14-15 juin 2022 PARIS

POUR UNE EUROPE DES SCIENCES HUMAINES & SOCIALES

15 ANS DE RECHERCHE FRANCO-ALLEMANDE

FÜR EIN EUROPA DER GEISTES - UND SOZIALWISSENSCHAFTEN
FÜNFZEHN JAHRE DEUTSCH-FRANZÖSISCHE FORSCHUNG

RÉPUBLIQUE FRANÇAISE
Liberté Égalité Fraternité

anr agence nationale de la recherche

DFG Deutsche Forschungsgemeinschaft

FRANCE22

The role of morphemes during reading development: A cross-linguistic study

ANR-DFG Morpheme Project

MPRG Reading Education and Development

Max-Planck-Institut für Bildungsforschung
Max Planck Institute for Human Development

The ANR-DFG Morpheme project investigated the development of reading skills across Grades 2, 3, and 4 of primary education in French and German children.

The specific focus was on the role of morphological information in the process of learning to read.

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité
anr agence nationale de la recherche
DFG Deutsche Forschungsgemeinschaft
FRANCE22

We aimed to determine when and how morphological knowledge is used during the process of learning to read, and how the overall morphological structure of a given language can influence this process.

The observed empirical data was then used to evaluate and develop extant theories of morphological processing and language comprehension.

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité
anr agence nationale de la recherche
DFG Deutsche Forschungsgemeinschaft
FRANCE22

Teams

Marseille

- Prof. Jonathan Grainger
- Dr. Elisabeth Beyersmann
- Dr. Ludivine Javourey - Drevet
- Prof. Johannes Ziegler
- A/Prof. Conrad Perry

Berlin

- Prof. Sascha Schroeder
- Dr. Betty Mousikou
- Dr. Eva Smolka
- Ms. Pia Linscheid
- Ms. Katharina Pittrich

Reading Education and Development

Max-Planck-Institut für Bildungsforschung
Max Planck Institute for Human Development

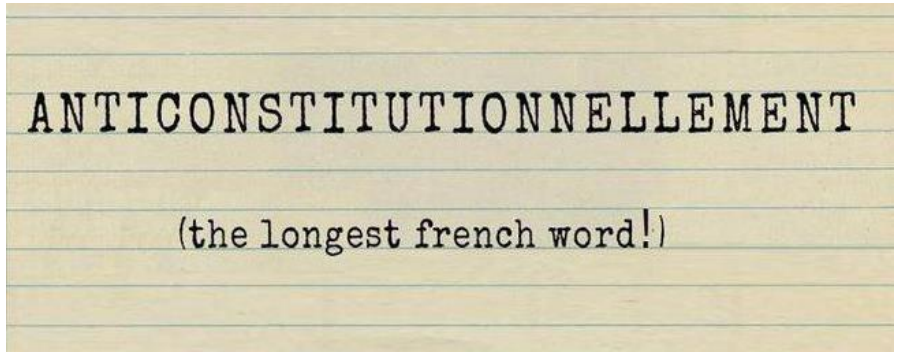
Why morphology?

- ~75% of words are morphologically complex

- **stem** (cover) + **prefix** (dis-, re-, un-)
- **stem** (cover) + **suffix** (-able, -ing, -ed)

- Morphology is thought to play an important role in language comprehension and the process of learning to read

Mophologically complex words in French and German

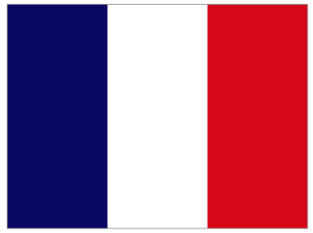


anr agence nationale de la recherche

DFG Deutsche Forschungsgemeinschaft

T1	T2	T3
Grade 2	Grade 3	Grade 4
Jan-March 2017	Jan-March 2018	Jan-March 2019

133 children, 3 schools (7 classes)



