Attentional Prioritization of Negative Appearance-Behavior Cues in Impression Formation

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Introduction

- Much research has identified strong contributions of facial trustworthiness and valenced behavioral cues
  - These cues have largely been examined in isolation
- Combinations of these cues (e.g. untrustworthy face-negative behavior) affect impression formation at the behavioral and neural levels
  - Impression formation can differ based on the combination of valenced appearance-behavior cues (Cassidy, Zebrowitz & Gutchess, 2012)
  - dmPFC and dlPFC engaged when updating impressions with cues that are incongruent with initial cues (Ma et al., 2012; Mende-Siedlecki, Cai, & Todorov, 2013)
  - Increased activation when facial trustworthiness is incongruent with behavioral valence (Cassidy & Gutchess, 2015b)
- Negative cues weigh more heavily into impression formation than positive cues (Baumeister, Bratslavsky, Finkenauer & Vohs, 2001; Rozin & Royzman, 2001)
  - Especially when they reflect immorality (Fiske, Cuddy & Glick, 2007)
- The late positive potential (LPP) component of event-related potentials (ERPs) responds to emotional information
  - LPP can emerge more to negative versus positive information (Holt, Lynn, & Kuperberg, 2009)
  - Untrustworthy faces evoke a larger LPP than trustworthy faces (Marzi, Righi, Ottonello, Cincotta, & Viggiano, 2014)

We examined the effects of valence and appearance-behavior congruity on ERPs reflecting the processes engaged when people integrate valenced appearance (trustworthy or untrustworthy faces) and behavior cues that vary in their congruity.
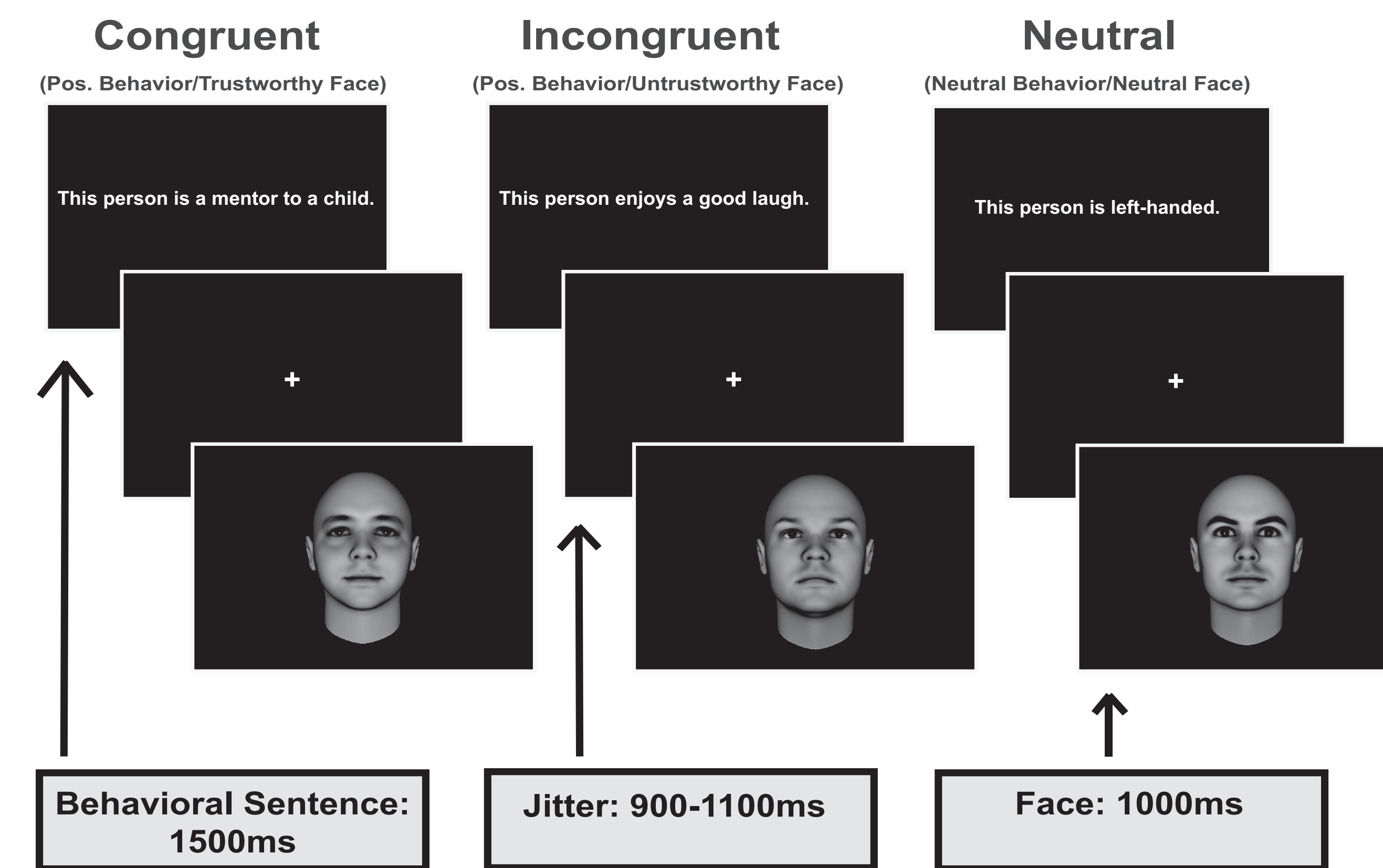
Hypothesis

