

Body-specificity hypothesis with a finger move: Evidence from a colour categorization task

Anna Khokhlova & Armina Janyan

Tomsk State University / New Bulgarian University



Introduction

According to the body-specificity hypothesis (Casasanto, 2009) if people have different bodies and interact with the environment differently, they should also think differently, constructing different mental representations even of abstract concepts such as good and bad. Casasanto (2009) showed a tied relationship between handedness and mental representation of positive and negative concepts: right-handed associate good concepts more with their right space, and bad concepts - with their left space while the opposite pattern was observed with the left-handers.

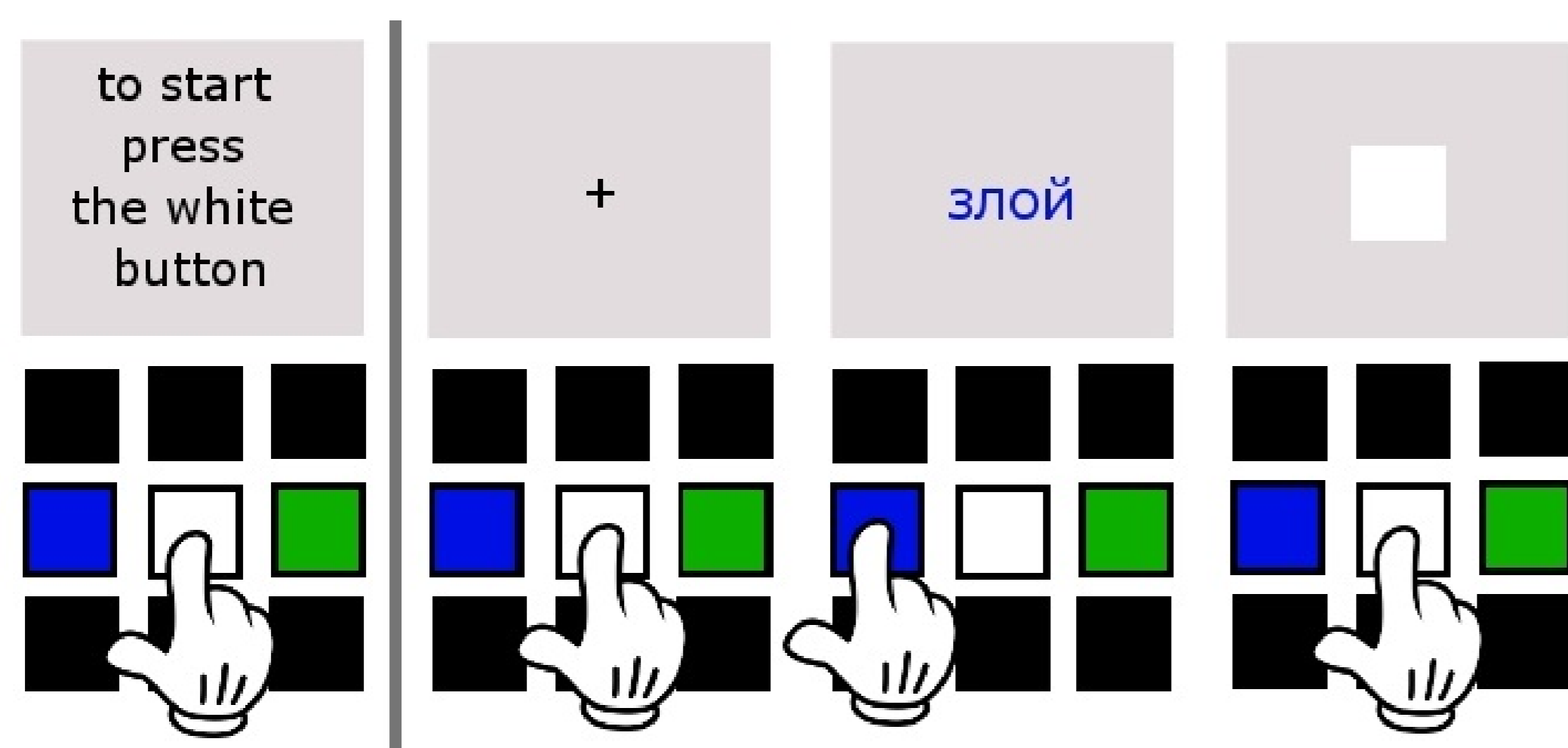
We tested whether the space-and-concept-valence association could still be observed within a tiny space with fine left/right finger movements. A modified version of a paradigm used by Khalid and Ansorge (2013) was employed.

Method

Participants: 40 right-handed students (mean age = 19.4, from 17 to 28, 6 Males).

Design: 2(valence: good vs. bad) X 2(move: left vs. right)

The buttons were of the numeric standard keyboard (4/left, 6/right, 5/white button)



Response window: main RT (reaction to the stimulus) 1500 ms; return RT (return to the white button) 1000 ms.

