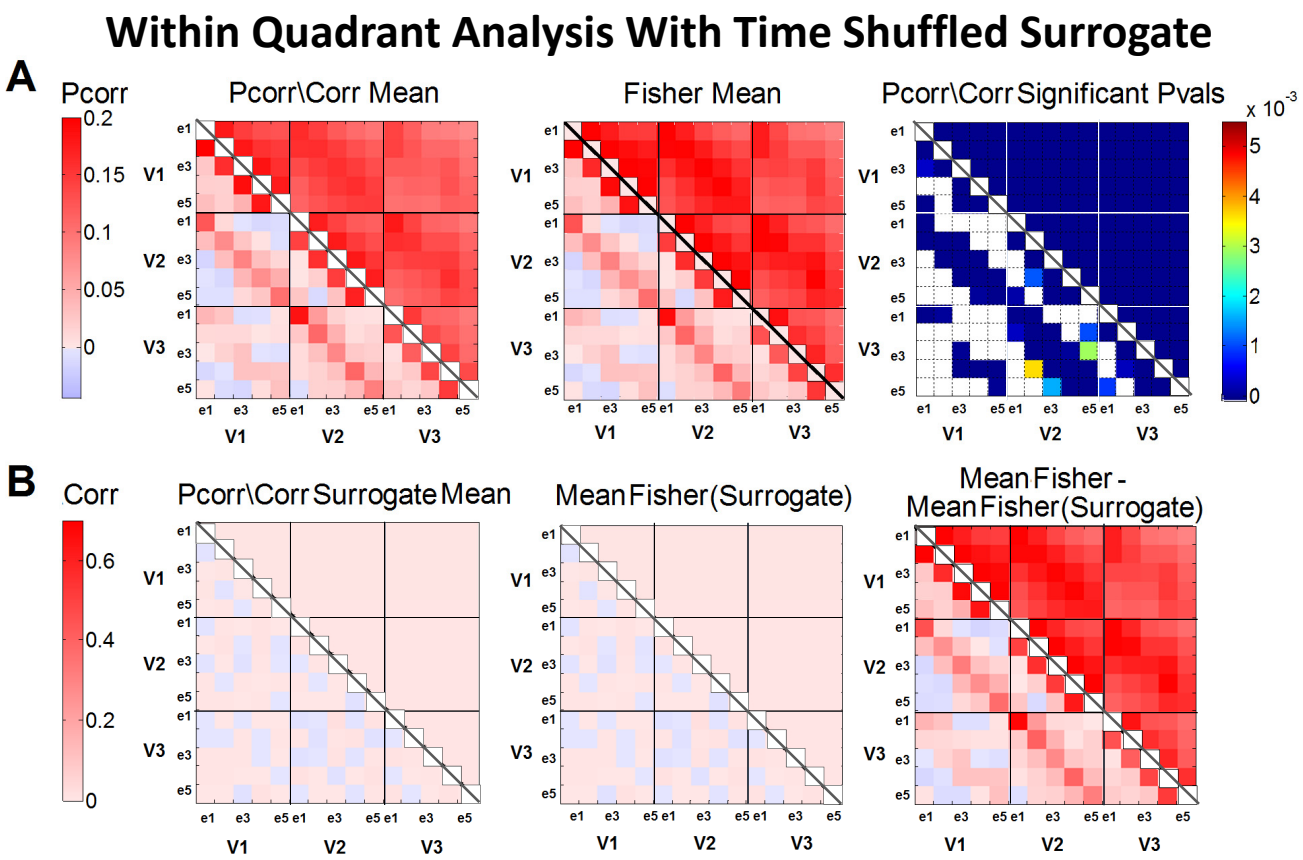
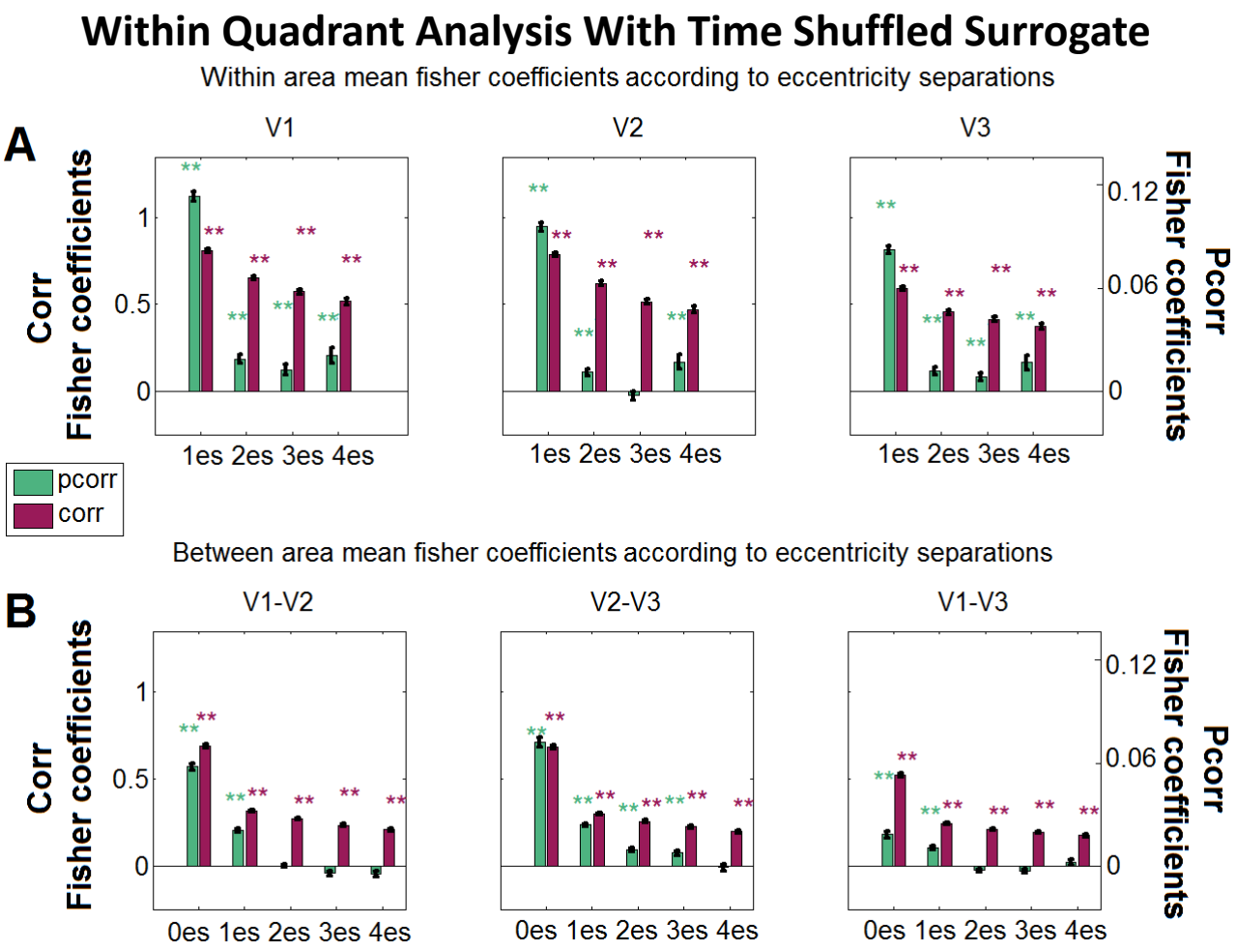
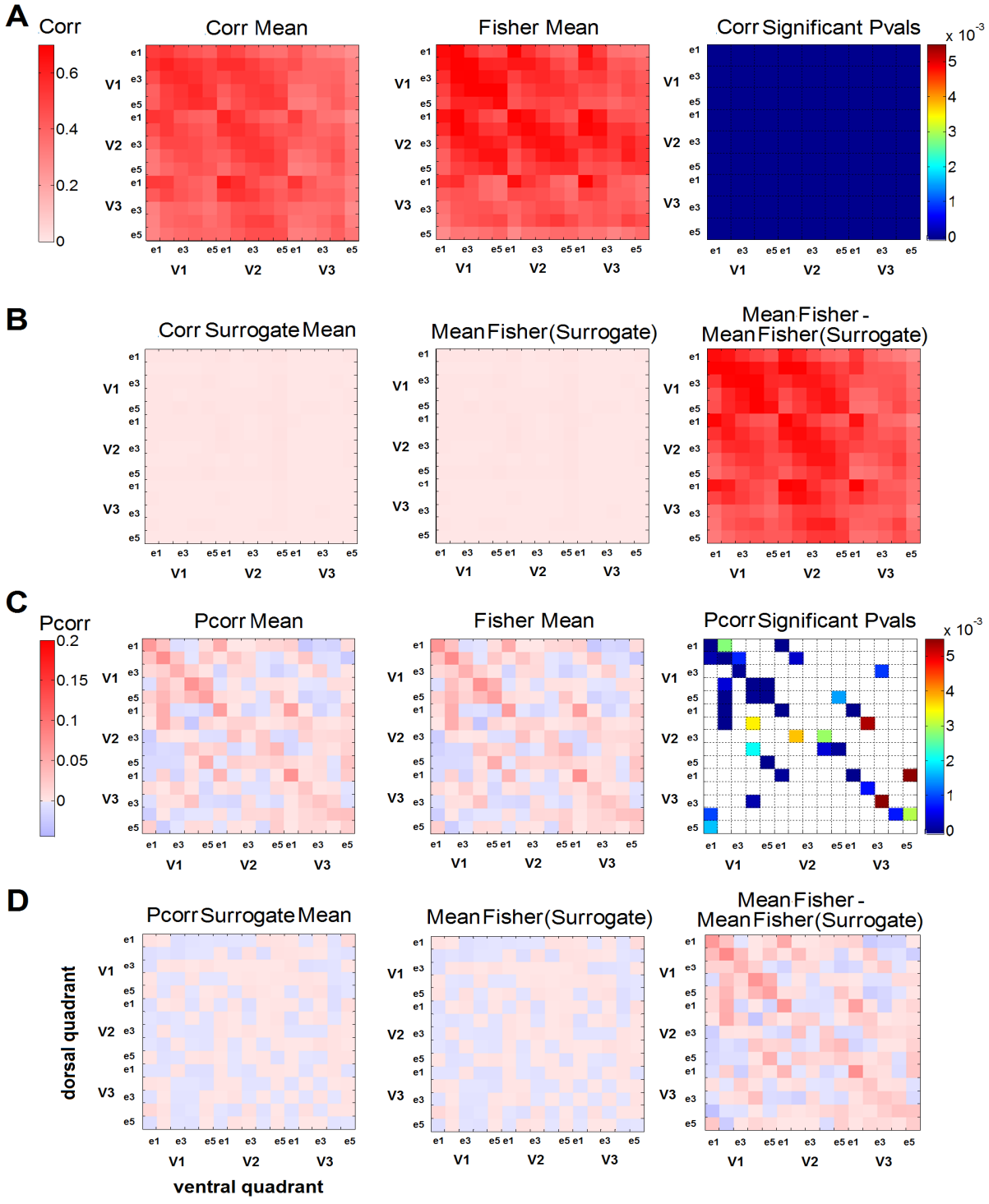


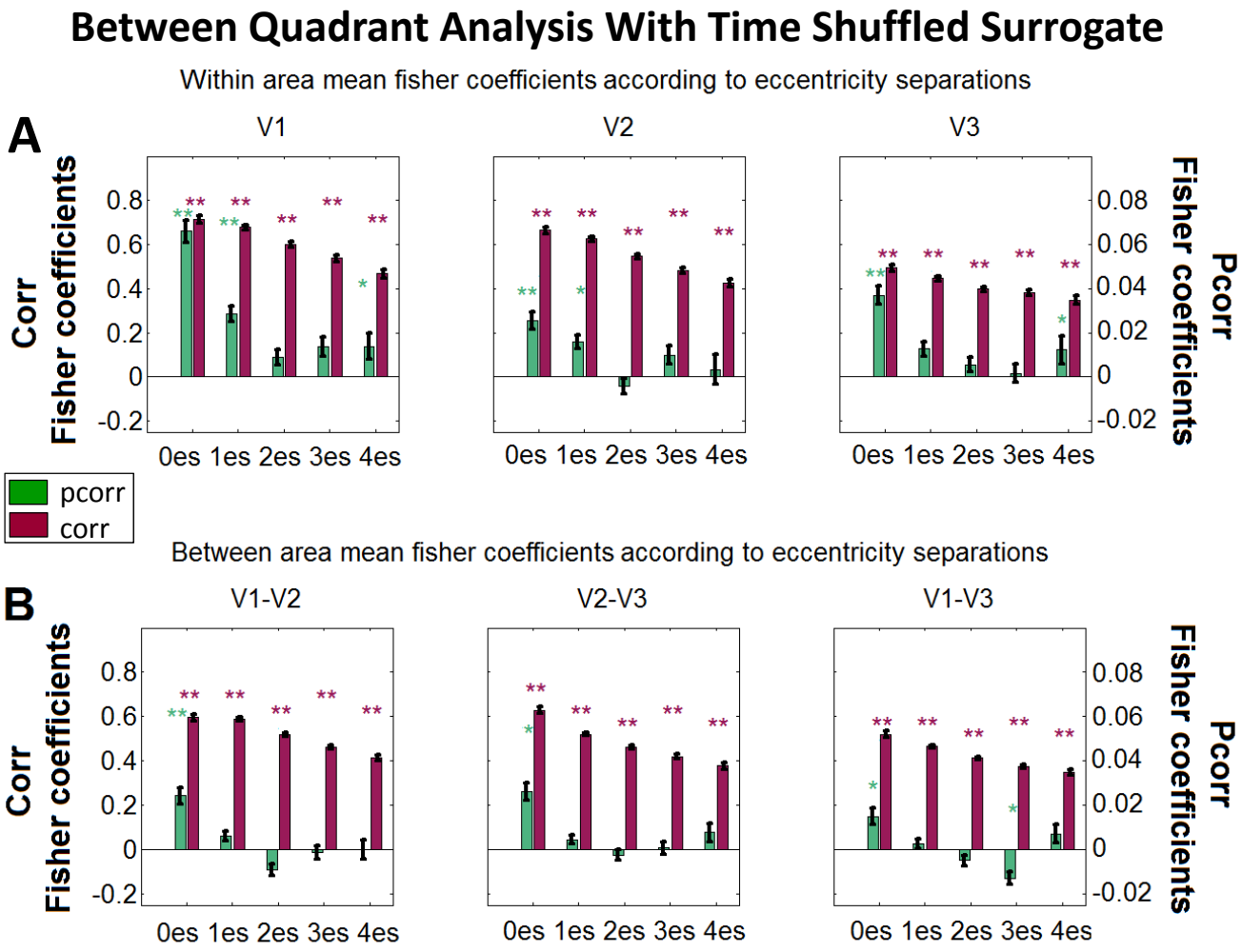
Supplementary Figure 1. Mean functional connectivity measures within a quadrant, computed across all subjects, runs per subjects, and the four quadrants; *statistics done with use of a Time-Shuffled Surrogate.* Shuffling was pursued based on the indices of the 8 scans, while keeping the time-course from each scan unchanged; we computed functional connectivity measures for the maximal possible number of permutations: ([8 × 8] – 8)/2 =28. Thus for each subject, 28 surrogate coefficients were computed for each ROI pair. A) Left: Mean Pcorr / Corr coefficients across all subjects (6), quadrants (4). And runs per subjects (8) (6*4*8). Center: Mean Fisher coefficients across all subjects and runs. Right: p values of statistically significant Pcorr / Corr associated with the functional connections in this 5 eccentricity region network. Significance is thresholded at 0.05, with false discovery rate (FDR) correction. White connections did not show statistical significance. B) Left: Mean Pcorr / Corr *Surrogate coefficients* across all subjects (6), quadrants (4) and shuffled runs per subjects (28) (6*4*28). Center: Mean Fisher coefficients of *Surrogate* across all subjects and runs. Right: Mean Fisher Pcorr/Corr minus the Mean Fisher of the *Surrogate* distributions.



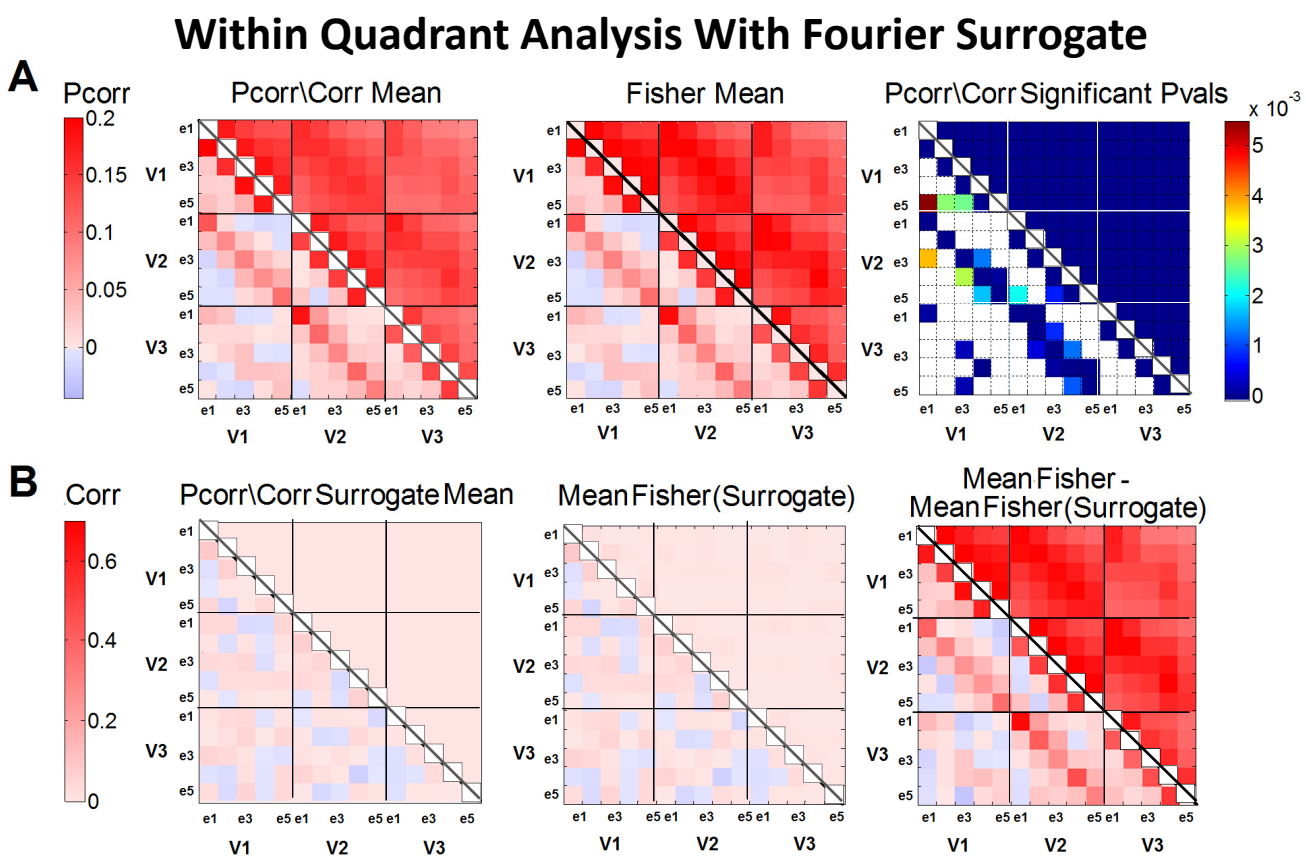
Supplementary Figure 2. Mean functional connectivity measures according to eccentricity bin groupings associated with ROI pairs composed of regions residing within the quadrant; *statistics done with use of a Time-Shuffled Surrogate*. Across all plots, green and purple bars represent the mean Fisher transformed Pcorr and Corr, respectively, computed across all subjects, runs and quadrants. Error bars reflect the standard error of the mean across measurements. A shows within-visual area Fisher coefficients for different eccentricity separations. Plots in B show the between-area Fisher coefficients of different eccentricity separations. A zero eccentricity separation (0es) indicates regions with the same eccentricity; a separation of one eccentricity (1es) means the regions' eccentricities were adjacent, a separation of two eccentricities (2es) means there was an eccentricity region separating the two regions' eccentricities. A separation of three eccentricities (3es) means there were two eccentricity regions separating the two regions' eccentricities. Finally, a separation of four eccentricities (4es) means there were three eccentricity regions separating the two regions' eccentricities. Statistical significance was assessed using alpha values of 0.05 (*) and 0.001 (**), following repeated measures statistical analyses. Individual connections are shown to be significant with an asterisk directly above the bar.



