Supplementary Materials

Resting-State Electroencephalogram Complexity Is Associated With Oral Ketamine Treatment Response: A Bayesian Analysis of Lempel–Ziv Complexity and Multiscale Entropy

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Note: All figures are provided on Github at https://github.com/JulesMitchell/RestComplexity

Supplementary A. Priors

Table S1. BRMS prior specification

	Intercept	Beta (Mean, SD)	Sigma (Df, Mean, SD)	Standard Deviation (Mean, SD)
Lempel-Ziv Complexity	Normal (0.5, 0.1)	Normal (0, 0.1)	Student_t (3, 0.05, 0.05)	Cauchy (0, 0.01)
Multi-Scale Entropy	Normal (1.2, 0.2)			

Supplementary B. Model Comparison

Table S2. Comparison of R-Squared values across Lempel-Ziv Complexity models (Note: Estimates calculated with chains = 2, and iterations = 2000).

Model Formula	R^2	Estimated Error	Q2.5	Q97.5
LZC | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task	0.2504	0.0462	0.1555	0.3386
LZC | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 | Subject)	0.7304	0.0249	0.6743	0.7719
LZC | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint || Subject)	0.7569	0.0268	0.6991	0.8033
LZC | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder || Subject)	0.7564	0.0272	0.6995	0.8056
LZC | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder + Task || Subject)	0.8339	0.0359	0.7508	0.8901

Table S3. Comparison of leave-one-out cross validation (LOO) expected log pointwise predictive density (ELPD) across Lempel-Ziv Complexity models. (Note: Estimates calculated with chains = 2, and iterations = 2000). Standard error, SE.

Model Formula	ELPD_LOO (SE)
LZC | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder + Task || Subject)	326.163 (9.0217)
LZC | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint || Subject)	310.5318 (9.6305)
LZC | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder || Subject)	309.8358 (9.5893)
LZC | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 | Subject)	308.3047 (9.8947)
LZC | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task	232.1536 (10.3459)

Table S4. Comparison of R-Squared values across Multi-Scale Entropy models (Note: Estimates calculated with chains = 2, and iterations = 2000).

Model Formula	Response Variable	R^2	Est.Error	Q2.5	Q97.5
mvbind (Scale 1, Scale 2, … Scale 10) | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task	Scale 1	0.2466	0.0466	0.154	0.3344
	Scale 2	0.2375	0.045	0.1499	0.324
	Scale 3	0.2035	0.0448	0.1156	0.2892
	Scale 4	0.1402	0.04	0.0665	0.2212
	Scale 5	0.1161	0.0363	0.0505	0.1917
	Scale 6	0.1617	0.0422	0.0854	0.2478
	Scale 7	0.2217	0.0434	0.1326	0.3059
	Scale 8	0.2506	0.0468	0.1586	0.3433
	Scale 9	0.2604	0.0457	0.1664	0.3449
	Scale 10	0.2376	0.046	0.1458	0.3248
mvbind (Scale 1, Scale 2, … Scale 10) | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 |p| Subject)	Scale 1	0.7581	0.019	0.7174	0.7904
	Scale 2	0.781	0.0167	0.7424	0.8094
	Scale 3	0.7716	0.0172	0.7349	0.7997
	Scale 4	0.7444	0.0198	0.6998	0.7775
	Scale 5	0.7285	0.0209	0.6831	0.7639
	Scale 6	0.7504	0.019	0.7083	0.7813
	Scale 7	0.7788	0.0168	0.7415	0.8063
	Scale 8	0.7853	0.0159	0.749	0.812
	Scale 9	0.789	0.0153	0.7553	0.8146
	Scale 10	0.7764	0.0173	0.7393	0.8064
mvbind (Scale 1, Scale 2, … Scale 10) | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint |p| Subject)	Scale 1	0.7531	0.0212	0.7072	0.7885
	Scale 2	0.7752	0.0173	0.7369	0.8046
	Scale 3	0.7644	0.0187	0.7225	0.7953
	Scale 4	0.7384	0.0211	0.6919	0.7743
	Scale 5	0.721	0.0231	0.6676	0.7586
	Scale 6	0.7422	0.0215	0.6954	0.7768
	Scale 7	0.7725	0.0183	0.7306	0.8013

	Scale 8	0.7794	0.0178	0.7391	0.8081
	Scale 9	0.7834	0.017	0.7457	0.8116
	Scale 10	0.7743	0.0181	0.7348	0.8053
mvbind (Scale 1, Scale 2, … Scale 10) | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder|p| Subject)	Scale 1	0.7715	0.0236	0.7215	0.8121
	Scale 2	0.7932	0.0217	0.7461	0.831
	Scale 3	0.8051	0.0206	0.7609	0.8385
	Scale 4	0.8	0.0204	0.7551	0.8355
	Scale 5	0.7925	0.0263	0.7331	0.8366
	Scale 6	0.8259	0.0214	0.7757	0.86
	Scale 7	0.8451	0.0193	0.8011	0.8758
	Scale 8	0.8483	0.0193	0.8039	0.8794
	Scale 9	0.8411	0.0199	0.7965	0.873
	Scale 10	0.8213	0.0209	0.7749	0.858
mvbind (Scale 1, Scale 2, … Scale 10) | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder + Task |p| Subject)	Scale 1	0.8629	0.0218	0.8135	0.8989
	Scale 2	0.8976	0.0159	0.8605	0.9229
	Scale 3	0.9256	0.0119	0.8978	0.9443
	Scale 4	0.9341	0.0103	0.9117	0.951
	Scale 5	0.9241	0.0113	0.8976	0.9433
	Scale 6	0.9209	0.0113	0.8953	0.9396
	Scale 7	0.9227	0.0106	0.9002	0.9407
	Scale 8	0.9246	0.0108	0.9006	0.942
	Scale 9	0.9206	0.0112	0.8951	0.9391
	Scale 10	0.9042	0.0145	0.8728	0.9283

Table S5. Comparison of leave-one-out cross validation (LOO) expected log pointwise predictive density (ELPD) across Multi-Scale Entropy models. (Note: Estimates calculated with chains = 2, and iterations = 2000). Standard error, SE.

Model Formula	ELPD LOO (SE)
mvbind (Scale 1, Scale 2, … Scale 10) | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder + Task |p| Subject)	3313.056 (51.297)
mvbind (Scale 1, Scale 2, … Scale 10) | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder|p| Subject)	2831.846 (78.339)
mvbind (Scale 1, Scale 2, … Scale 10) | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 |p| Subject)	2757.517 (94.615)
mvbind (Scale 1, Scale 2, … Scale 10) | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint |p| Subject)	2731.215 (93.834)
mvbind (Scale 1, Scale 2, … Scale 10) | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task	1820.107 (77.324)

Table S6. R-Squared values for channel-level Lempel-Ziv Complexity model.

	R^2	Est.Error	Q2.5	Q97.5
Fp1| resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder + Task || Subject)	0.773	0.034	0.696	0.831
AF3 | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder + Task || Subject)	0.783	0.031	0.713	0.838
FC1 | resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder + Task || Subject)	0.793	0.039	0.703	0.855
F3| resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder + Task || Subject)	0.671	0.046	0.571	0.748

Table S7. Leave-one-out cross validation (LOO) expected log pointwise predictive density (ELPD) for channel-level Lempel-Ziv Complexity model. Standard error, SE.

	ELPD_LOO (SE)
mvbind (Fp1, AF3, FC1, F3)| resp_trunc(lb = 0) ~ 1 + Responder * Timepoint * Task + (1 + Timepoint + Responder + Task || Subject)	937.987 (29.913)

Supplementary C. Prior predictive checks (Final Model Only)

Figure S1. Histogram plots of prior predicted Lempel-Ziv Complexity values

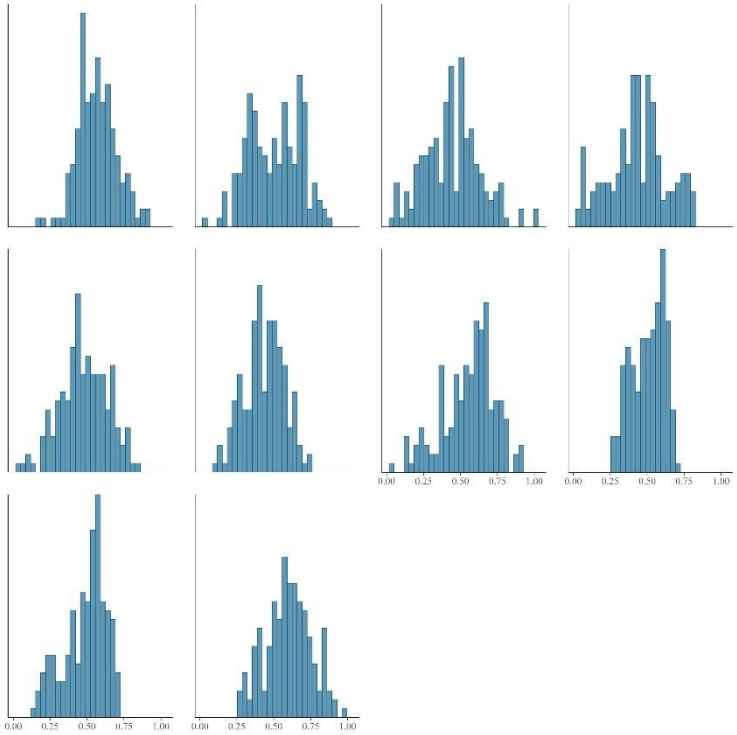
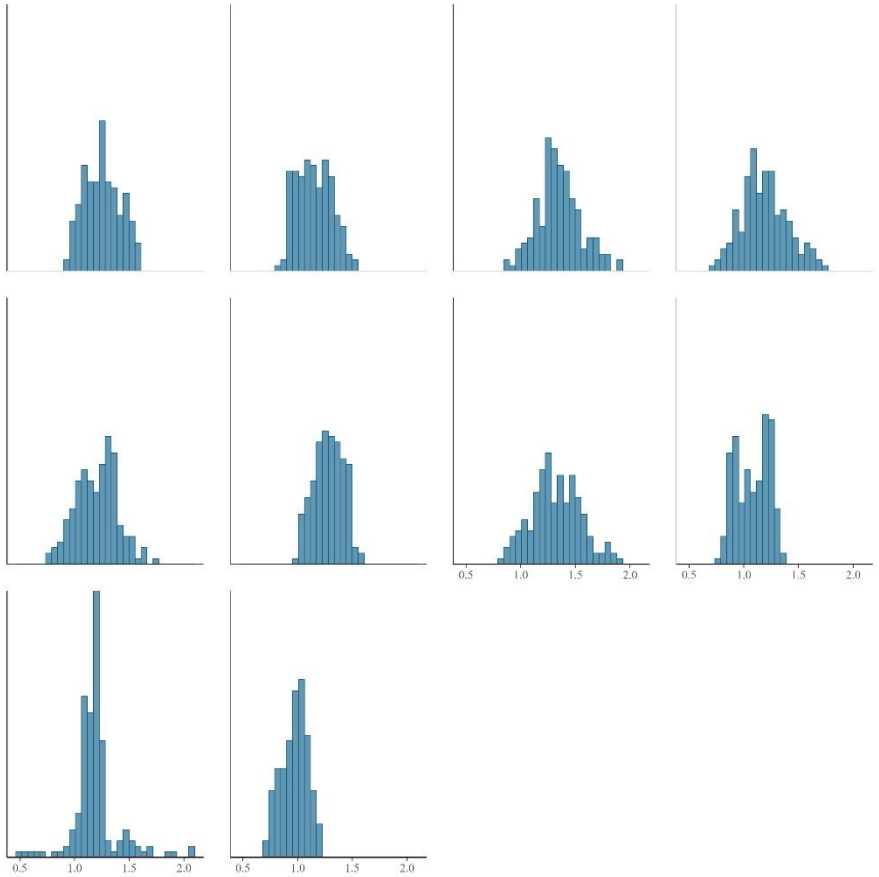


Figure S2. Histogram plots of prior predicted Multi-Scale Entropy values for Scale 1. Note: Plots for MSE scales 2-10 are available at GitHub link.



Supplementary D. Model Performance and Convergence

Autocorrelation

Figure S3a. Autocorrelation plots for Lempel-Ziv Complexity. Note: From left to right, the columns represent;

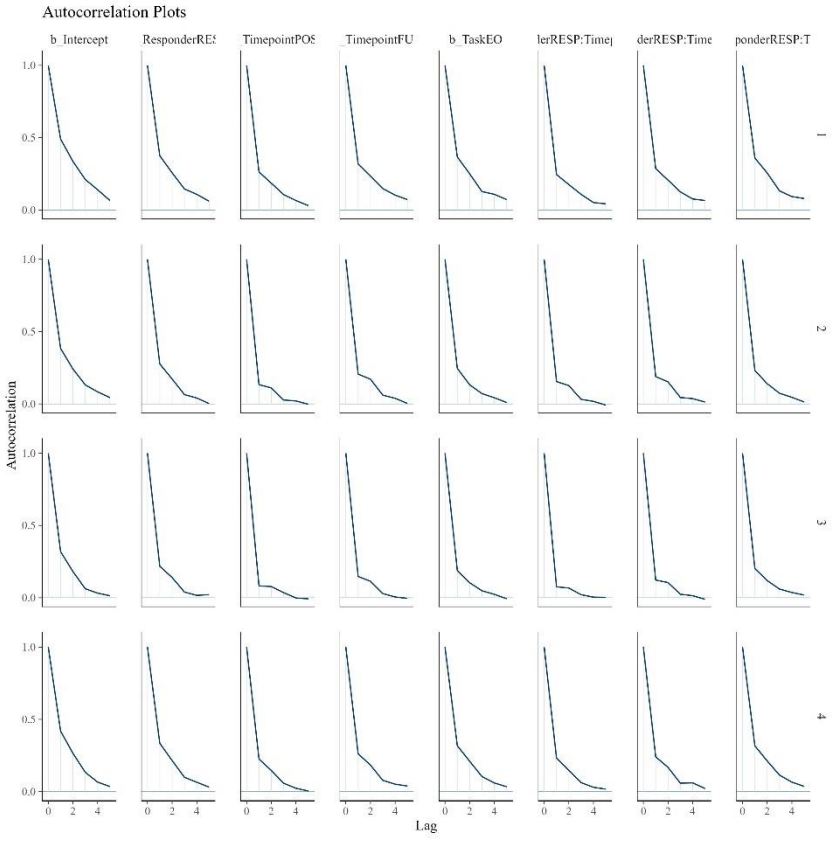


Figure S3b. Autocorrelation plots for Lempel-Ziv Complexity. Note: From left to right, the columns represent;

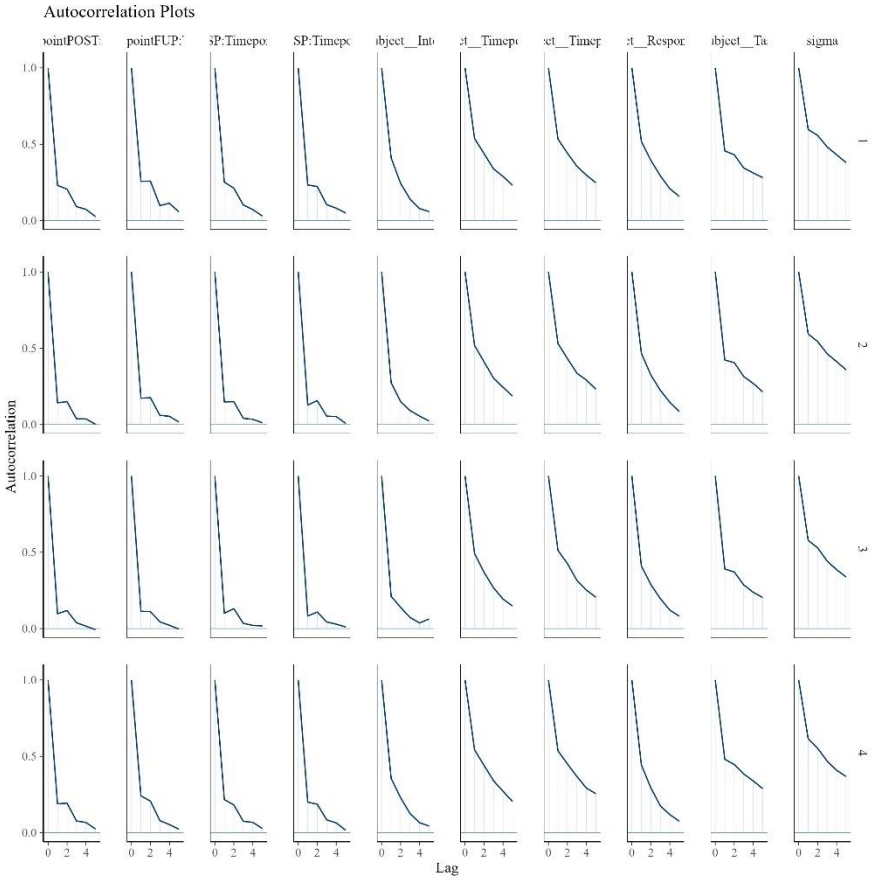


Figure S4a. Autocorrelation plots for Multi-Scale Entropy Intercept. Note: From left to right, the columns represent scales 1-10. Note: Plots for MSE scales 2-10 are available at GitHub link.

