Psychosis in the frontal cortex

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Correspondence

The Value of Hyperalignment to Unpack Neural Heterogeneity in the Precision Psychiatry Movement

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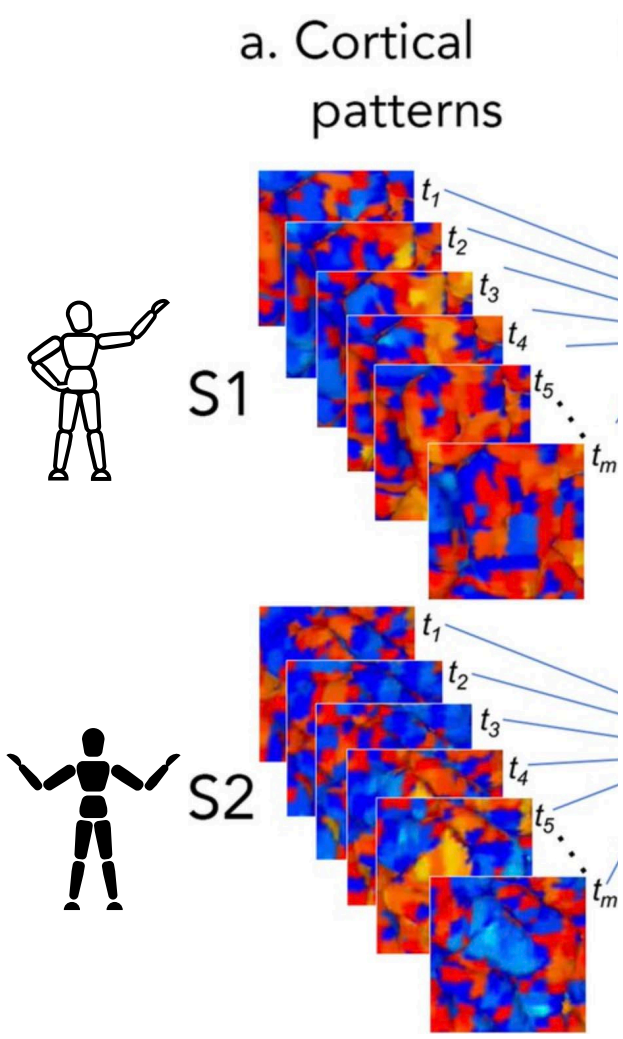
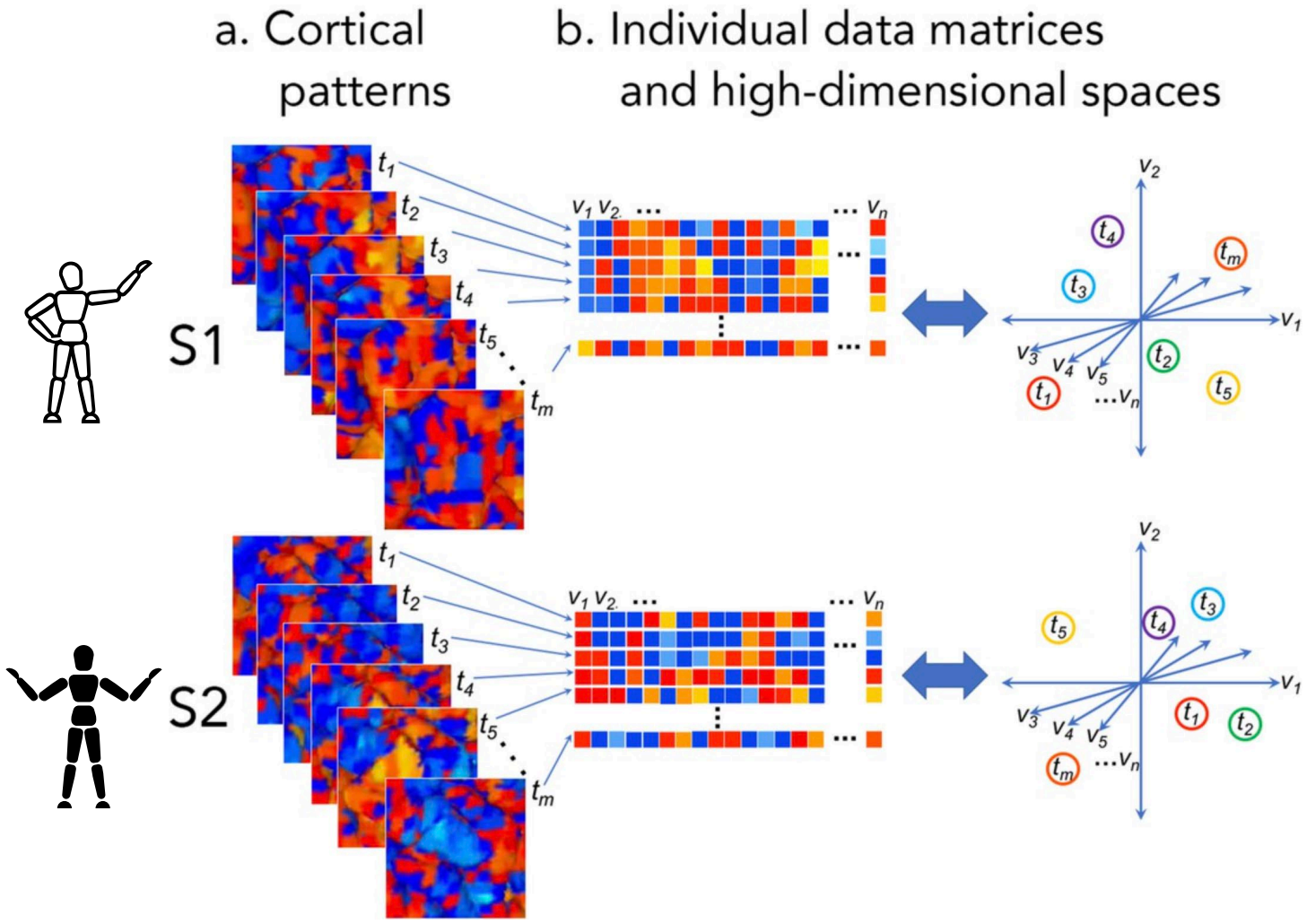
Hyperalignment in fMRI