We expect to find an interaction of trustworthiness and congruity such that the greatest late positive potential (LPP) response is for untrustworthy-negative pairs over all other combinations because negative information is weighted more heavily.

Method

Stimuli

- 144 male Caucasian faces generated using FaceGen (http://facegen.com) were divided into equally-sized trustworthy, neutral and untrustworthy conditions
- 144 behavioural sentences conveying positive, neutral, or negative behaviors (Somerville, Wig, Whalen & Kelley, 2006)
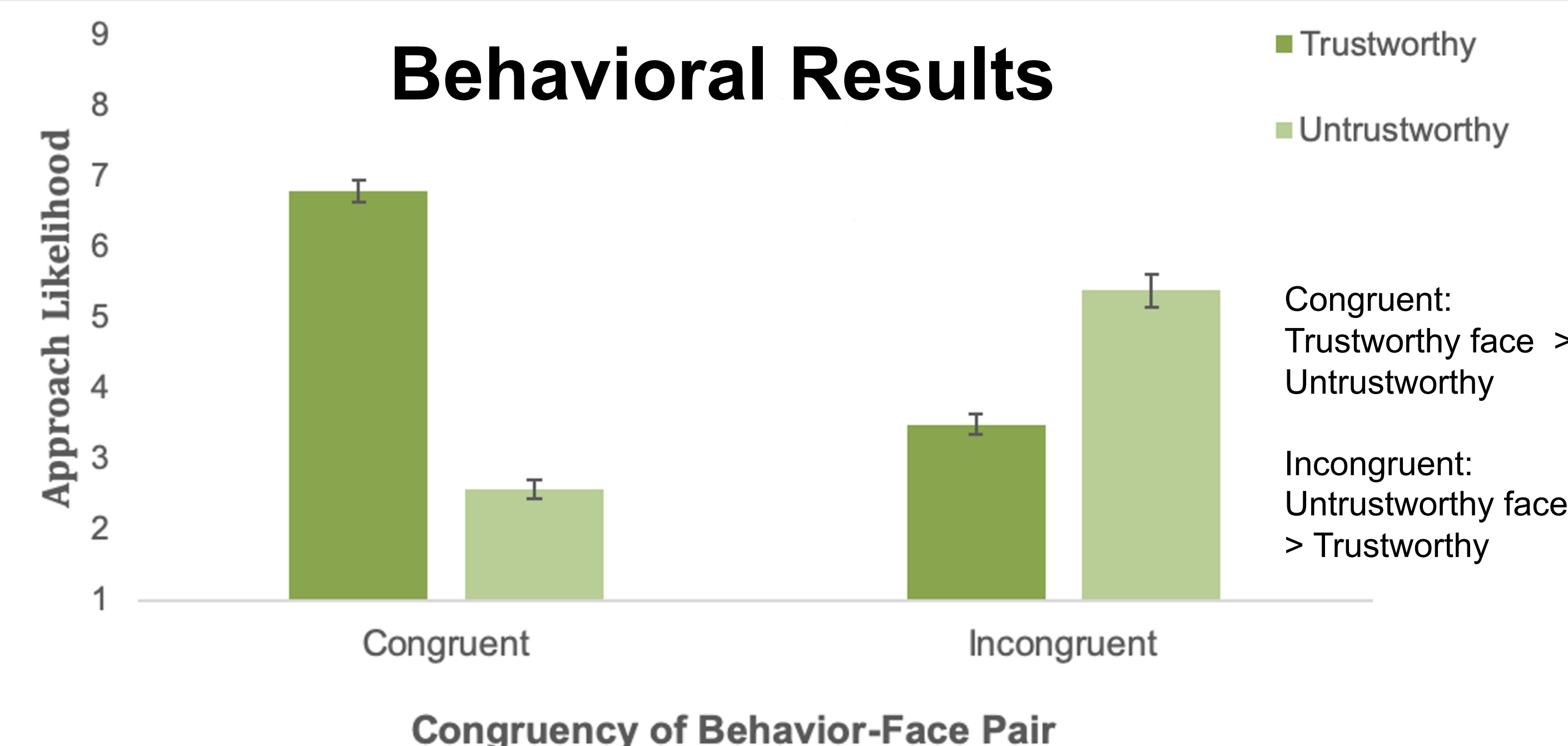

Congruent (Pos. Behavior/Trustworthy Face)
This person is a mentor to a child.

