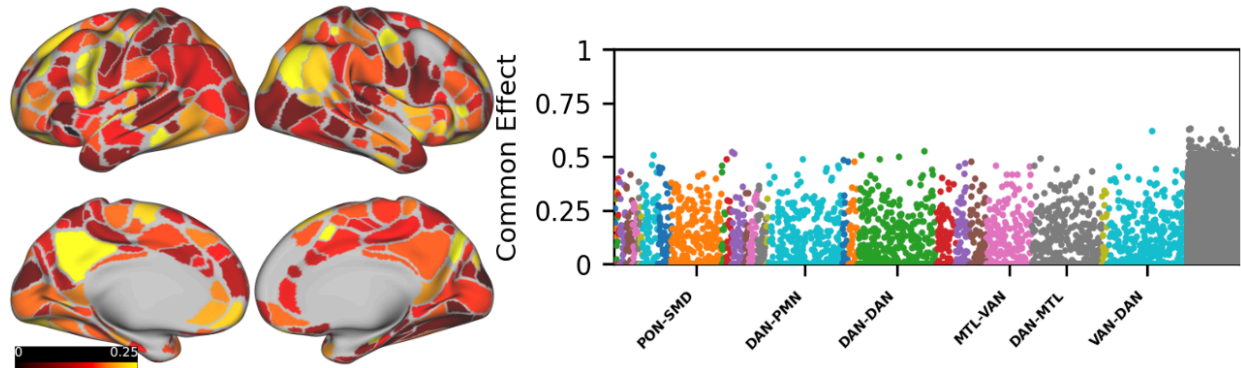


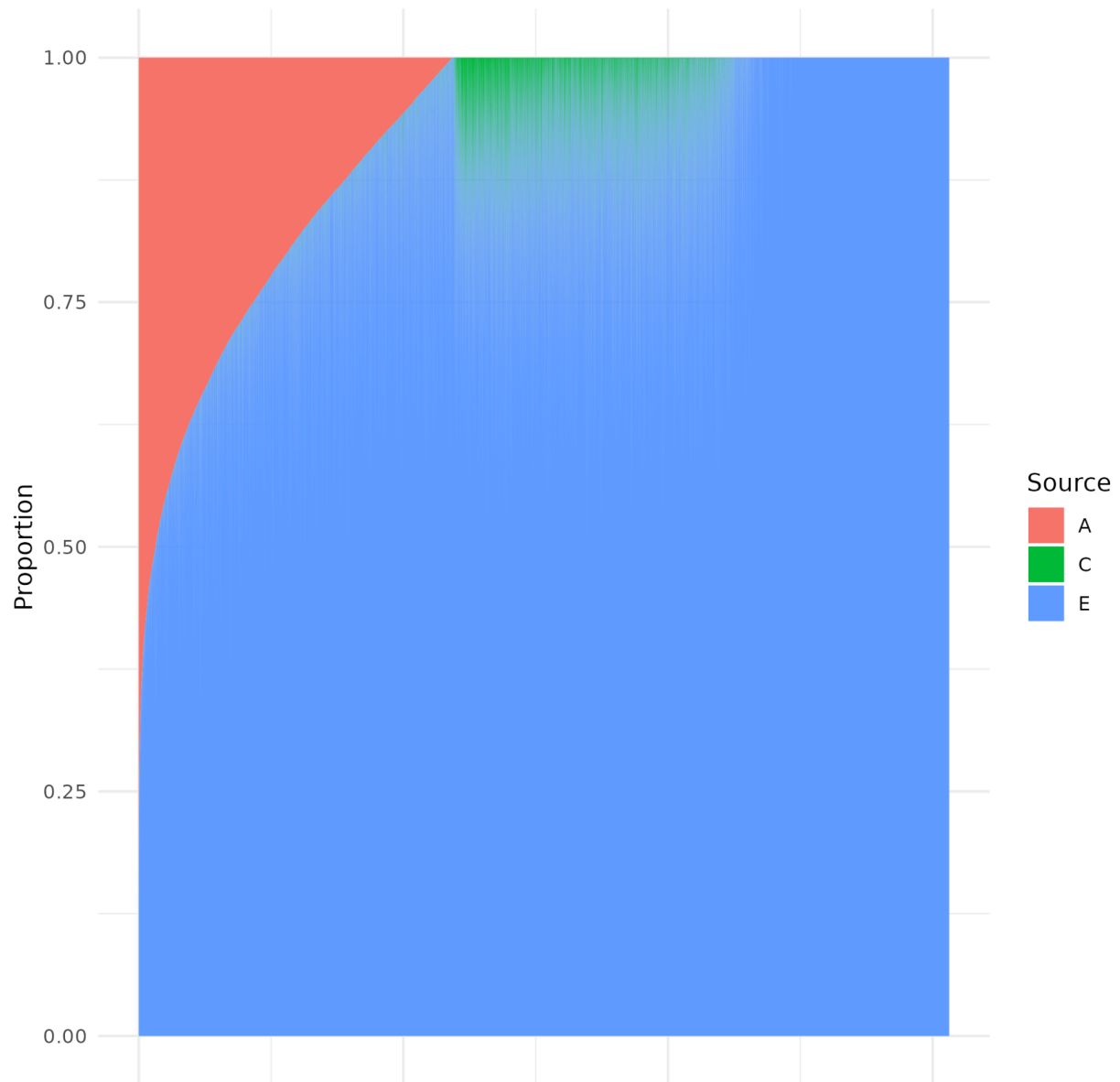
## Supplementary Information

### Common environment effect in Gordon FC



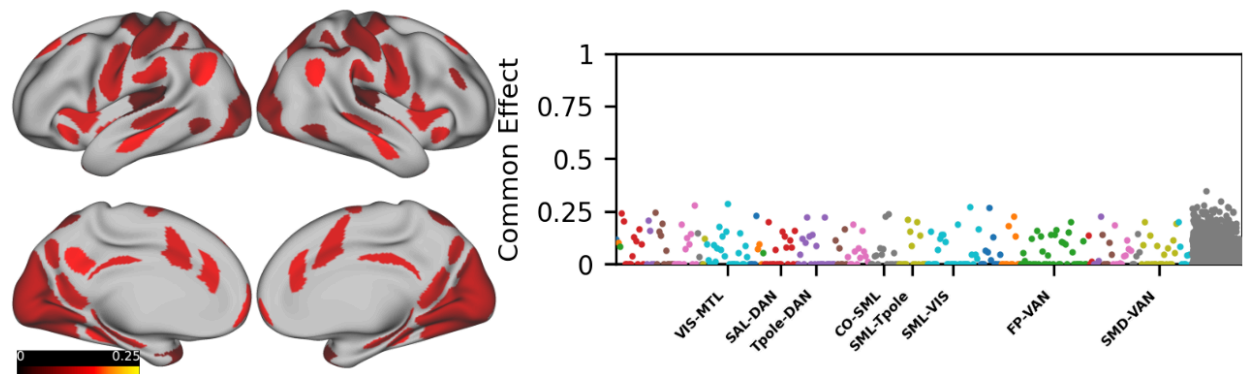
**Figure S1.** Left: ROI-wise projections of 90th percentile common effect estimate for Fisher z-transformed functional connectivity values between Gordon parcels, mapped onto the Conte69 inflated cortical surface. The color scale spans 0 to 25% heritability for consistency across figures. Both lateral (top) and medial (bottom) views are shown