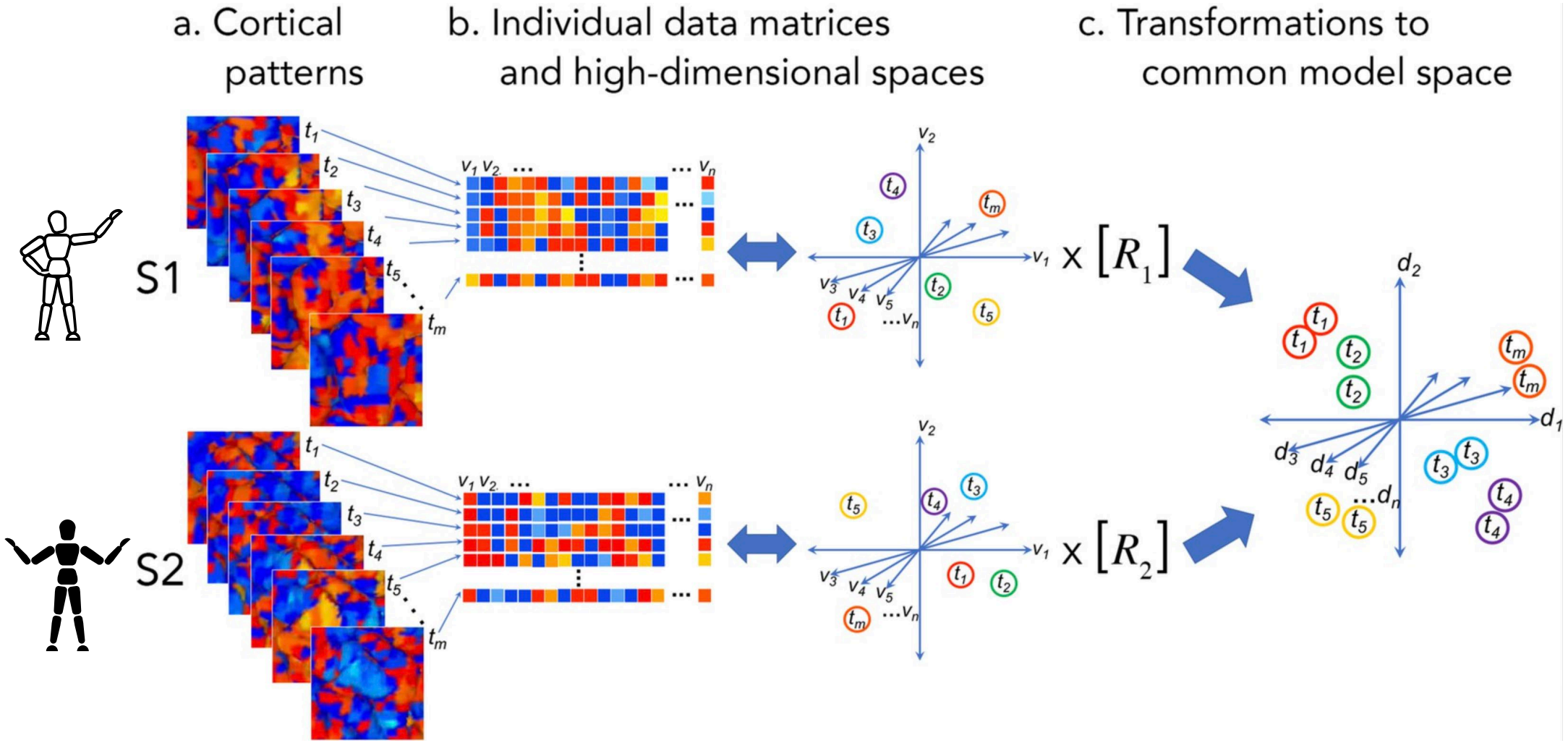
Haxby et al, 2020

Hyperalignment in fMRI



Haxby et al, 2020

Hyperalignment in fMRI



Haxby et al, 2020

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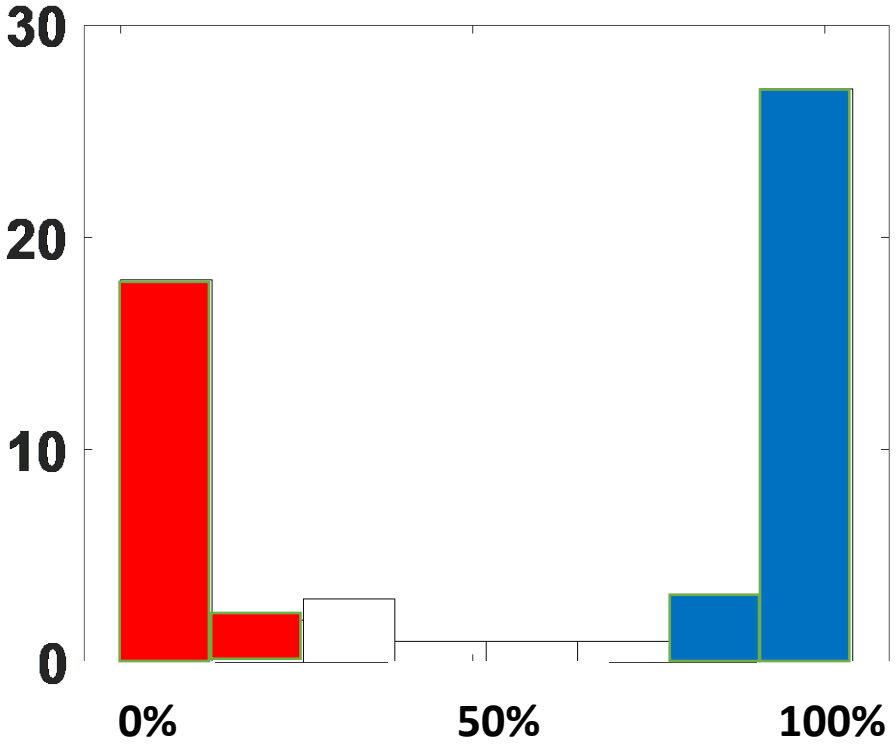