Incongruent (Pos. Behavior/Untrustworthy Face)
This person enjoys a good laugh.

Neutral (Neutral Behavior/Neutral Face)
This person is left-handed.

Behavioral Sentence: 1500ms
Jitter: 900-1100ms
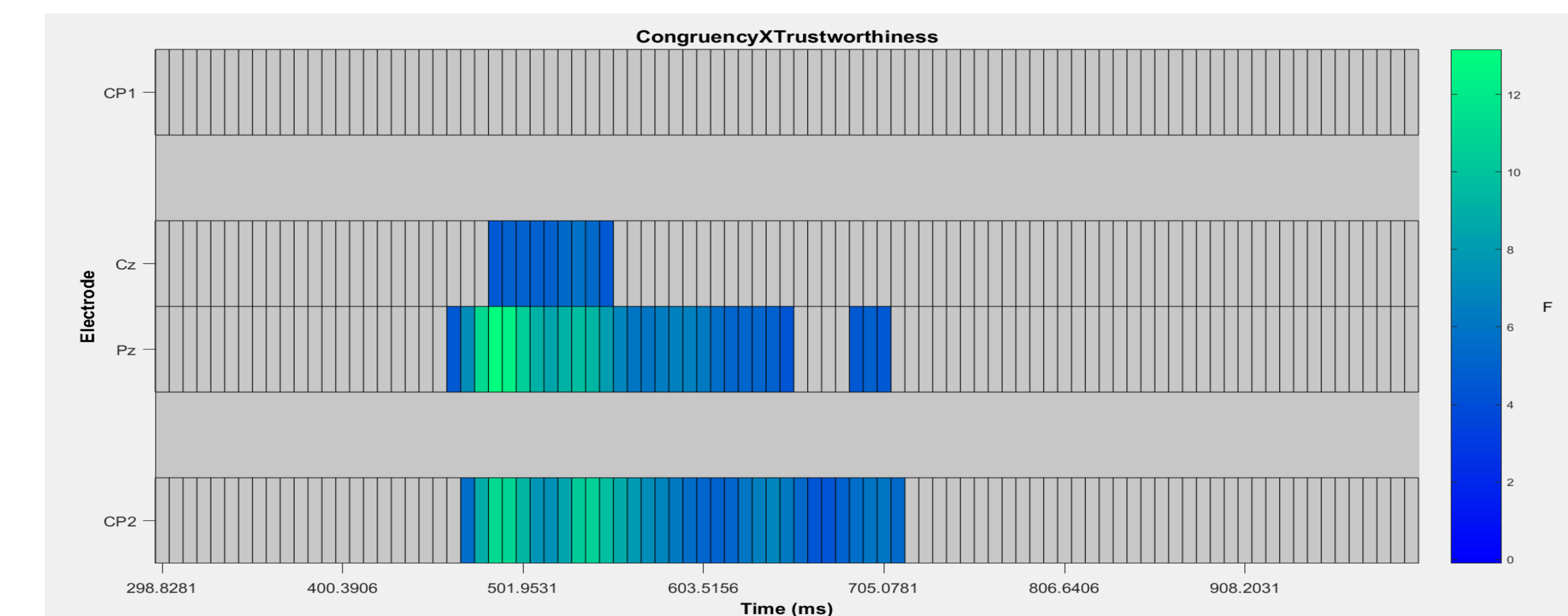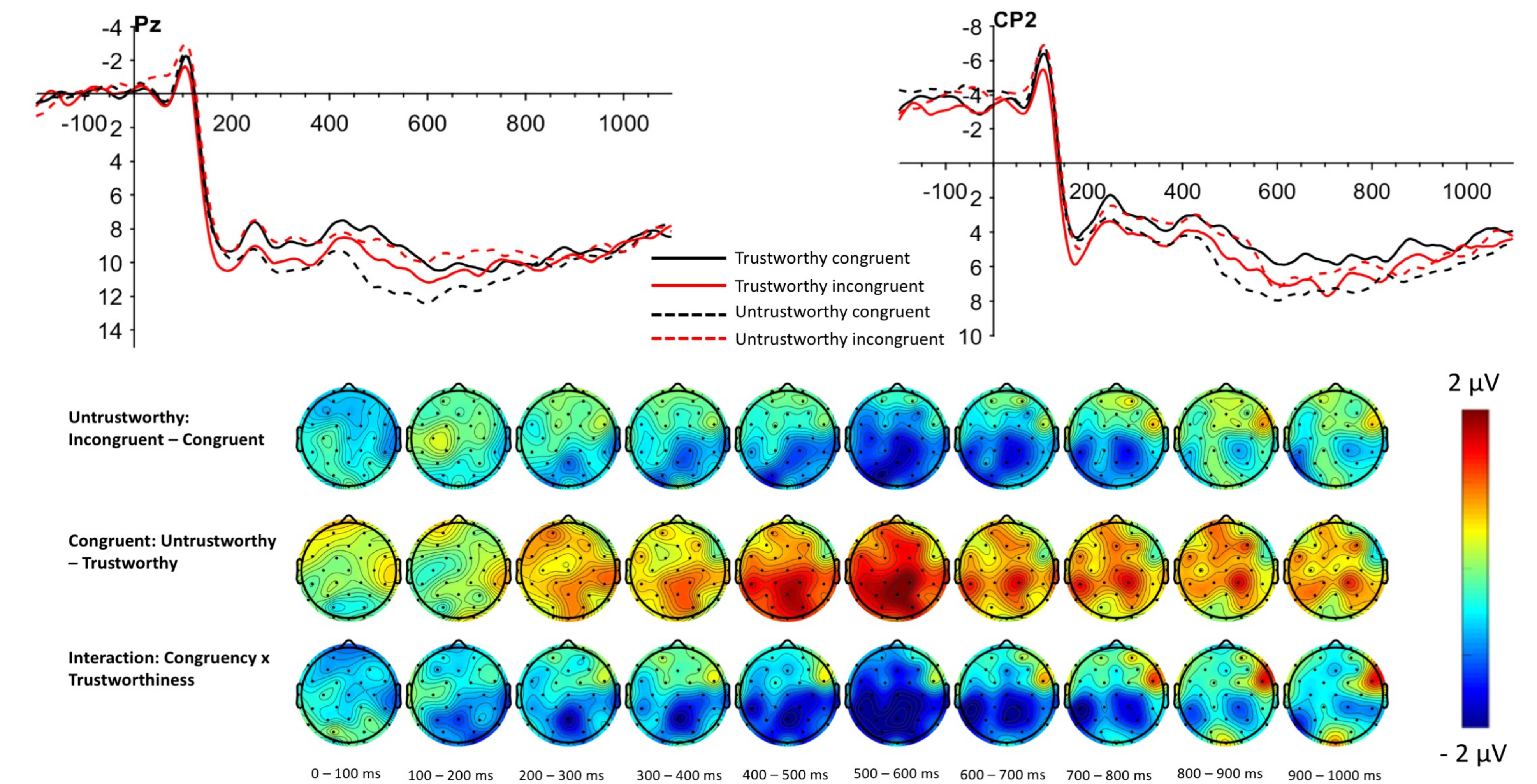Face: 1000ms