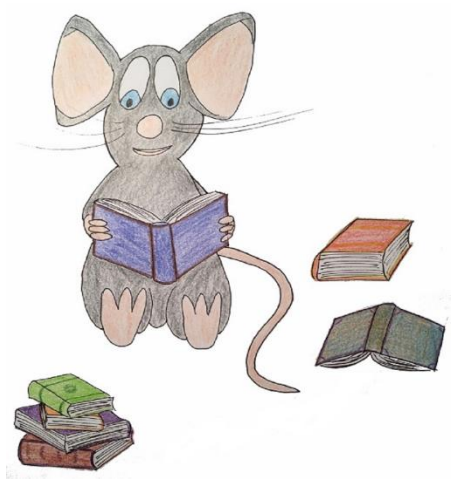
T1	T2	T3
Grade 2	Grade 3	Grade 4
Jan-March 2017	Jan-March 2018	Jan-March 2019

167 children, 4 schools (5 classes)

RÉPUBLIQUE FRANÇAISE Liberté Égalité Fraternité
anr agence nationale de la recherche
DFG Deutsche Forschungsgemeinschaft
FRANCE22

Tasks

- **Spoken word recognition**
- **Reading aloud**
- **Visual word recognition**



- Reading fluency
- Spelling proficiency
- Vocabulary knowledge
- Non-verbal Intelligence
- Working memory
- Rapid Automatized Naming
- Letter search
- Phonological awareness
- Morphological awareness

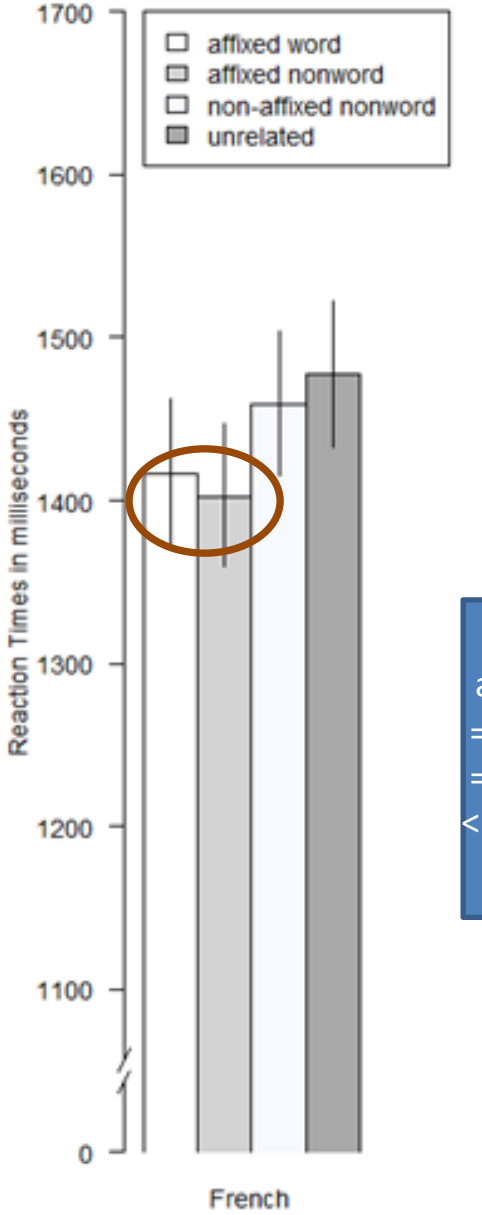
Procedure

- 2-year longitudinal study
- Children were tested twice, in Grades 3 and 4
- Children were instructed to decide if the target was a real word or nonsense
- Children's reading fluency and vocabulary were also measured

