



# The Neural Correlates of the Black-Sheep Effect

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## Introduction

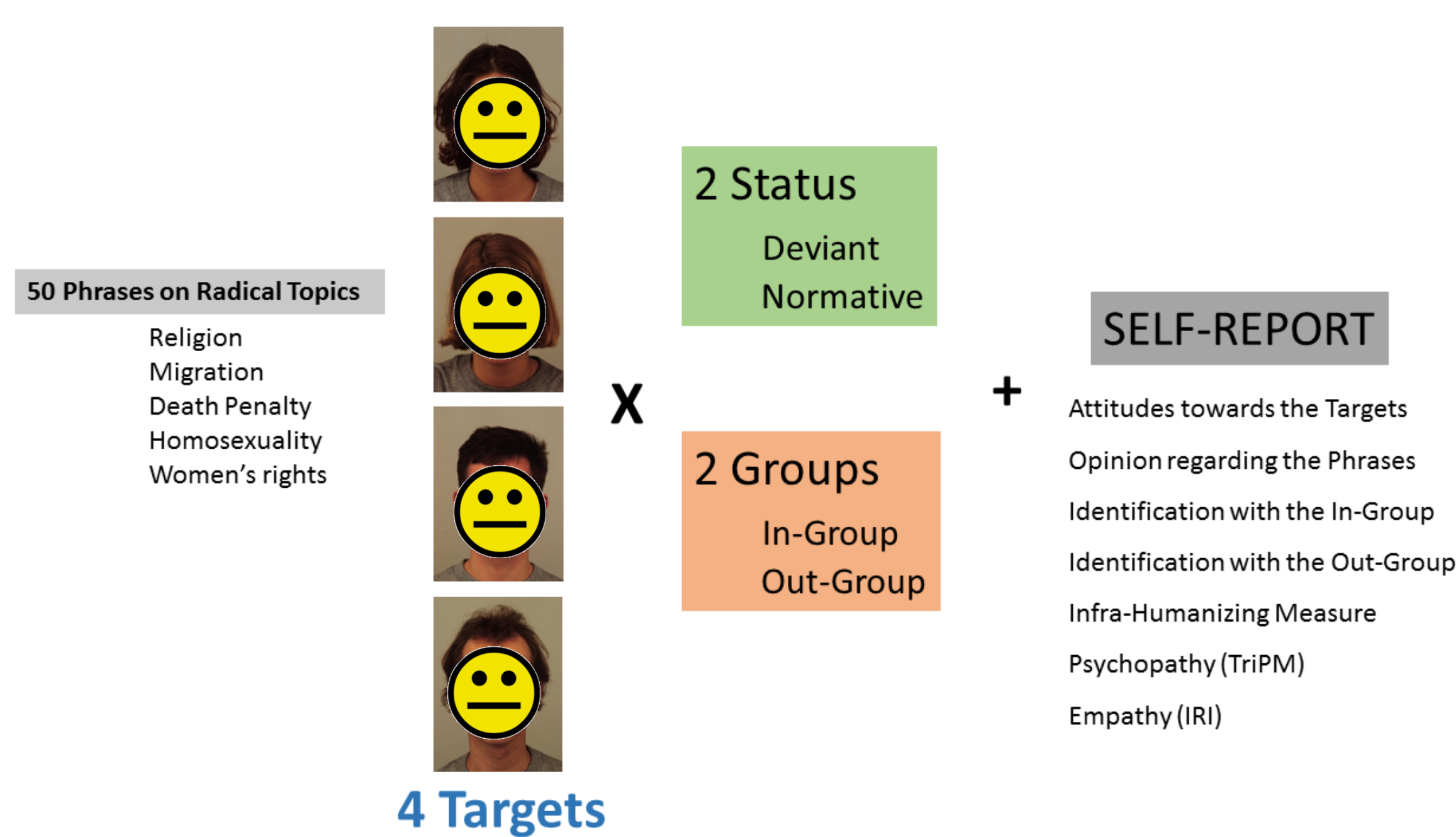
Inter-group and intragroup processes have long been a focus of research by social psychologists. Among these processes, the so-called Black Sheep Effect (BSE; e.g. Marques & Paez, 1994) is of particular interest to the present work. According to Marques and colleagues, individuals derogate deviant ingroup members and upgrade normative ingroup members relative to their outgroup counterparts as an emotional reaction to these members. According to Subjective Group Dynamics Theory (e.g. Pinto, Marques, Levine & Abrams, 2010) these reactions ensue from individuals' motivation to uphold a positive social identity. Whereas normative ingroup members sustain such identity and thus yield positive emotional reactions, deviant ingroup members threaten it and thus yield negative emotional reactions. Recently, these processes have drawn the attention of social neuroscience researchers (cf. Amodio, 2008). These researchers demonstrated that displays of ingroup favoritism and ingroup bias are associated with individuals' strong neural responses to the ingroup faces (cf. Ratner & Amodio, 2013). However, although the BSE has been extensively studied, the neural mechanisms involved in the operation of subjective group dynamics and, specifically, in the BSE have not yet been examined. In the present study we explored the ERP correlates of this effect.