Procedure

- **Experiment 1:** Read and comprehend each face-behavior pair during EEG recording (spontaneous impression formation)
- **Experiment 2:** "Would you approach this person?" (9-point scale; measuring impression formation)

Analyses

- ERP analysis: conducted via a cluster-corrected mass univariate approach (Groppe et al., 2011)
- Behavioral analysis: Congruity x Trustworthiness ANOVA on approach likelihood ratings

Behavioral Results

Congruent: Trustworthy face > Untrustworthy

Incongruent: Untrustworthy face > Trustworthy

ERP Results

Trustworthy congruent
Trustworthy incongruent
Untrustworthy congruent
Untrustworthy incongruent

Untrustworthy: Incongruent – Congruent
Congruent: Untrustworthy – Trustworthy
Interaction: Congruency x Trustworthiness

0 – 100 ms | 100 – 200 ms | 200 – 300 ms | 300 – 400 ms | 400 – 500 ms | 500 – 600 ms | 600 – 700 ms | 700 – 800 ms | 800 – 900 ms | 900 – 1000 ms

2 µV / - 2 µV

CongruencyXTrustworthiness

Discussion

- The most negative appearance-behavior pairs (untrustworthy faces paired with negative behaviors) evoked the largest late positive potential (LPP).
  - Potentially reflects the attentional prioritization of negative social cues
- Behaviorally, most negative impressions of the most negative appearance-behavior pairs
  - Reflects negative cues weighing heavily into impressions in tandem, suggesting their high salience.

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