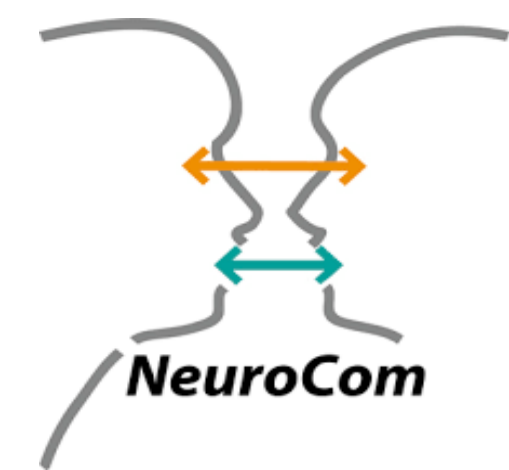


# Testing automaticity of syntax using subliminal priming: A behavioural assessment in German language



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## Introduction

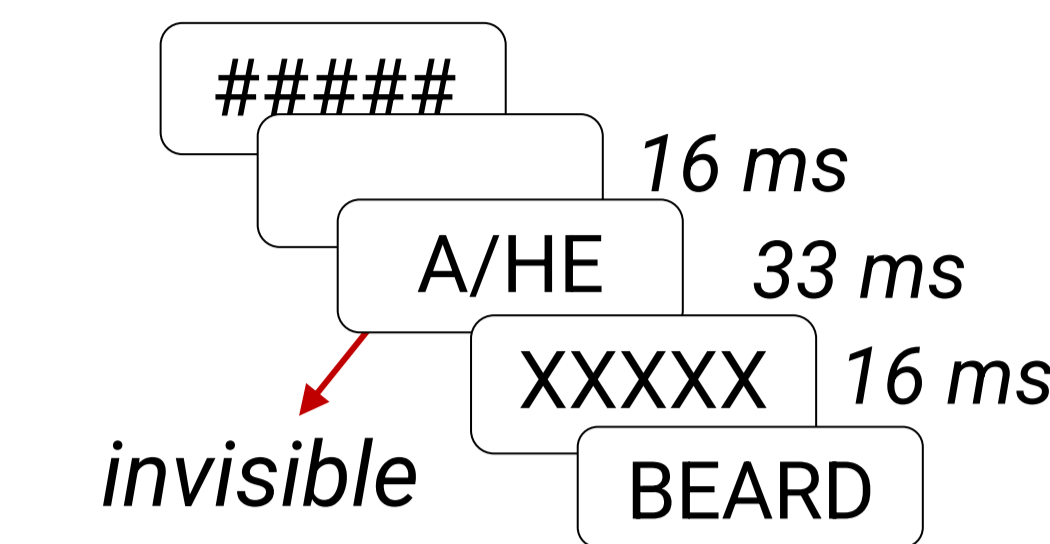
- Previous two-word priming studies suggest that syntactic context can affect the processing of incoming words [1-3].
- Early Serbo-Croatian studies [2-3] point towards a central role of morphological markers in driving syntactic priming.
- However, it remains unclear whether this holds for subliminal (unconscious) syntactic processing [1].

**Aim:** to test the automaticity of syntax and the role of morphology in minimal syntactic phrases using subliminal syntactic priming.

