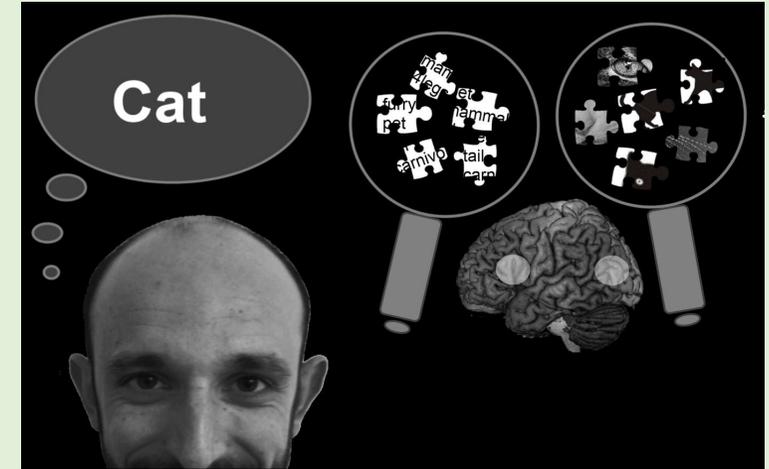
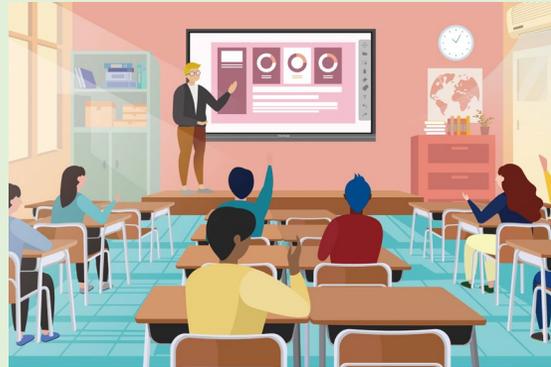
- Internal visual simulation might facilitate, or even be a necessary part of, understanding language²
- The functional impact of visual information on L1 versus L2 processing is unknown

Is the embodiment of visual words stronger in our native language?

L1 acquisition



L2 acquisition



Aim: Compare the role of visual information in the recognition of L1 and L2 words to better understand how visual semantics are represented in both languages

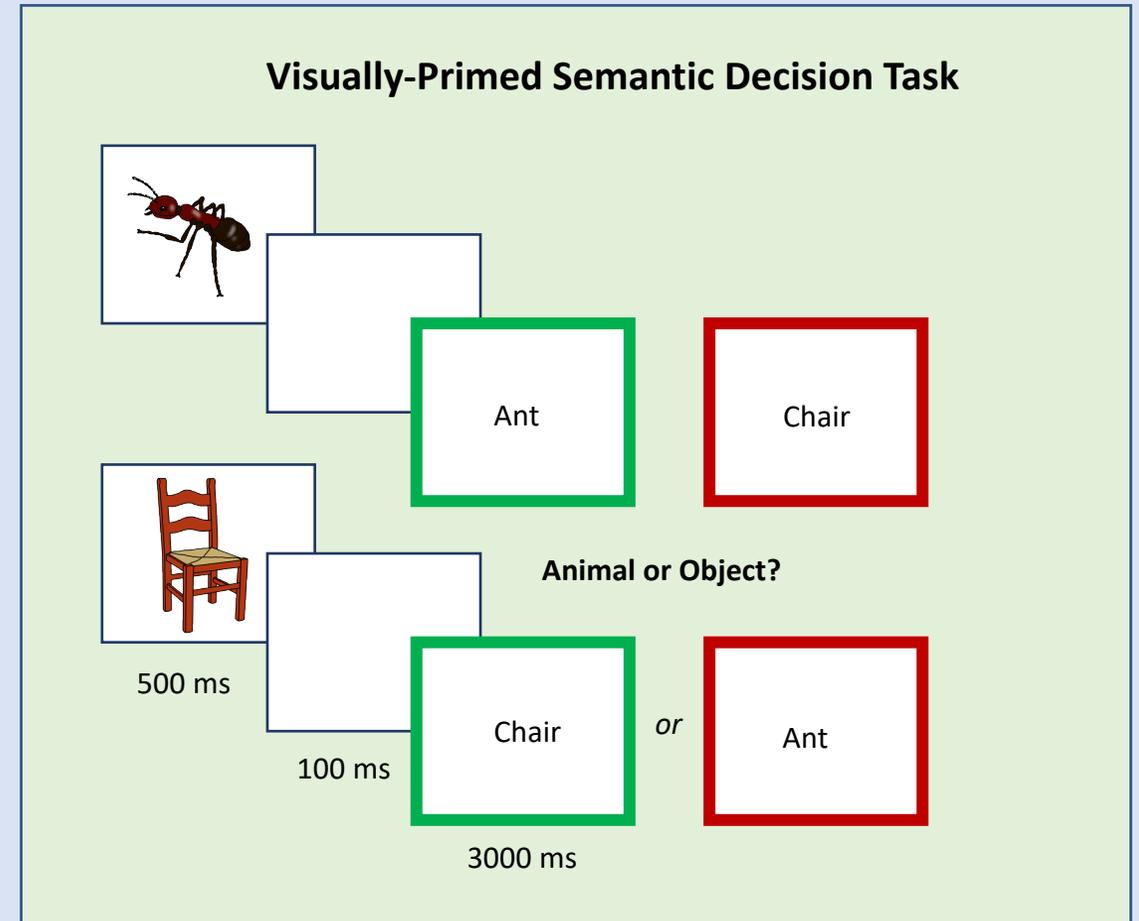
Hypothesis: Participants will respond faster to L1 and L2 words when those words are preceded by a related picture compared to an unrelated picture. Differences in response times between related and unrelated trials will be smaller for semantic decision performed in L2 compared to L1.

