# Model Summaries

Table 1: Results of convergence and singularity checks for each mixed beta regression modelling how functional connectome similarity varied between and within individuals, sessions, and states in each frequency band. Here the maximal and reduced models correspond to, respectively, models with and without a random intercept for the participant pair term.

| Coupling Mode | Frequency Band | Reduced Model | | Maximal Model | |
| --- | --- | --- | --- | --- | --- |
|  |  | Converged | Singular | Converged | Singular |
| Phase | | | | | |
|  | Delta | TRUE | FALSE | FALSE | TRUE |
|  | Theta | TRUE | FALSE | TRUE | FALSE |
|  | Alpha | TRUE | FALSE | TRUE | FALSE |
|  | Beta | TRUE | FALSE | TRUE | FALSE |
|  | Gamma | TRUE | FALSE | TRUE | FALSE |
| Amplitude | | | | | |
|  | Alpha | TRUE | FALSE | TRUE | FALSE |
| Phase (Hilbert transform) | | | | | |
|  | Delta | TRUE | FALSE | TRUE | FALSE |
|  | Theta | TRUE | FALSE | TRUE | FALSE |
|  | Alpha | TRUE | FALSE | TRUE | FALSE |
|  | Beta | TRUE | FALSE | TRUE | FALSE |
|  | Gamma | TRUE | FALSE | TRUE | FALSE |