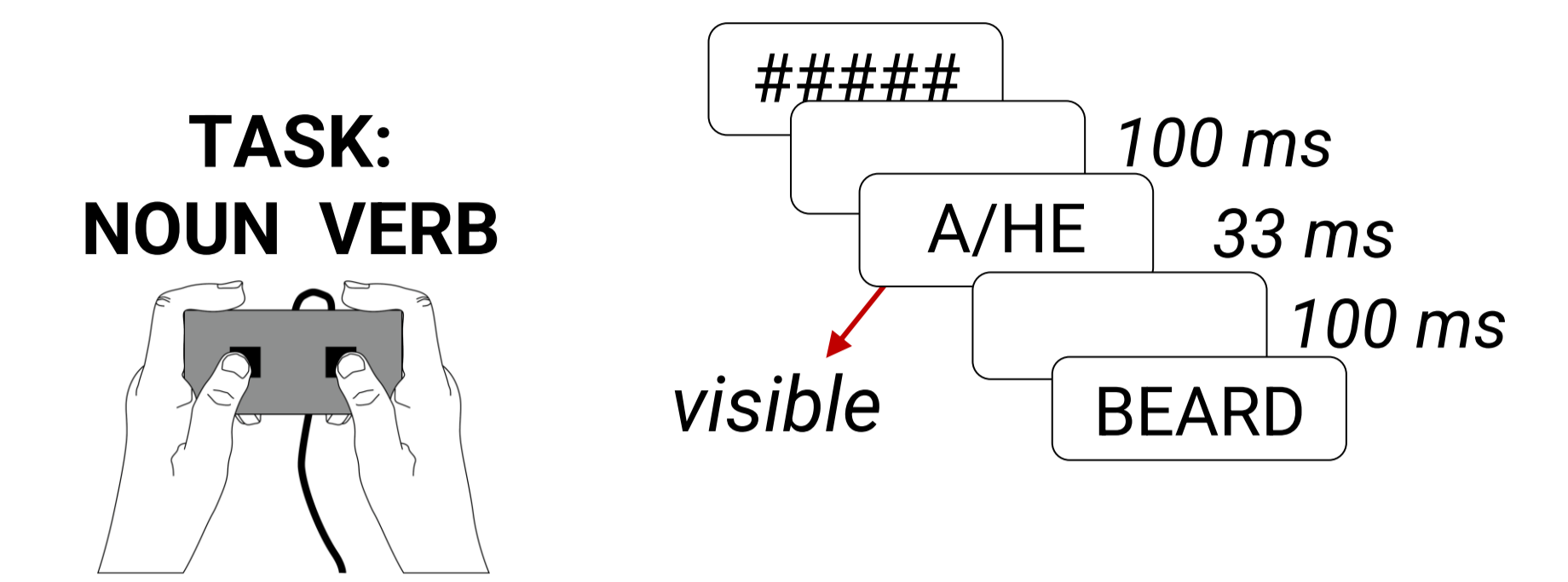
**Expectations:** subliminal syntactic priming in Exp.1 & Exp. 2 that included morphologically marked verbs;  
no subliminal syntactic priming in Exp.3 that included no morphological markers.

## Procedure

### Masked setting



### Unmasked setting



## Hypothesis

### Exp. 1: REAL PRIMES, MORPHOLOGICAL CUES ✓

- (1) Subliminal syntactic priming
- (2) Replication of B&D 2019 (French) for German

### Exp. 2: REAL PRIMES & NON-PRIMES, MORPHOLOGICAL CUES ✓

- (1) PRO+V < PRO+N after removal of the confounding category effect
- (2) Facilitatory & inhibitory nature of syntactic priming?

### Exp. 3: REAL PRIMES, MORPHOLOGICAL CUES ✗

- (1) No subliminal syntactic priming

## Methods & Design

N=43

2x2x2 (Prime, Category, Masking)

Prime	Noun (N = 40)	Verb (N = 40)
DET	EIN BART a beard	*EIN KAUT a chews
PRO	*ER BART he beard	ER KAUT he chews

N=50

2x2x2x2 (Prime, Category, Masking, Lexicality)

Prime	Lex	Noun (N = 40)	Verb (N = 40)
DET	Real	EIN BART	EIN KAUT
	Non	FTN BART	FTN KAUT
PRO	Real	ER BART	ER KAUT
	Non	FR BART	FR KAUT