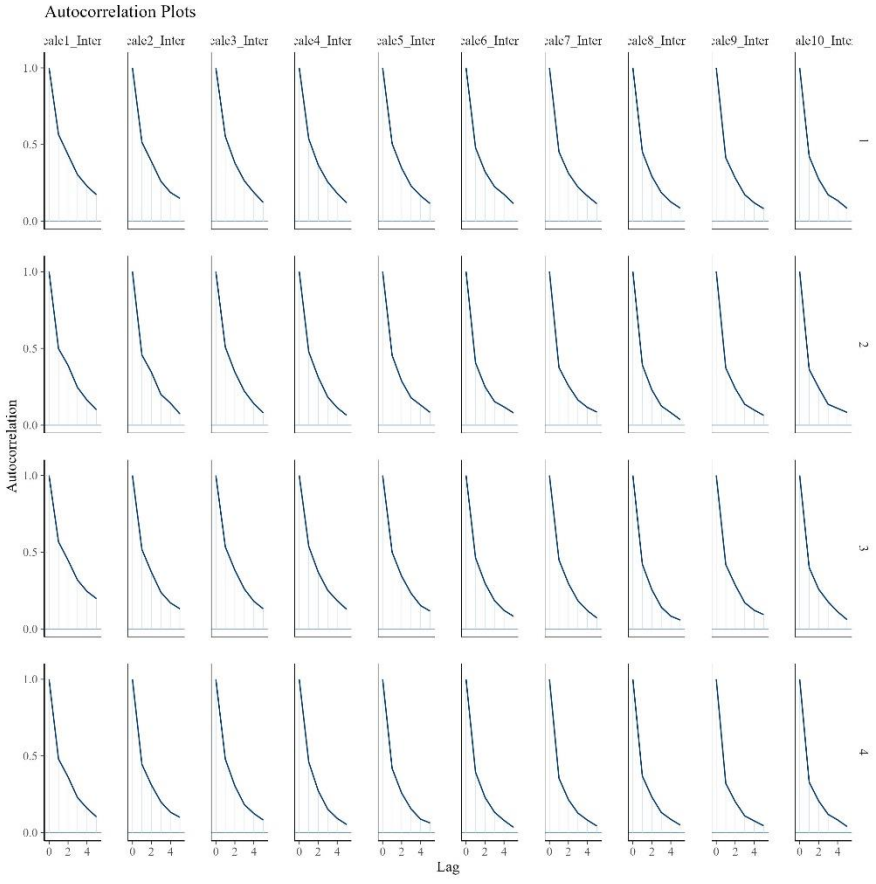
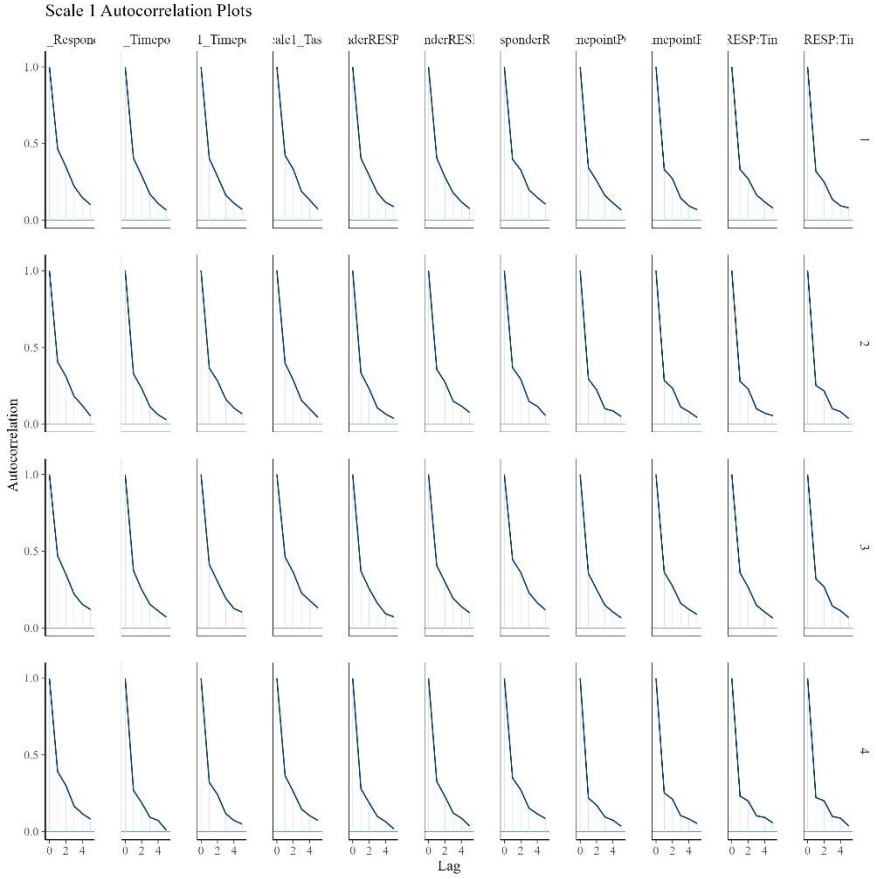


Figure S4b. Autocorrelation plots for Multi-Scale Entropy Scale 1. Note: From left to right, the columns represent scale 1 betas for fixed effects and interactions. Note: Plots for MSE scales 2-10 are available at GitHub link.



R-hat Values

Figure S5. Histogram plot of Lempel-Ziv Complexity model R-Hat values.

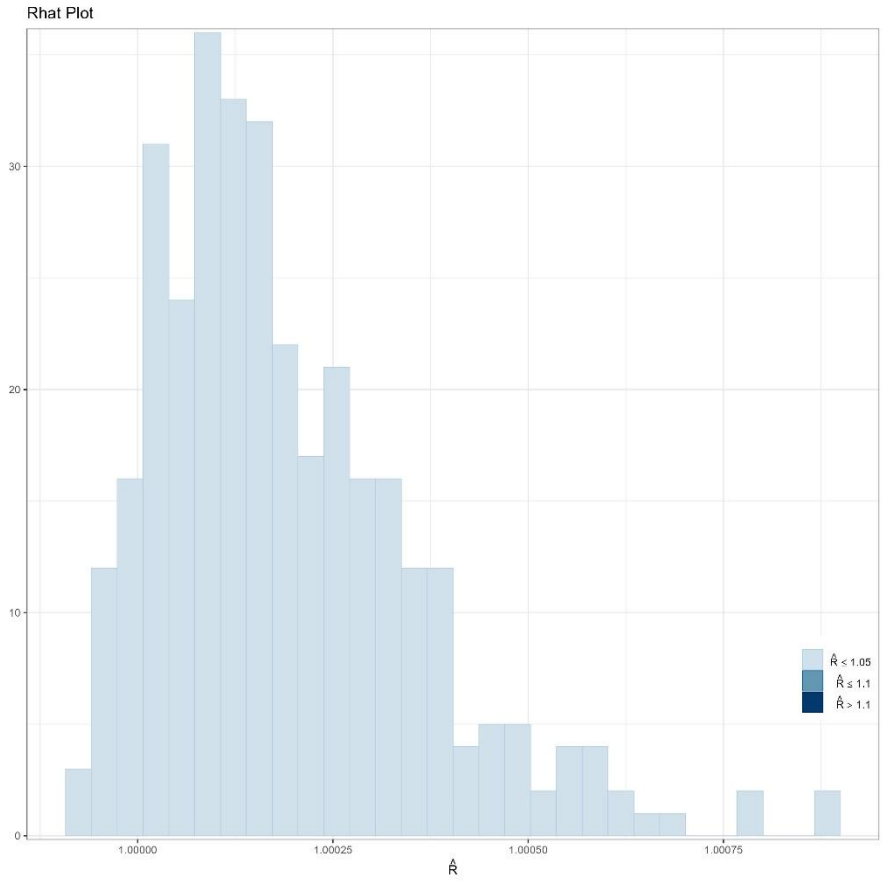
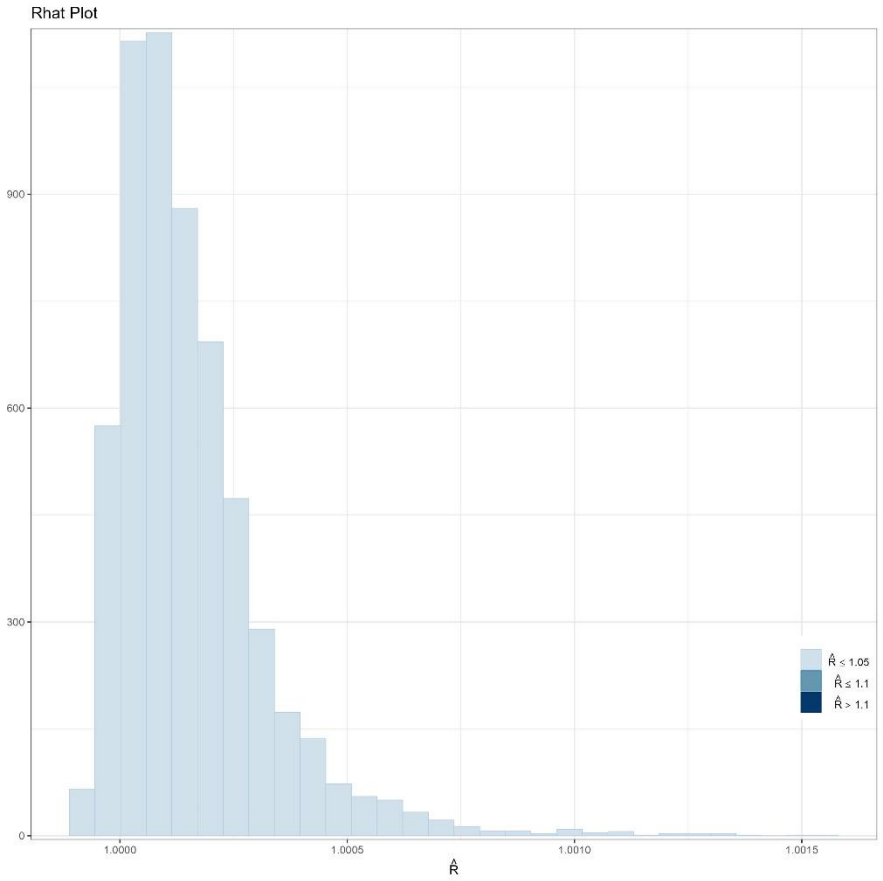


Figure S6. Histogram plot of Multi-Scale Entropy model R-Hat values.



Error Distribution

Figure S7. Histogram plot of Lempel-Ziv Complexity model error distribution.

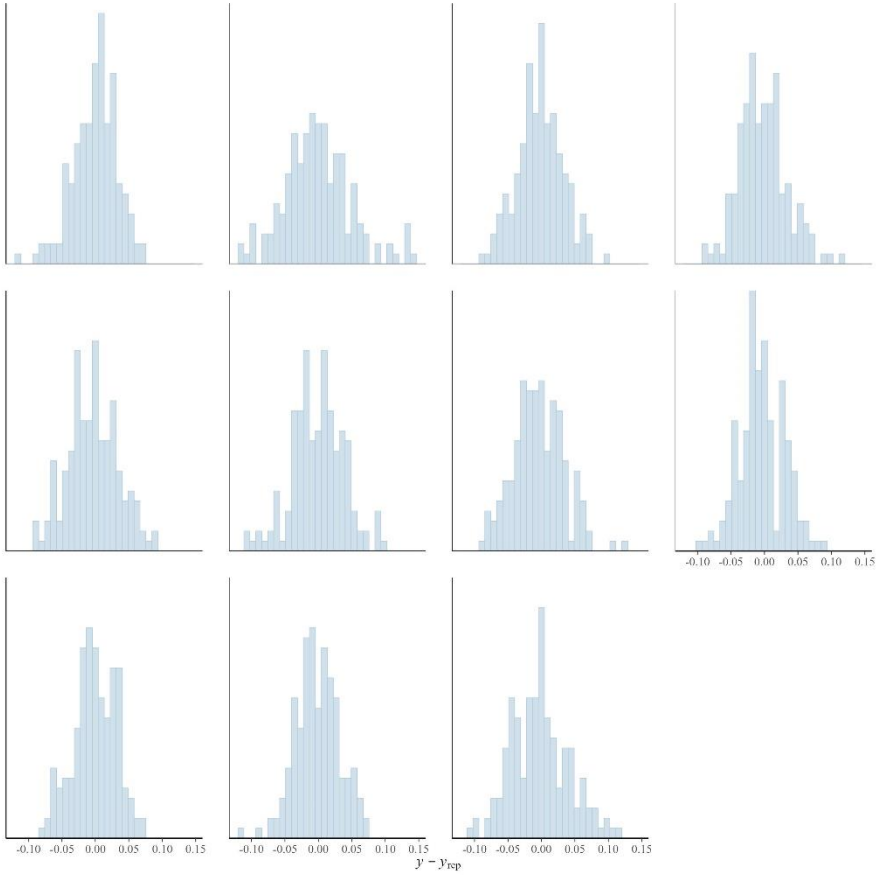
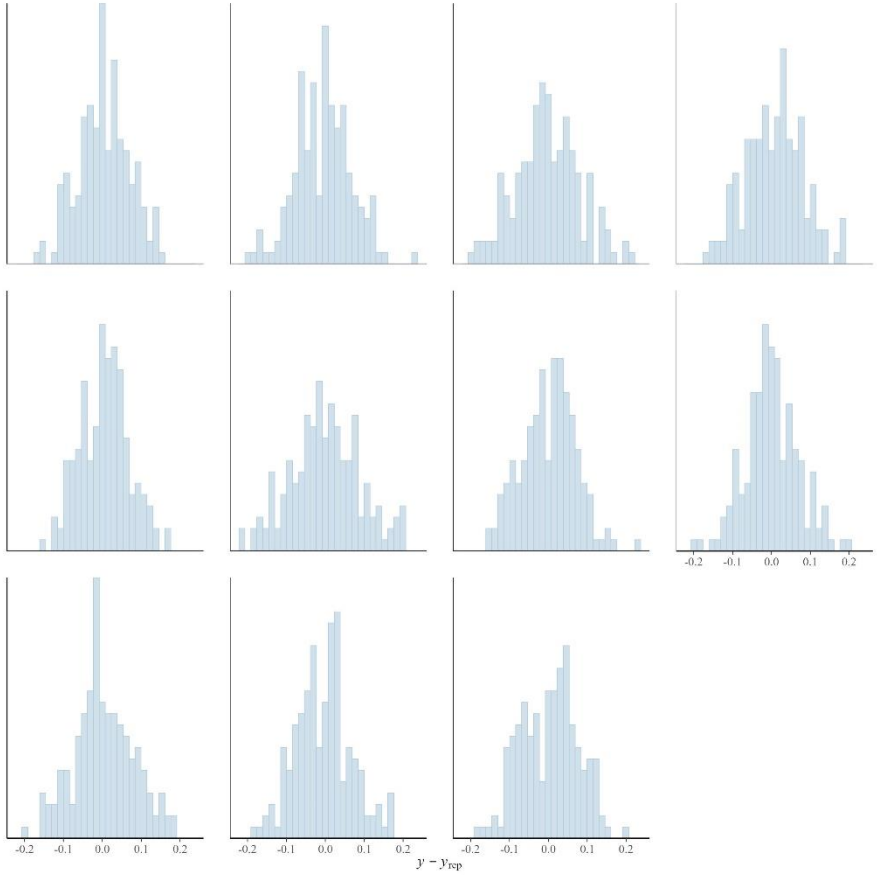


Figure S8. Histogram plot of Multi-Scale Entropy model error distribution for Scale 1. Note: Plots for MSE scales 2-10 available at GitHub link.



