Facing threat: Facial but not learned dominance affects learning of optimal facial expressions in incentivized social interactions.

Department of Clinical Neuroscience
Karolinska Institutet
www.emotionlab.se

Jonathan Yi, Philip Pärnamets & Andreas Olsson

Introduction

• Optimal communication depends on both the situation (e.g. dangers) and the identity of your interaction partner[1].

• Learning to adjust facial expressions during communication is key to social functioning[1].

• Individual characteristics, such as dominance[2], might affect the expression and learning of facial expressions.
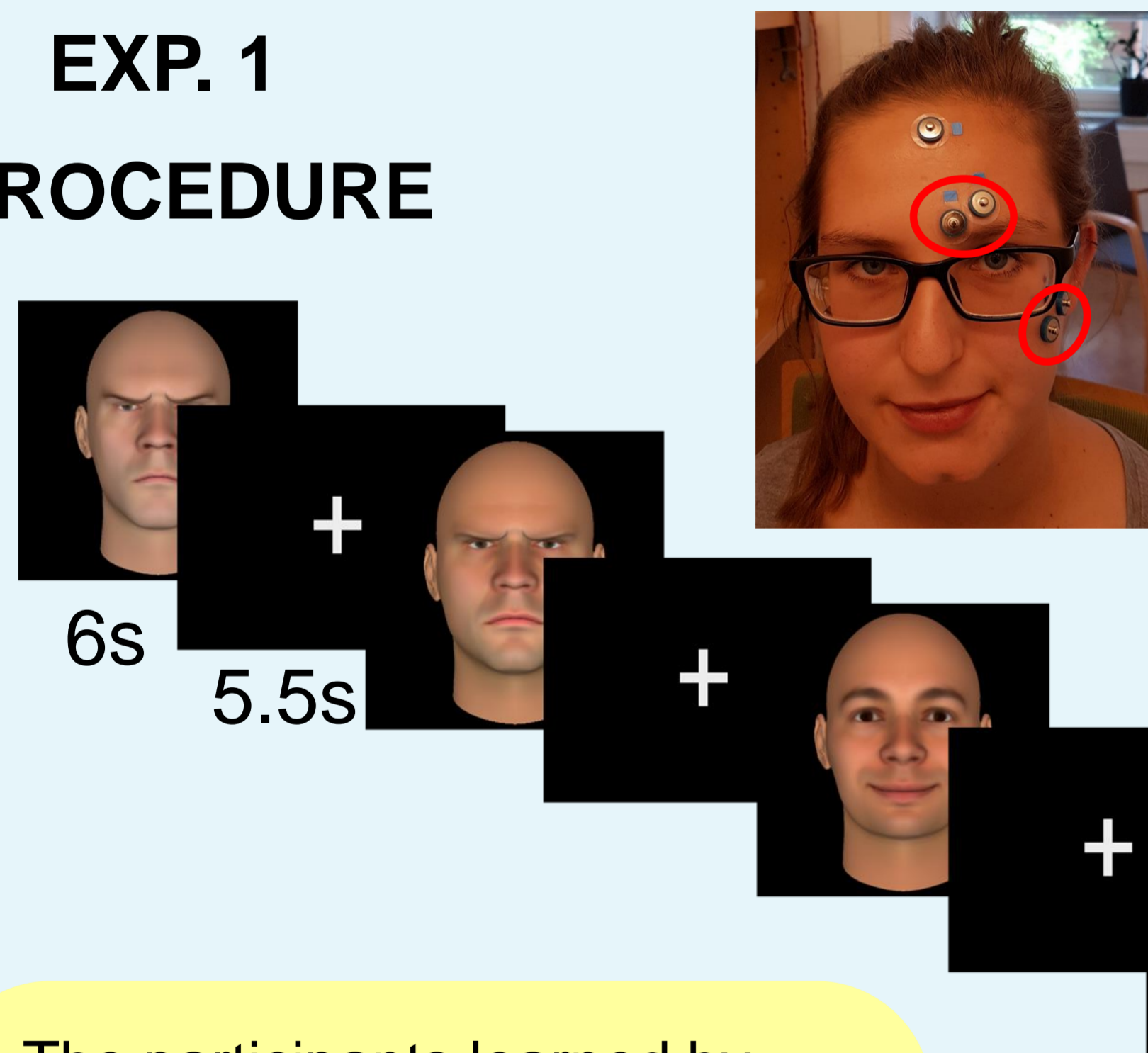
Question

• How do we learn to use our facial expressions in response to others' facial expressions?