Stimuli: хорошии (good), добрыи (kind), плохой (bad), злои (evil). The experiment was implemented using E-prime software (Psychology Software Tools Inc., 2016).

Results

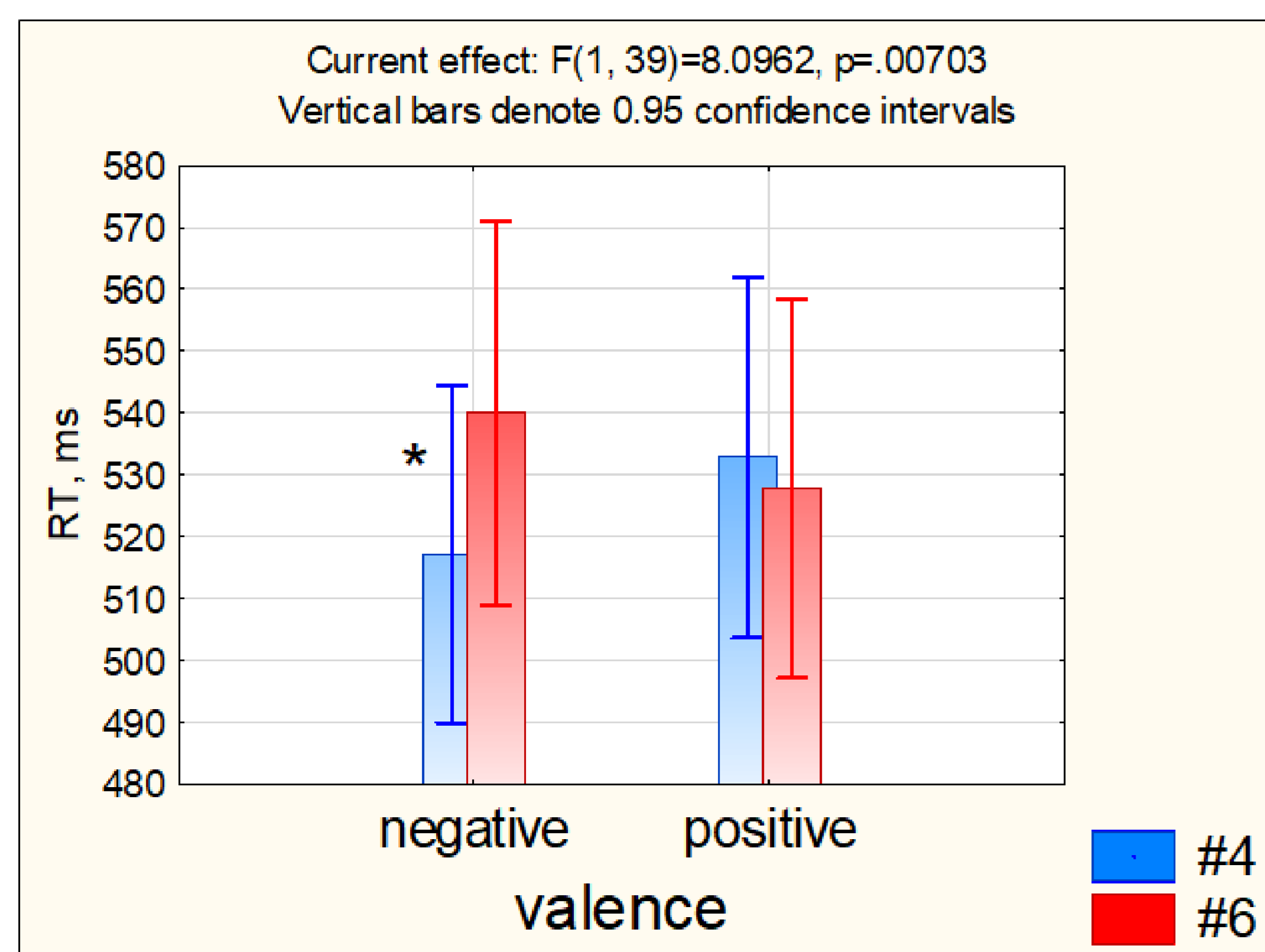


Figure 1: The time of reacting to the stimulus.

Repeated measures ANOVAs were run on subject means on response and return RTs. The results showed no main effects in both analyses (all $p > 0.1$) and a significant interaction in response RT ($F(1,39)=8.10$, $p=0.007$; $\eta_p^2=0.17$) and close to a significant one in the return RT ($F(1,39)=3.28$, $p=0.08$; $\eta_p^2=0.08$).

