

Introduction

Emotional experiences are triggered by signals from multiple sensory modalities that can be either affectively congruent or incongruent. However, which brain regions are involved in distinguishing between affectively congruent and incongruent content across different modalities and how these regions relate to those linked to general affective processing are still unclear.

Methods

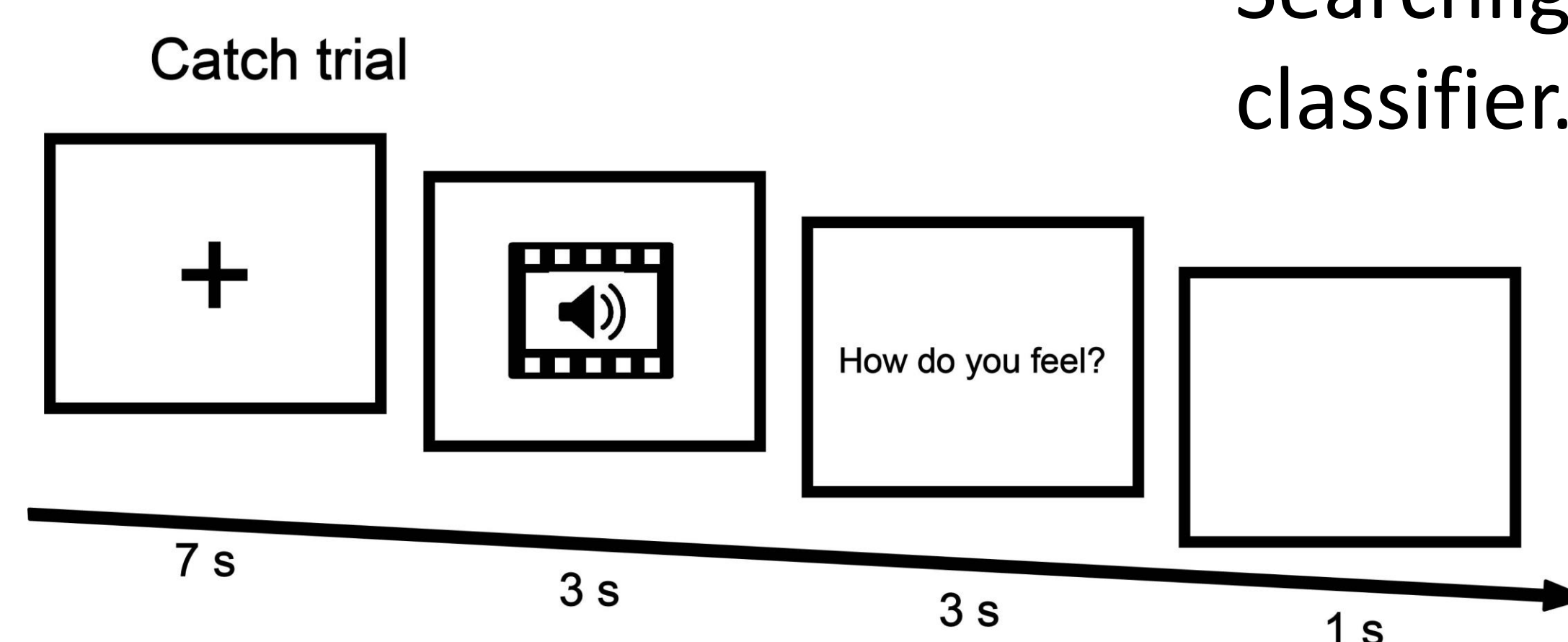
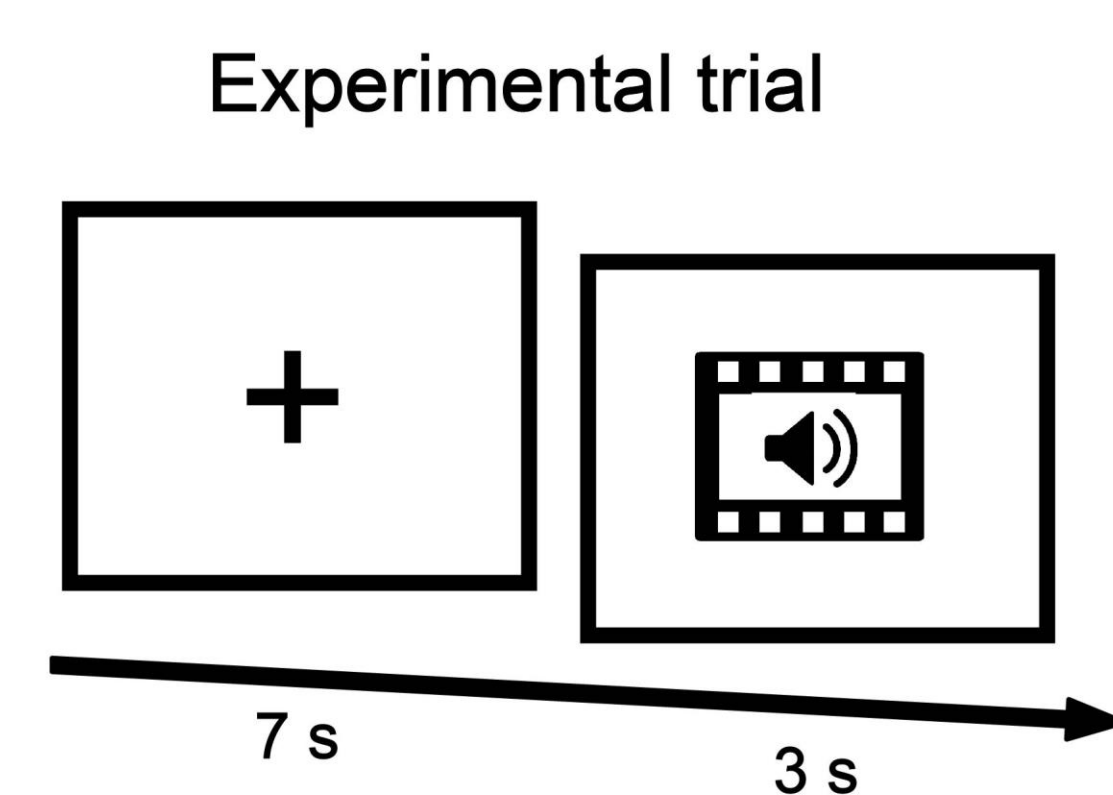
Participants