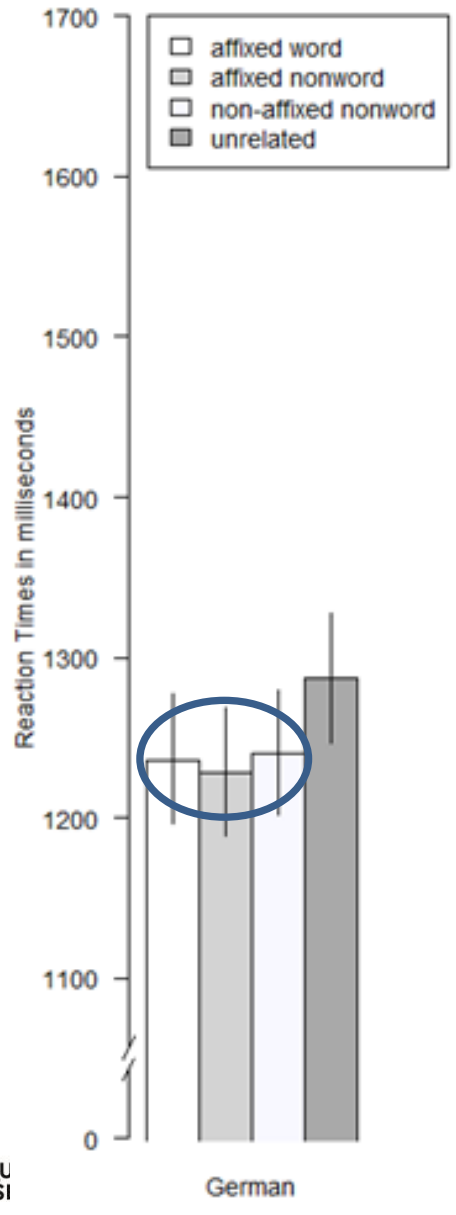
RÉPUBLIQUE FRANÇAISE Liberté Égalité Fraternité
anr agence nationale de la recherche
DFG Deutsche Forschungsgemeinschaft
FRANCE22

Results for prefixes (grade 4)

découper – COUPER
=incouper– COUPER
< dacouper – COUPER
= dacalmer – COUPER



aufleben – LEBEN
= hinleben – LEBEN
= karleben – LEBEN
< karmalen – LEBEN



Lexical decision latencies (in milliseconds) and standard errors of French and German fourth graders.

RÉPUBLIQU FRANÇAISI
Liberté Égalité Fraternité
Deutsche Forschungsgemeinschaft
FRANCE22

Conclusions

- In German, stem effects are more pronounced
- In French, affix effects are more pronounced
- The development of morphological processing mechanisms is influenced by the intrinsic linguistic properties of the language to which children are exposed
- Stems and suffixes are handled by two different processing mechanisms, as hypothesized by Grainger and Beyersmann (2017)

RÉPUBLIQUE FRANÇAISE Liberté Égalité Fraternité
anr agence nationale de la recherche
DFG Deutsche Forschungsgemeinschaft
FRANCE22

ANR-DFG TEAM PUBLICATIONS

- Hasenäcker, J., Beyersmann, E., & Schroeder, S. (2020). Morphological priming in children: Disentangling the effects of school-grade and reading skill. *Scientific Studies of Reading*, *24*(6), 484-499. doi.org/10.1080/10888438.2020.1729768
- Beyersmann, E., Mousikou, P., Javourey-Drevet, L., Schroeder, S., Ziegler, J. C., & Grainger, J. (2020). Morphological processing across modalities and languages. *Scientific Studies of Reading*, *24*(6), 500-519. doi.org/10.1080/10888438.2020.1730847
- Mousikou, P., Beyersmann, E., Ktori, M., Javourey-Drevet, L., Crepaldi, D., Ziegler, J. C., ... & Schroeder, S. (2020). Orthographic consistency influences morphological processing in reading aloud: Evidence from a cross-linguistic study. *Developmental Science*, *23*(6), e12952. doi.org/10.1111/desc.12952
- Beyersmann, E., Grainger, J., & Taft, M. (2020). Evidence for embedded word length effects in complex nonwords. *Language, Cognition, & Neuroscience*, 35(2), 235-245. doi.org/10.1080/23273798.2019.1659989
- Beyersmann, E., Bolger, D., Pattamadilok, C., New, B., Grainger, J., & Ziegler, J.C. (2019). Morphological processing without semantics: An ERP study with spoken words. *Cortex*, 116, 55-73. doi.org/10.1016/j.cortex.2019.02.008
- Beyersmann, E., Grainger, G., & Castles, A. (2019). Embedded stems as a bootstrapping mechanism for morphological parsing during reading development. *Journal of Experimental Child Psychology*, 182, 196-210. doi.org/10.1016/j.jecp.2019.01.010
- Mousikou, P., & Schroeder, S. (2019). Morphological processing in single-word and sentence reading. Journal of Experimental Psychology: Learning, Memory, and Cognition, 45(5), 881–903. doi.org/10.1037/xlm0000619
- Beyersmann, E., & Grainger, J. (2018). Support from the morphological family when unembedding the stem. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, 44(1), 135-142. doi.org/10.1037/xlm0000435
- Beyersmann, E., Kezilas, Y., Coltheart, M., Castles, A., Ziegler, J.C., Taft, M. & Grainger, J. (2018). Taking the book from the bookshelf: Masked constituent priming effects from compound words and nonwords. *Journal of Cognition*, 1(1), 1-13. doi: 10.5334/joc.11
- Grainger, J., & Beyersmann, E. (2017). Edge-aligned embedded word activation initiates morpho-orthographic segmentation. In *Psychology of learning and motivation* (Vol. 67, pp. 285-317). Academic Press. doi.org/10.1016/bs.plm.2017.03.009
- Hasenäcker, J., Beyersmann, E., & Schroeder, S. (2016). Masked Morphological Priming in German-Speaking Adults and Children: Evidence from Response Time Distributions. *Frontiers in Psychology*, 7:929. doi.org/10.3389/fpsyg.2016.00929