• What is the influence of facial and learned dominance[2] on this communication process?

Methods

• A novel method based on online integration of electromyography (EMG) signals was used[3].
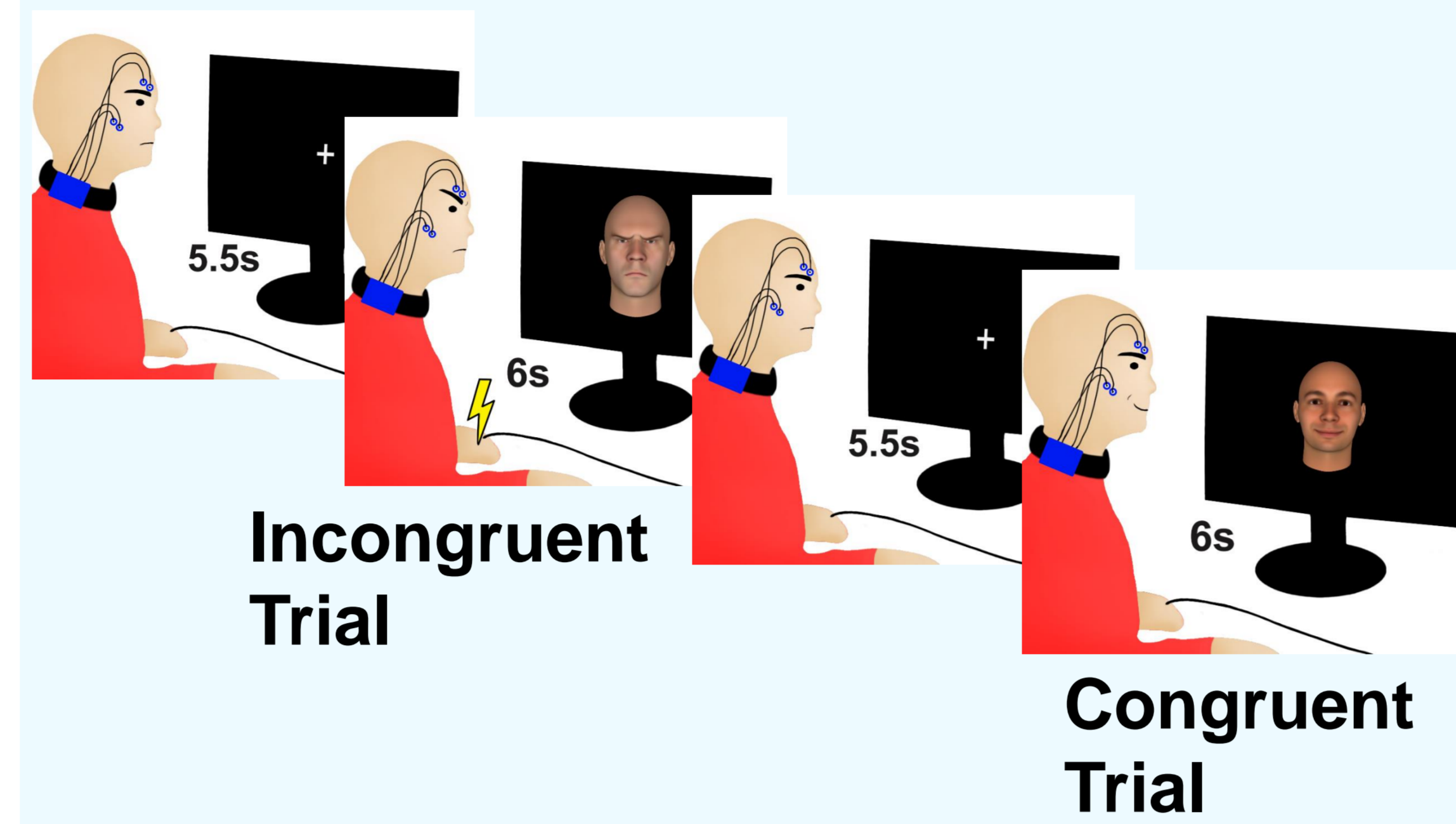
EXP. 1 PROCEDURE