Methodology

Participants: 19 (10 male, 9 female) native German speakers (M age = 26 years, SD = 5)

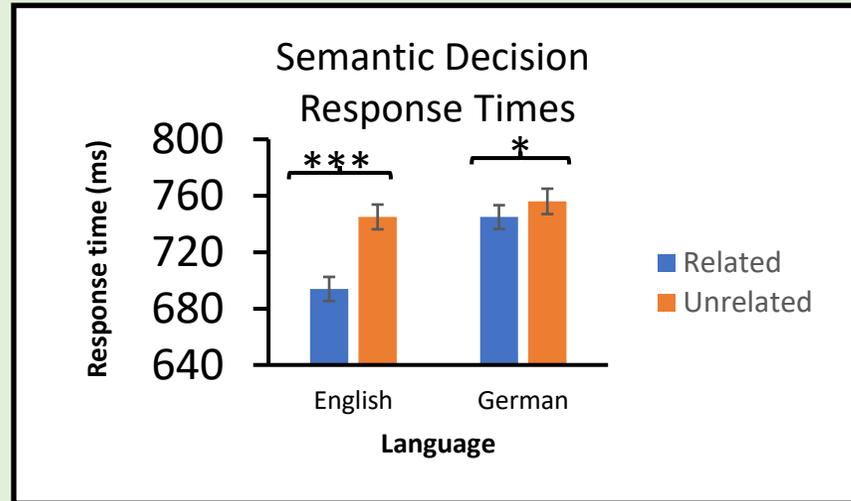
Procedure & Design

- Participants completed a visually-primed semantic decision task in L1 and L2 where they had to decide if the written word was an animal or an object.
- English to German translation task LexTALE³ and Leap-Q⁴ were used to assess English proficiency
- Within-subjects 2×2 design with the factors; language (L1, L2) and visual relatedness of prime picture to target word (related, unrelated)

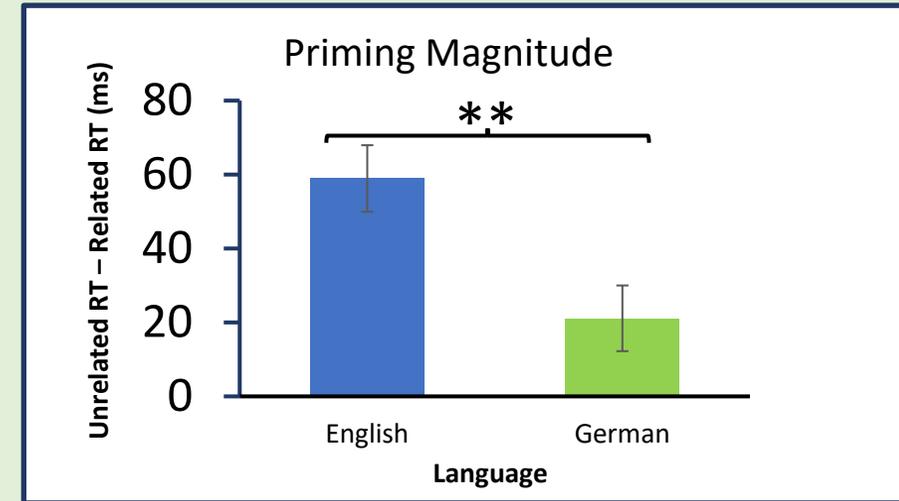


Results

Effect of prime-target relatedness ($t = 7.10, p < .001$)



Effect of language ($t = 3.06, p < .005$)
Greater priming in L2 than in L1



Conclusion

- **Greater influence of visual primes** when making judgments about L2 (English) target words than L1 (German) target words
- Suggests that **interference** created by pictures is more disruptive when making semantic decisions in L2 compared to L1
- **Greater familiarity with L1** may enhance our ability to suppress interfering information in L1 than in L2

Impact

- Congruent visual information may be even more **helpful for processing L2 words** than L1 words – and minimizing **cognitive interference** may be more important when learning in L2 than in L1
- The greater cognitive control needed to process L2 words may yield cognitive benefits (“**bilingual advantage**”)