

# Localization and functional connectivity of face-selective regions in the human brain



J. Davies-Thompson & T.J. Andrews

York Neuroimaging Centre  
THE UNIVERSITY of York

## Introduction

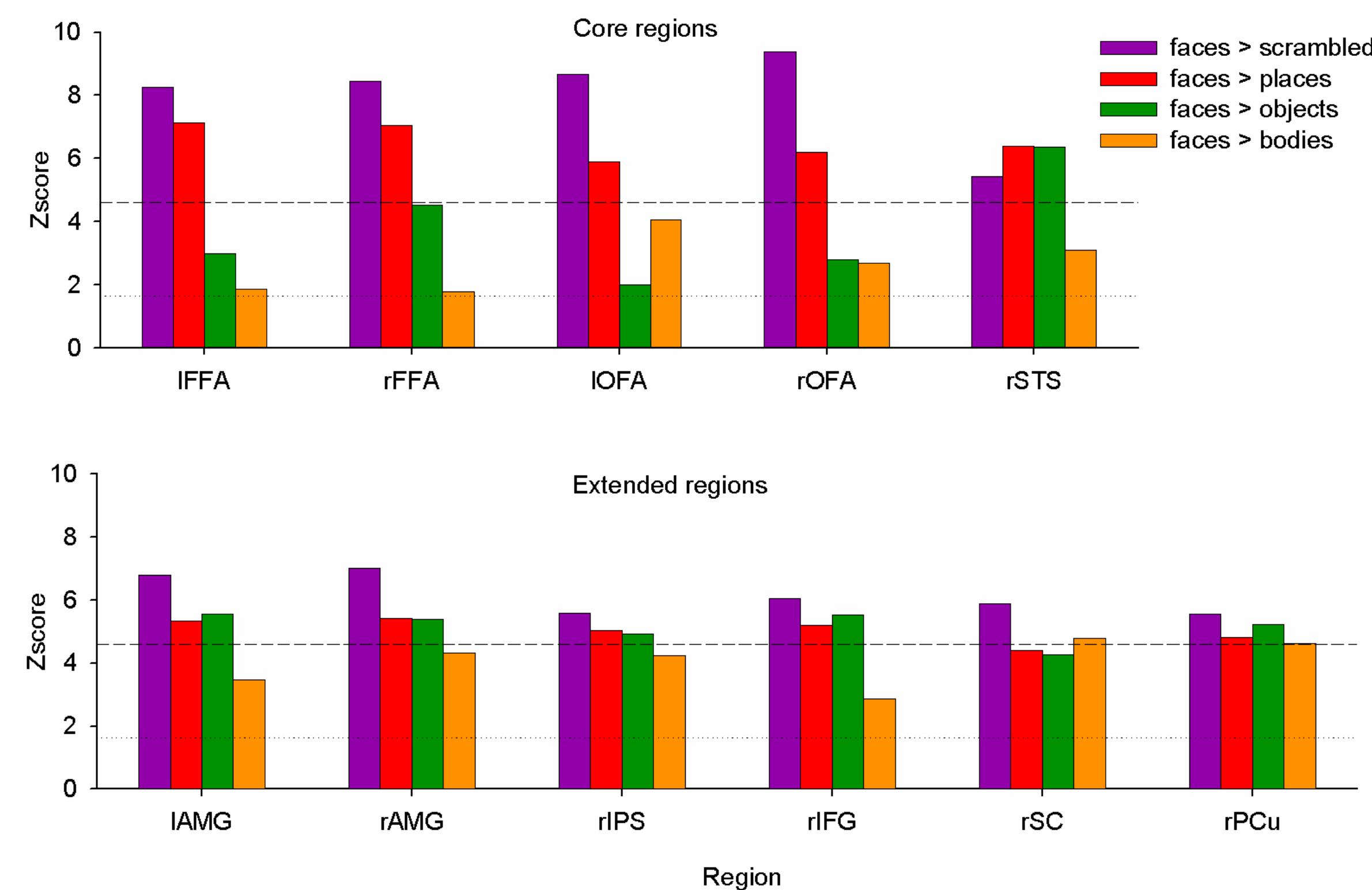
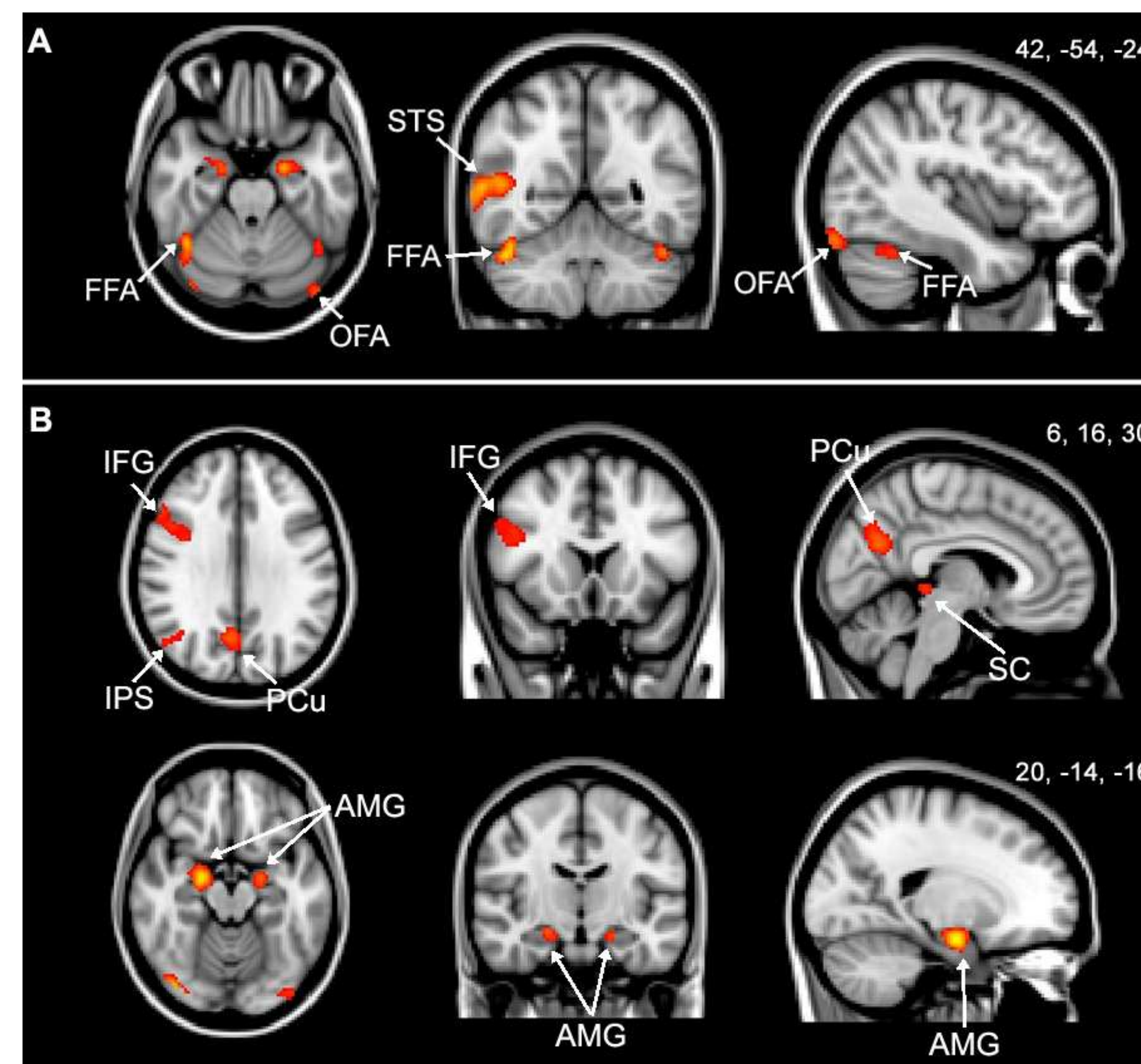
Neuroimaging studies have revealed a number of regions in the human brain that respond to faces. However, the way these regions are defined and how they interact is a matter of current debate. We used fMRI to define face-selective regions in the human brain by comparing the response to faces with the response to a range of non-face images. We then used functional connectivity to determine how these face-selective regions interact.