for each hemisphere. Right: Manhattan-style plot of heritability estimates, with edges grouped and color-coded by the resting-state networks of the connected ROIs. The y-axis spans the full range of possible heritabilities (0-1). Network-network pairs accounting for fewer than 1.5% of total ROI-ROI

connections are rescaled 100-fold on the x-axis and displayed in grey for clarity.



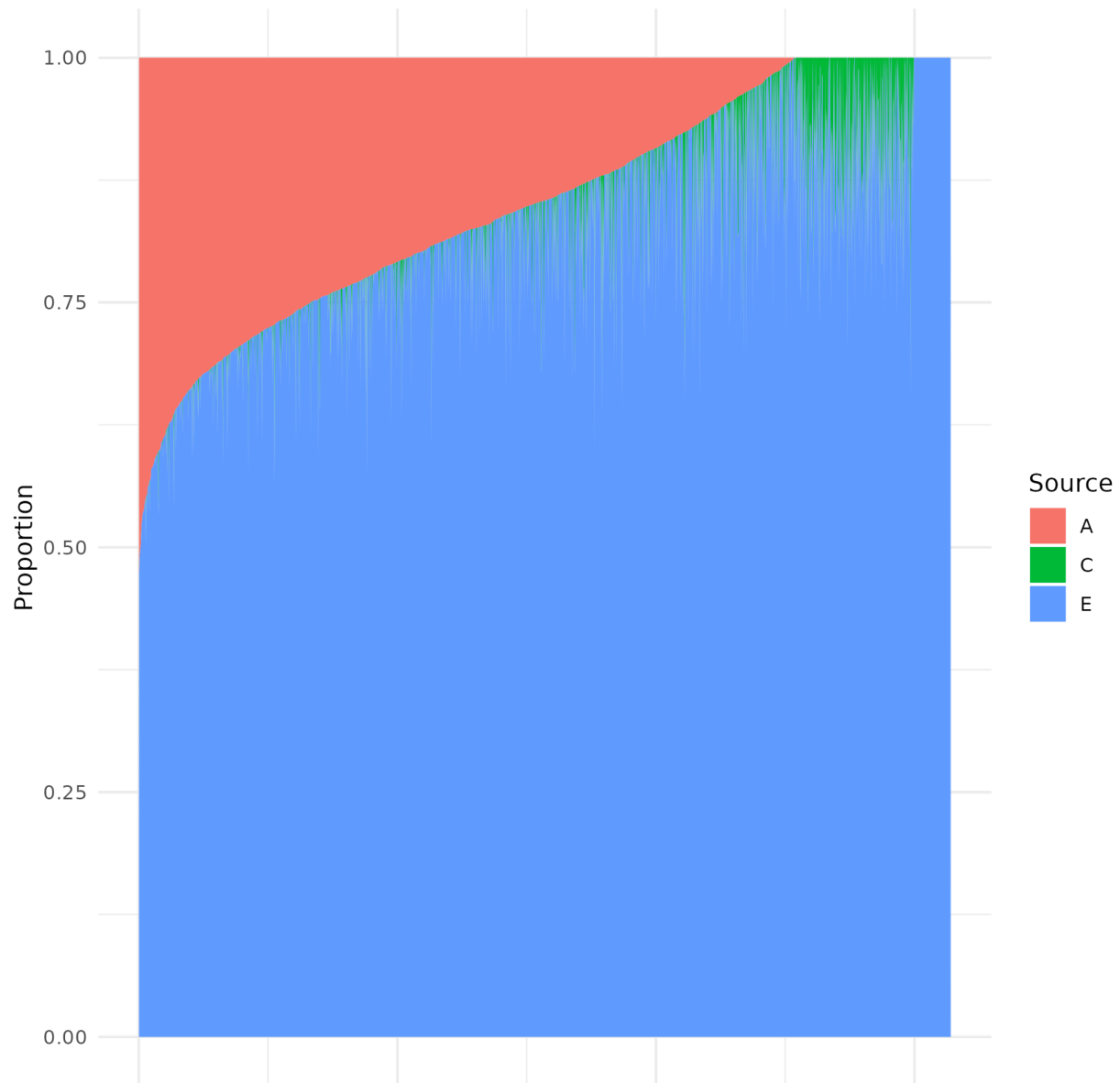
**Figure S2.** The relative contributions to the overall trait variance estimated by the ACE model for Gordon FC.