## Reduced models

### Phase coupling

Table 2: Summary of the reduced mixed beta regression model of phase coupling functional connectome similarity in the delta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 0.370 | 0.026 | 0.319, 0.420 | < .001 |
|  | Within Participant | 0.013 | 0.006 | 0.001, 0.025 | .030 |
|  | Within Session | 0.003 | 0.003 | -0.002, 0.008 | .197 |
|  | Within State | 0.010 | 0.002 | 0.006, 0.014 | < .001 |
|  | Within Participant \* Within Session | 0.051 | 0.010 | 0.032, 0.070 | < .001 |
|  | Within Participant \* Within State | 0.024 | 0.008 | 0.008, 0.041 | .003 |
|  | Within Session \* Within State | 0.001 | 0.004 | -0.006, 0.008 | .784 |
|  | Within Participant \* Within Session \* Within State | 0.021 | 0.016 | -0.010, 0.052 | .190 |
| Random Effects | | | | | |
|  | X Connectome | 0.240 |  | 0.216, 0.268 |  |
|  | Y Connectome | 0.230 |  | 0.207, 0.256 |  |
| No. Obs. = 14,028; Phi coefficient = 448; Log-likelihood = 32,072; AIC = -64,123; BIC = -64,040; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 3: Summary of the reduced mixed beta regression model of phase coupling functional connectome similarity in the theta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 0.459 | 0.026 | 0.407, 0.510 | < .001 |
|  | Within Participant | 0.079 | 0.008 | 0.063, 0.095 | < .001 |
|  | Within Session | 0.008 | 0.003 | 0.002, 0.015 | .013 |
|  | Within State | 0.007 | 0.003 | 0.001, 0.012 | .018 |
|  | Within Participant \* Within Session | 0.044 | 0.013 | 0.019, 0.070 | .001 |
|  | Within Participant \* Within State | 0.022 | 0.011 | 0.000, 0.044 | .050 |
|  | Within Session \* Within State | -0.004 | 0.005 | -0.014, 0.005 | .366 |
|  | Within Participant \* Within Session \* Within State | 0.044 | 0.022 | 0.002, 0.087 | .039 |
| Random Effects | | | | | |
|  | X Connectome | 0.268 |  | 0.241, 0.299 |  |
|  | Y Connectome | 0.205 |  | 0.184, 0.228 |  |
| No. Obs. = 14,028; Phi coefficient = 252; Log-likelihood = 28,293; AIC = -56,564; BIC = -56,481; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 4: Summary of the reduced mixed beta regression model of phase coupling functional connectome similarity in the alpha band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | -0.293 | 0.034 | -0.359, -0.227 | < .001 |
|  | Within Participant | 0.112 | 0.014 | 0.086, 0.139 | < .001 |
|  | Within Session | 0.001 | 0.006 | -0.010, 0.013 | .814 |
|  | Within State | 0.029 | 0.005 | 0.020, 0.038 | < .001 |
|  | Within Participant \* Within Session | 0.064 | 0.021 | 0.023, 0.106 | .003 |
|  | Within Participant \* Within State | 0.149 | 0.018 | 0.113, 0.186 | < .001 |
|  | Within Session \* Within State | -0.004 | 0.008 | -0.020, 0.012 | .648 |
|  | Within Participant \* Within Session \* Within State | 0.078 | 0.035 | 0.009, 0.147 | .027 |
| Random Effects | | | | | |
|  | X Connectome | 0.327 |  | 0.292, 0.365 |  |
|  | Y Connectome | 0.277 |  | 0.249, 0.309 |  |