## Stimuli



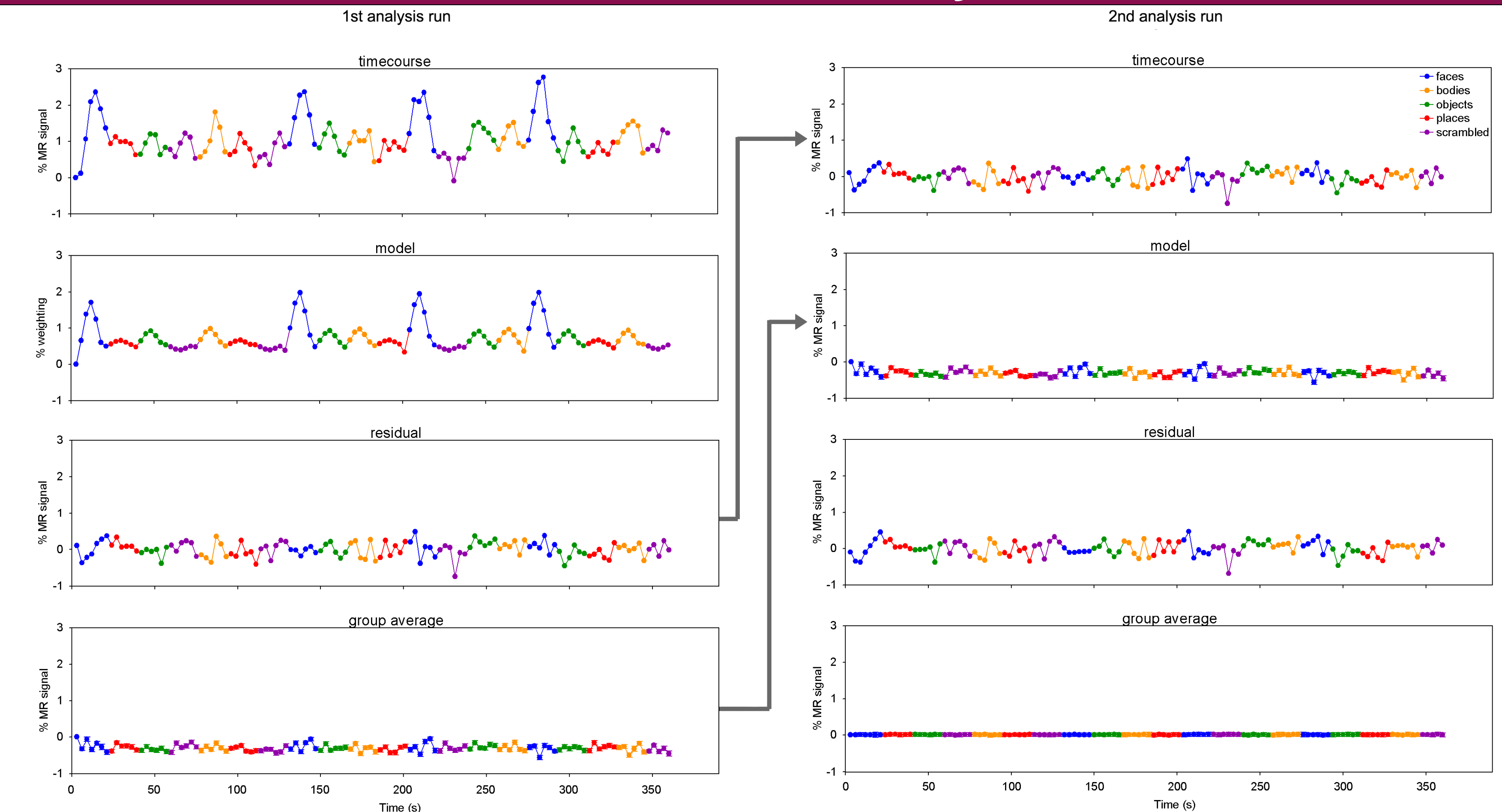
- 72 subjects (44 females; mean age, 25)
- Carried out using a GE 3 Tesla HD Excite MRI scanner at the York Neuroimaging centre
- Data collected from 38 axial slices (TR 3s, TE=25ms, slice thickness 3 mm)
- 10 images from each stimulus condition presented in a pseudo-randomised blocked-design
- Each condition repeated four times
- Subjects performed a red-dot detection task