Effective Sampling

Figure S9. Histogram plot of Lempel-Ziv Complexity model effective sampling distribution.

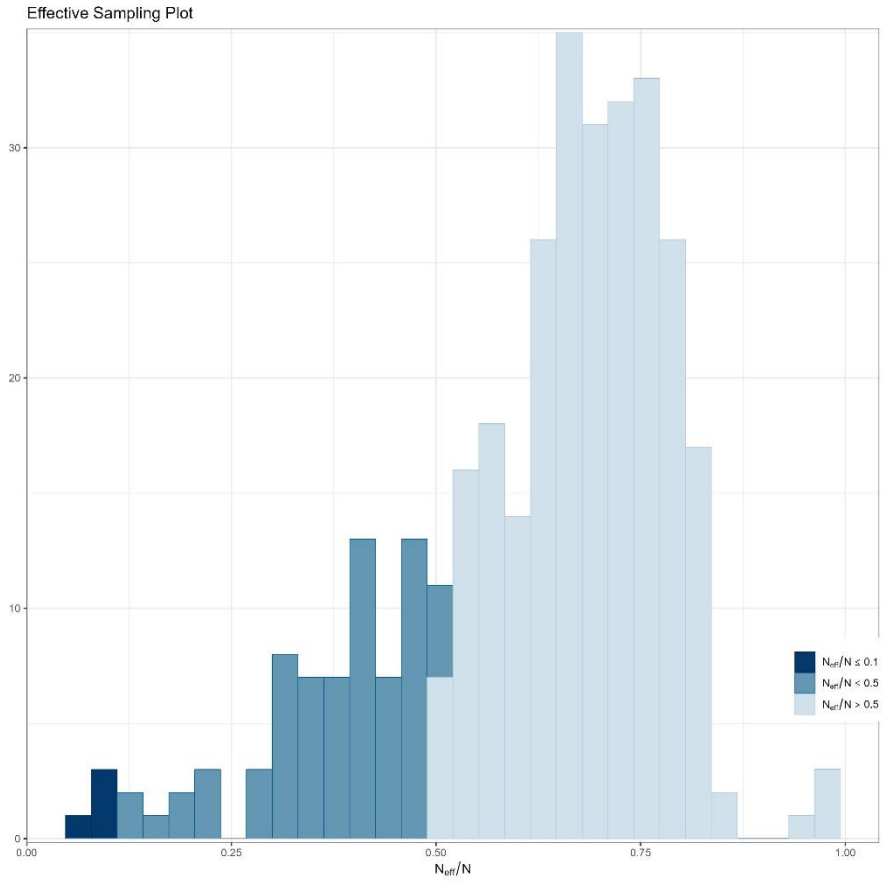
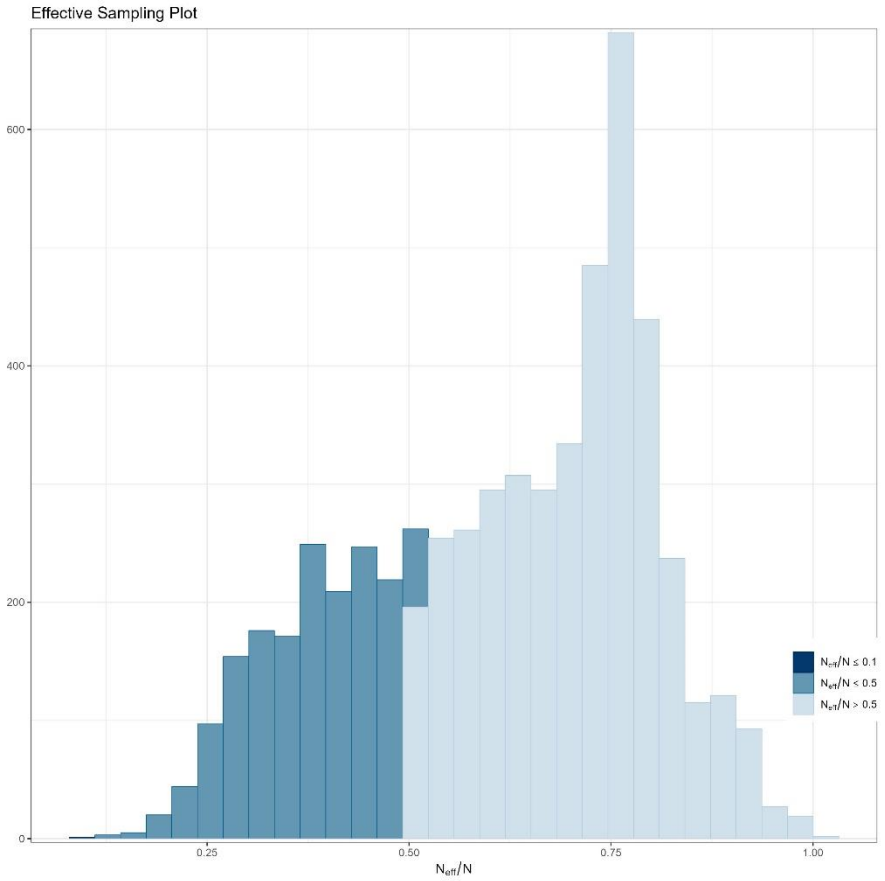


Figure S10. Histogram plot of Multi-Scale Entropy model effective sampling distribution.



Observed versus Predicted

Figure S11. Scatter plot of observed versus predicted values for the Lempel-Ziv Complexity model.

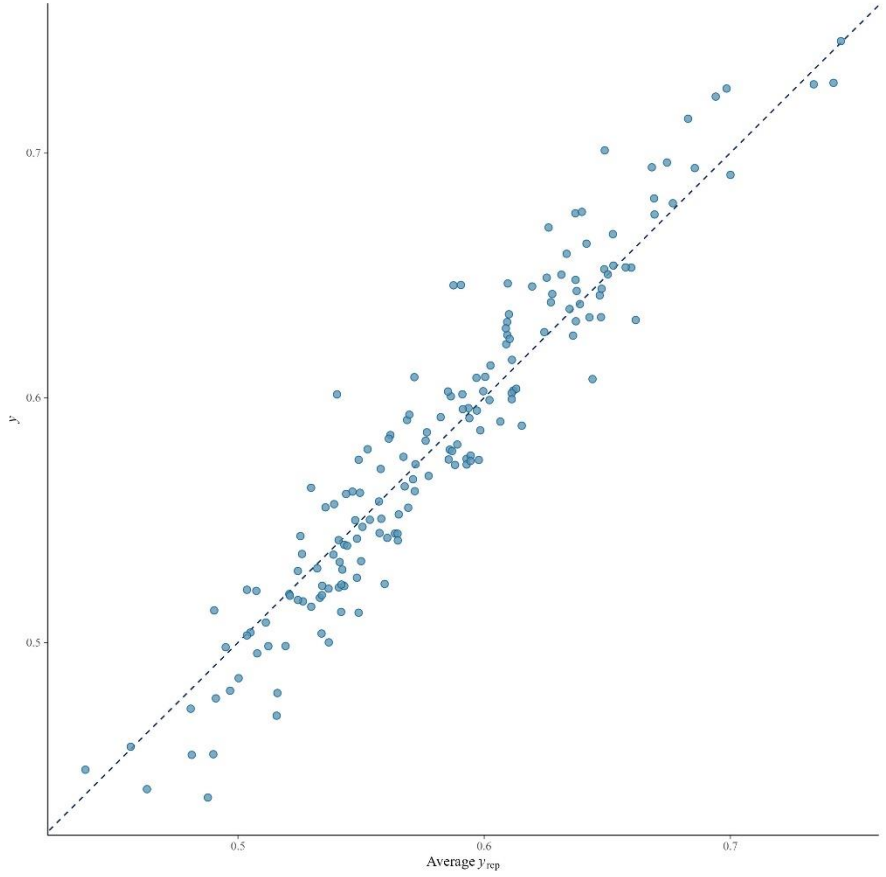
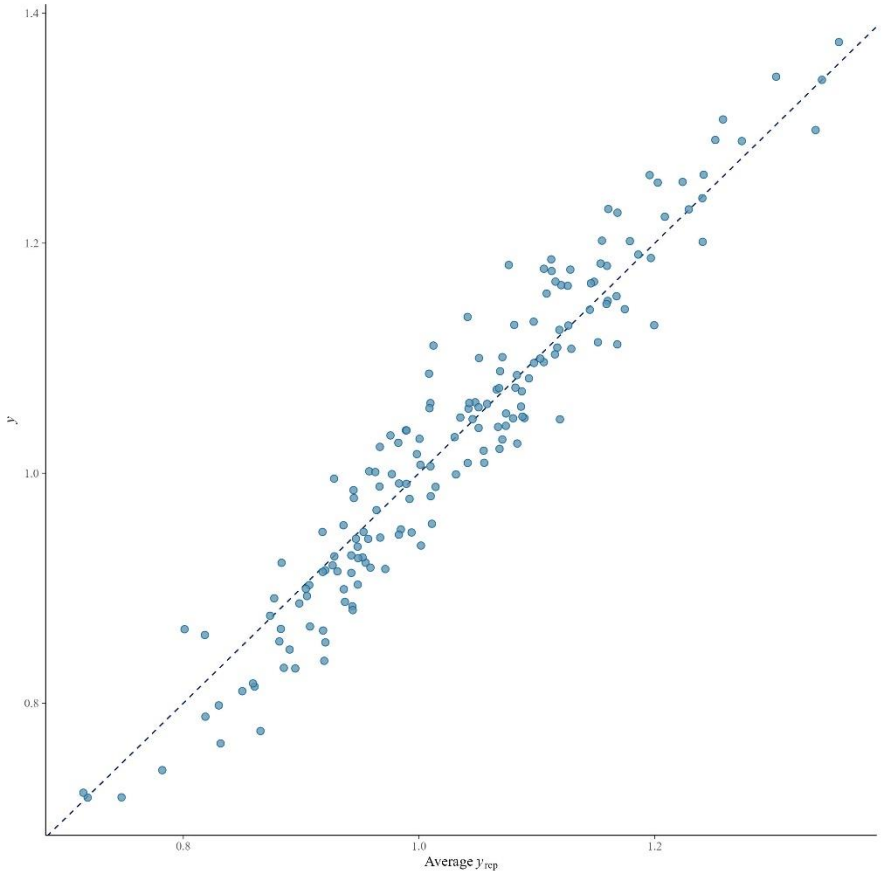


Figure S12.Scatter plot of observed versus predicted values for the Multi-Scale Entropy model for Scale 1. Note: Plots for MSE scales 2-10 available at GitHub link.



Trace Plots

Figure S13a. Trace plots of model chains for the Lempel-Ziv Complexity model.

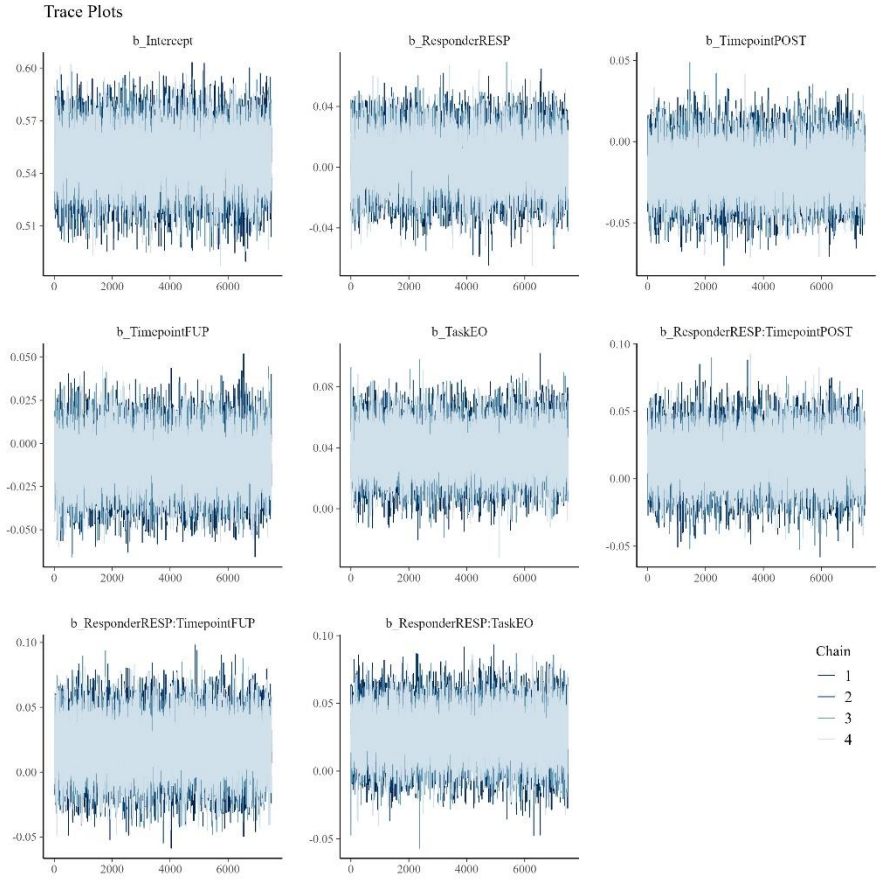


Figure 13b. Trace plots of model chains for the Lempel-Ziv Complexity model.