| No. Obs. = 14,028; Phi coefficient = 87.1; Log-likelihood = 20,876; AIC = -41,730; BIC = -41,647; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 5: Summary of the reduced mixed beta regression model of phase coupling functional connectome similarity in the beta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 1.230 | 0.039 | 1.153, 1.307 | < .001 |
|  | Within Participant | 0.180 | 0.010 | 0.159, 0.200 | < .001 |
|  | Within Session | 0.001 | 0.004 | -0.007, 0.009 | .774 |
|  | Within State | 0.005 | 0.003 | -0.002, 0.011 | .151 |
|  | Within Participant \* Within Session | 0.048 | 0.016 | 0.016, 0.079 | .003 |
|  | Within Participant \* Within State | 0.040 | 0.014 | 0.013, 0.067 | .004 |
|  | Within Session \* Within State | -0.003 | 0.006 | -0.014, 0.008 | .572 |
|  | Within Participant \* Within Session \* Within State | 0.042 | 0.027 | -0.011, 0.095 | .118 |
| Random Effects | | | | | |
|  | X Connectome | 0.347 |  | 0.312, 0.387 |  |
|  | Y Connectome | 0.365 |  | 0.327, 0.406 |  |
| No. Obs. = 14,028; Phi coefficient = 243; Log-likelihood = 30,409; AIC = -60,795; BIC = -60,712; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 6: Summary of the reduced mixed beta regression model of phase coupling functional connectome similarity in the gamma band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 1.200 | 0.064 | 1.075, 1.325 | < .001 |
|  | Within Participant | 0.061 | 0.012 | 0.037, 0.085 | < .001 |
|  | Within Session | -0.002 | 0.005 | -0.011, 0.008 | .749 |
|  | Within State | 0.000 | 0.004 | -0.008, 0.007 | .932 |
|  | Within Participant \* Within Session | 0.040 | 0.019 | 0.003, 0.078 | .036 |
|  | Within Participant \* Within State | -0.003 | 0.016 | -0.036, 0.029 | .841 |
|  | Within Session \* Within State | -0.001 | 0.007 | -0.015, 0.013 | .887 |
|  | Within Participant \* Within Session \* Within State | 0.105 | 0.033 | 0.041, 0.169 | .001 |
| Random Effects | | | | | |
|  | X Connectome | 0.624 |  | 0.560, 0.694 |  |
|  | Y Connectome | 0.538 |  | 0.483, 0.599 |  |
| No. Obs. = 14,028; Phi coefficient = 172; Log-likelihood = 28,454; AIC = -56,886; BIC = -56,803; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

### Amplitude coupling

Table 7: Summary of the reduced mixed beta regression model of amplitude coupling functional connectome similarity in the in the alpha band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 1.677 | 0.045 | 1.589, 1.765 | < .001 |
|  | Within Participant | 0.050 | 0.012 | 0.027, 0.074 | < .001 |
|  | Within Session | 0.002 | 0.005 | -0.008, 0.012 | .693 |
|  | Within State | 0.000 | 0.004 | -0.008, 0.008 | .986 |
|  | Within Participant \* Within Session | 0.038 | 0.019 | 0.001, 0.075 | .045 |
|  | Within Participant \* Within State | 0.211 | 0.017 | 0.178, 0.245 | < .001 |
|  | Within Session \* Within State | -0.006 | 0.007 | -0.020, 0.007 | .367 |
|  | Within Participant \* Within Session \* Within State | 0.056 | 0.033 | -0.009, 0.121 | .089 |
| Random Effects | | | | | |
|  | X Connectome | 0.400 |  | 0.359, 0.445 |  |
|  | Y Connectome | 0.415 |  | 0.372, 0.462 |  |
| No. Obs. = 14,028; Phi coefficient = 209; Log-likelihood = 31,435; AIC = -62,849; BIC = -62,766; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

