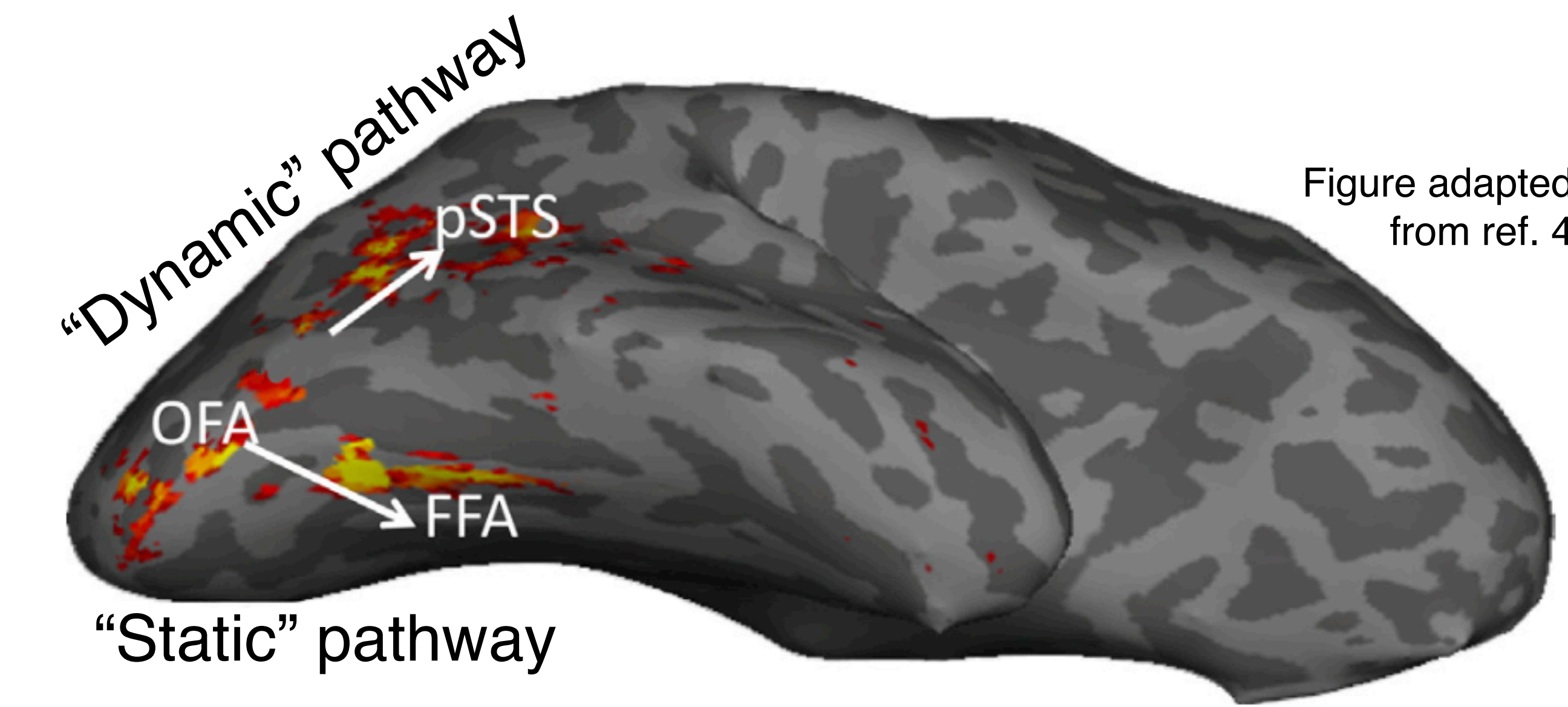


Dissociable cortical networks for dynamic and static face processing emerge early in childhood

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Introduction

Two face processing systems in adulthood^{1,2,3,4}:



How does this division of labor develop?

