The role of emotional valence in voluntary language switching and reaction time

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Introduction

Language switching

In **cued** task: using two languages was more *costly* than using one (mixing cost).

In **voluntary** task, using two languages was *faster* than one (mixing benefit).

In both tasks, longer reaction time in switch than repeat trials (switching cost).

(De Bruin et al., 2018)

Emotional valence

Foreign language effect: Lower emotional reactivity when using a foreign language compared to using their native language.

(Keysar et al., 2021)

(native)-(foreign) speakers used English more and responded faster when naming **negative** pictures.

(Muntini et al., 2025)

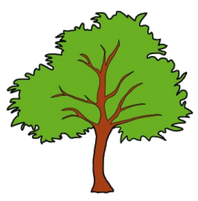
Research question

How do German (native)–English (foreign) speakers respond when presented with emotionally valenced materials?

- Choice of language
- Reaction time (RT)

Picture-Naming Task

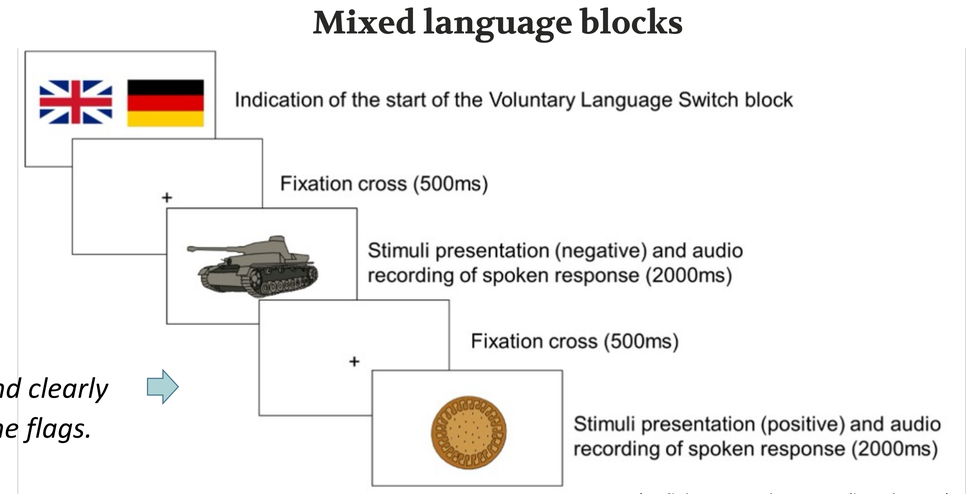
Familiarization



TREE BAUM

"Please name the picture you see as quickly and clearly as you can using the languages indicated by the flags. You are free to use any of the two languages."

Mixed language blocks



(Duñabeitia et. al., 2018; Võ et al. 2009)

Participants & Analysis

Participants

15 German native speakers of English as a foreign language (age: 25.13±3.46)

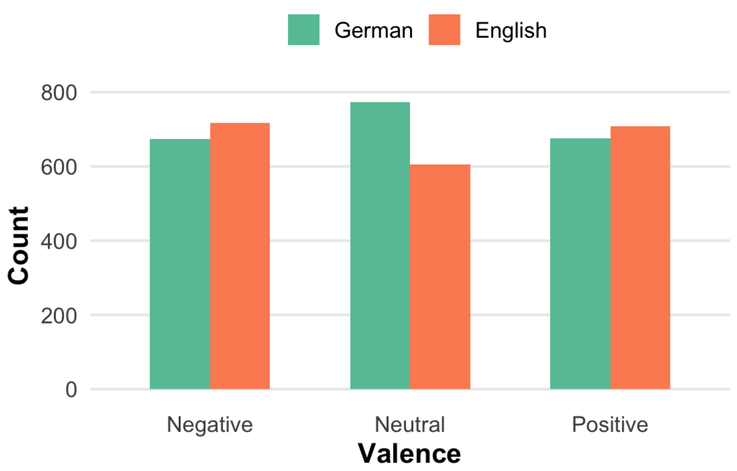
English proficiency score: 84.27±12.42

Analysis

(General) linear mixed effect models

Significance (RT model) was assessed via ANOVA, yielding F-statistics and p-values.

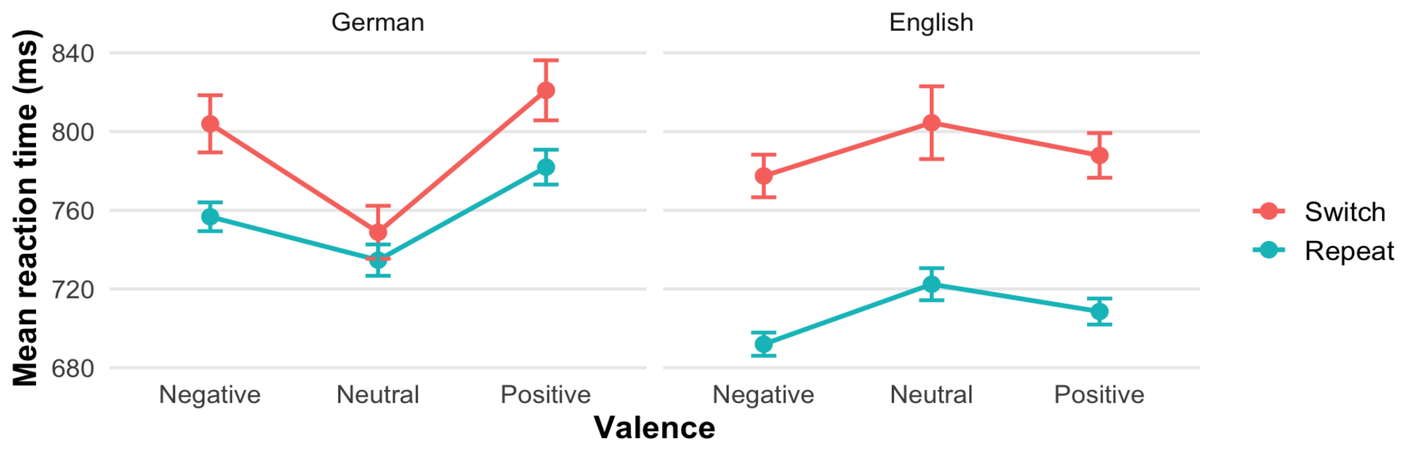
Results – Choice of Language



Participants responded significantly more in English during both the positive ($p = .001$) and negative ($p = .003$) valence conditions compared to the neutral condition.

Note: 1 participant was excluded from both analyses due to no language switches in responses.

Results – Reaction Time



- Main effect of type, $F(1, 3935.6) = 33.53$, $p < .001$: longer RT when switching than repeating.
- Interaction between valence and language, $F(2, 3941.0) = 3.08$, $p = .046$: faster in English when responding to positive pictures.
- Interaction between language and type, $F(1, 3930.6) = 4.03$, $p = .045$: increasing switch cost when switching from German to English.

Conclusions

Participants prefer to use their foreign language and are faster when they respond to emotionally charged materials, supporting the reverse dominance pattern.

(Declerck et al., 2018)

Switching always entails a cost, but it is more pronounced when switching from native to a foreign language than vice versa.

(De Bruin et al., 2018)

Limitations & Future Prospects

Limitation: Automated voice-onset detection may introduce slight inaccuracies in RT measurements.

Future work could increase sample size and examine the role of language similarity and emotional arousal (beyond valence) in voluntary language switching.

(Circi et. al., 2021)

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