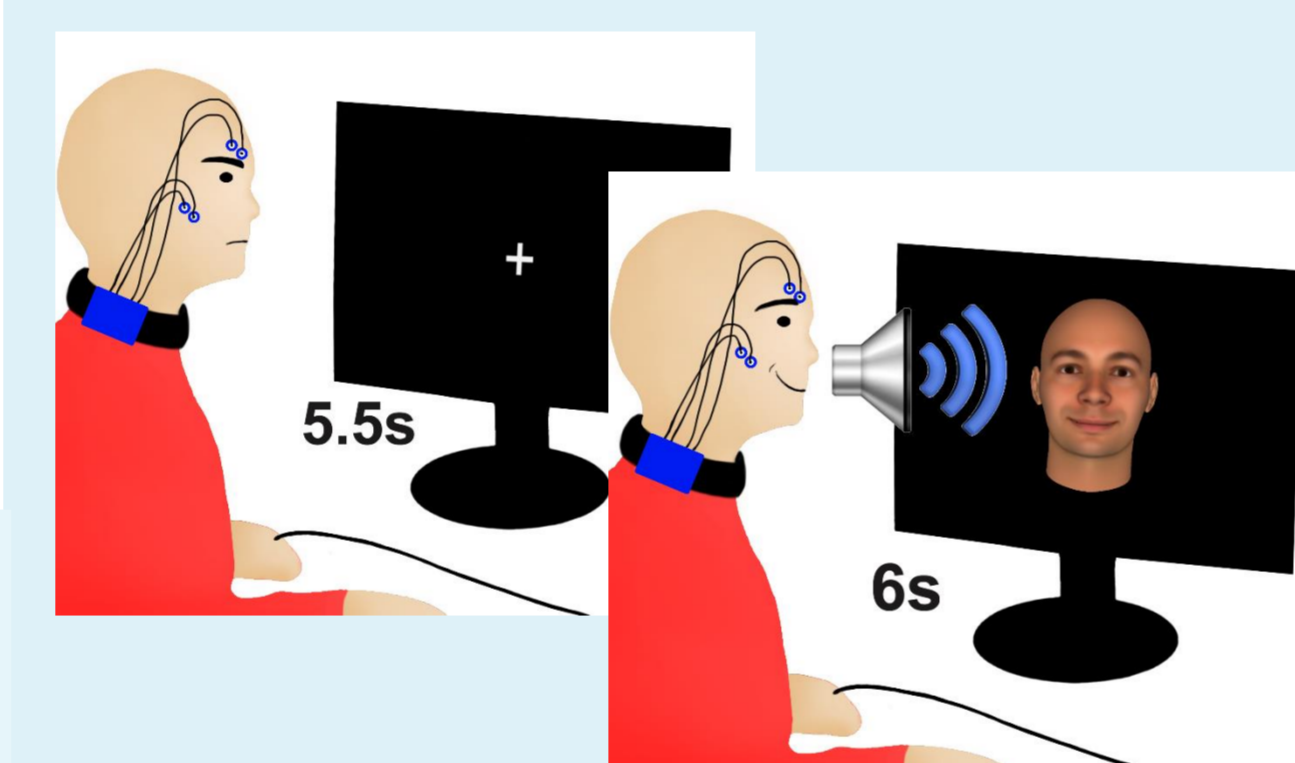We recorded signals from Corrugator Superciili and Zygomaticus Major.