Thank you for your attention

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

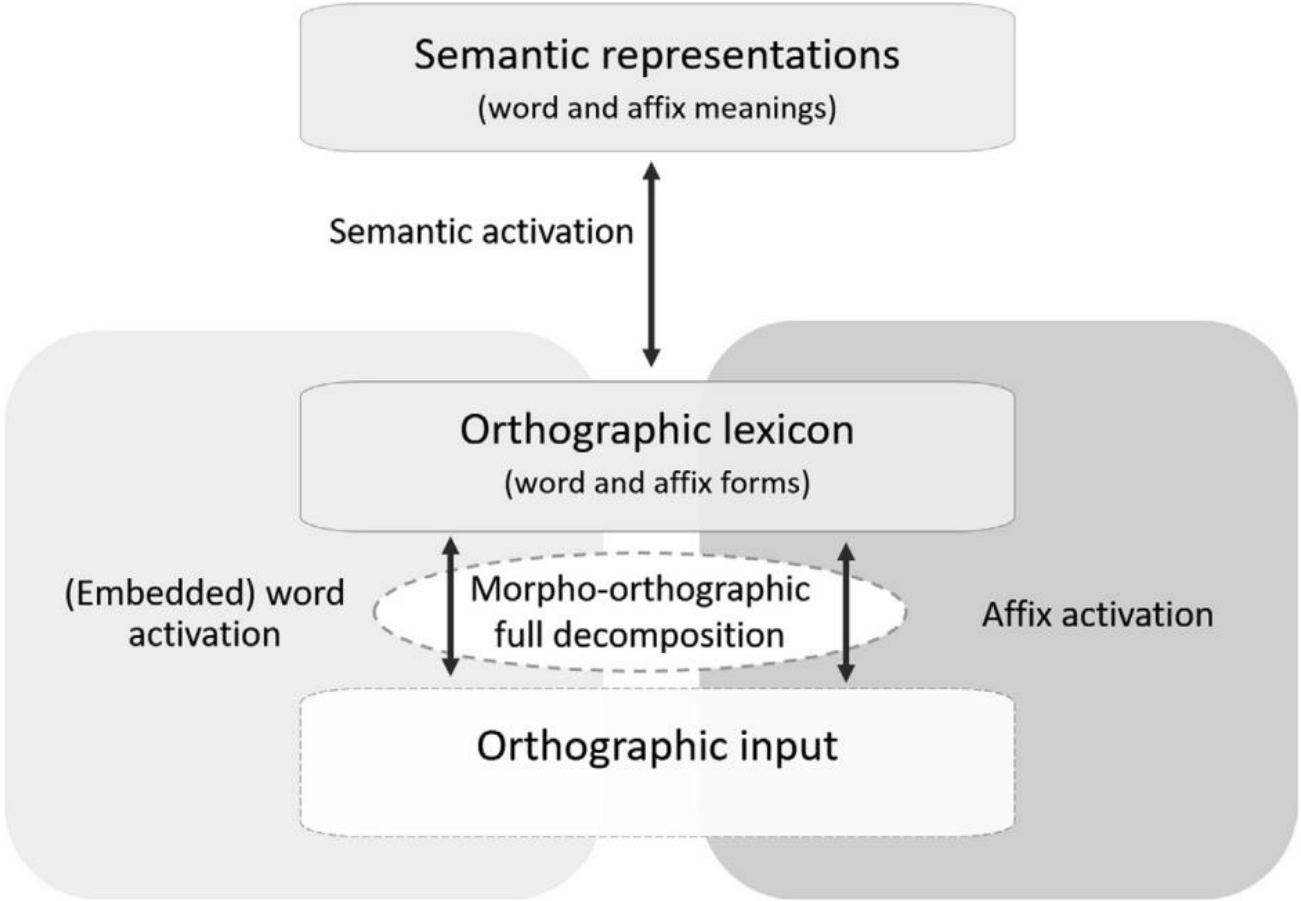
anr agence nationale de la recherche