### Phase coupling (Hilbert transform)

Table 8: Summary of the reduced mixed beta regression model of phase coupling (Hilbert transform) functional connectome similarity in the delta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 1.837 | 0.028 | 1.781, 1.892 | < .001 |
|  | Within Participant | 0.028 | 0.005 | 0.020, 0.037 | < .001 |
|  | Within Session | 0.001 | 0.002 | -0.003, 0.004 | .716 |
|  | Within State | 0.006 | 0.002 | 0.003, 0.009 | < .001 |
|  | Within Participant \* Within Session | 0.042 | 0.007 | 0.028, 0.056 | < .001 |
|  | Within Participant \* Within State | 0.022 | 0.006 | 0.010, 0.034 | < .001 |
|  | Within Session \* Within State | 0.001 | 0.003 | -0.004, 0.006 | .664 |
|  | Within Participant \* Within Session \* Within State | -0.021 | 0.012 | -0.044, 0.002 | .076 |
| Random Effects | | | | | |
|  | X Connectome | 0.262 |  | 0.235, 0.292 |  |
|  | Y Connectome | 0.255 |  | 0.229, 0.283 |  |
| No. Obs. = 14,028; Phi coefficient = 1,623; Log-likelihood = 45,948; AIC = -91,874; BIC = -91,791; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 9: Summary of the reduced mixed beta regression model of phase coupling (Hilbert transform) functional connectome similarity in the theta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 1.770 | 0.037 | 1.697, 1.843 | < .001 |
|  | Within Participant | 0.108 | 0.010 | 0.088, 0.128 | < .001 |
|  | Within Session | 0.001 | 0.004 | -0.007, 0.009 | .848 |
|  | Within State | 0.005 | 0.003 | -0.002, 0.012 | .137 |
|  | Within Participant \* Within Session | 0.072 | 0.016 | 0.040, 0.104 | < .001 |
|  | Within Participant \* Within State | 0.094 | 0.014 | 0.066, 0.121 | < .001 |
|  | Within Session \* Within State | -0.001 | 0.006 | -0.012, 0.011 | .900 |
|  | Within Participant \* Within Session \* Within State | 0.062 | 0.028 | 0.007, 0.118 | .027 |
| Random Effects | | | | | |
|  | X Connectome | 0.380 |  | 0.341, 0.423 |  |
|  | Y Connectome | 0.289 |  | 0.259, 0.322 |  |
| No. Obs. = 14,028; Phi coefficient = 312; Log-likelihood = 34,437; AIC = -68,853; BIC = -68,770; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 10: Summary of the reduced mixed beta regression model of phase coupling (Hilbert transform) functional connectome similarity in the alpha band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 0.573 | 0.049 | 0.477, 0.669 | < .001 |
|  | Within Participant | 0.110 | 0.015 | 0.080, 0.140 | < .001 |
|  | Within Session | 0.003 | 0.006 | -0.010, 0.015 | .681 |
|  | Within State | 0.063 | 0.005 | 0.052, 0.073 | < .001 |
|  | Within Participant \* Within Session | 0.076 | 0.024 | 0.028, 0.124 | .002 |
|  | Within Participant \* Within State | 0.160 | 0.022 | 0.117, 0.202 | < .001 |
|  | Within Session \* Within State | -0.003 | 0.009 | -0.021, 0.015 | .764 |
|  | Within Participant \* Within Session \* Within State | 0.095 | 0.043 | 0.012, 0.178 | .026 |
| Random Effects | | | | | |
|  | X Connectome | 0.434 |  | 0.390, 0.484 |  |
|  | Y Connectome | 0.455 |  | 0.408, 0.507 |  |
| No. Obs. = 14,028; Phi coefficient = 75.9; Log-likelihood = 20,787; AIC = -41,552; BIC = -41,468; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 11: Summary of the reduced mixed beta regression model of phase coupling (Hilbert transform) functional connectome similarity in the beta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 2.376 | 0.032 | 2.313, 2.438 | < .001 |
|  | Within Participant | 0.111 | 0.009 | 0.094, 0.129 | < .001 |
|  | Within Session | -0.001 | 0.004 | -0.008, 0.006 | .837 |
|  | Within State | 0.009 | 0.003 | 0.003, 0.014 | .003 |
|  | Within Participant \* Within Session | 0.045 | 0.014 | 0.018, 0.073 | .001 |
|  | Within Participant \* Within State | 0.045 | 0.012 | 0.021, 0.069 | < .001 |
|  | Within Session \* Within State | -0.002 | 0.005 | -0.012, 0.007 | .638 |
|  | Within Participant \* Within Session \* Within State | 0.070 | 0.024 | 0.024, 0.117 | .003 |
| Random Effects | | | | | |
|  | X Connectome | 0.280 |  | 0.251, 0.312 |  |
|  | Y Connectome | 0.297 |  | 0.267, 0.331 |  |
| No. Obs. = 14,028; Phi coefficient = 663; Log-likelihood = 42,893; AIC = -85,763; BIC = -85,680; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 12: Summary of the reduced mixed beta regression model of phase coupling (Hilbert transform) functional connectome similarity in the gamma band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 2.589 | 0.052 | 2.486, 2.691 | < .001 |
|  | Within Participant | 0.119 | 0.011 | 0.097, 0.141 | < .001 |
|  | Within Session | 0.001 | 0.004 | -0.007, 0.010 | .762 |
|  | Within State | 0.000 | 0.004 | -0.007, 0.007 | .903 |
|  | Within Participant \* Within Session | 0.025 | 0.017 | -0.009, 0.060 | .147 |
|  | Within Participant \* Within State | -0.013 | 0.015 | -0.043, 0.016 | .372 |
|  | Within Session \* Within State | 0.000 | 0.006 | -0.012, 0.012 | .964 |
|  | Within Participant \* Within Session \* Within State | 0.052 | 0.029 | -0.004, 0.109 | .070 |
| Random Effects | | | | | |
|  | X Connectome | 0.529 |  | 0.475, 0.589 |  |
|  | Y Connectome | 0.417 |  | 0.374, 0.464 |  |
| No. Obs. = 14,028; Phi coefficient = 486; Log-likelihood = 42,315; AIC = -84,608; BIC = -84,525; Residual df = 14,017 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