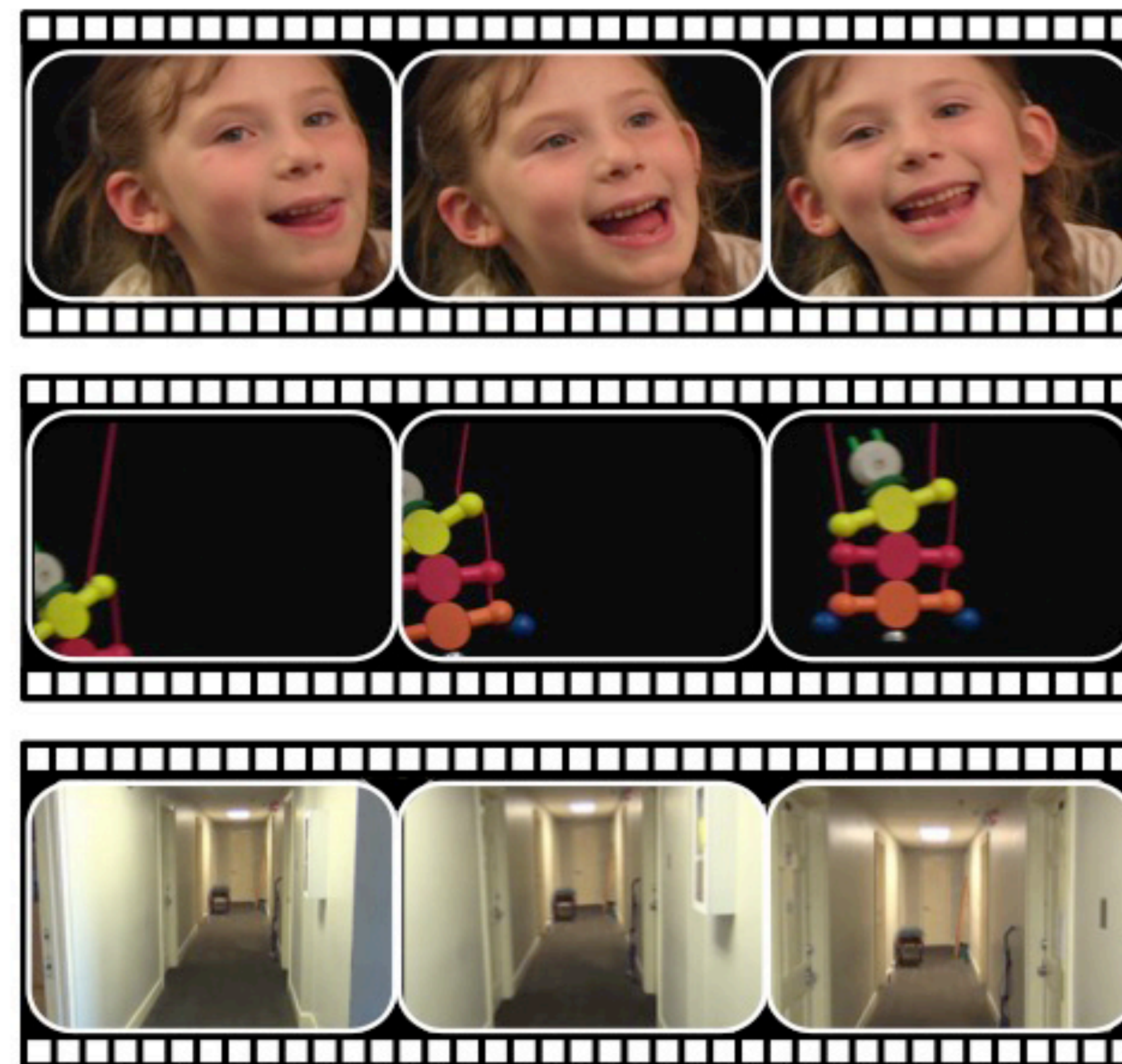
Methods

Participants

5 year olds (N=16)
8 year olds (N=16)