Common environment effect in MIDB Probabilistic FC



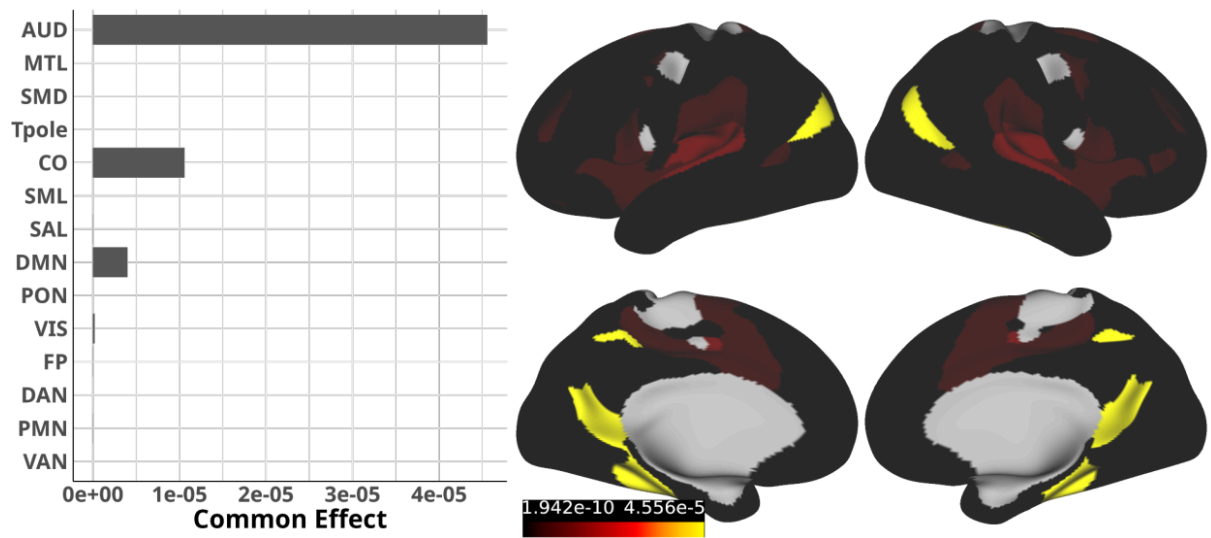
**Figure S3.** Left: ROI-wise projections of 90th percentile common effect estimate for Fisher z-transformed functional connectivity values between MIDB Probabilistic parcels, mapped onto the Conte69 inflated cortical surface. The color scale spans 0 to 0.25 heritability for consistency across figures. Both lateral (top) and medial (bottom) views are shown for each hemisphere. Right: Manhattan-style plot of heritability estimates, with edges grouped and color-coded by the resting-state networks of the connected ROIs. The y-axis spans the full range of possible heritabilities (0-1). Network-network pairs accounting for fewer than 1.5% of total ROI-ROI

connections are rescaled 100-fold on the x-axis and displayed in grey for clarit



**Figure S4.** The relative contributions to the overall trait variance estimated by the ACE model for MIDB probabilistic FC

## Common environment effect in functional topography



**Figure S5.** Common effect estimates for network surface area as calculated from the PFMs. (left) Results are ordered by the magnitude of the twin heritability estimate along the y-axis. (right) Surface area heritability of each PFM is projected onto the surface of the inflated Conte brain for SNP (top) and twin (bottom) estimates. The color scales are restricted to emphasize the small contribution. Estimates of exactly zero are omitted.