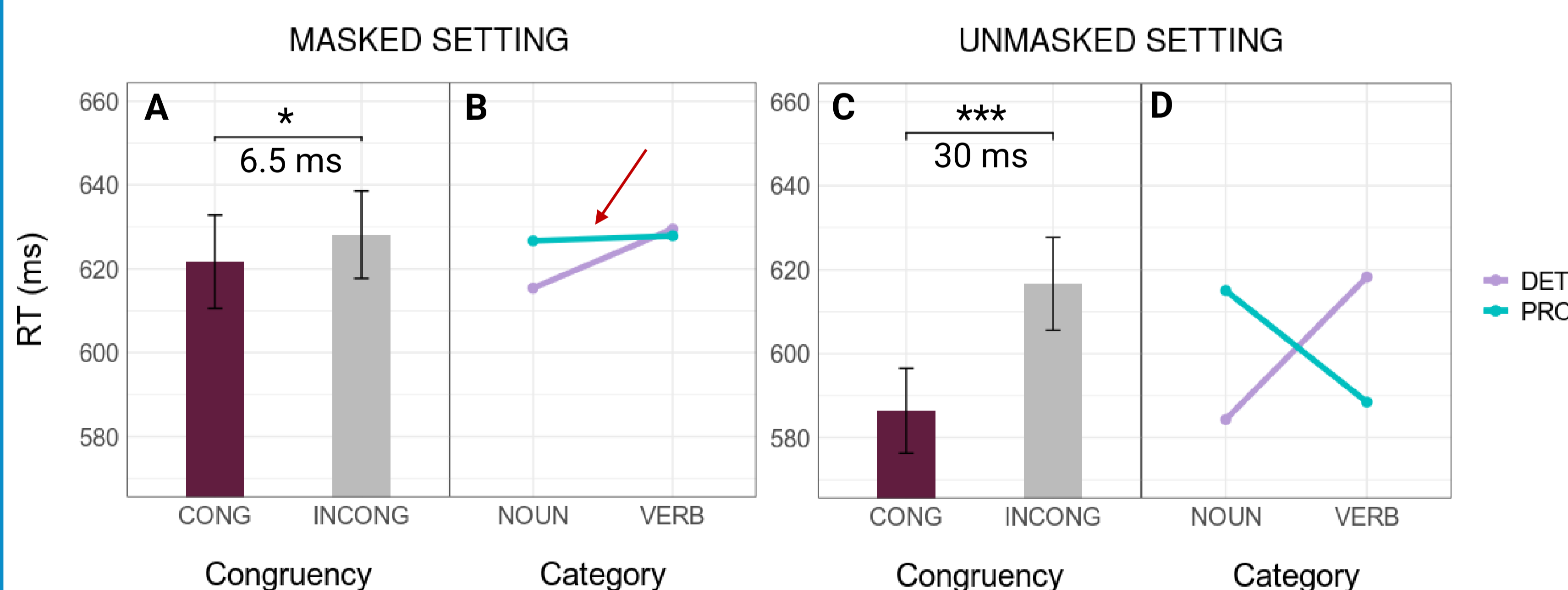
N=40

2x2x2 (Prime, Category, Masking)

Prime	Noun (N = 40)	Verb (N = 40)
DET	EIN TEICH a pond	*EIN BLIEB a stayed
PRO	*ER TEICH he pond	ER BLIEB he stayed