Northwestern University

How accurately could we predict psychosis?

- Unaligned data: 66.5% accuracy ($p<0.001$)

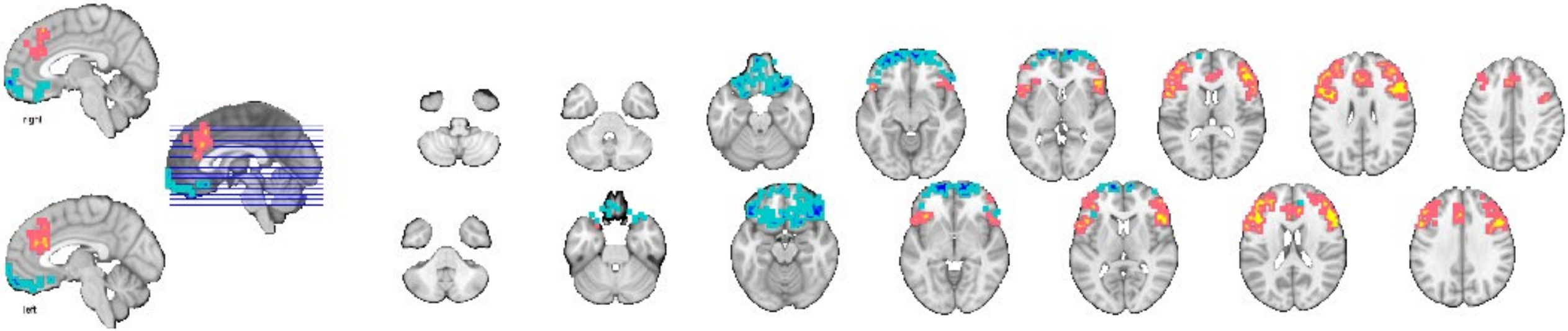
- Hyperaligned data: 65.9% accuracy….. ($p<0.001$)