Twenty-one health, right-handed adult volunteers participated in the experiment. All had normal or corrected-to-normal vision and reported normal hearing.

Design

The experimental design crossed visual valence (positive, negative) with auditory valence (positive, negative), producing four audiovisual conditions.

Procedure



Classification analyses:
Gaussian Naïve Bayes (GNB)
classifier. Feature selected 400
voxels.

Searchlight analyses: GNB
classifier. 5 x 5 x 5 voxels cube.

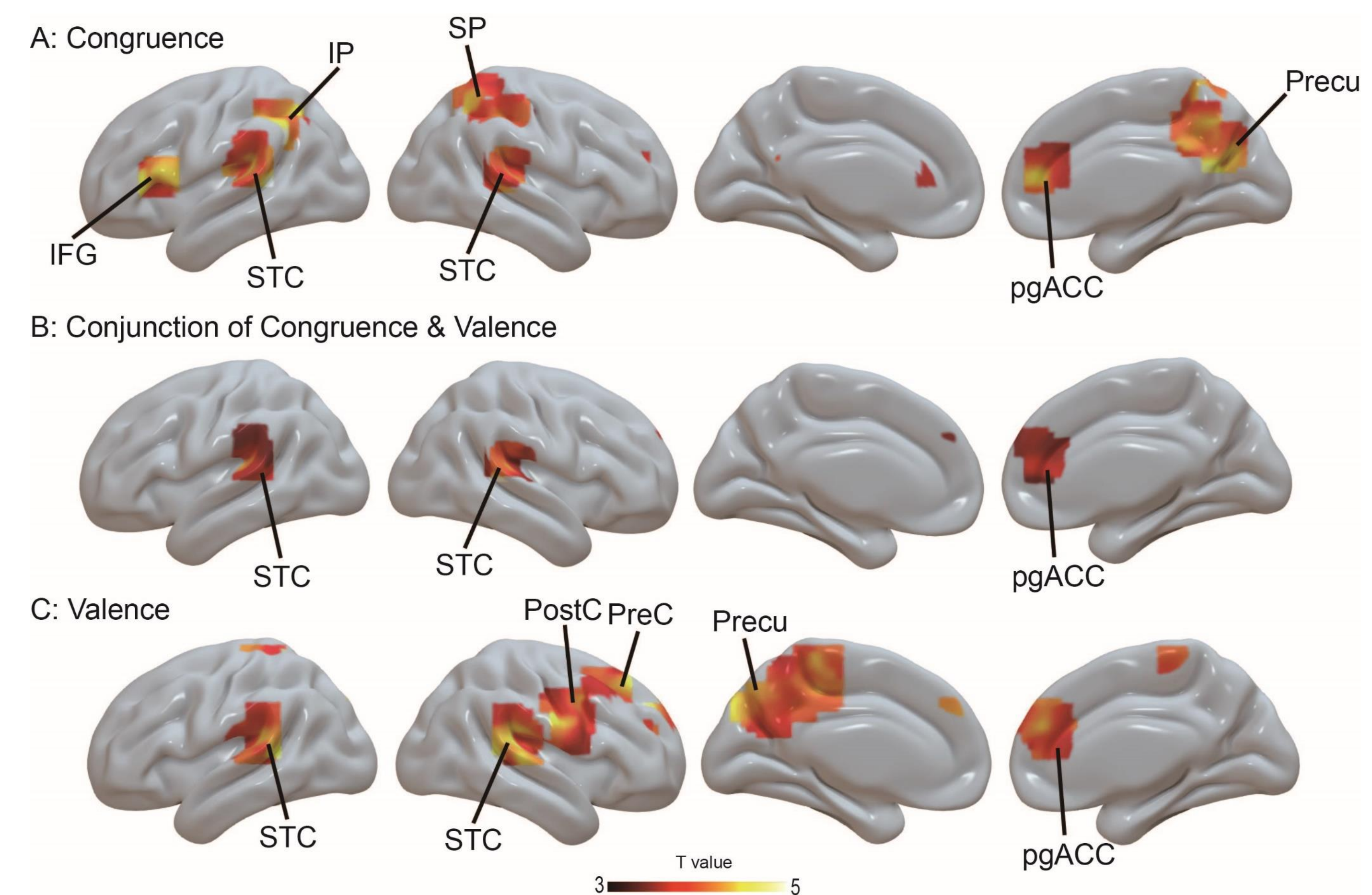
Results

Classification analyses

Identification of affective congruence across participants yielded average classification accuracy of 62.4% ($p < .05$), with the accuracies ranging from 52.8% to 72.2%.

Identification of valence across participants yielded average classification accuracy of 73.7% ($p < .05$), with the accuracies ranging from 55.6% to 81.9%.

Searchlight analyses



Summary

We were able to identify individual trials as affective congruent or incongruent across participants based on whole brain activity patterns. Affective congruence is represented in a distributed neural system. This network overlaps with neural representations of valence in STC and pgACC.

References

[1] Gao, C., Weber, C., Wedell, D., & Shinkareva, S.V. An fMRI Study of Affective Congruence across Visual and Auditory Modalities. *Journal of Cognitive Neuroscience, In Press.*