

Johannes Rodrigues¹, John J. B. Allen², Mathias Müller¹ & Johannes Hewig¹ ¹Julius-Maximilians-Universität Würzburg, Germany ² University of Arizona, USA



The model is bend, but never broken: A quadratic extension to the capability model of frontal asymmetry based on situational induction strength

Introduction:

- Proposed personality trait relations to frontal asymmetry were not consistently found in resting EEG (see e.g., Kuper et al. 2019, Vecchio & De Pascalis, 2020)

- Coan, Allen & McKnight, 2006: Capability model of anterior asymmetry: Capability of situations to activate traits:



intensity of situation

Resting EEG



EEG during emotional challenges

capability to show trait relation of frontal asymmetry: linear growth

BIS

extreme intensity?



EEG during very intense emotional situations

linear growth of relation of frontal asymmetry and traits?



instructions duration:

negative imagery script: FFFS instructions duration:

emotional movie sequences starting point









Figure 2: Frontal asymmetry dependent on the conditions of the paradigm (cf. Rodrigues et al. 2021)

Table 1: Correlation of trait and frontal asymmetry in the three paradigms and resting state measurements			
reference	task	trait	r
CSD	negative movie	behavioral inhibition	29*
		trait negative affect	32*
		trait positive affect	.43**
		depression	46**
	negative imagery script: BIS ending	depression	34 ⁺
linked mastoids	negative imagery script: BIS ending	behavioral inhibition	.42*
	negative imagery script: FFFS ending	trait positive affect	.37 ⁺

Figure 3: Correlation of trait and frontal asymmetry in the three paradigms and resting state measurements (cf. Rodrigues et al. 2021)

Discussion:

- The proposed linear relation of situational intensity and trait relation of frontal asymmetry was not found.
- Caveats:
- low statistical power
- possible sex differences in frontal asymmetry
- only limited amount of traits included
- additional methodological issues:
 - tonic vs. phasic
 - one-shot vs. repetitions
 - references: linked mastoids vs. CSD

Contact: Dr. rer. nat. Johannes Rodrigues, Dipl. Psych. Department of psychologie I: Differential Psychology, Personality Psychology, and Psychological Diagnostics Marcusstraße 9-11 97070 Würzburg Phone: +49 931 31-81771 Email: johannes.rodrigues@uni-wuerzburg.de



Note: * = p<.05, ** = p<.001, † = p<.1

Conclusion:

quadratic extension of the





References:

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