## Results

### Exp. 1: REAL PRIMES, MORPHOLOGICAL CUES ✓

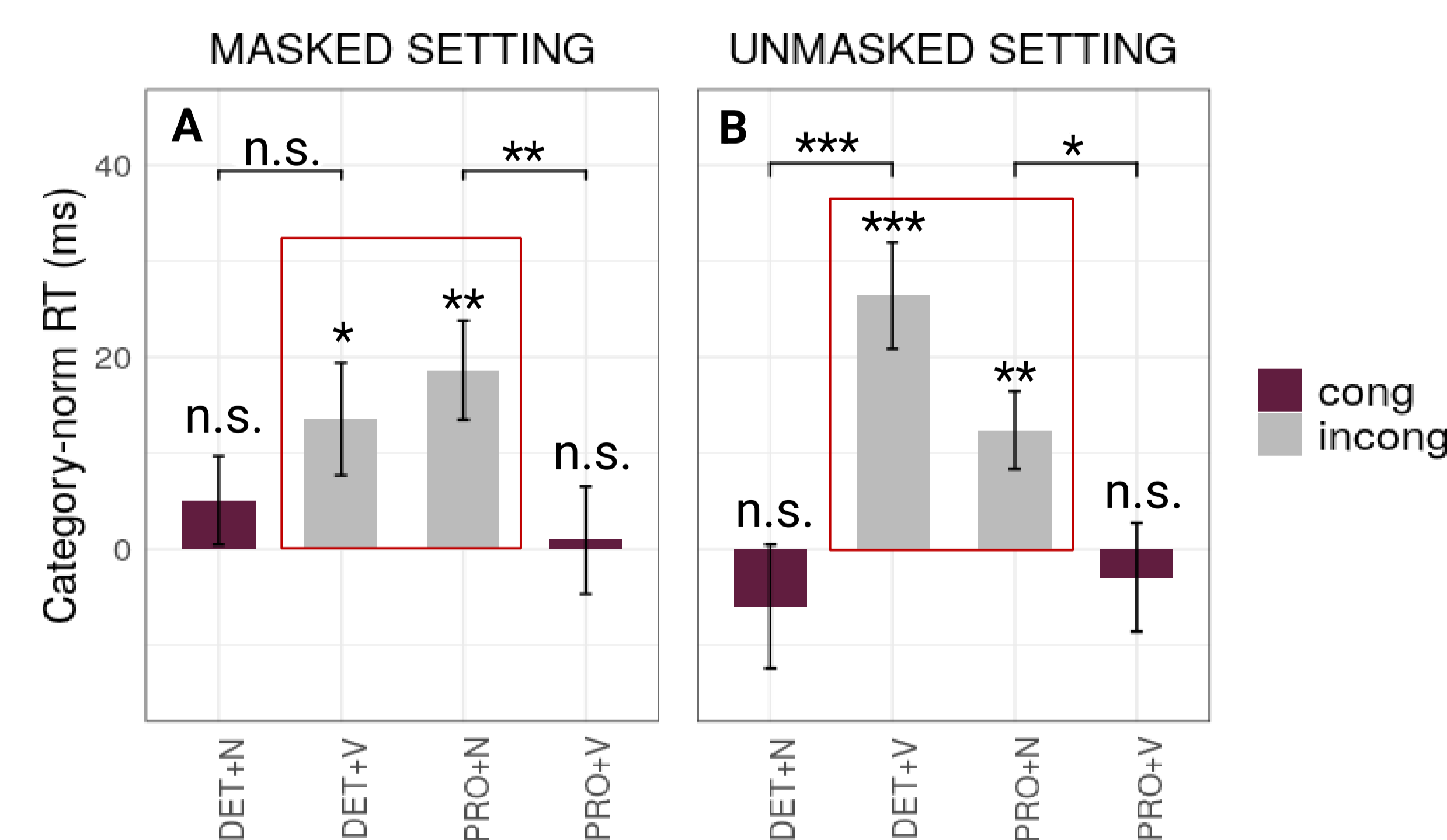


**A&C:** Congruency: incongruent – congruent

**B:** Prime×Category (p<.05)  
PRO+V = PRO+N

**D:** Prime×Category (p<.001)  
PRO+V < PRO+N

### Exp. 2: CATEGORY-NORMALIZED RTs: REAL PRIMES – NON-PRIMES

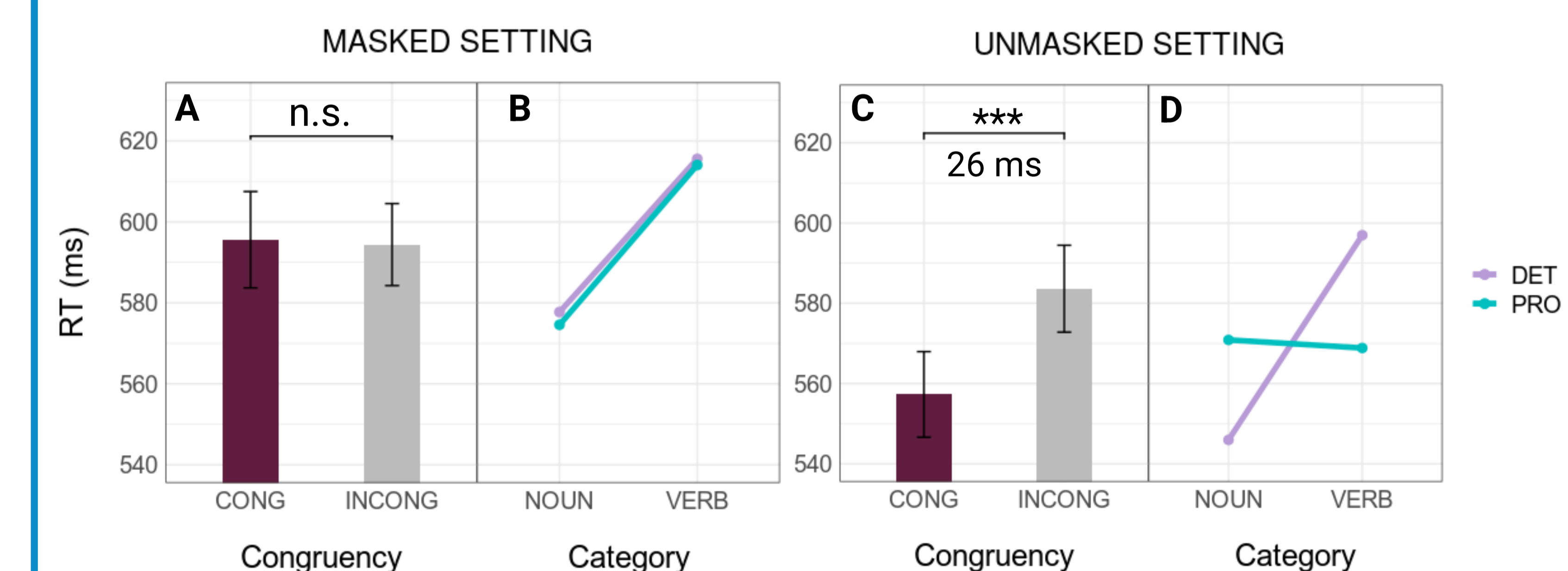


□ Inhibition: incongruent primes slow down processing

**A:** PRO+V < PRO+N  
DET+N = DET+V

**B:** PRO+V < PRO+N  
DET+N < DET+V

### Exp. 3: REAL PRIMES, MORPHOLOGICAL CUES ✗



**A&C:** Congruency: incongruent – congruent

**B:** Prime×Category (p=.99)

**D:** Prime×Category (p<.001)

## Discussion

- (1) Exp. 1 & 2 replicated the subliminal syntactic priming effect reported by B&D (2019) with a larger sample size for German.
- (2) This implies highly automatic nature of syntactic context in categorical analysis.
- (3) Inhibitory nature of syntactic priming: incongruent primes slow down the processing of nouns and verbs.
- (4) Crucial role of morphology during subliminal syntactic processing.

## References

- [1] Berkovitch, L. & Dehaene, S. (2019). *Cogn. Psych.*, 109:26–46. [2] Lukatela, G., Kostić, A., Feldman, L. B., & Turvey, M. T. (1983). *Mem. & Cogn.*, 11(1), 59–63. [3] Lukatela, G., Moraca, J., Stojnov, D., Savic, M. D., Katz, L., & Turvey, M. T. (1982). *Psych. Res.*, 44(4), 297–311.