## Maximal models

### Phase coupling

Table 13: Summary of the maximal mixed beta regression model of phase coupling functional connectome similarity in the delta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 0.370 | 0.026 | 0.319, 0.420 | < .001 |
|  | Within Participant | 0.013 | 0.006 | 0.001, 0.025 | .030 |
|  | Within Session | 0.003 | 0.003 | -0.002, 0.008 | .197 |
|  | Within State | 0.010 | 0.002 | 0.006, 0.014 | < .001 |
|  | Within Participant \* Within Session | 0.051 | 0.010 | 0.032, 0.070 | < .001 |
|  | Within Participant \* Within State | 0.024 | 0.008 | 0.008, 0.041 | .003 |
|  | Within Session \* Within State | 0.001 | 0.004 | -0.006, 0.008 | .783 |
|  | Within Participant \* Within Session \* Within State | 0.021 | 0.016 | -0.010, 0.052 | .191 |
| Random Effects | | | | | |
|  | Participant Pair | 0.000 |  |  |  |
|  | X Connectome | 0.240 |  | 0.216, 0.268 |  |
|  | Y Connectome | 0.230 |  | 0.207, 0.256 |  |
| No. Obs. = 14,028; Phi coefficient = 448; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 14: Summary of the maximal mixed beta regression model of phase coupling functional connectome similarity in the theta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 0.449 | 0.028 | 0.395, 0.503 | < .001 |
|  | Within Participant | 0.091 | 0.021 | 0.050, 0.131 | < .001 |
|  | Within Session | 0.009 | 0.003 | 0.002, 0.015 | .008 |
|  | Within State | 0.007 | 0.003 | 0.002, 0.012 | .011 |
|  | Within Participant \* Within Session | 0.044 | 0.012 | 0.020, 0.068 | < .001 |
|  | Within Participant \* Within State | 0.022 | 0.010 | 0.002, 0.043 | .034 |
|  | Within Session \* Within State | -0.004 | 0.005 | -0.013, 0.004 | .320 |
|  | Within Participant \* Within Session \* Within State | 0.045 | 0.020 | 0.005, 0.085 | .026 |
| Random Effects | | | | | |
|  | Participant Pair | 0.058 |  | 0.048, 0.070 |  |
|  | X Connectome | 0.259 |  | 0.231, 0.290 |  |
|  | Y Connectome | 0.198 |  | 0.177, 0.223 |  |
| No. Obs. = 14,028; Phi coefficient = 289; Log-likelihood = 29,105; AIC = -58,186; BIC = -58,095; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 15: Summary of the maximal mixed beta regression model of phase coupling functional connectome similarity in the alpha band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | -0.340 | 0.034 | -0.407, -0.273 | < .001 |
|  | Within Participant | 0.166 | 0.037 | 0.093, 0.240 | < .001 |
|  | Within Session | 0.001 | 0.005 | -0.009, 0.012 | .801 |
|  | Within State | 0.029 | 0.004 | 0.021, 0.038 | < .001 |
|  | Within Participant \* Within Session | 0.065 | 0.020 | 0.026, 0.104 | .001 |
|  | Within Participant \* Within State | 0.147 | 0.017 | 0.113, 0.180 | < .001 |
|  | Within Session \* Within State | -0.004 | 0.008 | -0.019, 0.011 | .619 |
|  | Within Participant \* Within Session \* Within State | 0.077 | 0.033 | 0.012, 0.142 | .019 |
| Random Effects | | | | | |
|  | Participant Pair | 0.113 |  | 0.093, 0.137 |  |
|  | X Connectome | 0.259 |  | 0.229, 0.292 |  |
|  | Y Connectome | 0.270 |  | 0.241, 0.302 |  |
| No. Obs. = 14,028; Phi coefficient = 100; Log-likelihood = 21,728; AIC = -43,432; BIC = -43,342; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 16: Summary of the maximal mixed beta regression model of phase coupling functional connectome similarity in the beta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 1.251 | 0.040 | 1.173, 1.329 | < .001 |
|  | Within Participant | 0.155 | 0.047 | 0.063, 0.248 | .001 |
|  | Within Session | 0.001 | 0.003 | -0.005, 0.008 | .708 |
|  | Within State | 0.005 | 0.003 | 0.000, 0.010 | .075 |
|  | Within Participant \* Within Session | 0.046 | 0.013 | 0.020, 0.072 | .001 |
|  | Within Participant \* Within State | 0.036 | 0.011 | 0.014, 0.059 | .001 |
|  | Within Session \* Within State | -0.003 | 0.005 | -0.013, 0.006 | .486 |
|  | Within Participant \* Within Session \* Within State | 0.034 | 0.022 | -0.009, 0.077 | .125 |
| Random Effects | | | | | |
|  | Participant Pair | 0.151 |  | 0.098, 0.232 |  |
|  | X Connectome | 0.306 |  | 0.263, 0.356 |  |
|  | Y Connectome | 0.292 |  | 0.246, 0.346 |  |
| No. Obs. = 14,028; Phi coefficient = 356; Log-likelihood = 32,868; AIC = -65,713; BIC = -65,622; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 17: Summary of the maximal mixed beta regression model of phase coupling functional connectome similarity in the gamma band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 1.220 | 0.065 | 1.094, 1.347 | < .001 |
|  | Within Participant | 0.055 | 0.030 | -0.003, 0.113 | .063 |
|  | Within Session | -0.002 | 0.005 | -0.011, 0.007 | .730 |
|  | Within State | 0.000 | 0.004 | -0.008, 0.007 | .943 |
|  | Within Participant \* Within Session | 0.040 | 0.018 | 0.005, 0.075 | .027 |
|  | Within Participant \* Within State | -0.004 | 0.015 | -0.034, 0.026 | .815 |
|  | Within Session \* Within State | -0.001 | 0.007 | -0.014, 0.012 | .851 |
|  | Within Participant \* Within Session \* Within State | 0.096 | 0.030 | 0.036, 0.155 | .002 |
| Random Effects | | | | | |
|  | Participant Pair | 0.079 |  | 0.066, 0.094 |  |
|  | X Connectome | 0.622 |  | 0.558, 0.694 |  |
|  | Y Connectome | 0.508 |  | 0.454, 0.569 |  |
| No. Obs. = 14,028; Phi coefficient = 195; Log-likelihood = 29,165; AIC = -58,306; BIC = -58,215; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