The participants learned by trial-and-error to avoid mild electric shocks by expressing the same (congruent) or different (incongruent) expression. Each target face was assigned congruent or incongruent condition.

	Congruent	Incongruent
Frown	Frown to frowning face to avoid shock.	Frown to smiling face to avoid shock.
Smile	Smile to smiling face to avoid shock.	Smile to frowning face to avoid shock.

References
1. Jack, R. E., & Schyns, P. G. (2017).
2. Oosterhof, N. N., & Todorov, A. (2008).
3. Yi, J., Pärnamets, P., & Olsson, A. (manuscript in prep.)
4. Haaker, J., Molapour, T., & Olsson, A. (2016).

EXP. 1 Punishment, N = 60 (30 F).

Incongruent Trial
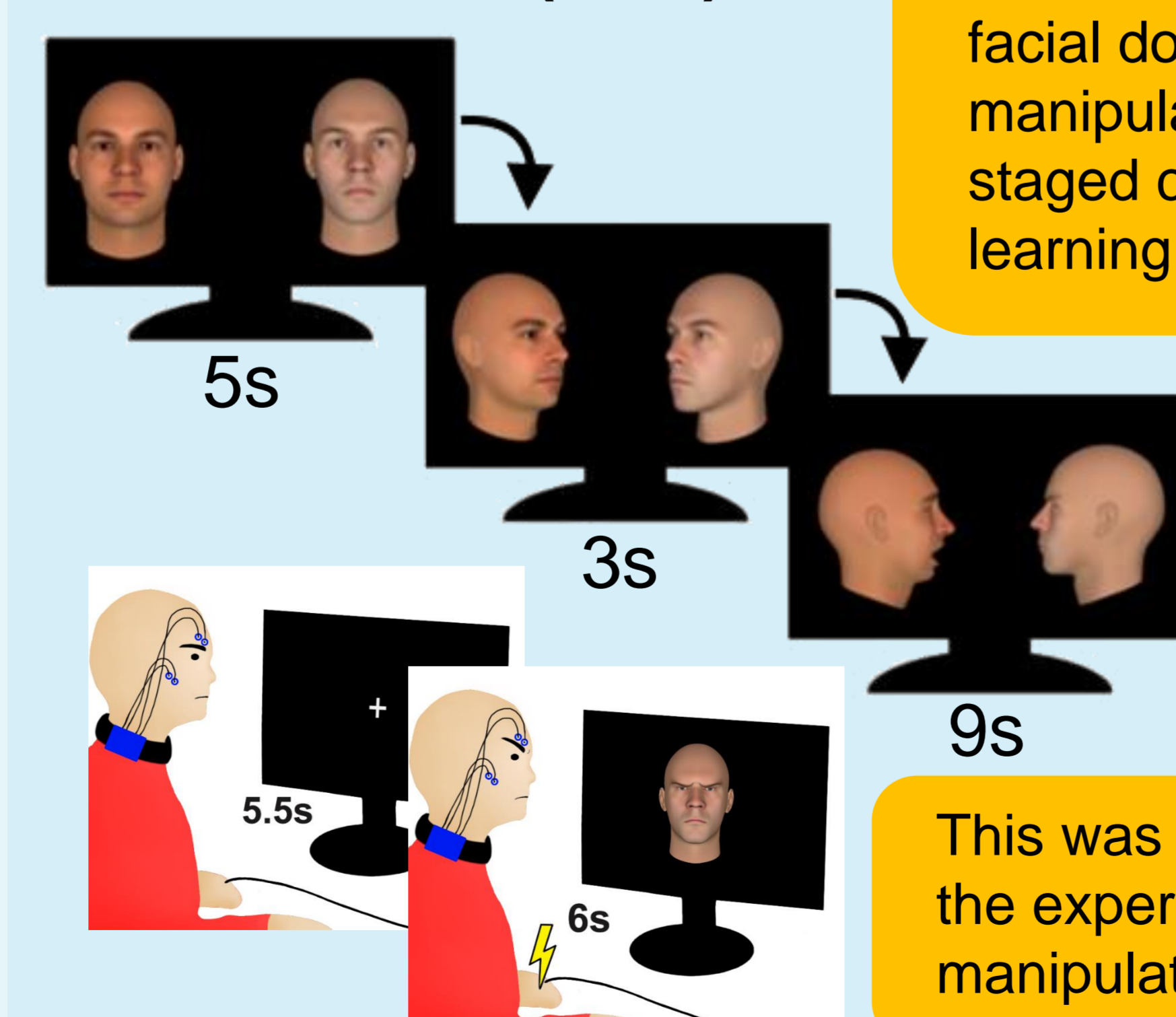
Congruent Trial

EXP. 2 Reward, N = 61 (31 F).

In EXP. 2 participants were provided a auditory reward cue upon forming the correct facial expression instead of receiving shocks upon error.
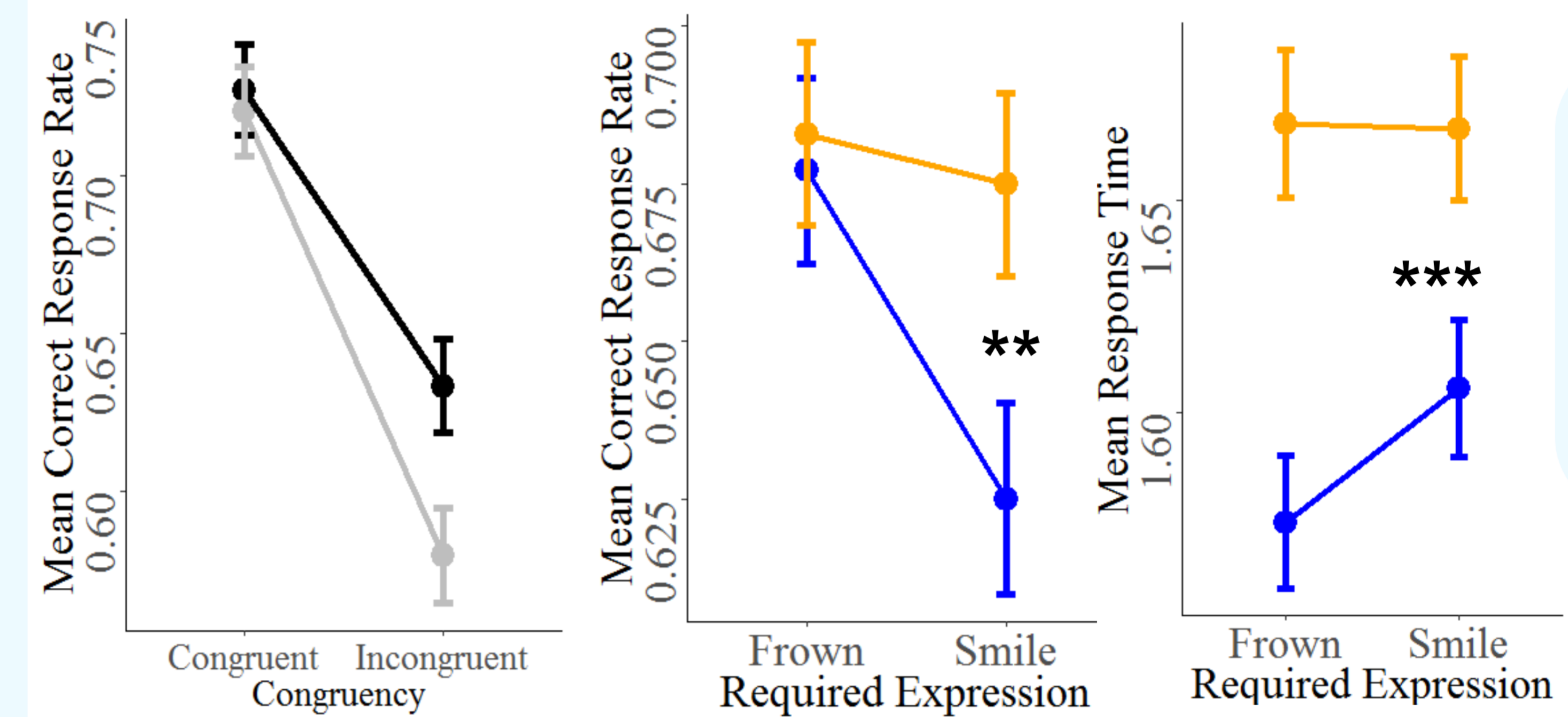
EXP. 3, N = 29 (15 F)