## Localization

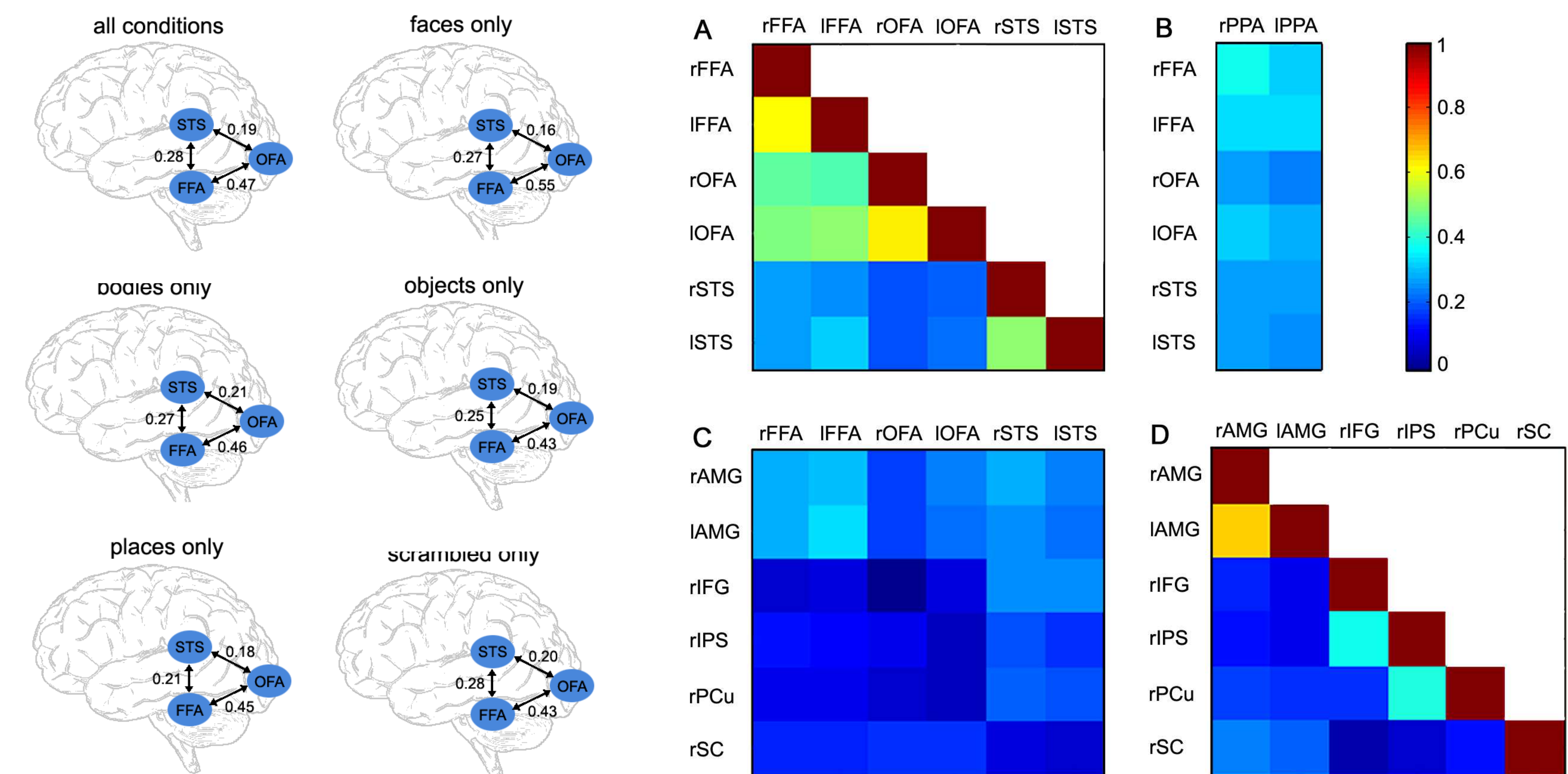


- The pattern of selectivity varied for each contrast
- Significant face-selectivity in the core face regions (FFA, OFA, STS)
- Face-selectivity was also evident in the amygdala, inferior frontal gyrus, intraparietal sulcus, precuneus, and superior colliculus

## Functional connectivity: Methods



## Functional connectivity: Results



- Significant functional connectivity between the OFA and FFA
- No evidence for functional connectivity between OFA and STS, or FFA and STS
- Higher connectivity between corresponding face-selective regions in different hemispheres than within a hemisphere

## Conclusions

- Evidence for functional connectivity between the OFA and FFA
- Contrary to models of face processing, no significant face-selective functional connectivity between the OFA or FFA and the STS
- Inter-hemispheric connections between corresponding face-selective regions may play an important role in face processing