# of individuals with psychosis

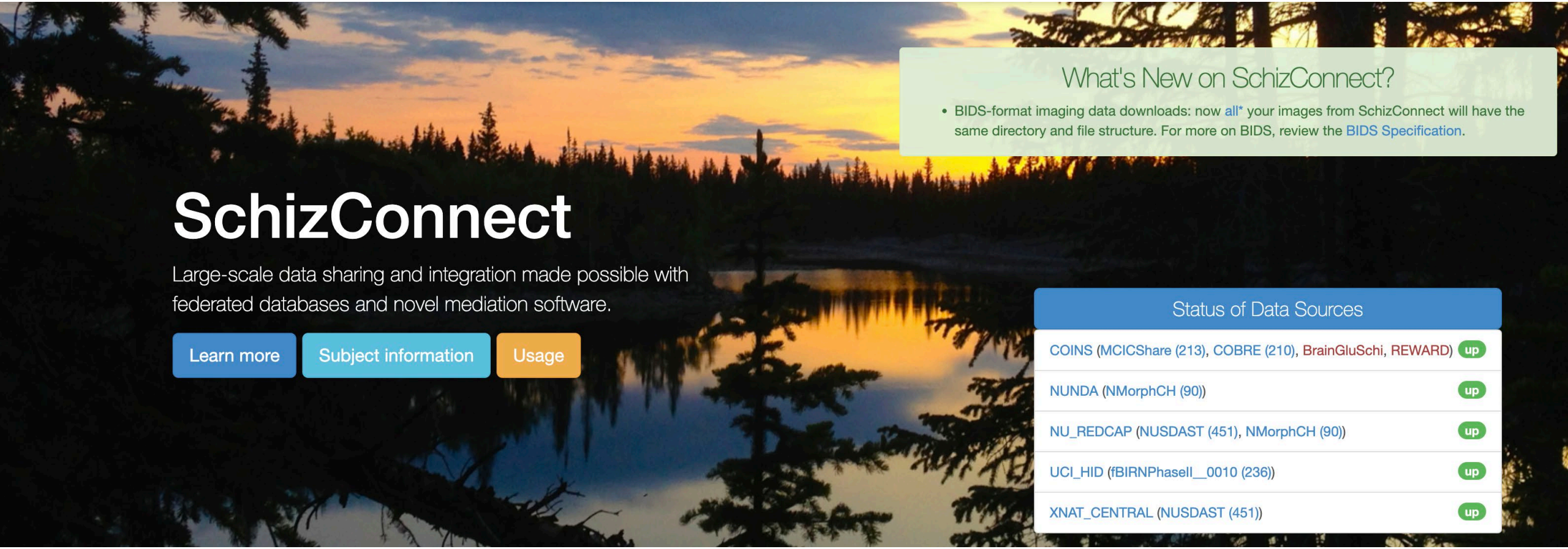


Contrast rotation estimates of individuals who were predicted accurately - inaccurately

t-statistics that pass FDR<0.05 threshold, cluster threshold>50 voxels



Thank you!



SchizConnect

Large-scale data sharing and integration made possible with federated databases and novel mediation software.

Learn more | Subject information | Usage

What's New on SchizConnect?

- BIDS-format imaging data downloads: now all* your images from SchizConnect will have the same directory and file structure. For more on BIDS, review the BIDS Specification.

Status of Data Sources

COINS (MCICShare (213), COBRE (210), BrainGluSchi, REWARD)	up
NUNDA (NMorphCH (90))	up
NU_REDCAP (NUSDAST (451), NMorphCH (90))	up
UCI_HID (fBIRNPhaseII__0010 (236))	up
XNAT_CENTRAL (NUSDAST (451))	up

Bonus slides

Why is this different from traditional resting state connectivity analysis?