Conditions

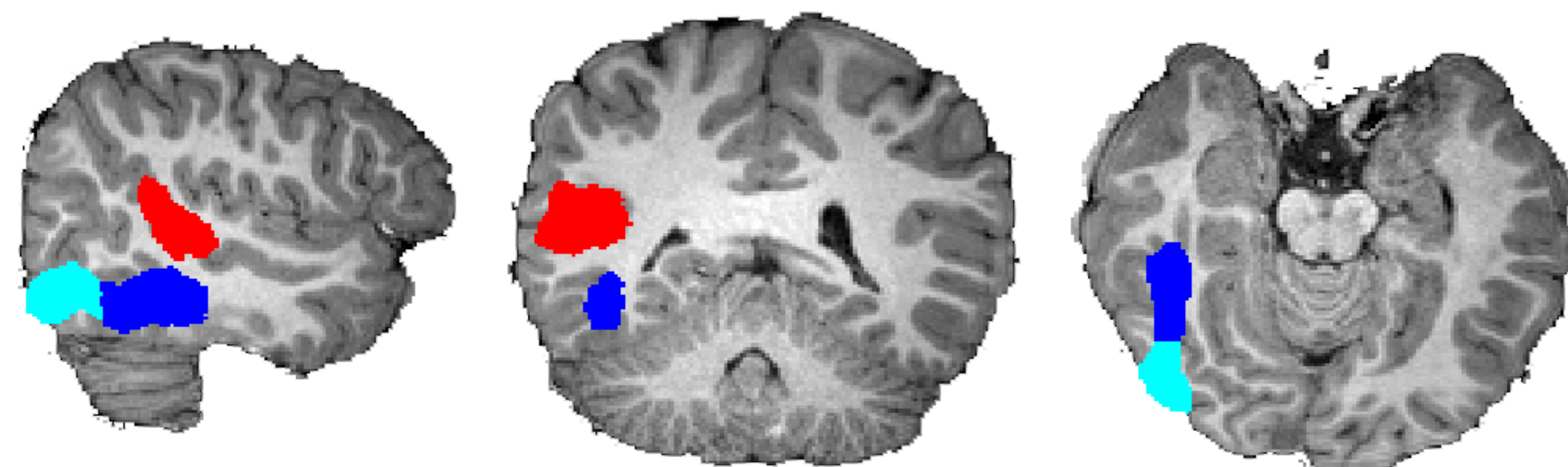
Dynamic videos (3s) and static images (3, 1s clips) of faces, objects, and scenes



Regions of interest

Top 10% of voxels within a *group defined parcel*⁵ responding to Dynamic Faces > Dynamic Objects. Voxels defined using half of data, responses tested in left out, independent data; averaged results of all possible permutations of runs.

Method reduces ambiguity in ROI definition and allows ROIs to be defined in all participants, regardless of developmental stage



rpSTS rFFA rOFA (parcels in an example 5 year old)

