Amie Durston, Calla Mueller, Roxane Itier
ajdurston@uwaterloo.ca c7mueller@uwaterloo.ca ritier@uwaterloo.ca

Happy and angry facial expressions are processed independently of task demands and context congruency

Introduction

- Whether neural decoding of facial expressions is influenced by task and by context remains debated[1]
- Aguado et al[2] considered emotion, semantic context and task within subjects, for the first time, with classic statistics
- Classic statistics criticized – prone to inflated Tyle I and Type II errors[3]
- Robust mass univariate statistics (MUS) decrease both Type I and II and might change the results

Goal and question

1) Impact of task demands and semantic context on processing of angry and happy expressions?

2) Re-evaluate the Aguado et al. data using MUS

Methods

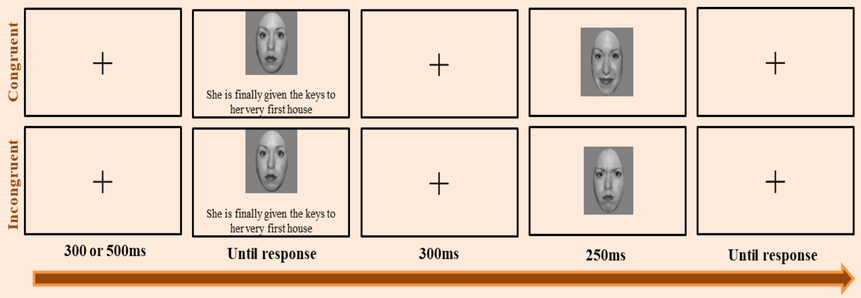
Participants

N = 36 (21 female); Mage = 21.83 years, SD = 4.02

Faces

NimStim[4]: 10 identities x 3 emotions (Neutral, Happy, Angry)

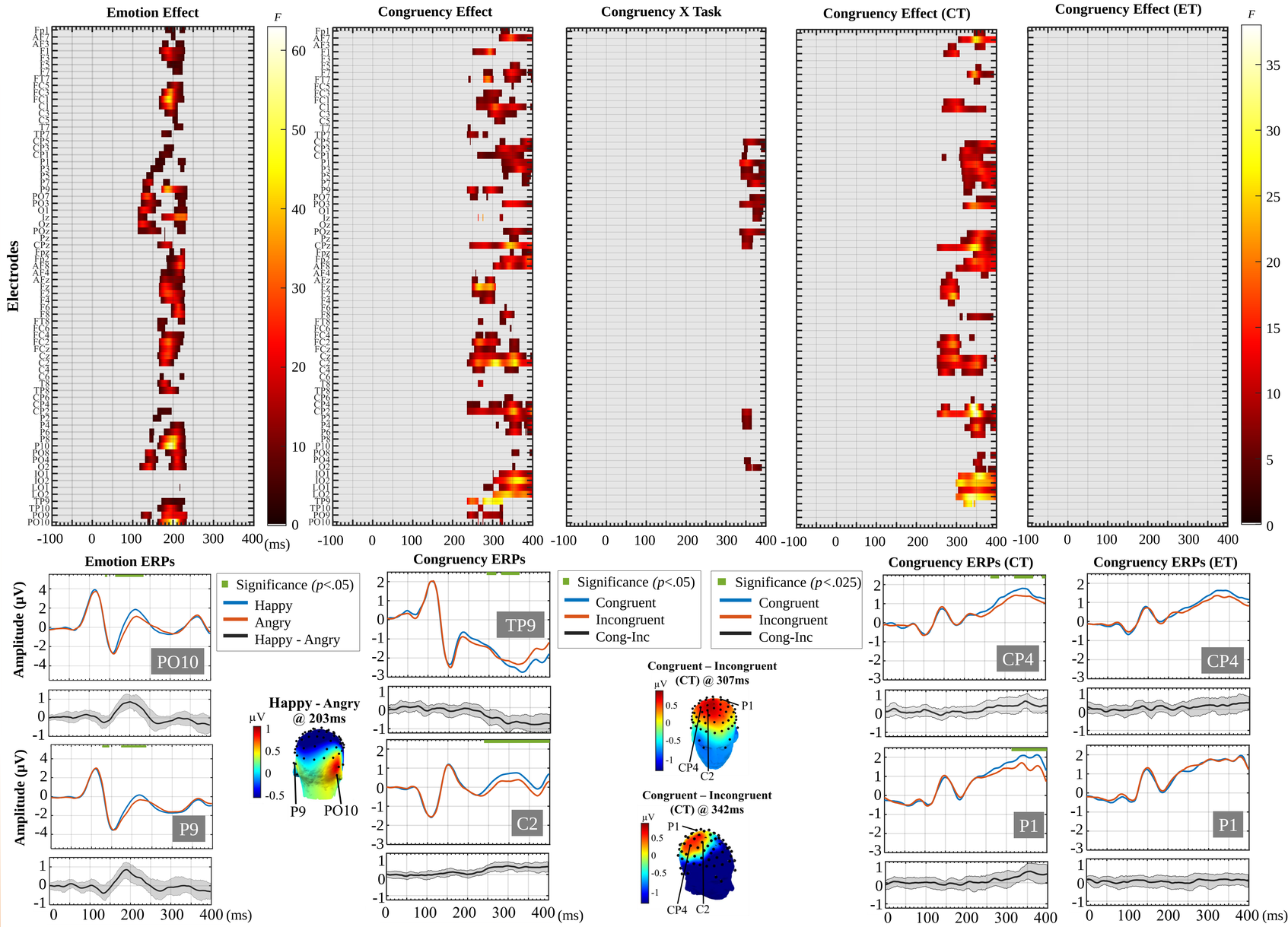
Tasks Congruency (CT) or emotion (ET) discrimination



EEG: 72-channel Bio-Semi, 512 Hz, Average Reference

Analyses: LIMO EEG MUS Analyses[5]

Results



Conclusions

- Angry < happy on the N170-P2 interval (113-234ms). Similar to Fearful & happy expressions[6,7]. The P2 reflects extraction of affect from the face[8].
- Emotion did not interact with any factor → automatic decoding
- Congruency effect on the P3/LPP (236-398ms), seen only in the CT → limited and task-specific influence of semantic context

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