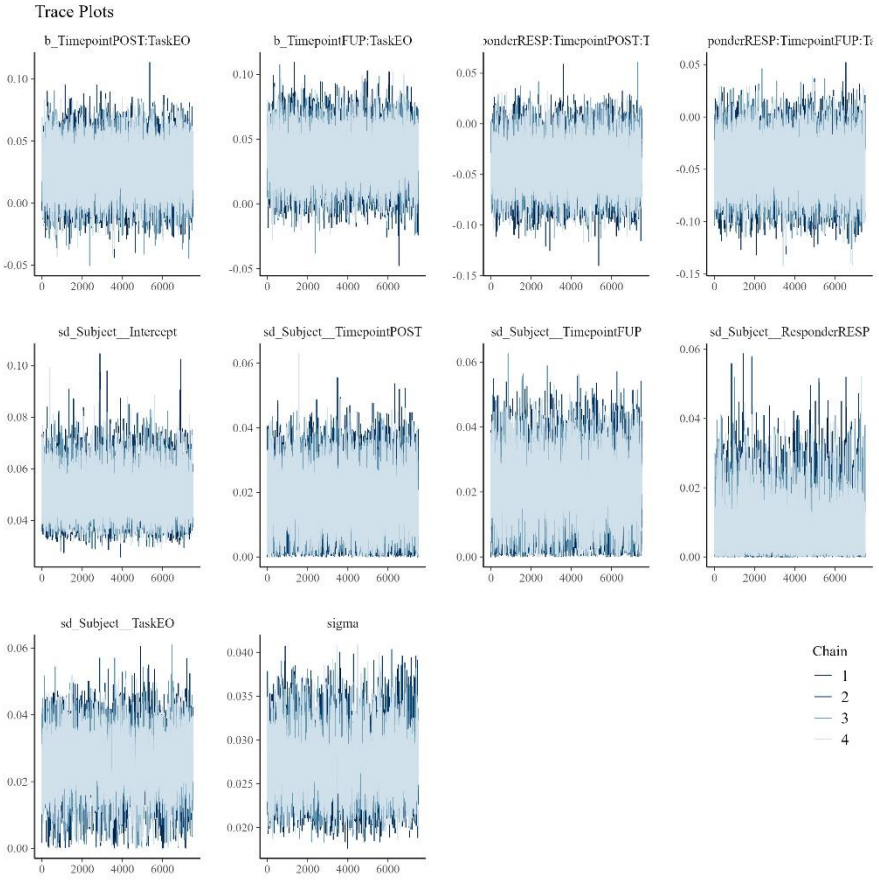


Figure S14a. Trace plots of model chains for the Multi-Scale Entropy model intercept estimates. Note: Plots for MSE scales 2-10 available at GitHub link.

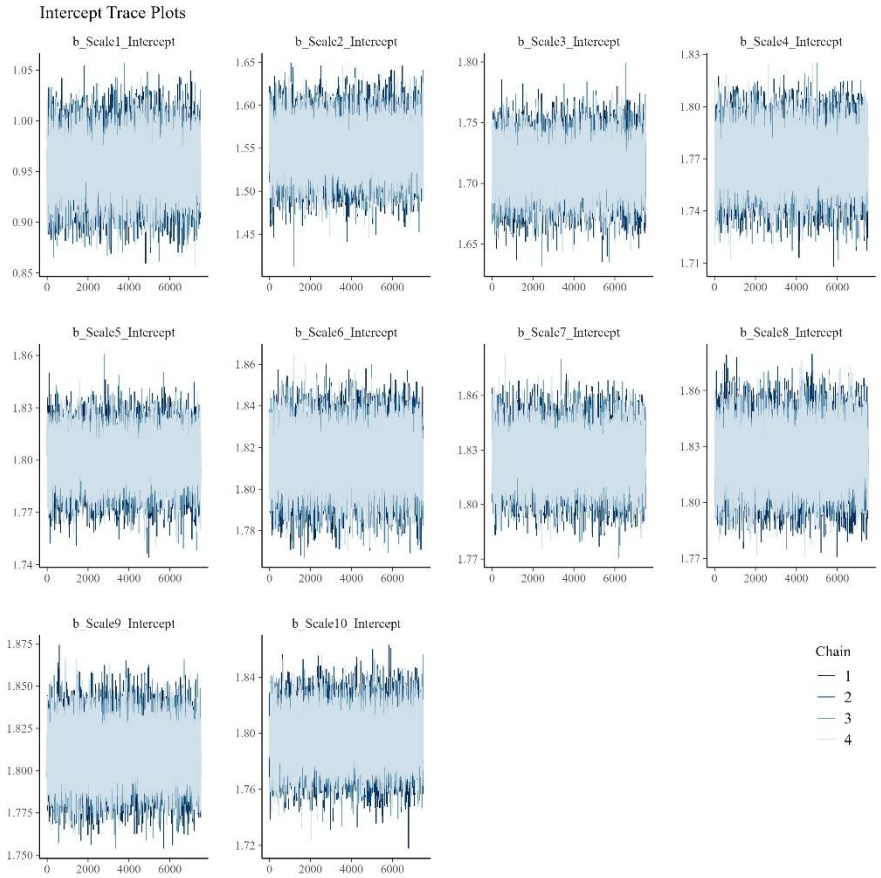
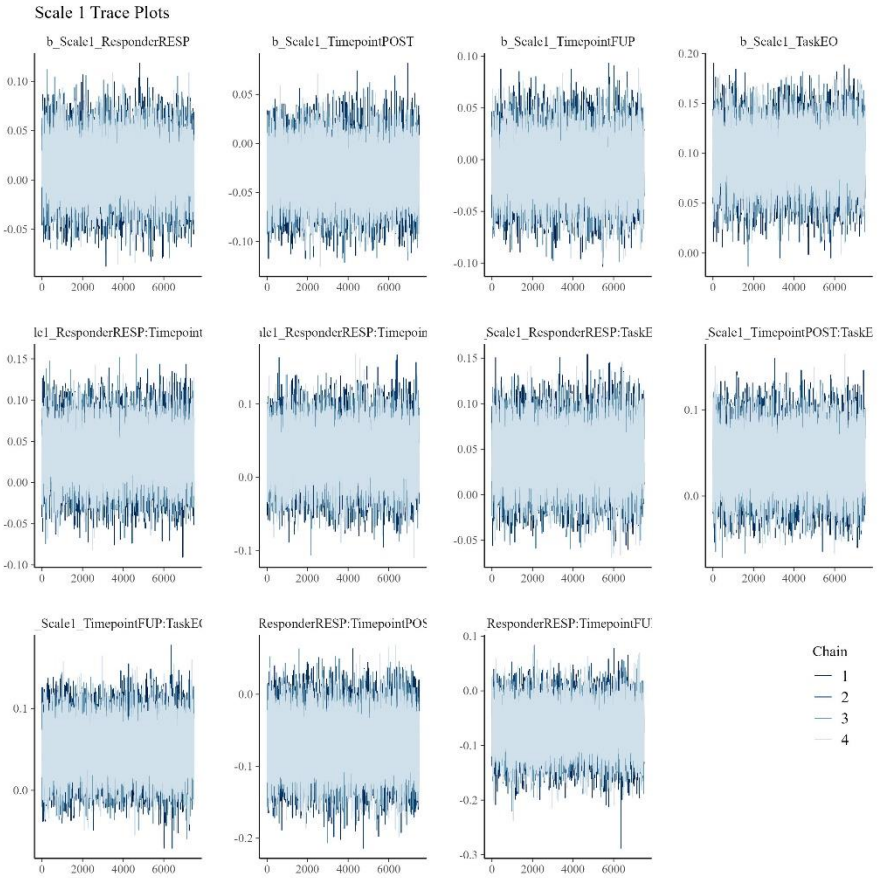


Figure S14b. Trace plots of model chains for the Multi-Scale Entropy model scale 1 estimates. Note: Plots for MSE scales 2-10 available at GitHub link.



Supplementary E. Posterior Predictive Checks

Overall

Figure S15. Density overlay plot comparing observed versus simulated Lempel-Ziv Complexity values from the posterior predictive distribution.

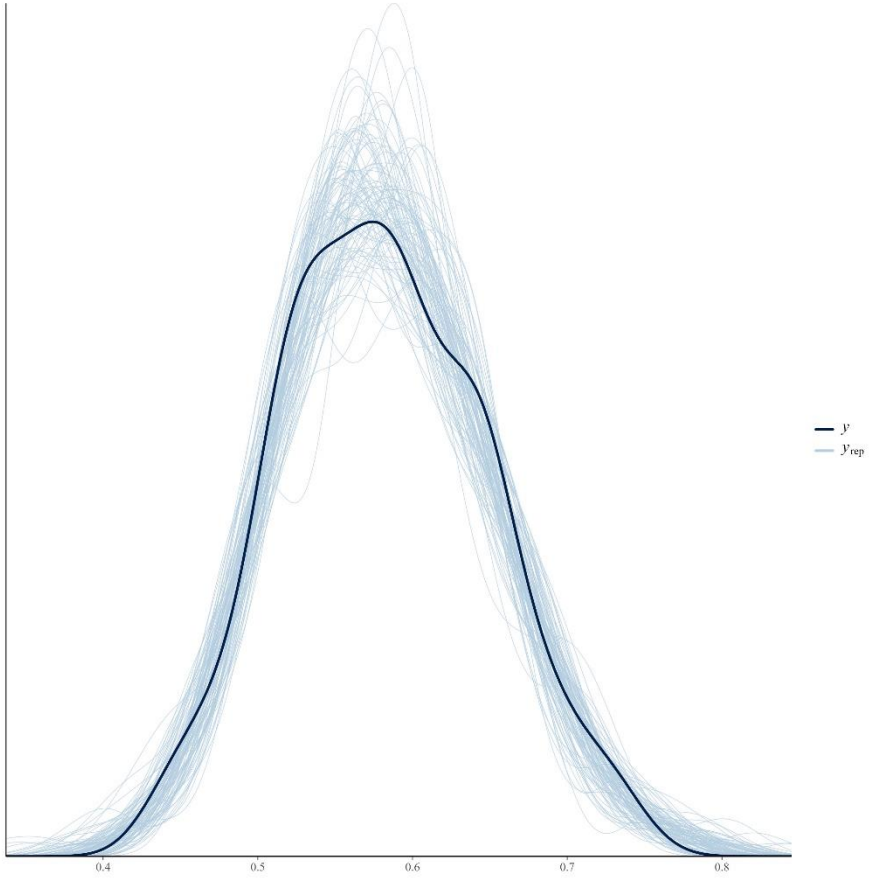
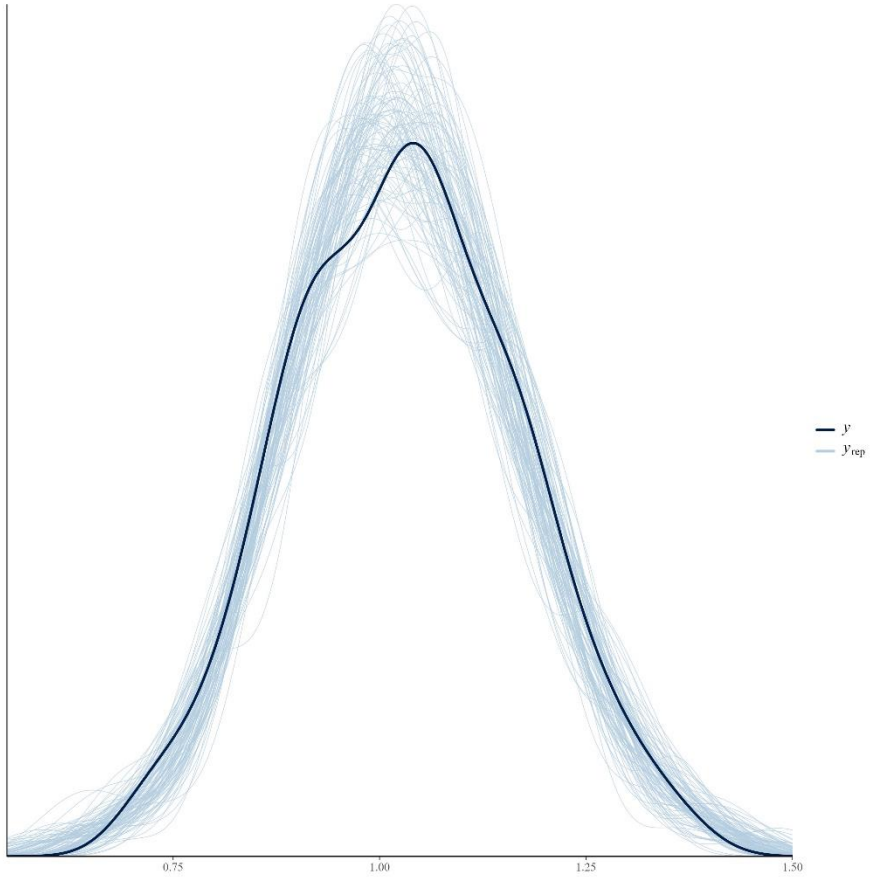


Figure S16. Density overlay plot comparing observed versus simulated Multi-Scale Entropy Scale 1 values from the posterior predictive distribution. Note: Plots for MSE scales 2-10 available at GitHub link.



Minimum Values

Figure S17a. Histogram plot comparing observed versus simulated Lempel-Ziv Complexity minimum values across responders from the posterior predictive distribution.

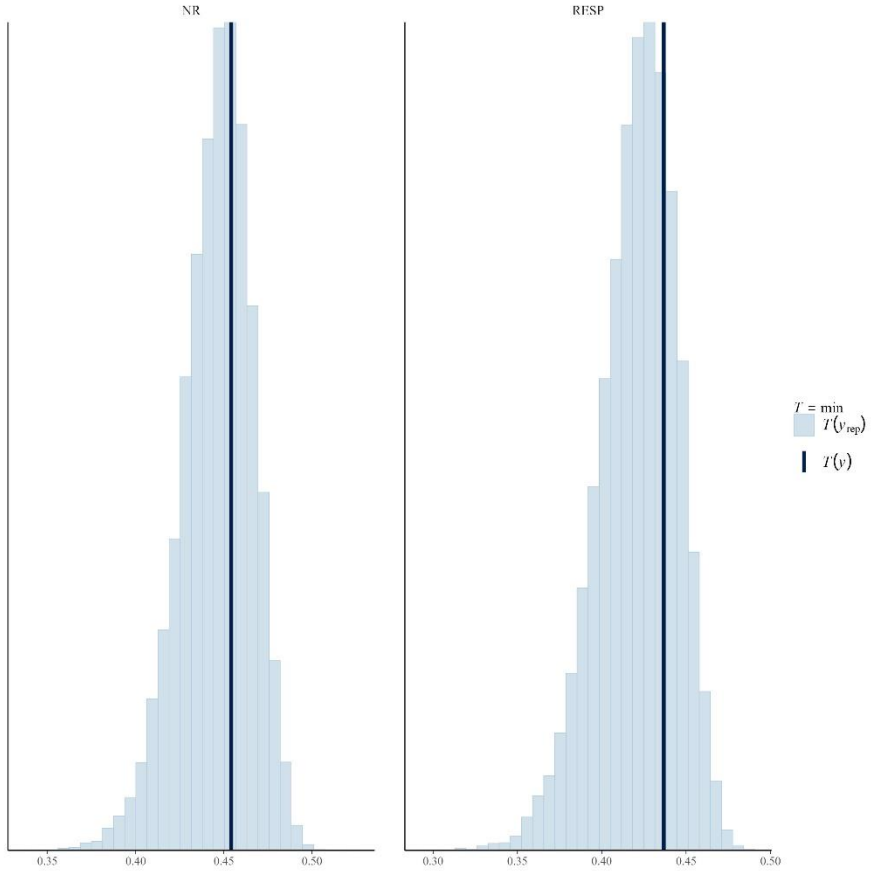


Figure S17b. Histogram plot comparing observed versus simulated Lempel-Ziv Complexity minimum values across tasks from the posterior predictive distribution.