DFG Deutsche Forschungsgemeinschaft

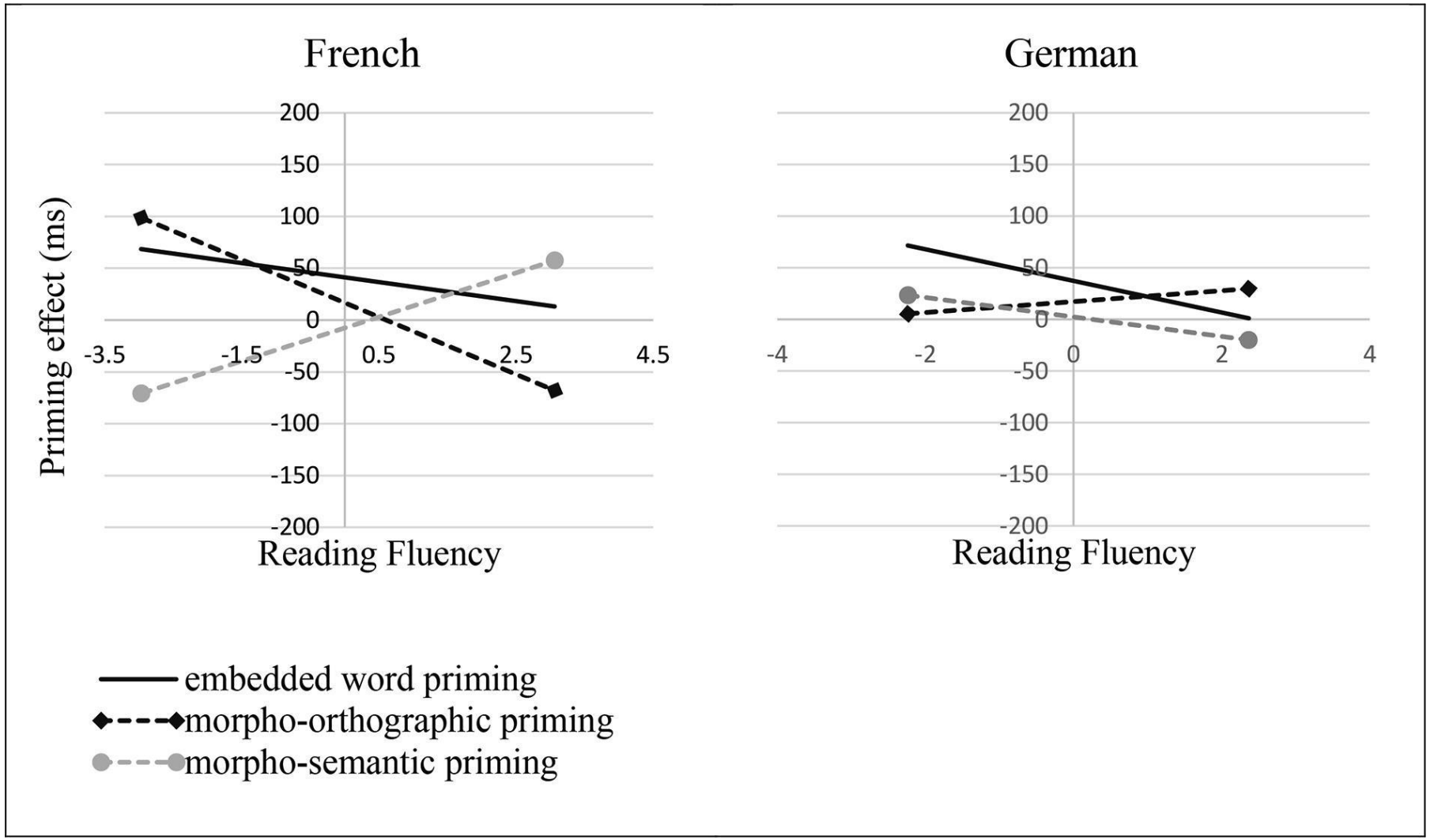
FRANCE22

Word and Affix Model

Grainger & Beyersmann (2017)