EXP. 3. Relative dominance instead of facial dominance was manipulated trough a staged confrontation learning procedure[4].

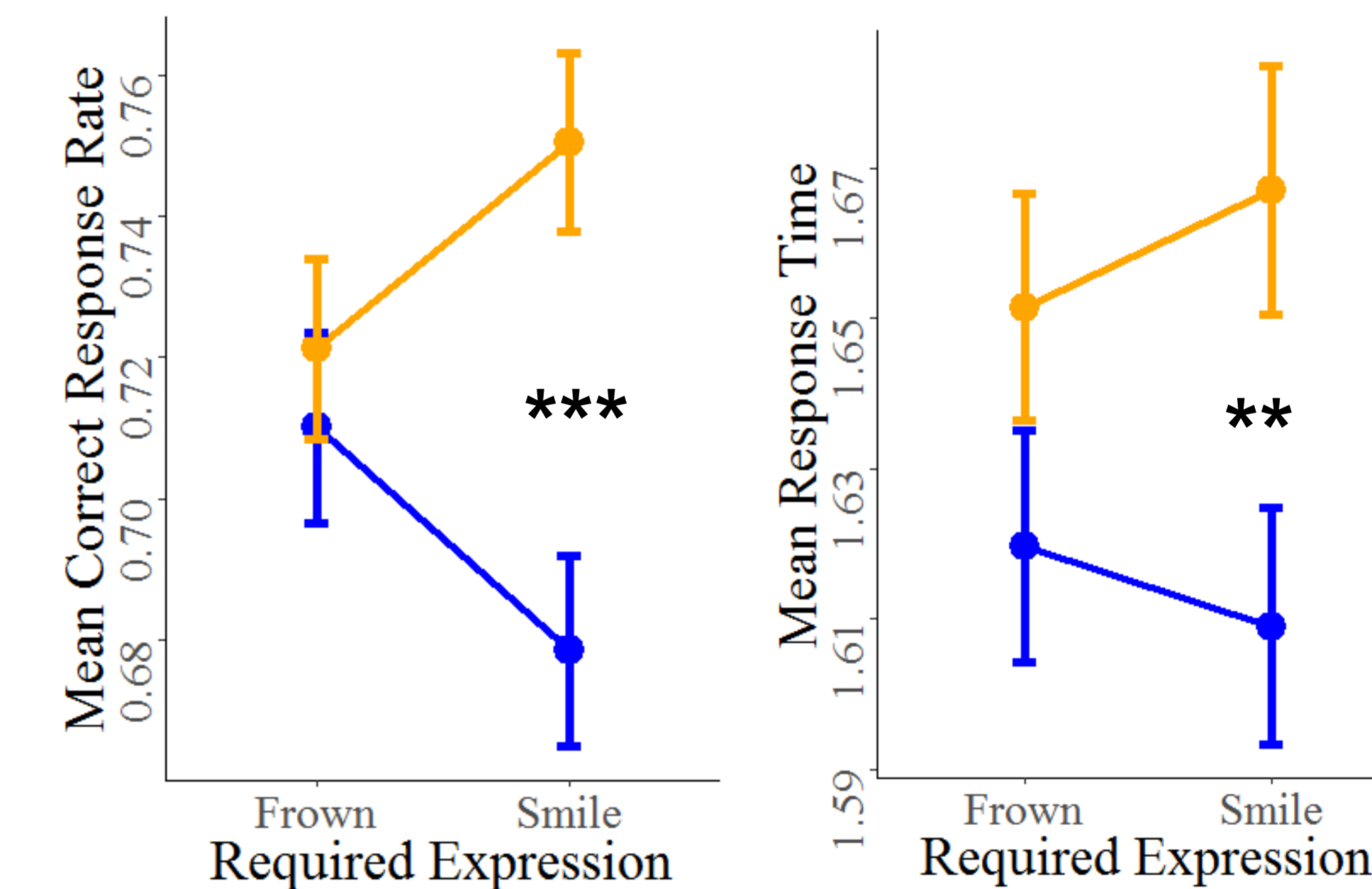This was succeeded by the experimental manipulation in EXP.1.