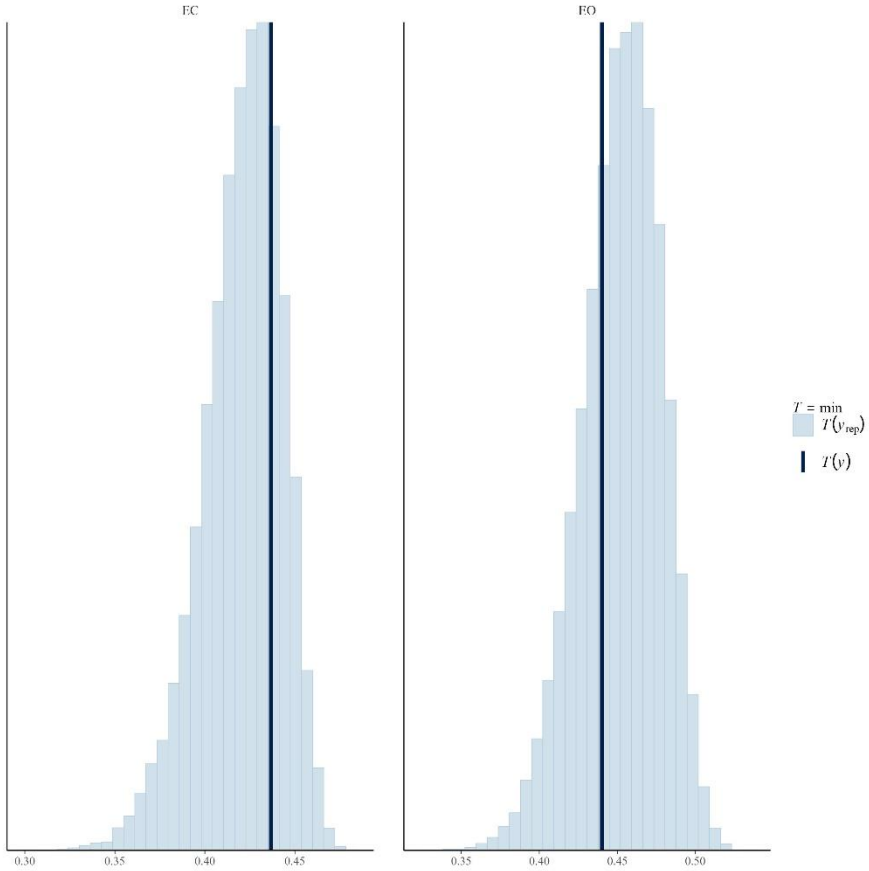


Figure S17c. Histogram plot comparing observed versus simulated Lempel-Ziv Complexity minimum values across timepoints from the posterior predictive distribution.

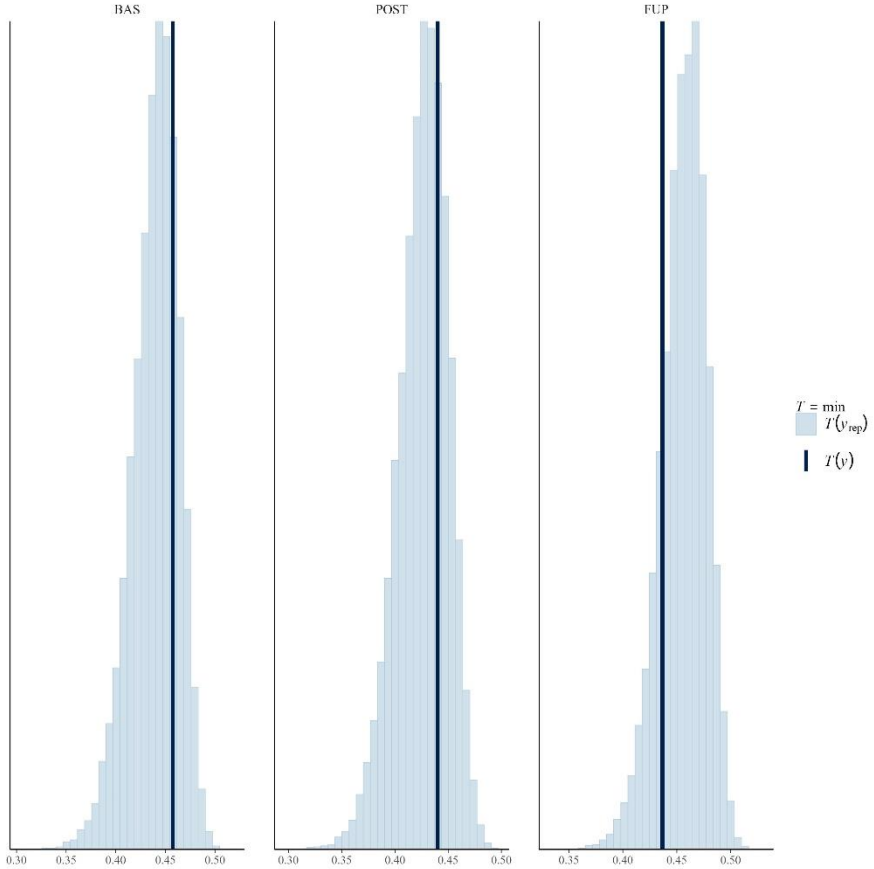


Figure S17d. Histogram plot comparing observed versus simulated Multi-Scale Entropy minimum values across responders from the posterior predictive distribution.

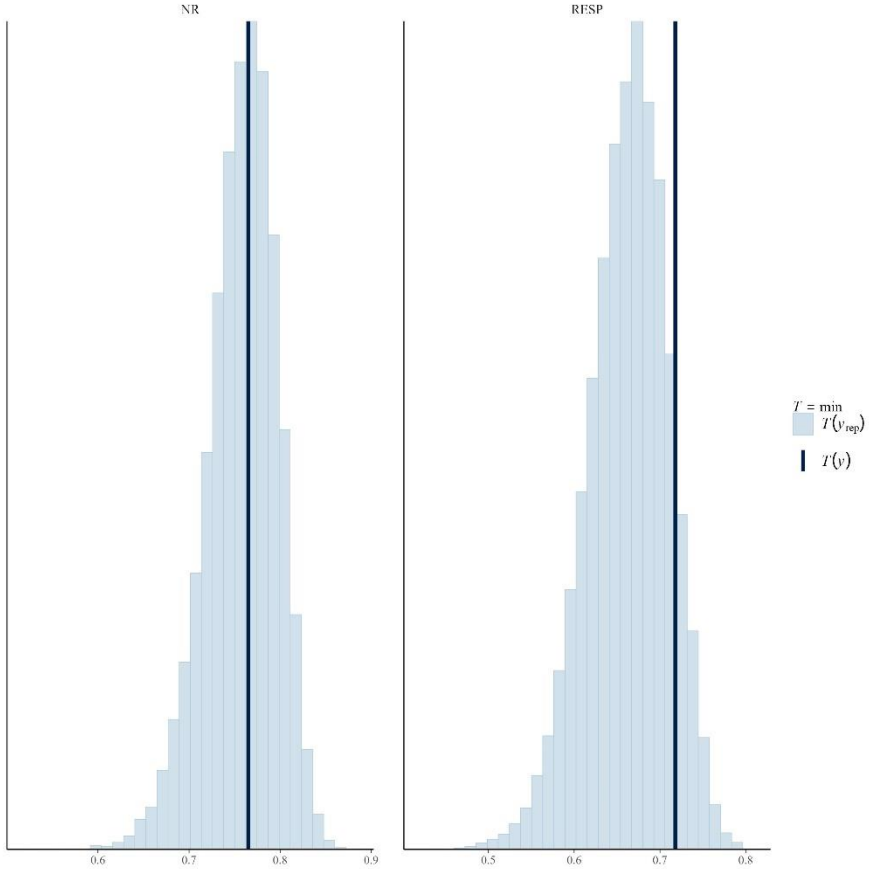


Figure S17e. Histogram plot comparing observed versus simulated Multi-Scale Entropy minimum values across tasks from the posterior predictive distribution.

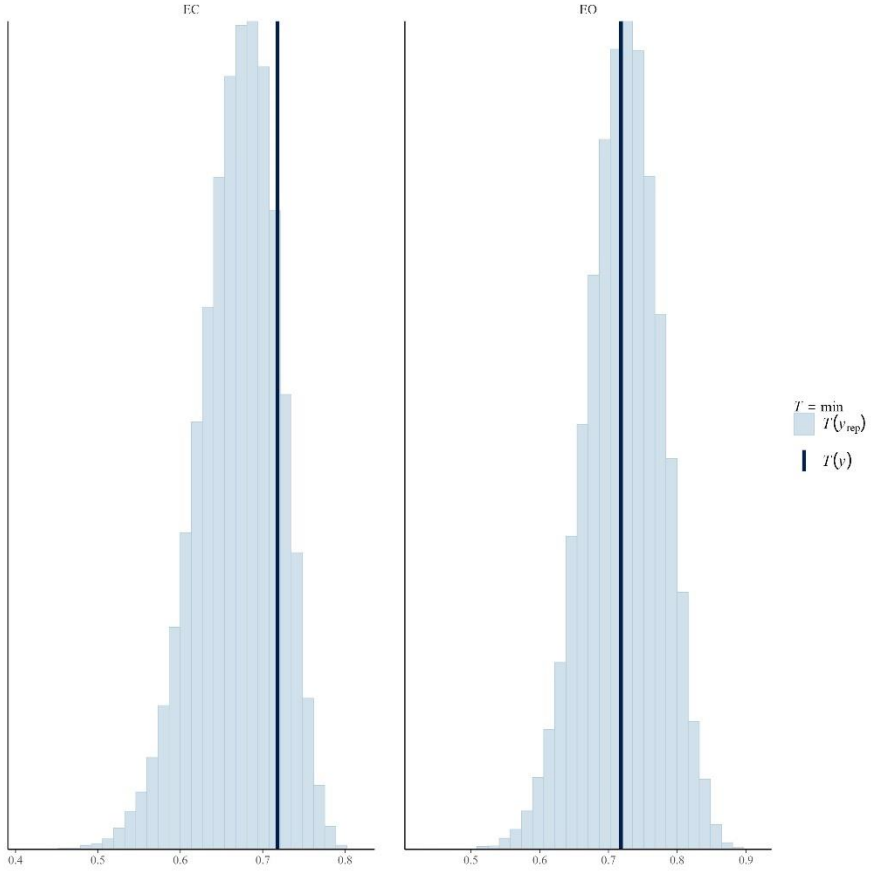
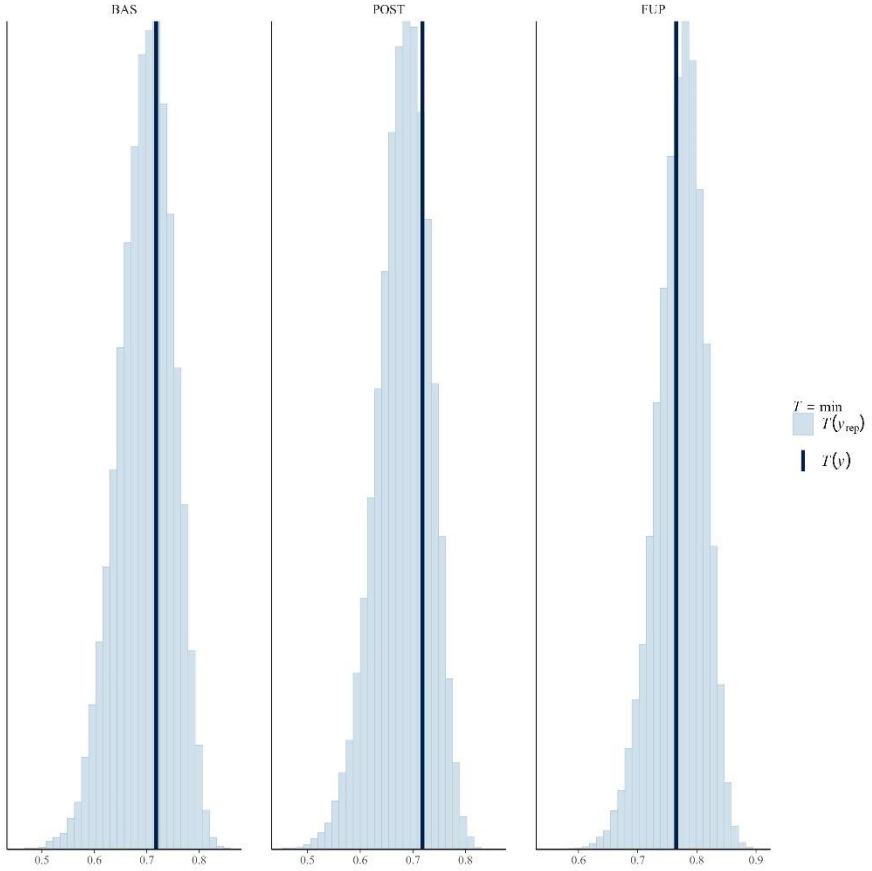


Figure S17f. Histogram plot comparing observed versus simulated Multi-Scale Entropy minimum values across timepoints from the posterior predictive distribution.



Mean Values

Figure S18a. Histogram plot comparing observed versus simulated Lempel-Ziv Complexity mean values across responders from the posterior predictive distribution.

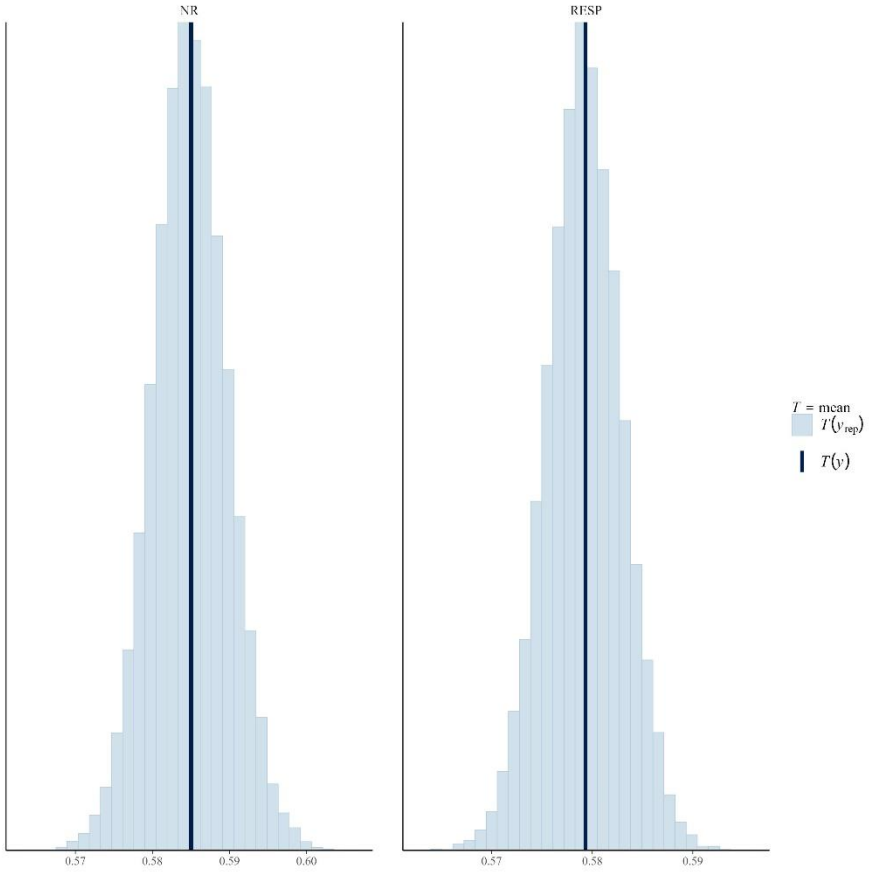


Figure S18b. Histogram plot comparing observed versus simulated Lempel-Ziv Complexity mean values across tasks from the posterior predictive distribution.