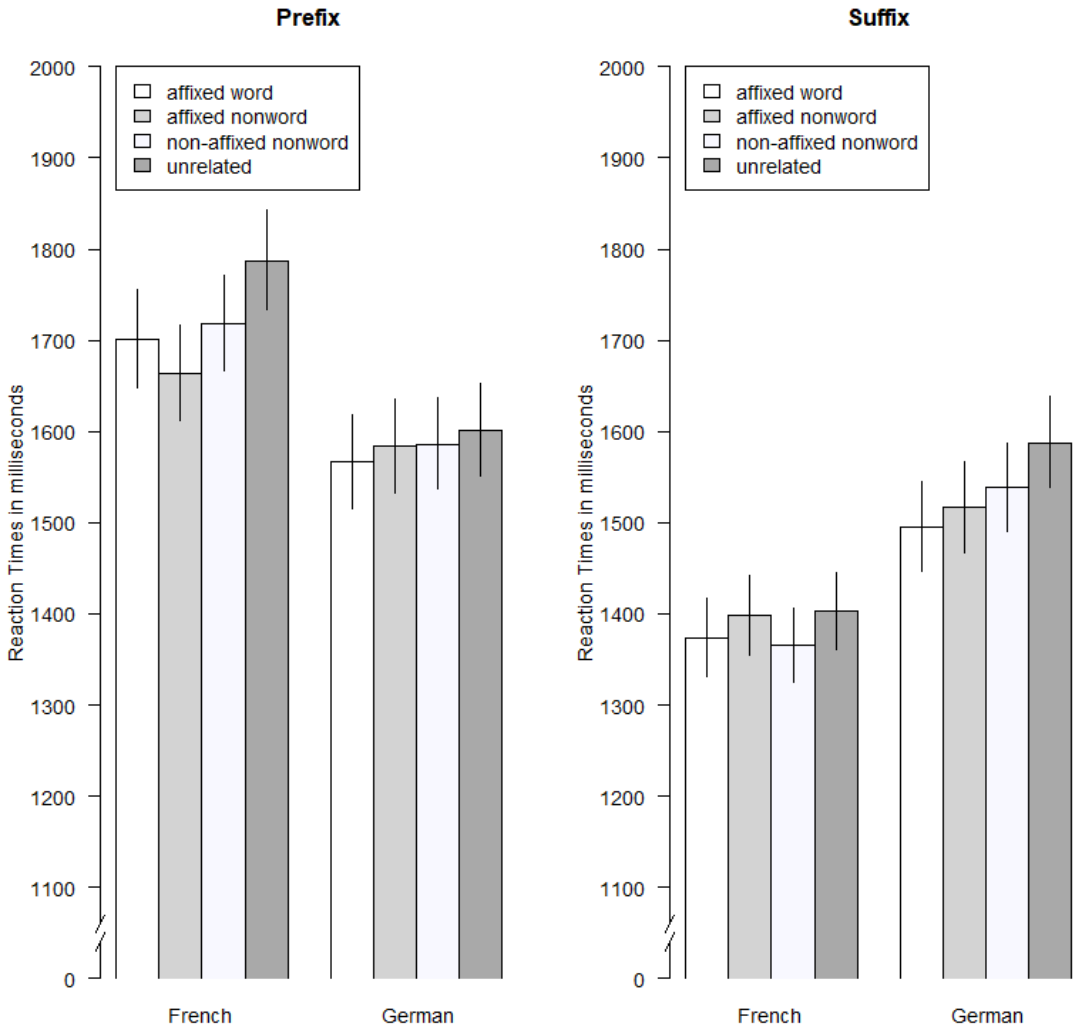
Priming effects



Priming effects in French (left) and German (right) primary schoolers as a function of individual differences in reading fluency.