E-mail: Jonathan.Yi@ki.se

Frown (black) **Smile** (grey) **Dominant** (blue) **Non dominant** (orange)
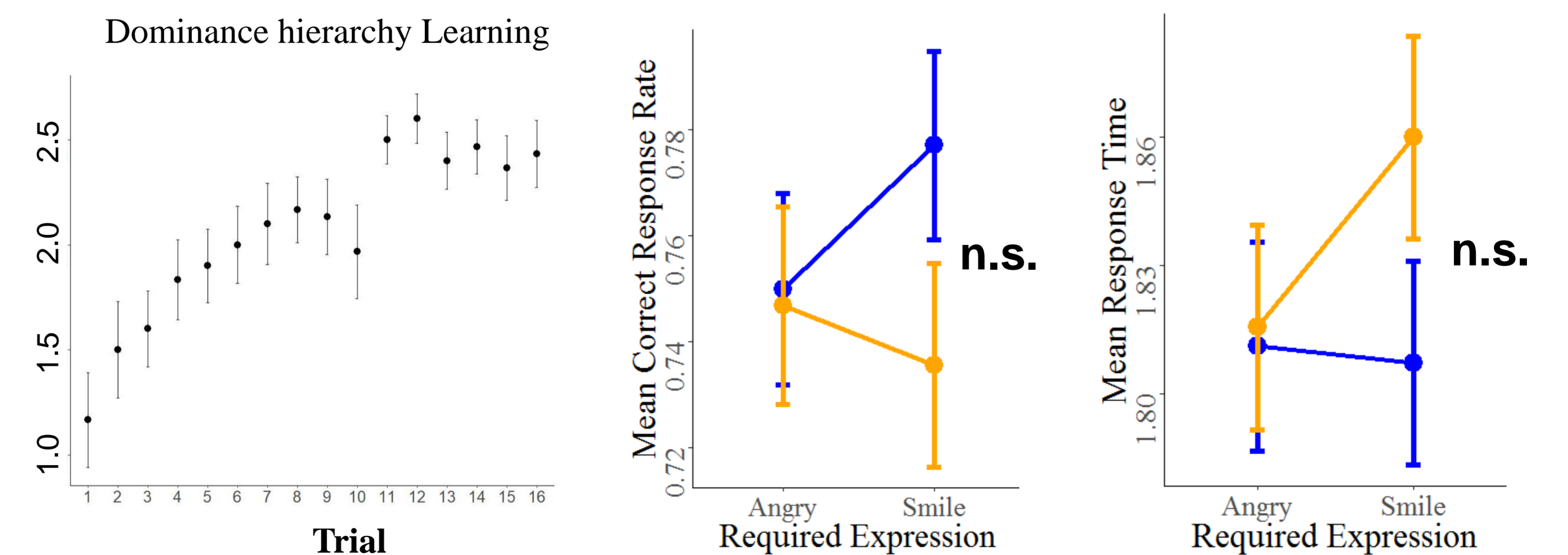
EXP 1. Results

Impaired performance on dominant trials likely due to speed-accuracy trade-off errors.

EXP 2. Results

The results were similar to EXP.1. Reinforcing feedback (punishment vs. reward) does not influence the overall results.

EXP. 3 Results

Participants learned the dominance hierachy of the faces, but learned dominance did not influence performance and response time.