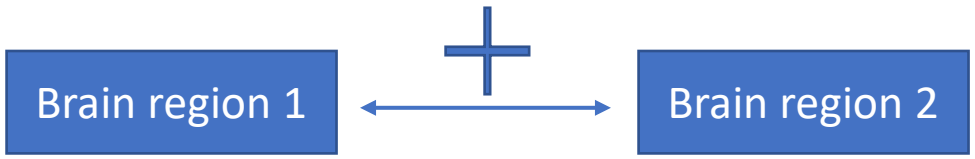
- Traditional analysis averages
  - Across smoothed voxels
  - Across individuals

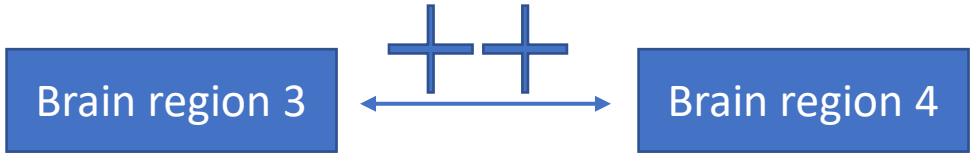
- Hyperalignment
  - Total distance across individual specific estimates of rotation
  - Look at group differences without sacrificing individual specific information

- Provides a more robust contrast for small samples

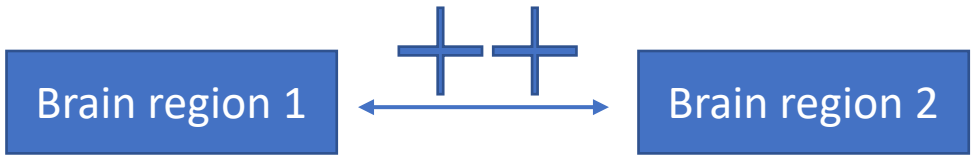
Traditional analysis

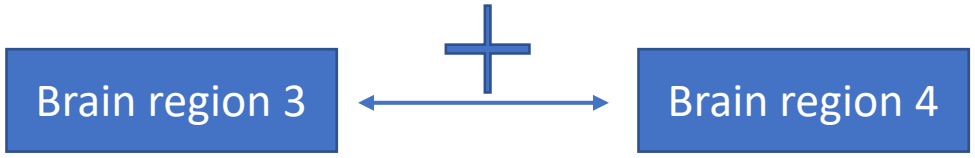
Group A



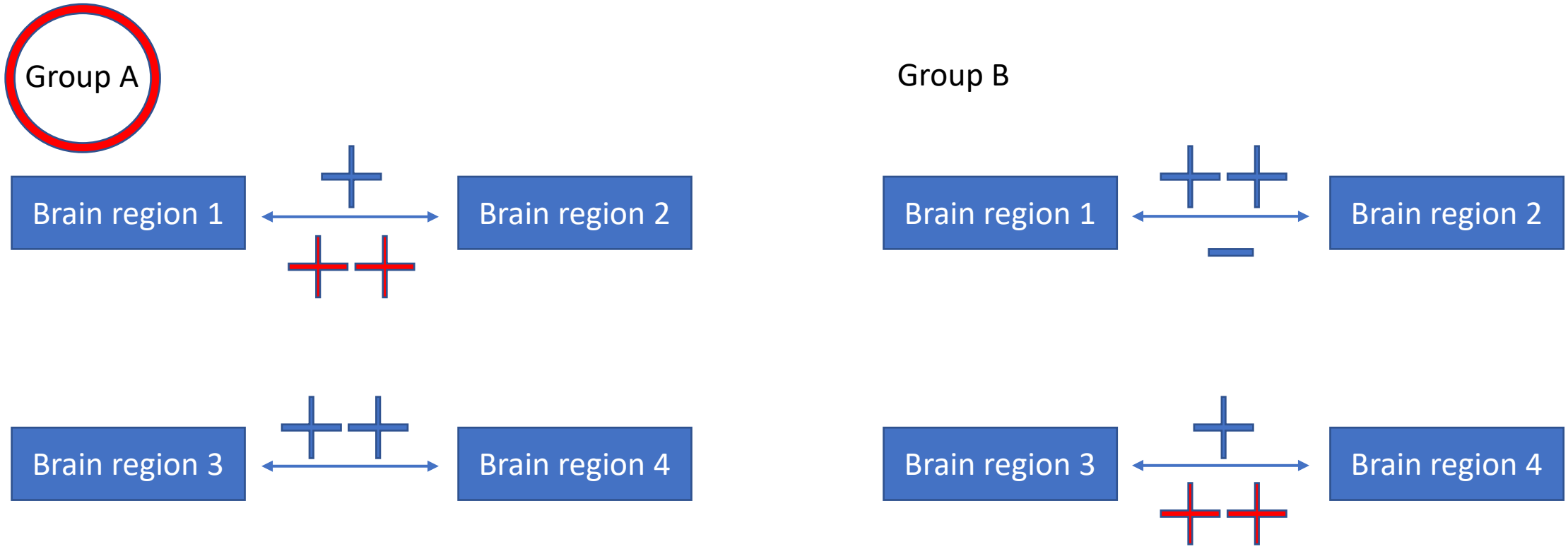


Group B