### Amplitude coupling

Table 18: Summary of the maximal mixed beta regression model of amplitude coupling functional connectome similarity in the in the alpha band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 1.687 | 0.046 | 1.597, 1.778 | < .001 |
|  | Within Participant | 0.036 | 0.028 | -0.018, 0.089 | .196 |
|  | Within Session | 0.002 | 0.005 | -0.007, 0.011 | .661 |
|  | Within State | 0.000 | 0.004 | -0.008, 0.007 | .977 |
|  | Within Participant \* Within Session | 0.036 | 0.018 | 0.001, 0.071 | .043 |
|  | Within Participant \* Within State | 0.213 | 0.016 | 0.181, 0.244 | < .001 |
|  | Within Session \* Within State | -0.006 | 0.007 | -0.019, 0.007 | .340 |
|  | Within Participant \* Within Session \* Within State | 0.053 | 0.031 | -0.008, 0.114 | .087 |
| Random Effects | | | | | |
|  | Participant Pair | 0.075 |  | 0.063, 0.089 |  |
|  | X Connectome | 0.395 |  | 0.354, 0.441 |  |
|  | Y Connectome | 0.400 |  | 0.359, 0.447 |  |
| No. Obs. = 14,028; Phi coefficient = 234; Log-likelihood = 32,097; AIC = -64,170; BIC = -64,079; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

### Phase coupling (Hilbert transform)

Table 19: Summary of the maximal mixed beta regression model of phase coupling (Hilbert transform) functional connectome similarity in the delta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 1.834 | 0.029 | 1.778, 1.891 | < .001 |
|  | Within Participant | 0.029 | 0.010 | 0.010, 0.048 | .003 |
|  | Within Session | 0.001 | 0.002 | -0.003, 0.004 | .698 |
|  | Within State | 0.006 | 0.001 | 0.003, 0.009 | < .001 |
|  | Within Participant \* Within Session | 0.042 | 0.007 | 0.028, 0.055 | < .001 |
|  | Within Participant \* Within State | 0.022 | 0.006 | 0.011, 0.034 | < .001 |
|  | Within Session \* Within State | 0.001 | 0.003 | -0.004, 0.006 | .642 |
|  | Within Participant \* Within Session \* Within State | -0.021 | 0.011 | -0.043, 0.001 | .065 |
| Random Effects | | | | | |
|  | Participant Pair | 0.025 |  | 0.021, 0.029 |  |
|  | X Connectome | 0.260 |  | 0.233, 0.290 |  |
|  | Y Connectome | 0.253 |  | 0.227, 0.282 |  |
| No. Obs. = 14,028; Phi coefficient = 1,790; Log-likelihood = 46,505; AIC = -92,986; BIC = -92,896; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 20: Summary of the maximal mixed beta regression model of phase coupling (Hilbert transform) functional connectome similarity in the theta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 1.780 | 0.040 | 1.702, 1.857 | < .001 |
|  | Within Participant | 0.098 | 0.040 | 0.019, 0.177 | .015 |
|  | Within Session | 0.001 | 0.003 | -0.006, 0.007 | .805 |
|  | Within State | 0.005 | 0.003 | 0.000, 0.011 | .067 |
|  | Within Participant \* Within Session | 0.073 | 0.014 | 0.046, 0.099 | < .001 |
|  | Within Participant \* Within State | 0.091 | 0.012 | 0.068, 0.114 | < .001 |
|  | Within Session \* Within State | -0.001 | 0.005 | -0.010, 0.009 | .864 |
|  | Within Participant \* Within Session \* Within State | 0.061 | 0.023 | 0.015, 0.106 | .009 |
| Random Effects | | | | | |
|  | Participant Pair | 0.125 |  | 0.095, 0.165 |  |
|  | X Connectome | 0.357 |  | 0.315, 0.404 |  |
|  | Y Connectome | 0.255 |  | 0.222, 0.292 |  |
| No. Obs. = 14,028; Phi coefficient = 460; Log-likelihood = 36,910; AIC = -73,796; BIC = -73,705; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 21: Summary of the maximal mixed beta regression model of phase coupling (Hilbert transform) functional connectome similarity in the alpha band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 0.564 | 0.052 | 0.462, 0.666 | < .001 |
|  | Within Participant | 0.131 | 0.039 | 0.054, 0.208 | .001 |
|  | Within Session | 0.002 | 0.006 | -0.009, 0.014 | .698 |
|  | Within State | 0.063 | 0.005 | 0.053, 0.072 | < .001 |
|  | Within Participant \* Within Session | 0.077 | 0.023 | 0.032, 0.122 | .001 |
|  | Within Participant \* Within State | 0.161 | 0.020 | 0.122, 0.201 | < .001 |
|  | Within Session \* Within State | -0.002 | 0.009 | -0.019, 0.014 | .774 |
|  | Within Participant \* Within Session \* Within State | 0.092 | 0.040 | 0.014, 0.171 | .021 |
| Random Effects | | | | | |
|  | Participant Pair | 0.111 |  | 0.093, 0.134 |  |
|  | X Connectome | 0.420 |  | 0.375, 0.470 |  |
|  | Y Connectome | 0.444 |  | 0.397, 0.496 |  |
| No. Obs. = 14,028; Phi coefficient = 87.5; Log-likelihood = 21,625; AIC = -43,225; BIC = -43,135; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 22: Summary of the maximal mixed beta regression model of phase coupling (Hilbert transform) functional connectome similarity in the beta band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 2.385 | 0.033 | 2.321, 2.449 | < .001 |
|  | Within Participant | 0.098 | 0.022 | 0.055, 0.141 | < .001 |
|  | Within Session | -0.001 | 0.003 | -0.007, 0.006 | .852 |
|  | Within State | 0.009 | 0.003 | 0.004, 0.014 | .001 |
|  | Within Participant \* Within Session | 0.045 | 0.013 | 0.020, 0.070 | .001 |
|  | Within Participant \* Within State | 0.042 | 0.011 | 0.020, 0.064 | < .001 |
|  | Within Session \* Within State | -0.002 | 0.005 | -0.012, 0.007 | .600 |
|  | Within Participant \* Within Session \* Within State | 0.066 | 0.022 | 0.023, 0.109 | .002 |
| Random Effects | | | | | |
|  | Participant Pair | 0.061 |  | 0.051, 0.074 |  |
|  | X Connectome | 0.265 |  | 0.237, 0.297 |  |
|  | Y Connectome | 0.290 |  | 0.259, 0.324 |  |
| No. Obs. = 14,028; Phi coefficient = 777; Log-likelihood = 43,845; AIC = -87,666; BIC = -87,575; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |