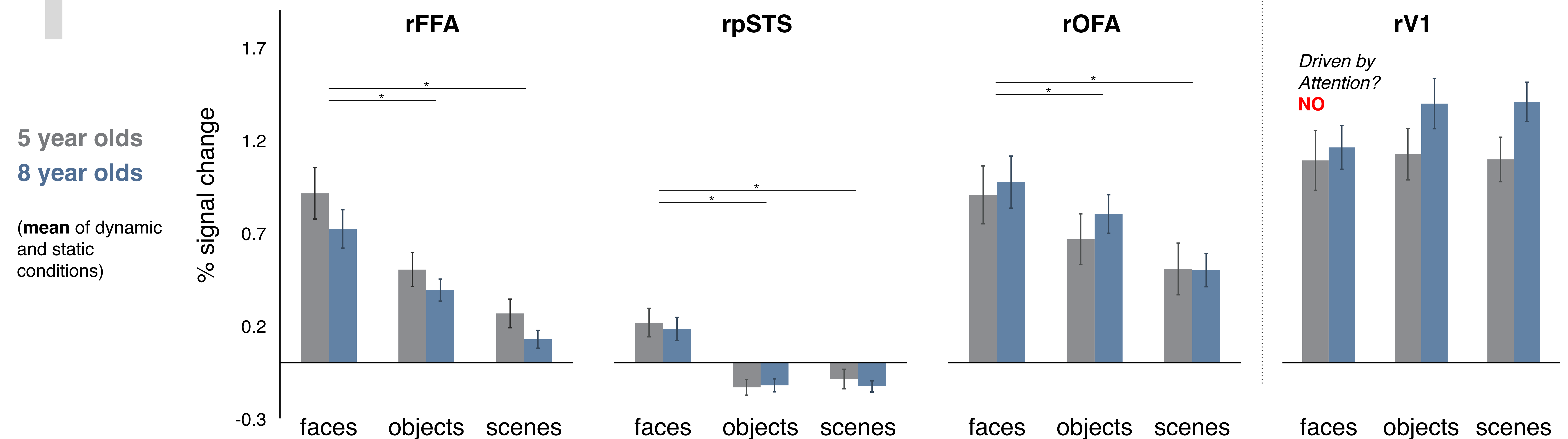
Data quality control

Participants were included only if they completed ≥ 2 runs where:

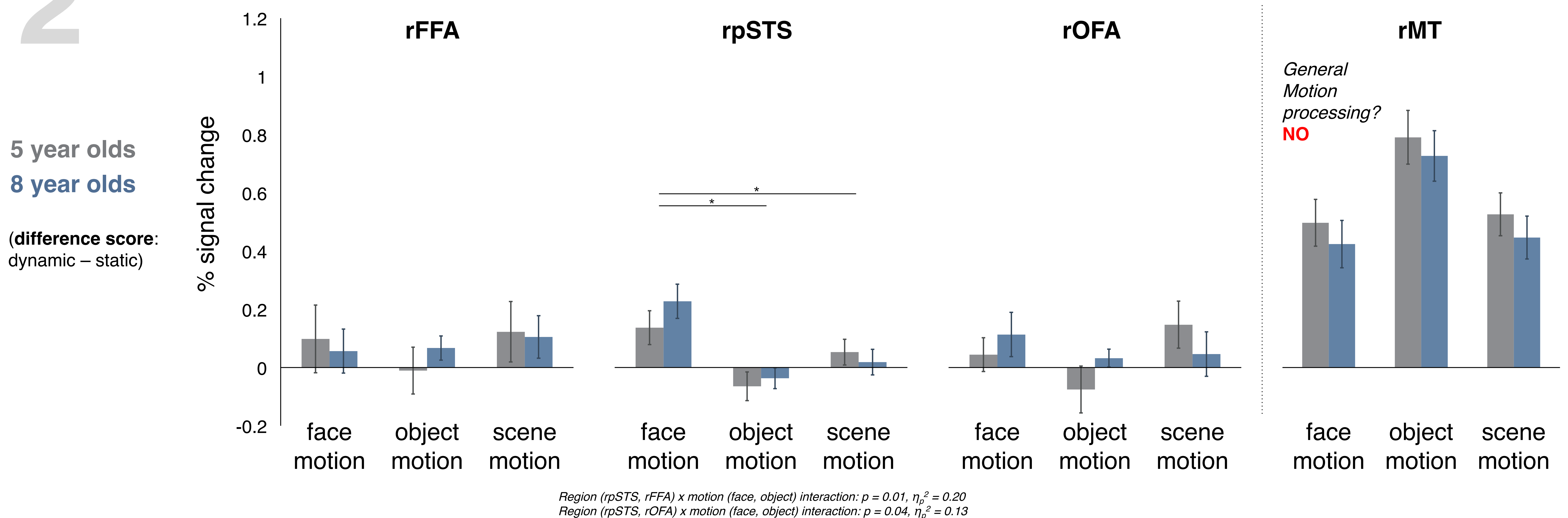
- Absolute head motion < voxel size
- V1 activation detected for all conditions > fixation

Results

1 Face selectivity is present throughout the “core” face network by 5 years old



2 rpSTS, but not rFFA or rOFA, responds selectively to face motion by 5 years old



Discussion

Face selectivity is present throughout the “core” face network by 5 years old, similar to 8 year olds

Dynamic and static face processing systems are dissociable by 5 years old, similar to 8 years old

Dissociable face networks therefore emerge sometime within the first few years of life

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