## Methods

### Participants

Twelve university students (8 female) with ages ranging between 18-37 years old ( $M=21.58$ ;  $SD=5.16$ ), all free from psychiatric and/or neurologic illness performed the experiment.

### Procedures and Materials



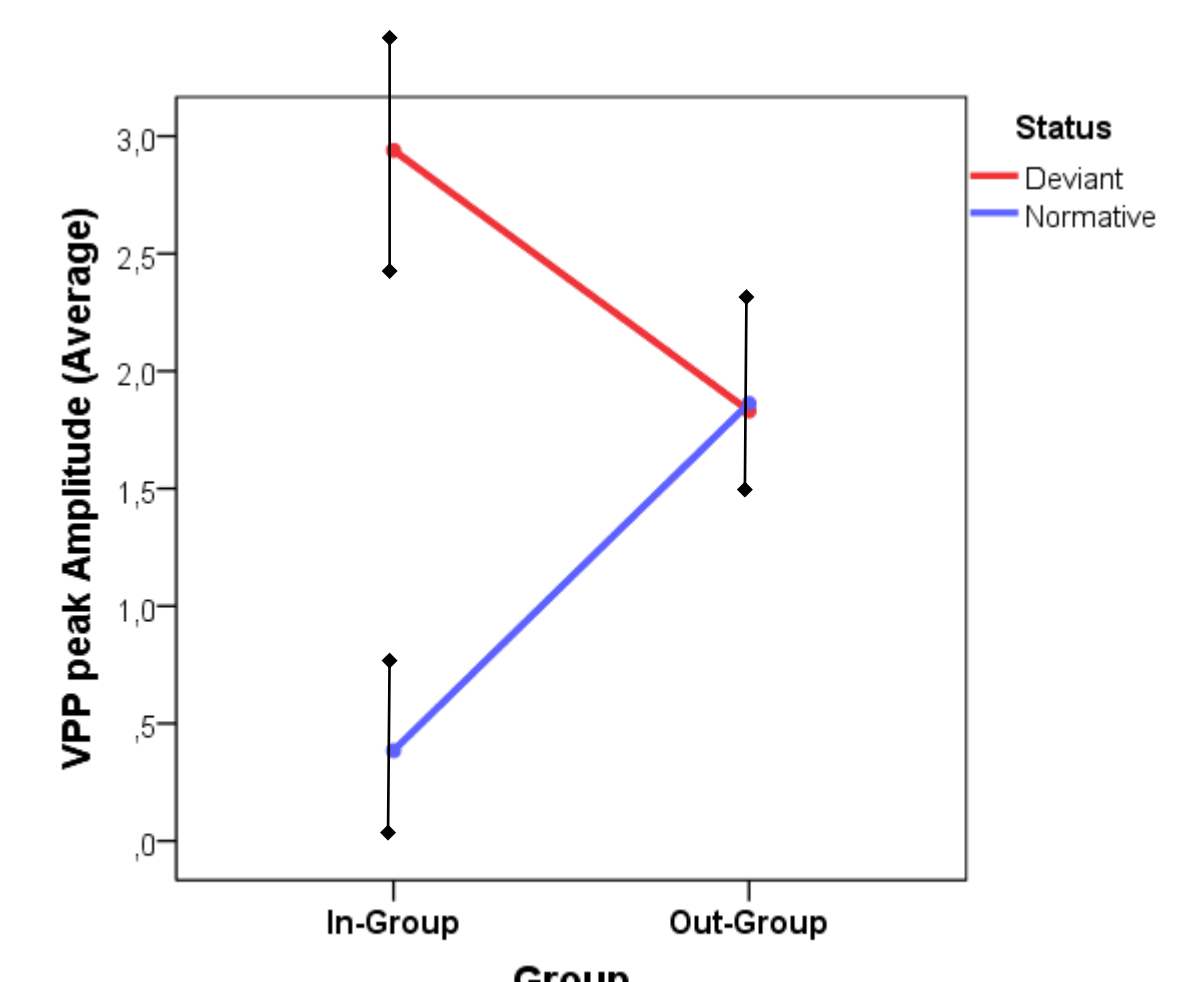
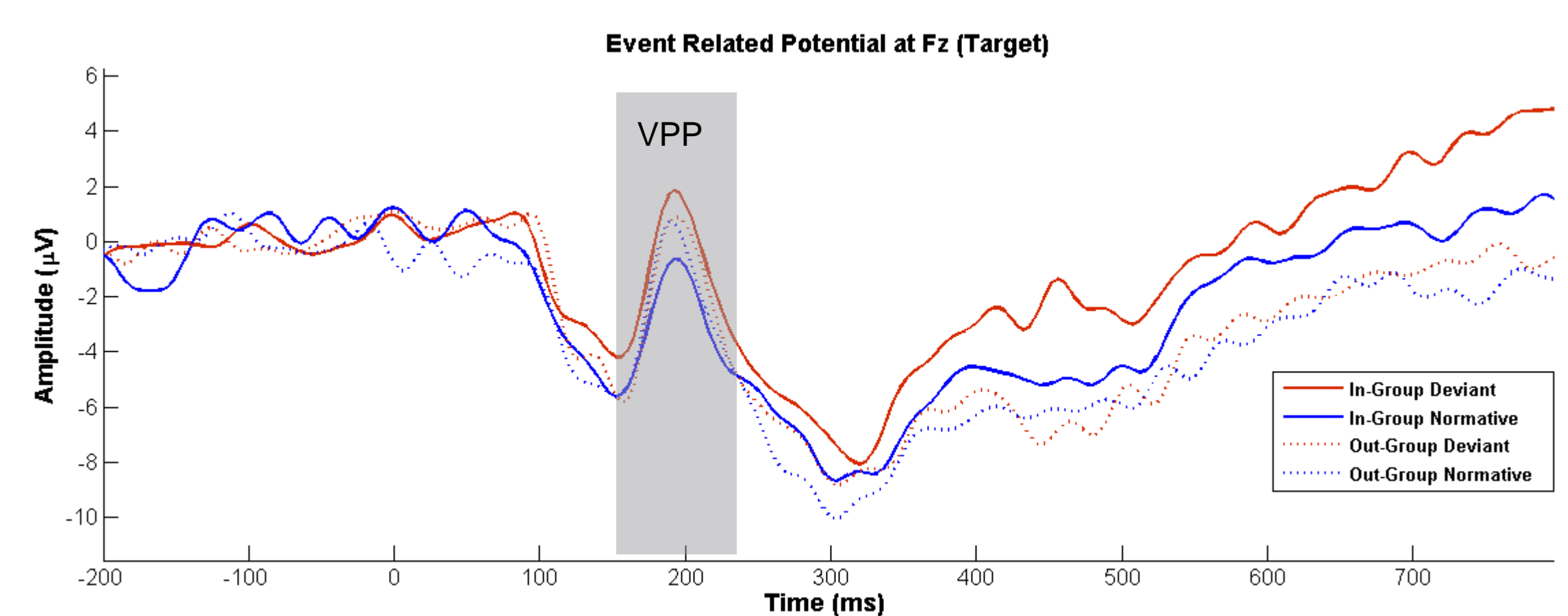
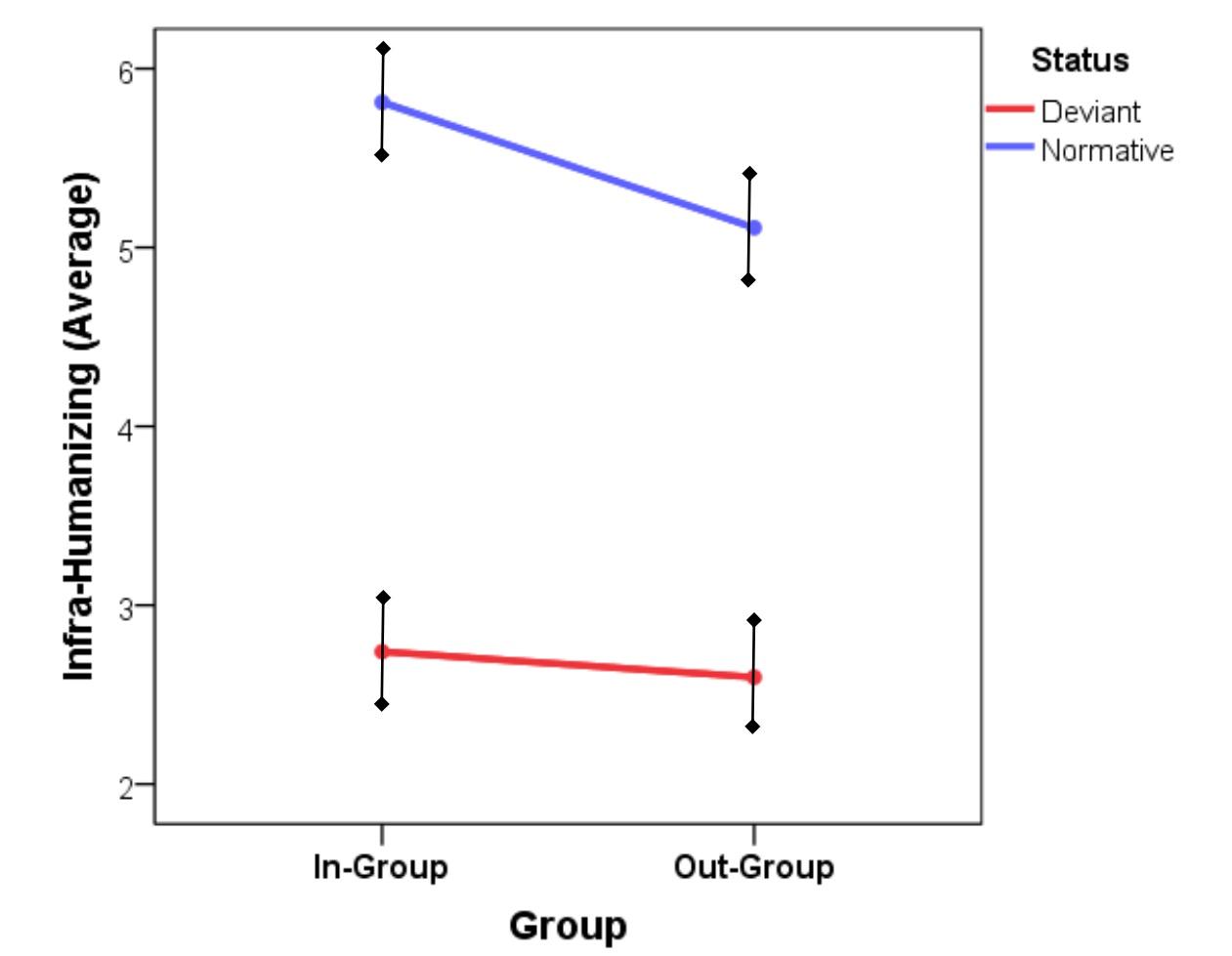
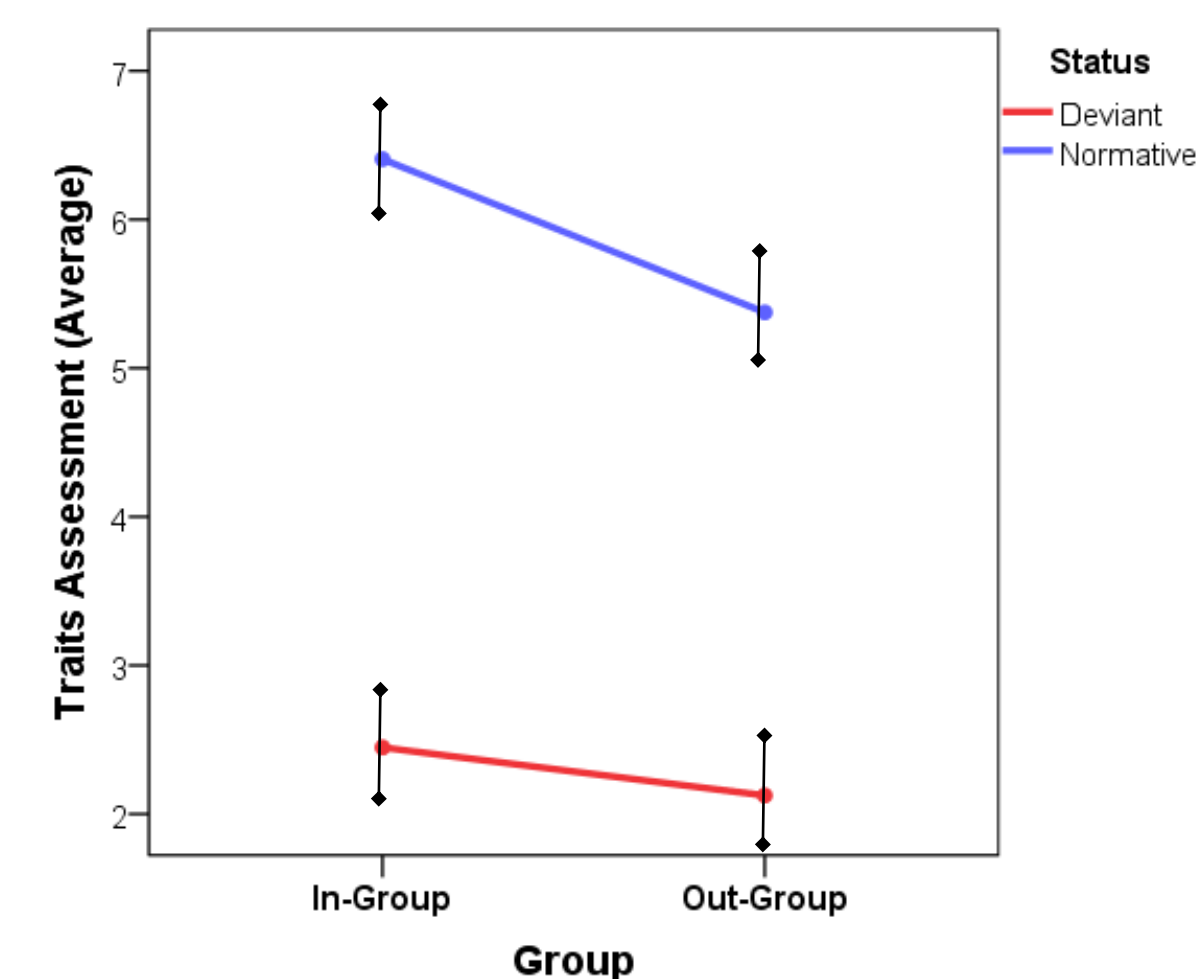
\*Note: The real experimental stimuli are covered here due to copyrights and to protect experimental material



## Acknowledgements

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## Results



Group:  $F(1,10) = 6.39$ ;  $p = .030$ ;  $\eta^2_p = .39$

Status:  $F(1,10) = 0.21$ ;  $p = .658$

Group\*Status:  $F(1,10) = 5.27$ ;  $p = .045$ ;  $\eta^2_p = .35$

Out-Group Targets > In-Group Targets

In-Group Deviant > Out-Group > In-Group Normative

Black-Sheep Effect

## Conclusion

These preliminary results suggest that the brain correlates of the Targets processing are consonant with the Subjective Group Dynamics assumptions, with extreme peak amplitudes (for both VPP component) being associated with the processing of both in-group members. Results also suggest that the deviant in-group target elicits higher VPP amplitude when compared with the normative in-group target.

**Limitations:** the Infra-Humanizing measures were not sensitive to the Group manipulation, revealing a floor effect regarding the deviant targets.

**Future Directions:** to explore the relation between the targets' VPP with the measures of empathy and psychopathy. Explore the peripheral activation during the target processing.