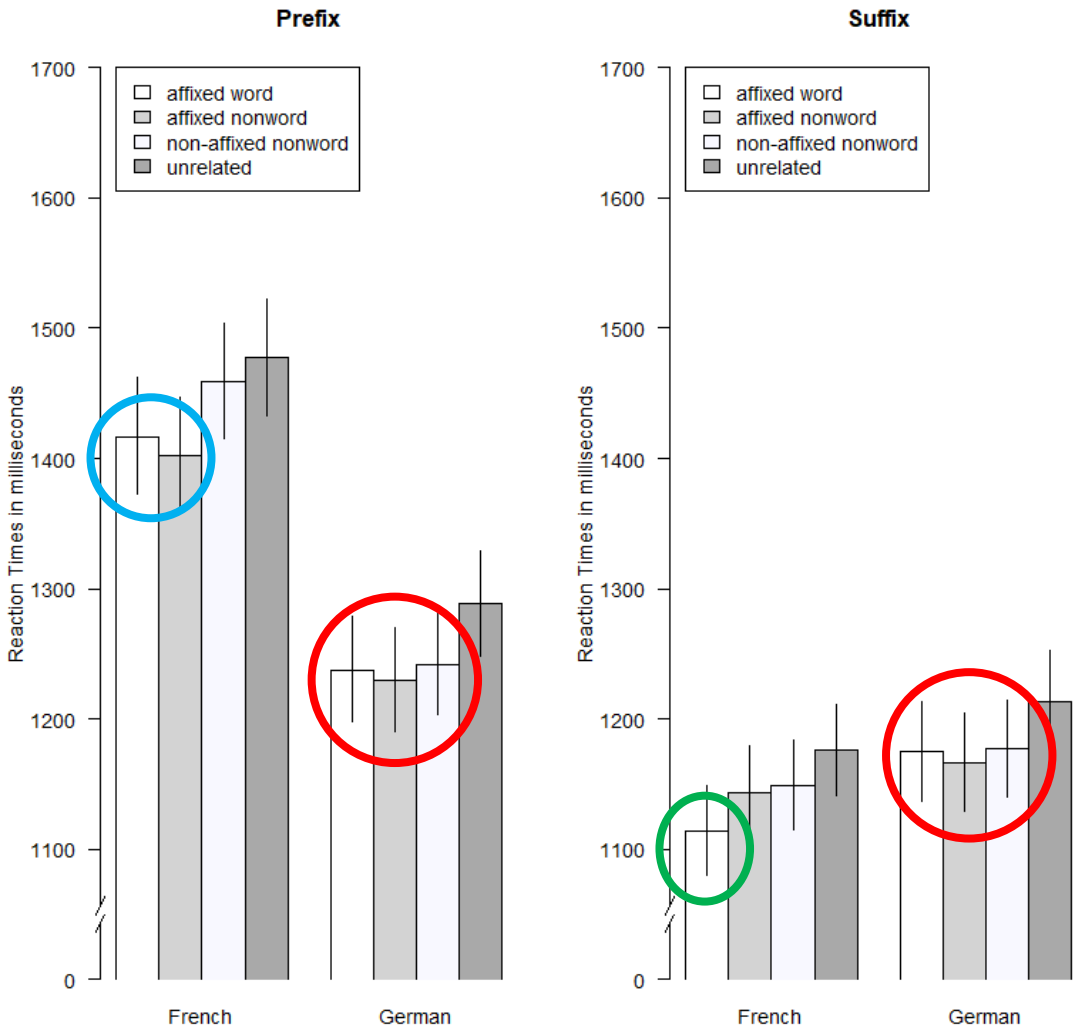
RÉPUBLIQUE FRANÇAISE Liberté Égalité Fraternité
anr agence nationale de la recherche
DFG Deutsche Forschungsgemeinschaft
FRANCE22

Response Times Grade 3



RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité
anr agence nationale de la recherche
DFG Deutsche Forschungsgemeinschaft
FRANCE22

Response Times Grade 4



RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité
anr agence nationale de la recherche
DFG Deutsche Forschungsgemeinschaft
FRANCE22