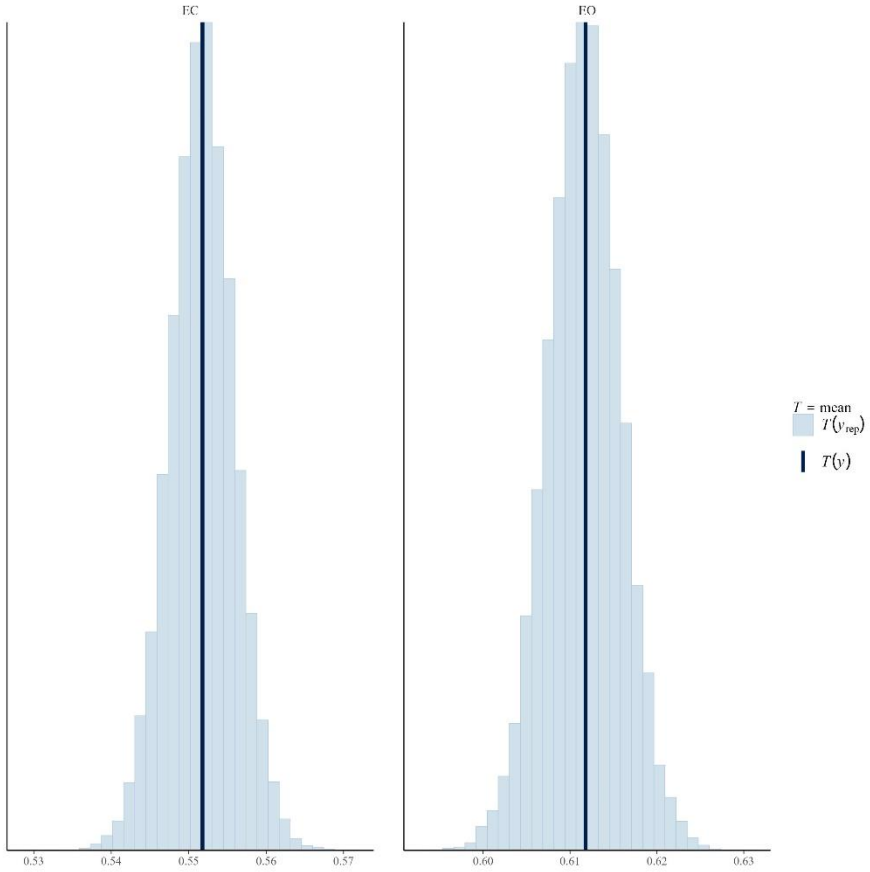


Figure S18c. Histogram plot comparing observed versus simulated Lempel-Ziv Complexity mean values across timepoints from the posterior predictive distribution.

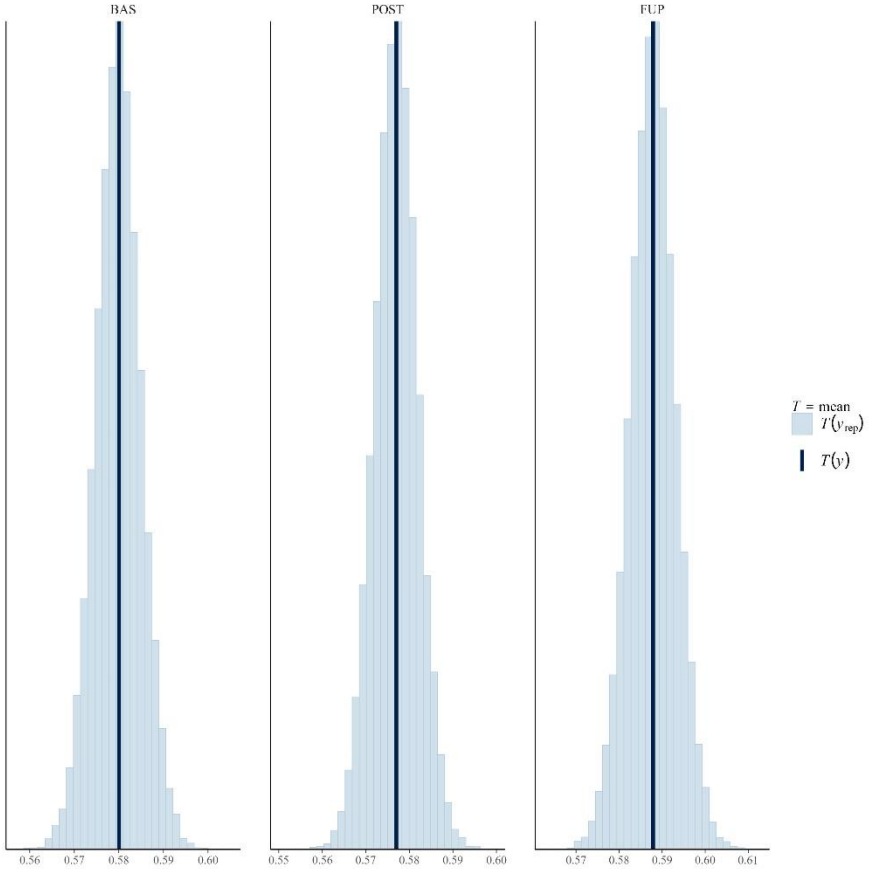


Figure S18d. Histogram plot comparing observed versus simulated Multi-Scale Entropy mean values across responders from the posterior predictive distribution.

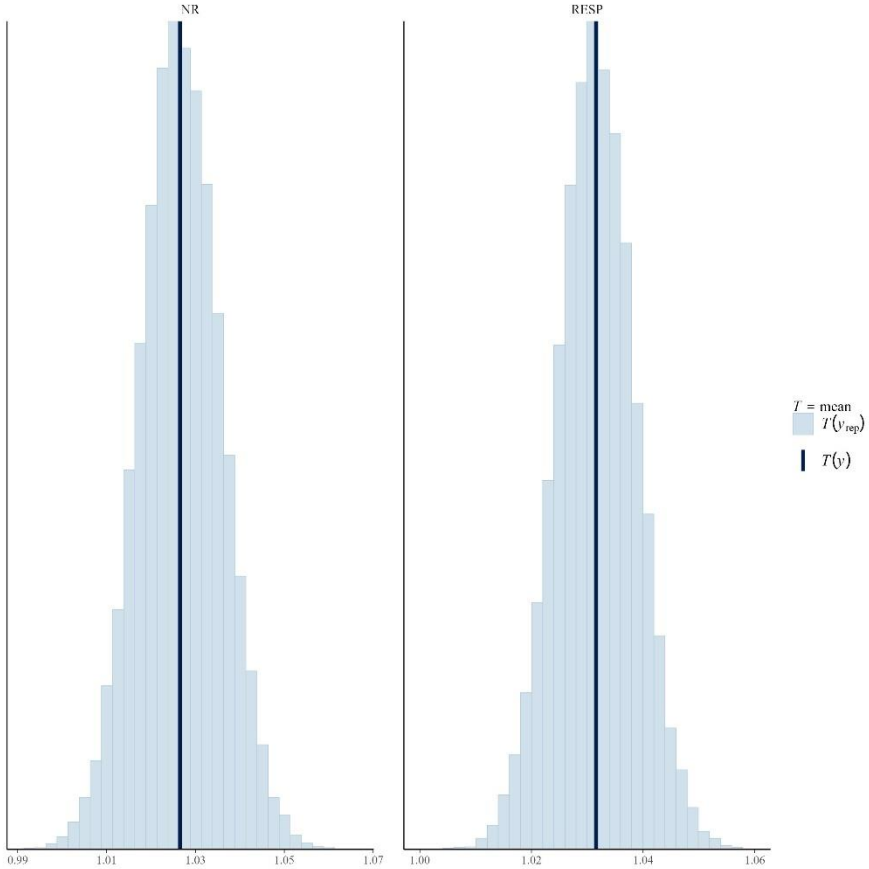


Figure S18e. Histogram plot comparing observed versus simulated Multi-Scale Entropy mean values across task from the posterior predictive distribution.

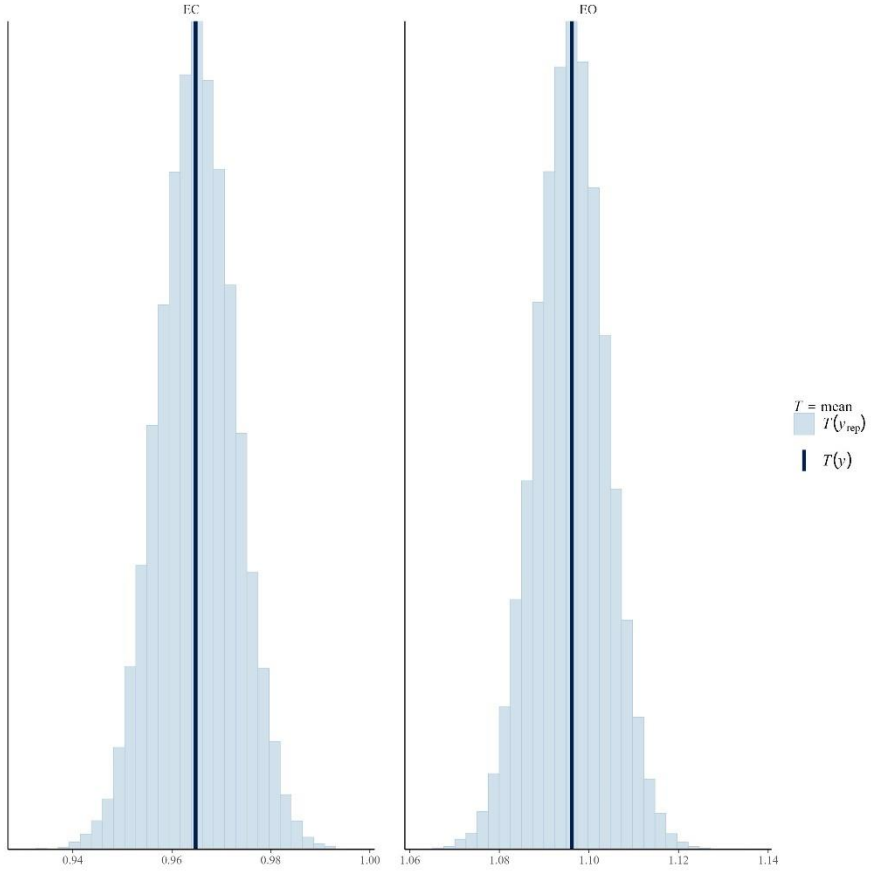
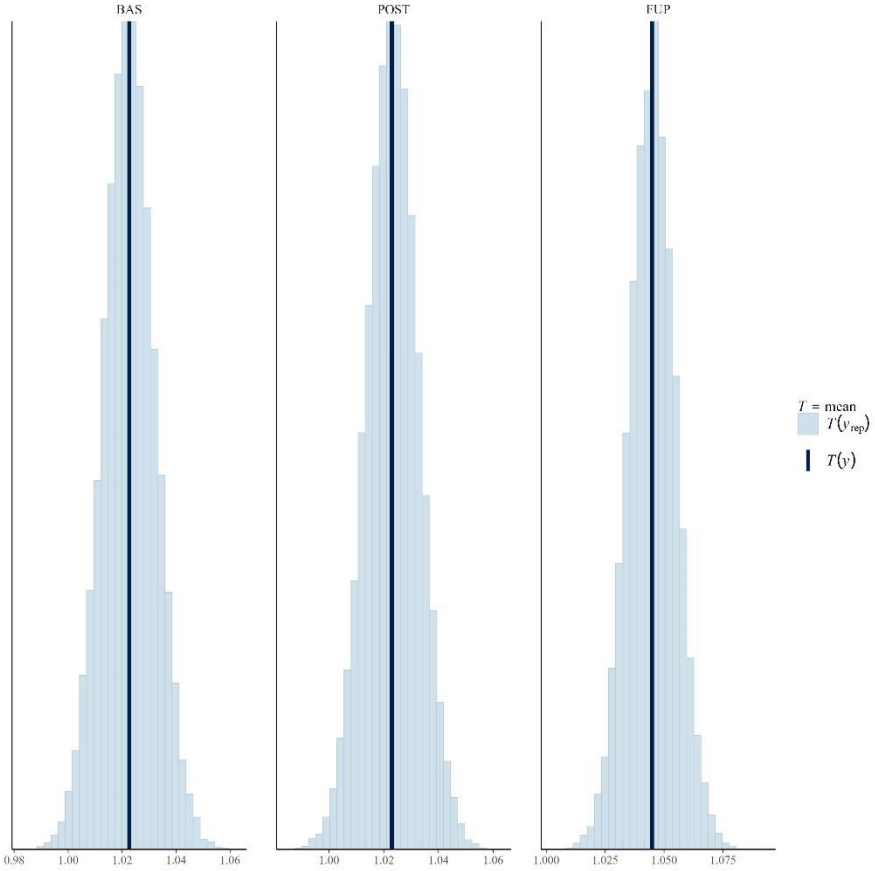


Figure S18f. Histogram plot comparing observed versus simulated Multi-Scale Entropy mean values across timepoint from the posterior predictive distribution.



Maximum Values

Figure S19a. Histogram plot comparing observed versus simulated Lempel-Ziv Complexity maximum values across responders from the posterior predictive distribution.

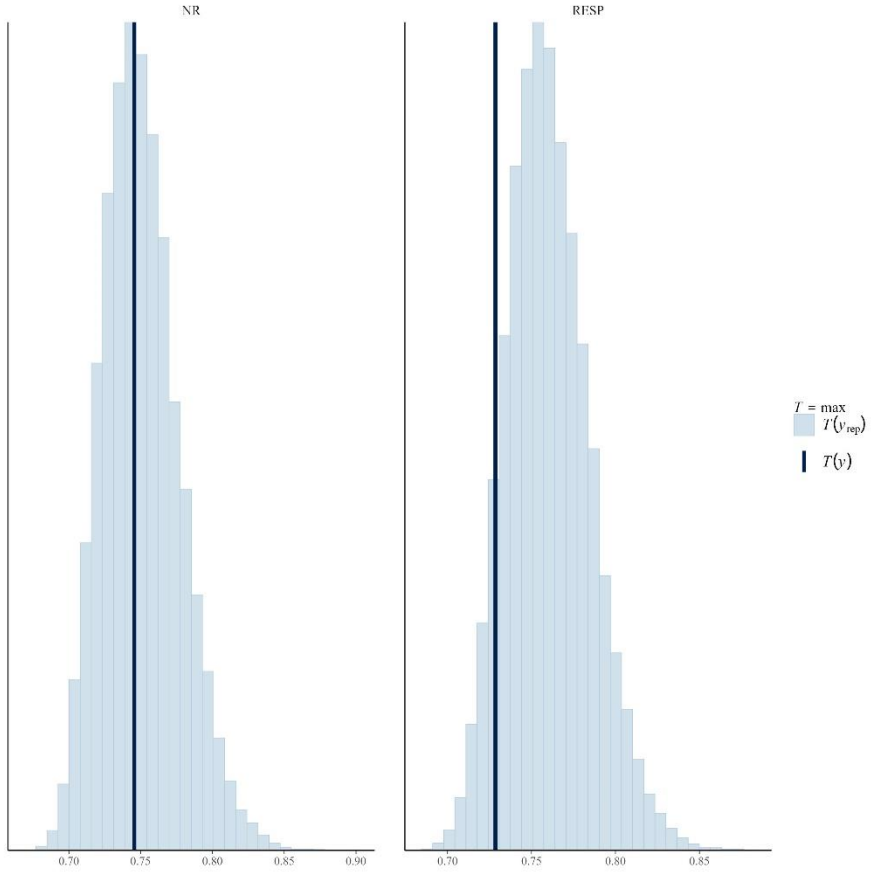


Figure S19b. Histogram plot comparing observed versus simulated Lempel-Ziv Complexity maximum values across tasks from the posterior predictive distribution.