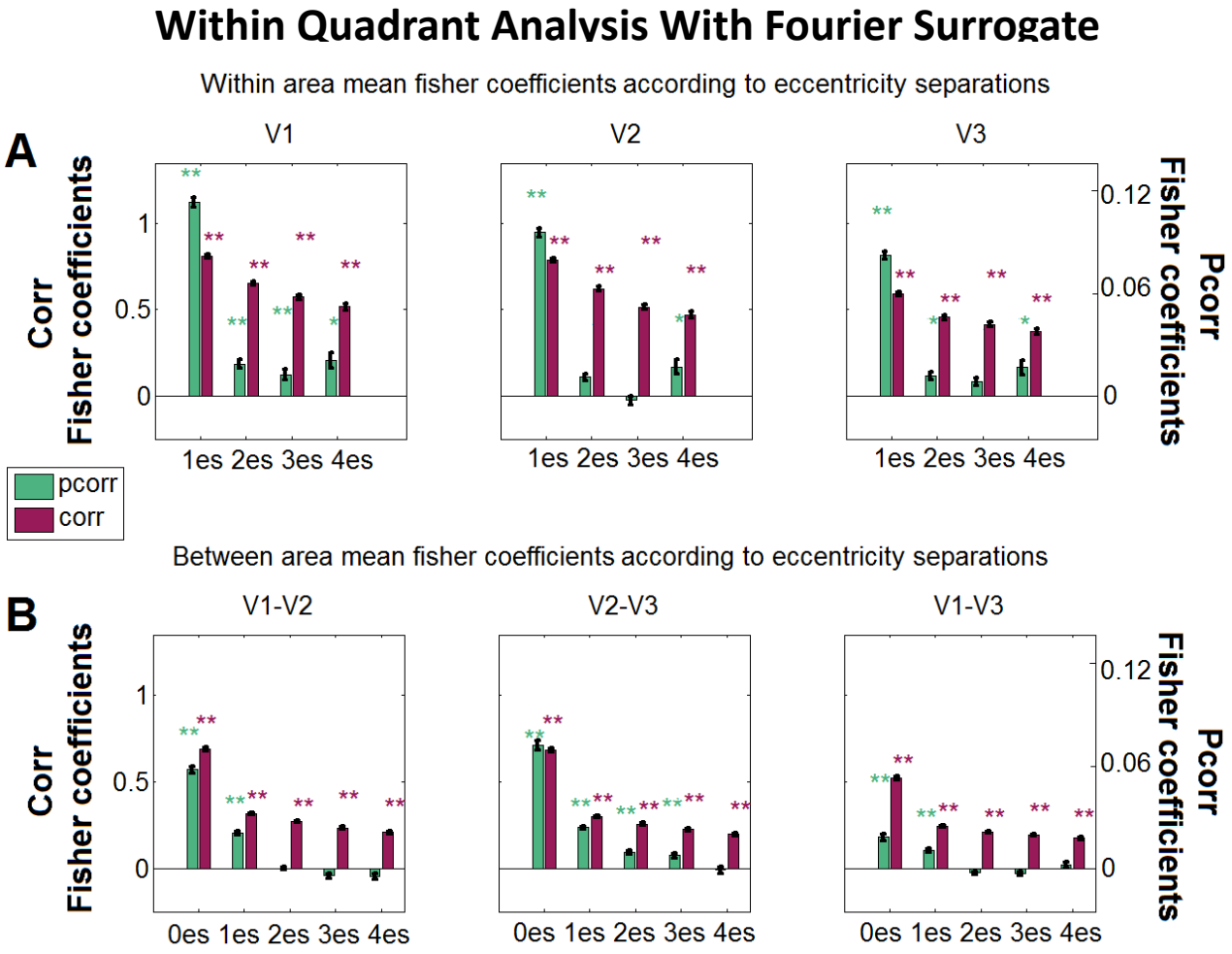
Supplementary Figure 3. Mean functional connectivity measures associated with functional connections between ROIs residing in different quadrants within a hemisphere; *statistics done with use of a Time-Shuffled Surrogate*. The mean connectivity measures were computed across all subjects, runs, and the two quadrant pairs. A & B reflect Corr connectivity measures and C & D reflect Pcorr connectivity measures. Presentation is as in Figure 7 and Supplementary Figures 1A and 1B.