Table 23: Summary of the maximal mixed beta regression model of phase coupling (Hilbert transform) functional connectome similarity in the gamma band.

| Type | Term | Estimate1 | SE | 95% CI | *p* |
| --- | --- | --- | --- | --- | --- |
| Fixed Effects | | | | | |
|  | (Intercept) | 2.635 | 0.054 | 2.530, 2.740 | < .001 |
|  | Within Participant | 0.065 | 0.035 | -0.004, 0.133 | .064 |
|  | Within Session | 0.001 | 0.004 | -0.007, 0.008 | .812 |
|  | Within State | 0.000 | 0.003 | -0.006, 0.006 | .976 |
|  | Within Participant \* Within Session | 0.026 | 0.015 | -0.003, 0.055 | .081 |
|  | Within Participant \* Within State | -0.018 | 0.013 | -0.043, 0.007 | .156 |
|  | Within Session \* Within State | 0.001 | 0.005 | -0.010, 0.012 | .852 |
|  | Within Participant \* Within Session \* Within State | 0.039 | 0.025 | -0.010, 0.087 | .117 |
| Random Effects | | | | | |
|  | Participant Pair | 0.100 |  | 0.080, 0.123 |  |
|  | X Connectome | 0.528 |  | 0.472, 0.590 |  |
|  | Y Connectome | 0.366 |  | 0.323, 0.416 |  |
| No. Obs. = 14,028; Phi coefficient = 637; Log-likelihood = 43,991; AIC = -87,958; BIC = -87,868; Residual df = 14,016 | | | | | |
| 1Estimates for fixed effects and random effects are, respectively, coefficients for the mean model (with logit link) and standard deviations for the grouping variables (random intercepts). | | | | | |