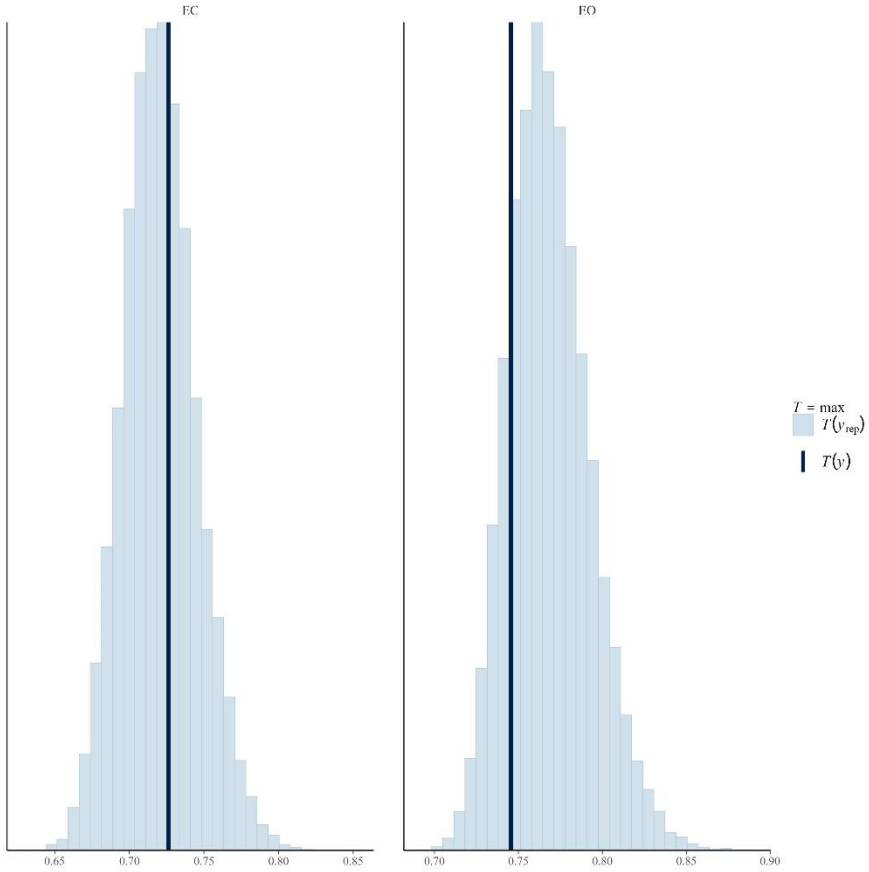


Figure S19c. Histogram plot comparing observed versus simulated Lempel-Ziv Complexity maximum values across timepoints from the posterior predictive distribution.

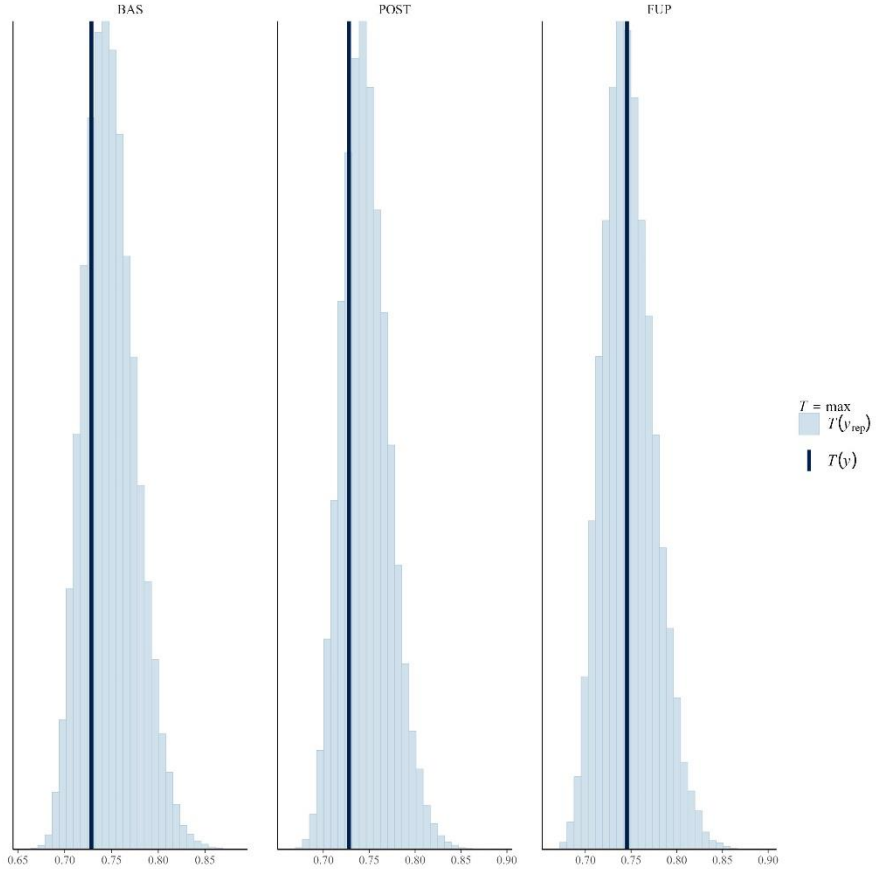


Figure S19d. Histogram plot comparing observed versus simulated Multi-Scale Entropy maximum values across responders from the posterior predictive distribution.

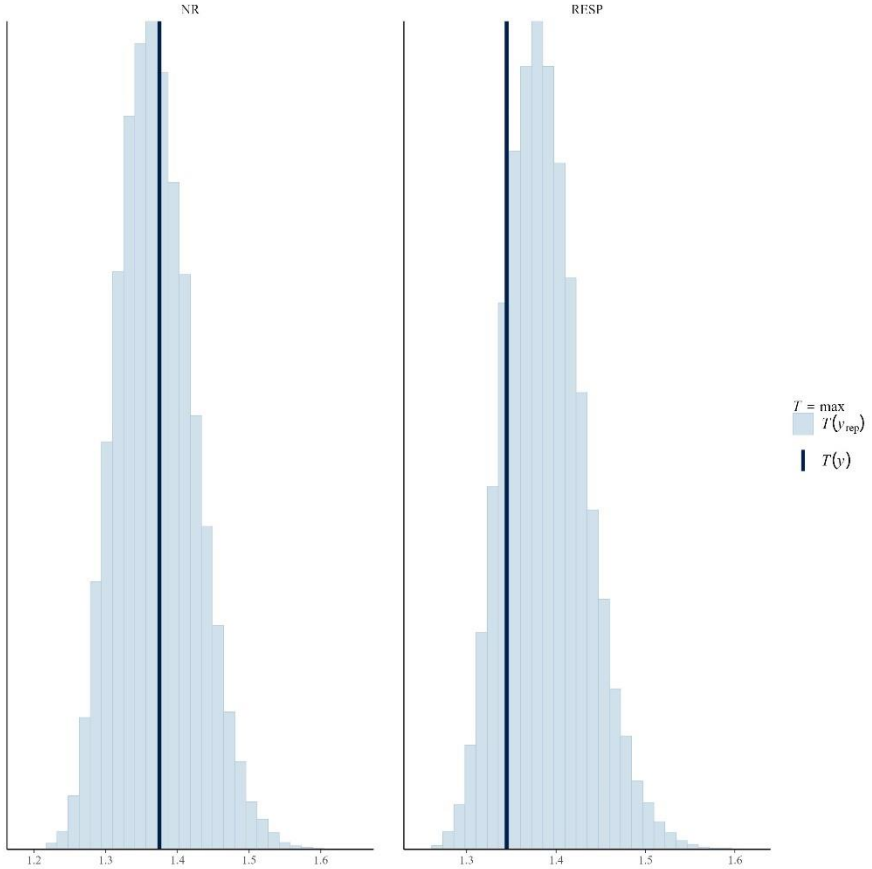


Figure S19e. Histogram plot comparing observed versus simulated Multi-Scale Entropy maximum values across task from the posterior predictive distribution.

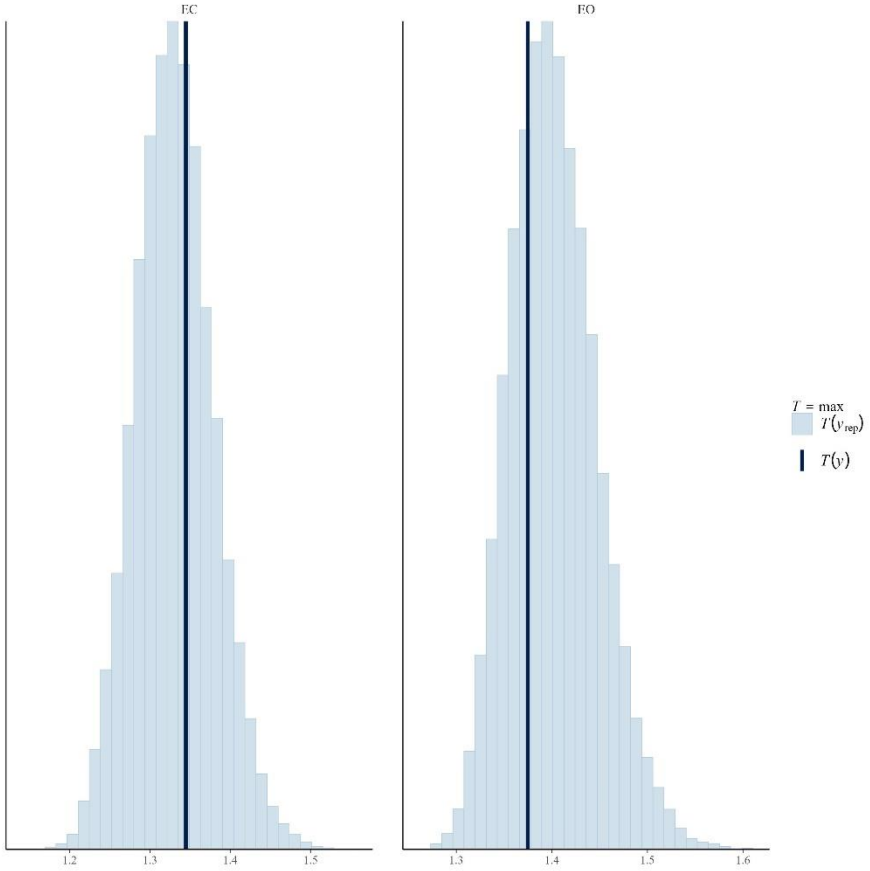
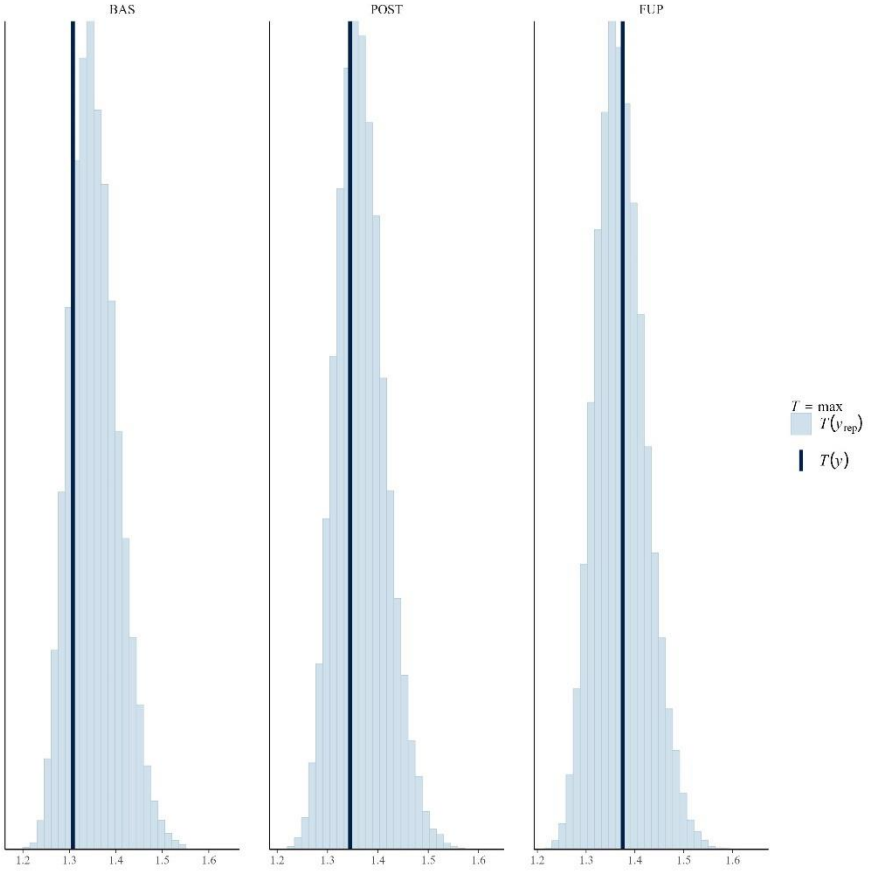


Figure S19f. Histogram plot comparing observed versus simulated Multi-Scale Entropy maximum values across timepoint from the posterior predictive distribution.



Supplementary F. Effect Estimates

Table S8. Posterior Distribution Summary for Lempel-Ziv Complexity. Note: Credible Intervals, CI; Probability of Direction, pd.

	Median	CI_low (2.5%)	CI_high (97.5%)	pd
Intercept	0.549	0.519	0.578	1
ResponderRESP	0.004	-0.027	0.035	0.605
TimepointPOST	-0.017	-0.045	0.01	0.899
TimepointFUP	-0.01	-0.038	0.019	0.757
TaskEO	0.037	0.01	0.065	0.995
ResponderRESP:TimepointPOST	0.016	-0.018	0.048	0.827
ResponderRESP:TimepointFUP	0.02	-0.018	0.057	0.849
ResponderRESP:TaskEO	0.027	-0.006	0.059	0.95
TimepointPOST:TaskEO	0.029	-0.006	0.062	0.951
TimepointFUP:TaskEO	0.037	0.004	0.069	0.985
ResponderRESP:TimepointPOST:TaskEO	-0.041	-0.081	0.001	0.973
ResponderRESP:TimepointFUP:TaskEO	-0.045	-0.089	-0.002	0.98

Table S9. Posterior Distribution Summary Multi-Scale Entropy. Note: Credible Intervals, CI; Probability of Direction, pd.