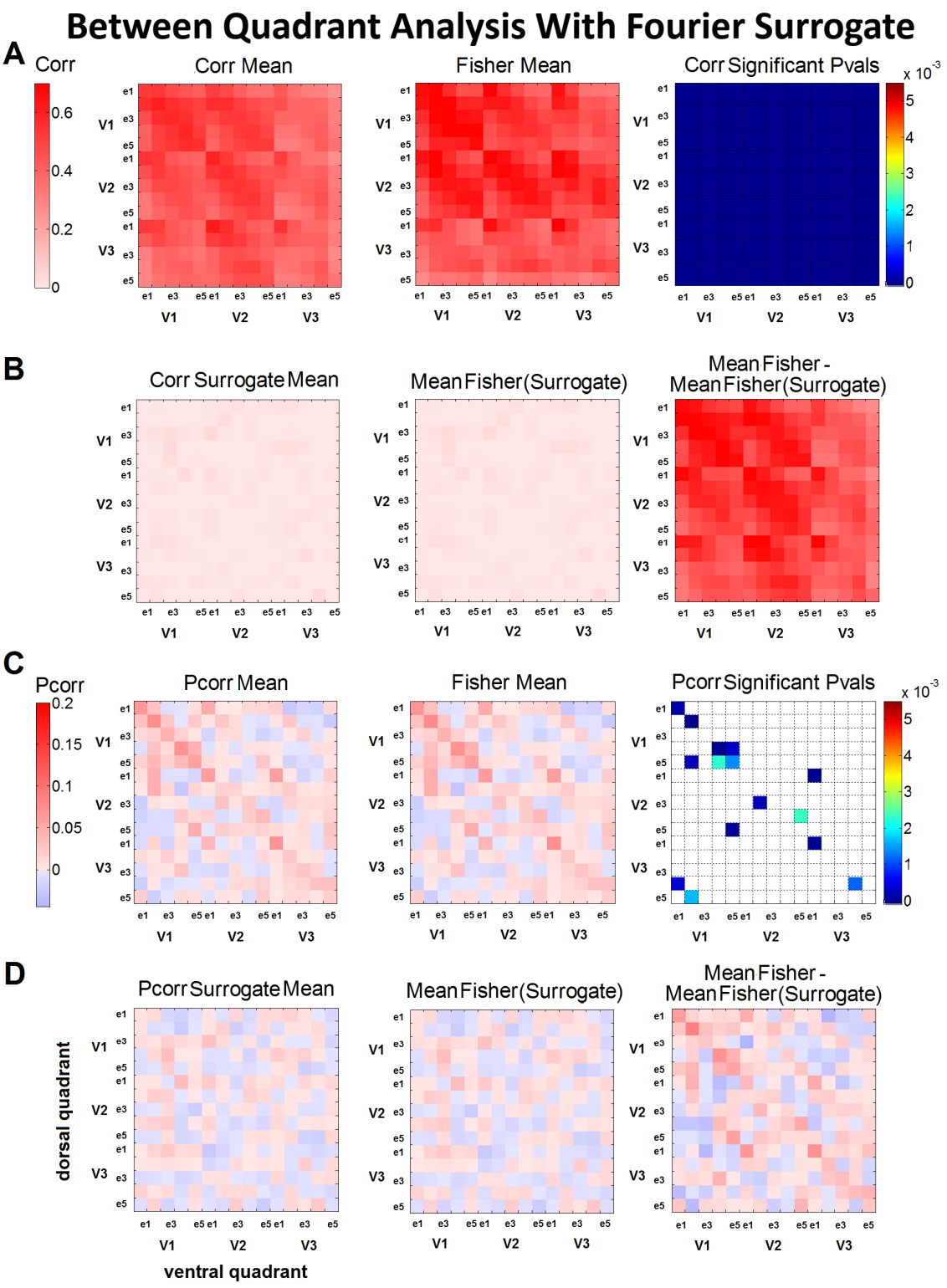
Supplementary Figure 4. Mean functional connectivity measures according to eccentricity bin groupings associated with ROI pairs composed of regions residing in different quadrants of a hemisphere; *statistics done with use of a Time-Shuffled Surrogate*. Across all plots, green and purple bars represent the mean Fisher transformed Pcorr and Corr, respectively, computed across all subjects, runs and pairs of quadrants. Error bars reflect the standard error of the mean across measurements. The format of presentation is as in Figures 8 A and C in the main manuscript and Supplementary Figure 2. * $p<0.05$; ** $p<0.001$.