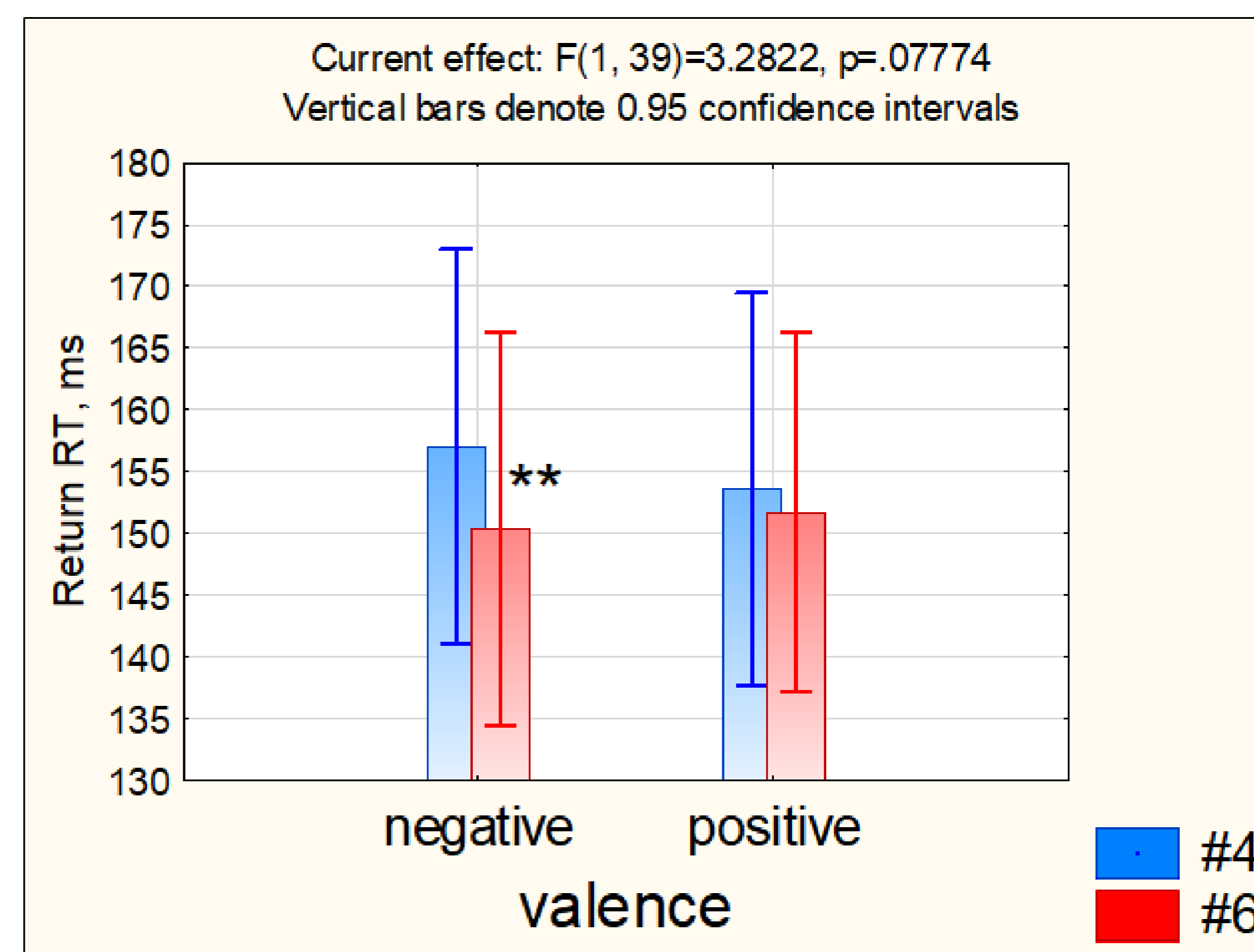


Figure 2: The time of returning to the white button after reacting to the stimulus.

Conclusion

The results unambiguously showed that the association of bad with left space in our right-handers was activated automatically which was reflected in the RTs.

However, no such a result was observed with the good concepts. This asymmetry between the good and bad concepts processing requires further explanation.

One of possible speculations would be that bad concepts are more important than the good ones (survival issue), hence, the stronger the association.

Overall, the results of a non-semantic task showed that even a tiny finger movement could reflect the specificity of mental representation of abstract concepts.

The results speak in favor of the body-specificity hypothesis and of automaticity of the developed space-concept associations. Our next experiment is sought to test the same hypothesis in left-handed individuals.

References

- Casasanto, D. (2009). Embodiment of abstract concepts: good and bad in right- and left-handers. *Journal of Experimental Psychology: General*, 138(3), 351-367.
- Khalid, S., Ansorge, U. (2013). The Simon effect of spatial words in eye movements: Comparison of vertical and horizontal effects and of eye and finger responses. *Vision research*, 86, 6-14.

Contact Information

Anna Khokhlova
Email kh.anya1003@gmail.com
Armina Janyan
Email ajanyan@cogs.nbu.bg