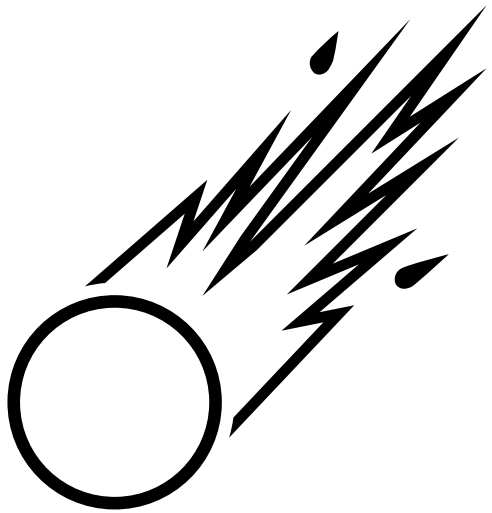


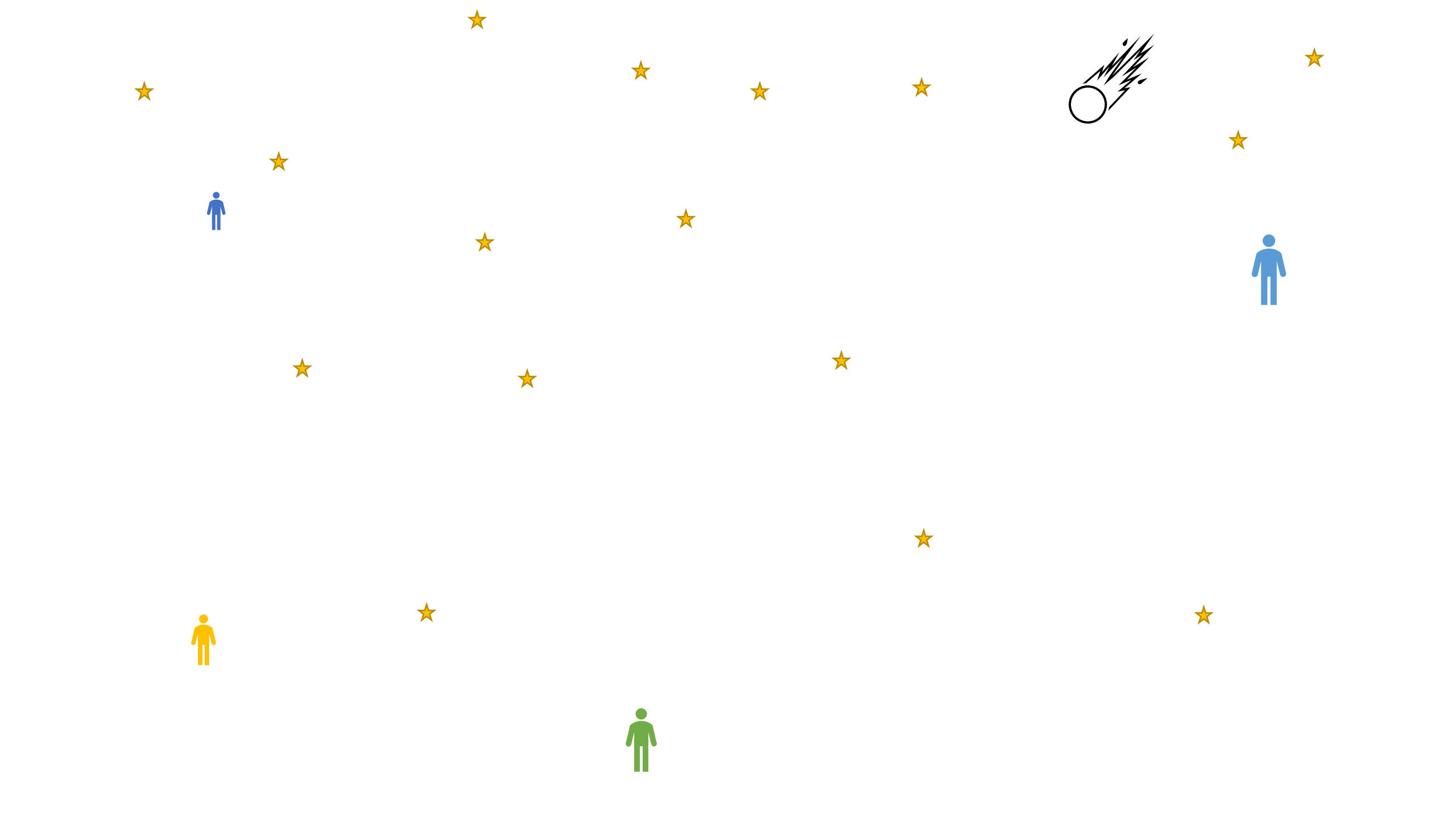


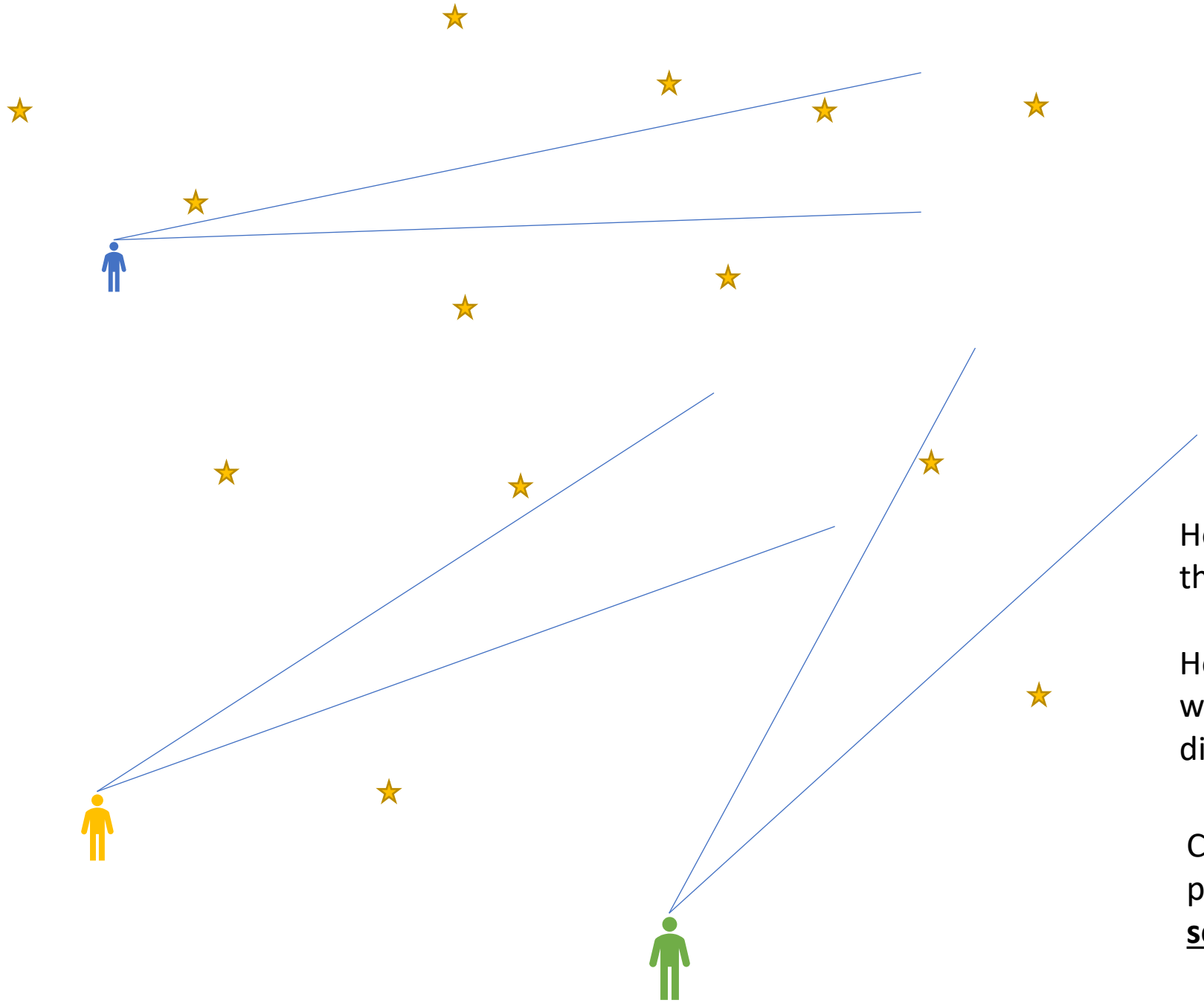
Hyperalignment rotation analysis

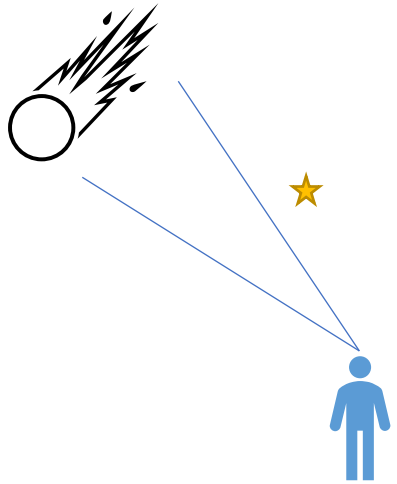


Separate out differences in the brain that are due to systematic versus individual differences