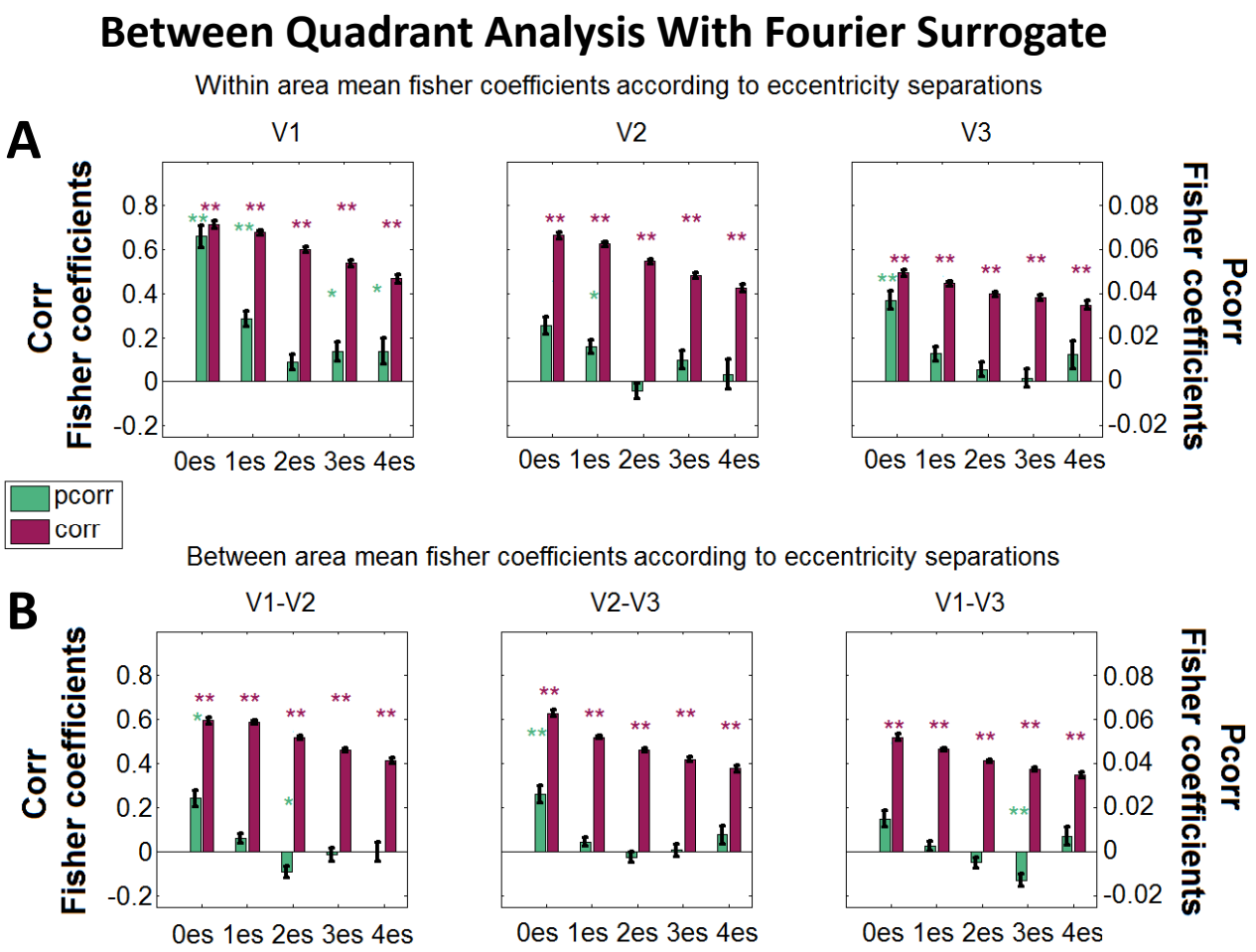
Supplementary Figure 5. Mean functional connectivity measures within a quadrant, computed across all subjects, four quadrants, and runs per subjects; *statistics done with use of a Fourier Surrogate*. To create these surrogate data, we shuffled the phase values from the Fourier transform of the original time-courses, then computed the inverse Fourier transform. Presentation is as in Supplementary Figure 1.



Supplementary Figure 6. Mean functional connectivity measures according to eccentricity bin groupings associated with ROI pairs composed of regions residing within the quadrant; *statistics done with use of a Fourier Surrogate*. Across all plots, green and purple bars represent the mean Fisher transformed Pcorr and Corr, respectively, computed across all subjects, runs and pairs of quadrants. Error bars reflect the standard error of the mean across measurements. The format of presentation is as in Supplementary Figure 2. * $p<0.05$; ** $p<0.001$.



Supplementary Figure 7. Mean functional connectivity measures associated with functional connections between ROIs residing in different quadrants in a hemisphere; *statistics done with use of a Fourier Surrogate*. Presentation is as in Suppl. Fig. 3. All entries along the diagonal that show statistical significance here also do in Fig. 7. Not all entries along the diagonal that show statistical significance in Fig. 7 and Suppl. Fig. 3 show it here too, most likely due to the lesser statistical power here (comparing 8 measured values to only 8 surrogate values; Suppl. Fig. 3 has 28 surrogate values; Fig. 7 compares 8 measured values to non-variable 0).



Supplementary Figure 8. Mean functional connectivity measures according to eccentricity bin groupings associated with ROI pairs composed of regions residing in different quadrants of a hemisphere; *statistics done with use of a Fourier Surrogate*. Presentation is as in Supplementary Figure 4.