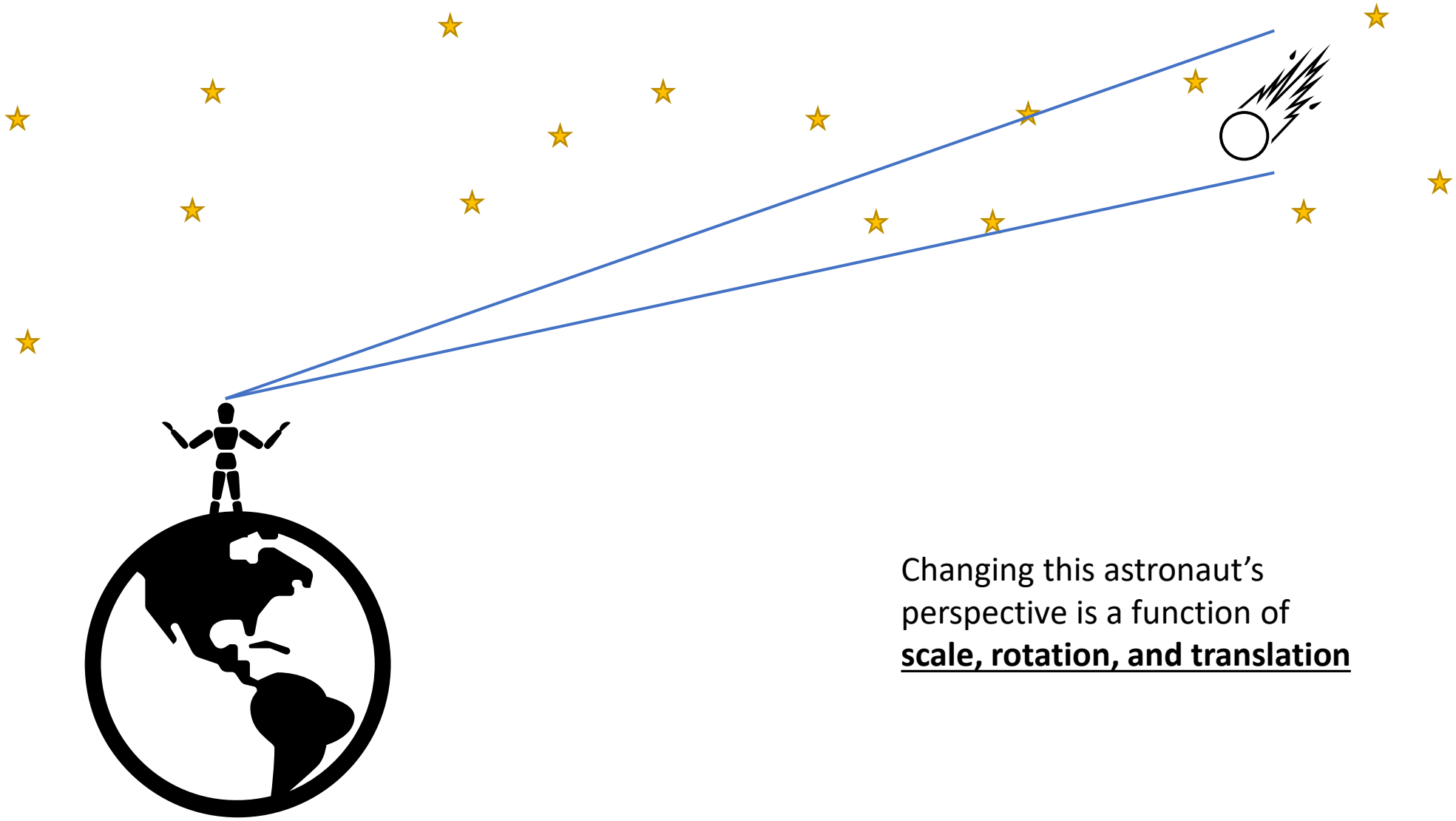




How do we determine where in the universe these people are?

How might we characterize the ways they might see the asteroid differently?

Changing this astronaut's perspective is a function of **<u>scale, rotation, and translation</u>**



Changing this astronaut's perspective is a function of **scale, rotation, and translation**