Parameter	Median	CI_low (2.5%)	CI_high (97.5%)	pd
Scale1_Intercept	0.957	0.906	1.006	1
Scale1_ResponderRESP	0.013	-0.037	0.063	0.689
Scale1_TimepointPOST	-0.03	-0.077	0.018	0.887
Scale1_TimepointFUP	-0.007	-0.054	0.042	0.617
Scale1_TaskEO	0.097	0.048	0.144	1
Scale1_ResponderRESP:TimepointPOST	0.037	-0.021	0.091	0.895
Scale1_ResponderRESP:TimepointFUP	0.033	-0.032	0.096	0.842
Scale1_ResponderRESP:TaskEO	0.042	-0.013	0.097	0.932
Scale1_TimepointPOST:TaskEO	0.041	-0.016	0.098	0.922
Scale1_TimepointFUP:TaskEO	0.051	-0.004	0.106	0.966
Scale1_ResponderRESP:TimepointPOST:TaskEO	-0.069	-0.136	0	0.975
Scale1_ResponderRESP:TimepointFUP:TaskEO	-0.071	-0.143	0.002	0.972
Scale2_Intercept	1.551	1.499	1.602	1
Scale2_ResponderRESP	0.024	-0.027	0.075	0.822
Scale2_TimepointPOST	-0.027	-0.074	0.02	0.868
Scale2_TimepointFUP	-0.006	-0.055	0.043	0.594
Scale2_TaskEO	0.105	0.058	0.153	1
Scale2_ResponderRESP:TimepointPOST	0.029	-0.027	0.085	0.85
Scale2_ResponderRESP:TimepointFUP	0.026	-0.04	0.09	0.776
Scale2_ResponderRESP:TaskEO	0.044	-0.011	0.097	0.944
Scale2_TimepointPOST:TaskEO	0.046	-0.009	0.1	0.95
Scale2_TimepointFUP:TaskEO	0.047	-0.006	0.101	0.959
Scale2_ResponderRESP:TimepointPOST:TaskEO	-0.078	-0.143	-0.012	0.99
Scale2_ResponderRESP:TimepointFUP:TaskEO	-0.065	-0.136	0.005	0.966
Scale3_Intercept	1.713	1.676	1.749	1
Scale3_ResponderRESP	0.026	-0.011	0.063	0.92
Scale3_TimepointPOST	-0.015	-0.046	0.016	0.83
Scale3_TimepointFUP	-0.001	-0.037	0.033	0.53

Scale3_TaskEO	0.063	0.031	0.094	1
Scale3_ResponderRESP:TimepointPOST	0.009	-0.027	0.046	0.693
Scale3_ResponderRESP:TimepointFUP	0.005	-0.043	0.053	0.581
Scale3_ResponderRESP:TaskEO	0.024	-0.011	0.059	0.912
Scale3_TimepointPOST:TaskEO	0.033	-0.001	0.067	0.972
Scale3_TimepointFUP:TaskEO	0.022	-0.011	0.055	0.902
Scale3_ResponderRESP:TimepointPOST:TaskEO	-0.057	-0.097	-0.016	0.997
Scale3_ResponderRESP:TimepointFUP:TaskEO	-0.032	-0.077	0.013	0.922
Scale4_Intercept	1.77	1.742	1.798	1
Scale4_ResponderRESP	0.022	-0.007	0.05	0.936
Scale4_TimepointPOST	-0.001	-0.024	0.022	0.537
Scale4_TimepointFUP	0.001	-0.026	0.029	0.535
Scale4_TaskEO	0.028	0.007	0.05	0.995
Scale4_ResponderRESP:TimepointPOST	-0.009	-0.036	0.019	0.738
Scale4_ResponderRESP:TimepointFUP	-0.009	-0.046	0.028	0.691
Scale4_ResponderRESP:TaskEO	0.007	-0.018	0.031	0.703
Scale4_TimepointPOST:TaskEO	0.019	-0.004	0.041	0.947
Scale4_TimepointFUP:TaskEO	0.006	-0.017	0.029	0.697
Scale4_ResponderRESP:TimepointPOST:TaskEO	-0.034	-0.061	-0.006	0.99
Scale4_ResponderRESP:TimepointFUP:TaskEO	-0.008	-0.039	0.022	0.705
Scale5_Intercept	1.801	1.776	1.825	1
Scale5_ResponderRESP	0.018	-0.007	0.044	0.923
Scale5_TimepointPOST	0.006	-0.017	0.029	0.713
Scale5_TimepointFUP	0.004	-0.021	0.028	0.611
Scale5_TaskEO	-0.002	-0.022	0.018	0.559
Scale5_ResponderRESP:TimepointPOST	-0.019	-0.046	0.008	0.921
Scale5_ResponderRESP:TimepointFUP	-0.017	-0.05	0.016	0.845
Scale5_ResponderRESP:TaskEO	-0.007	-0.029	0.016	0.713
Scale5_TimepointPOST:TaskEO	0.01	-0.011	0.032	0.827
Scale5_TimepointFUP:TaskEO	-0.005	-0.026	0.017	0.664
Scale5_ResponderRESP:TimepointPOST:TaskEO	-0.017	-0.043	0.009	0.904

Scale5_ResponderRESP:TimepointFUP:TaskEO	0.004	-0.025	0.032	0.602
Scale6_Intercept	1.815	1.79	1.838	1
Scale6_ResponderRESP	0.016	-0.009	0.041	0.893
Scale6_TimepointPOST	0.014	-0.01	0.039	0.875
Scale6_TimepointFUP	0.007	-0.018	0.031	0.714
Scale6_TaskEO	-0.022	-0.043	-0.002	0.982
Scale6_ResponderRESP:TimepointPOST	-0.028	-0.057	0	0.974
Scale6_ResponderRESP:TimepointFUP	-0.021	-0.055	0.012	0.9
Scale6_ResponderRESP:TaskEO	-0.015	-0.038	0.009	0.896
Scale6_TimepointPOST:TaskEO	0.004	-0.019	0.028	0.651
Scale6_TimepointFUP:TaskEO	-0.01	-0.032	0.013	0.804
Scale6_ResponderRESP:TimepointPOST:TaskEO	-0.006	-0.034	0.022	0.671
Scale6_ResponderRESP:TimepointFUP:TaskEO	0.01	-0.02	0.04	0.744
Scale7_Intercept	1.826	1.801	1.85	1
Scale7_ResponderRESP	0.012	-0.014	0.038	0.819
Scale7_TimepointPOST	0.013	-0.013	0.039	0.834
Scale7_TimepointFUP	0.007	-0.018	0.033	0.706
Scale7_TaskEO	-0.041	-0.063	-0.02	1
Scale7_ResponderRESP:TimepointPOST	-0.028	-0.058	0.003	0.962
Scale7_ResponderRESP:TimepointFUP	-0.026	-0.061	0.009	0.93
Scale7_ResponderRESP:TaskEO	-0.018	-0.043	0.007	0.923
Scale7_TimepointPOST:TaskEO	0.005	-0.02	0.03	0.646
Scale7_TimepointFUP:TaskEO	-0.008	-0.032	0.016	0.748
Scale7_ResponderRESP:TimepointPOST:TaskEO	-0.004	-0.035	0.026	0.611
Scale7_ResponderRESP:TimepointFUP:TaskEO	0.011	-0.022	0.042	0.74
Scale8_Intercept	1.825	1.798	1.852	1
Scale8_ResponderRESP	0.008	-0.02	0.036	0.717
Scale8_TimepointPOST	0.016	-0.013	0.044	0.861
Scale8_TimepointFUP	0.012	-0.015	0.04	0.804
Scale8_TaskEO	-0.052	-0.076	-0.028	1
Scale8_ResponderRESP:TimepointPOST	-0.028	-0.061	0.006	0.949

Scale8_ResponderRESP:TimepointFUP	-0.029	-0.066	0.009	0.933
Scale8_ResponderRESP:TaskEO	-0.022	-0.049	0.006	0.939
Scale8_TimepointPOST:TaskEO	0.003	-0.025	0.03	0.585
Scale8_TimepointFUP:TaskEO	-0.017	-0.044	0.01	0.891
Scale8_ResponderRESP:TimepointPOST:TaskEO	-0.001	-0.034	0.033	0.522
Scale8_ResponderRESP:TimepointFUP:TaskEO	0.014	-0.022	0.049	0.779
Scale9_Intercept	1.81	1.782	1.839	1
Scale9_ResponderRESP	0.013	-0.018	0.042	0.798
Scale9_TimepointPOST	0.021	-0.009	0.05	0.913
Scale9_TimepointFUP	0.02	-0.009	0.049	0.91
Scale9_TaskEO	-0.05	-0.076	-0.024	1
Scale9_ResponderRESP:TimepointPOST	-0.03	-0.065	0.006	0.953
Scale9_ResponderRESP:TimepointFUP	-0.036	-0.075	0.003	0.966
Scale9_ResponderRESP:TaskEO	-0.036	-0.066	-0.006	0.99
Scale9_TimepointPOST:TaskEO	-0.007	-0.037	0.023	0.675
Scale9_TimepointFUP:TaskEO	-0.027	-0.056	0.002	0.967
Scale9_ResponderRESP:TimepointPOST:TaskEO	0.011	-0.025	0.047	0.724
Scale9_ResponderRESP:TimepointFUP:TaskEO	0.027	-0.012	0.065	0.915
Scale10_Intercept	1.796	1.764	1.828	1
Scale10_ResponderRESP	0.006	-0.028	0.039	0.635
Scale10_TimepointPOST	0.023	-0.009	0.054	0.92
Scale10_TimepointFUP	0.019	-0.013	0.05	0.881
Scale10_TaskEO	-0.055	-0.083	-0.026	1
Scale10_ResponderRESP:TimepointPOST	-0.029	-0.067	0.008	0.939
Scale10_ResponderRESP:TimepointFUP	-0.035	-0.077	0.008	0.946
Scale10_ResponderRESP:TaskEO	-0.028	-0.061	0.005	0.953
Scale10_TimepointPOST:TaskEO	-0.008	-0.041	0.026	0.668
Scale10_TimepointFUP:TaskEO	-0.027	-0.059	0.006	0.946
Scale10_ResponderRESP:TimepointPOST:TaskEO	0.01	-0.031	0.05	0.68
Scale10_ResponderRESP:TimepointFUP:TaskEO	0.024	-0.019	0.067	0.862

Table S10. Posterior Distribution Summary for Channel-Level Lempel-Ziv Complexity. Note: Credible Intervals, 95% CI; Probability of Direction, pd.

Parameter	Median	CI_low (2.5%)	CI_high (97.5%)	pd
Scale1_Intercept	0.957	0.906	1.006	1
Scale1_ResponderRESP	0.013	-0.037	0.063	0.689
Scale1_TimepointPOST	-0.03	-0.077	0.018	0.887
Scale1_TimepointFUP	-0.007	-0.054	0.042	0.617
Scale1_TaskEO	0.097	0.048	0.144	1
Scale1_ResponderRESP:TimepointPOST	0.037	-0.021	0.091	0.895
Scale1_ResponderRESP:TimepointFUP	0.033	-0.032	0.096	0.842
Scale1_ResponderRESP:TaskEO	0.042	-0.013	0.097	0.932
Scale1_TimepointPOST:TaskEO	0.041	-0.016	0.098	0.922
Scale1_TimepointFUP:TaskEO	0.051	-0.004	0.106	0.966
Scale1_ResponderRESP:TimepointPOST:TaskEO	-0.069	-0.136	0	0.975
Scale1_ResponderRESP:TimepointFUP:TaskEO	-0.071	-0.143	0.002	0.972
Scale2_Intercept	1.551	1.499	1.602	1
Scale2_ResponderRESP	0.024	-0.027	0.075	0.822
Scale2_TimepointPOST	-0.027	-0.074	0.02	0.868
Scale2_TimepointFUP	-0.006	-0.055	0.043	0.594
Scale2_TaskEO	0.105	0.058	0.153	1
Scale2_ResponderRESP:TimepointPOST	0.029	-0.027	0.085	0.85
Scale2_ResponderRESP:TimepointFUP	0.026	-0.04	0.09	0.776
Scale2_ResponderRESP:TaskEO	0.044	-0.011	0.097	0.944
Scale2_TimepointPOST:TaskEO	0.046	-0.009	0.1	0.95
Scale2_TimepointFUP:TaskEO	0.047	-0.006	0.101	0.959
Scale2_ResponderRESP:TimepointPOST:TaskEO	-0.078	-0.143	-0.012	0.99
Scale2_ResponderRESP:TimepointFUP:TaskEO	-0.065	-0.136	0.005	0.966
Scale3_Intercept	1.713	1.676	1.749	1
Scale3_ResponderRESP	0.026	-0.011	0.063	0.92
Scale3_TimepointPOST	-0.015	-0.046	0.016	0.83
Scale3_TimepointFUP	-0.001	-0.037	0.033	0.53

Scale3_TaskEO	0.063	0.031	0.094	1
Scale3_ResponderRESP:TimepointPOST	0.009	-0.027	0.046	0.693
Scale3_ResponderRESP:TimepointFUP	0.005	-0.043	0.053	0.581
Scale3_ResponderRESP:TaskEO	0.024	-0.011	0.059	0.912
Scale3_TimepointPOST:TaskEO	0.033	-0.001	0.067	0.972
Scale3_TimepointFUP:TaskEO	0.022	-0.011	0.055	0.902
Scale3_ResponderRESP:TimepointPOST:TaskEO	-0.057	-0.097	-0.016	0.997
Scale3_ResponderRESP:TimepointFUP:TaskEO	-0.032	-0.077	0.013	0.922
Scale4_Intercept	1.77	1.742	1.798	1
Scale4_ResponderRESP	0.022	-0.007	0.05	0.936
Scale4_TimepointPOST	-0.001	-0.024	0.022	0.537
Scale4_TimepointFUP	0.001	-0.026	0.029	0.535
Scale4_TaskEO	0.028	0.007	0.05	0.995
Scale4_ResponderRESP:TimepointPOST	-0.009	-0.036	0.019	0.738
Scale4_ResponderRESP:TimepointFUP	-0.009	-0.046	0.028	0.691
Scale4_ResponderRESP:TaskEO	0.007	-0.018	0.031	0.703
Scale4_TimepointPOST:TaskEO	0.019	-0.004	0.041	0.947
Scale4_TimepointFUP:TaskEO	0.006	-0.017	0.029	0.697
Scale4_ResponderRESP:TimepointPOST:TaskEO	-0.034	-0.061	-0.006	0.99
Scale4_ResponderRESP:TimepointFUP:TaskEO	-0.008	-0.039	0.022	0.705
Scale5_Intercept	1.801	1.776	1.825	1
Scale5_ResponderRESP	0.018	-0.007	0.044	0.923
Scale5_TimepointPOST	0.006	-0.017	0.029	0.713
Scale5_TimepointFUP	0.004	-0.021	0.028	0.611
Scale5_TaskEO	-0.002	-0.022	0.018	0.559
Scale5_ResponderRESP:TimepointPOST	-0.019	-0.046	0.008	0.921
Scale5_ResponderRESP:TimepointFUP	-0.017	-0.05	0.016	0.845
Scale5_ResponderRESP:TaskEO	-0.007	-0.029	0.016	0.713
Scale5_TimepointPOST:TaskEO	0.01	-0.011	0.032	0.827
Scale5_TimepointFUP:TaskEO	-0.005	-0.026	0.017	0.664
Scale5_ResponderRESP:TimepointPOST:TaskEO	-0.017	-0.043	0.009	0.904

Scale5_ResponderRESP:TimepointFUP:TaskEO	0.004	-0.025	0.032	0.602
Scale6_Intercept	1.815	1.79	1.838	1
Scale6_ResponderRESP	0.016	-0.009	0.041	0.893
Scale6_TimepointPOST	0.014	-0.01	0.039	0.875
Scale6_TimepointFUP	0.007	-0.018	0.031	0.714
Scale6_TaskEO	-0.022	-0.043	-0.002	0.982
Scale6_ResponderRESP:TimepointPOST	-0.028	-0.057	0	0.974
Scale6_ResponderRESP:TimepointFUP	-0.021	-0.055	0.012	0.9
Scale6_ResponderRESP:TaskEO	-0.015	-0.038	0.009	0.896
Scale6_TimepointPOST:TaskEO	0.004	-0.019	0.028	0.651
Scale6_TimepointFUP:TaskEO	-0.01	-0.032	0.013	0.804
Scale6_ResponderRESP:TimepointPOST:TaskEO	-0.006	-0.034	0.022	0.671
Scale6_ResponderRESP:TimepointFUP:TaskEO	0.01	-0.02	0.04	0.744
Scale7_Intercept	1.826	1.801	1.85	1
Scale7_ResponderRESP	0.012	-0.014	0.038	0.819
Scale7_TimepointPOST	0.013	-0.013	0.039	0.834
Scale7_TimepointFUP	0.007	-0.018	0.033	0.706
Scale7_TaskEO	-0.041	-0.063	-0.02	1
Scale7_ResponderRESP:TimepointPOST	-0.028	-0.058	0.003	0.962
Scale7_ResponderRESP:TimepointFUP	-0.026	-0.061	0.009	0.93
Scale7_ResponderRESP:TaskEO	-0.018	-0.043	0.007	0.923
Scale7_TimepointPOST:TaskEO	0.005	-0.02	0.03	0.646
Scale7_TimepointFUP:TaskEO	-0.008	-0.032	0.016	0.748
Scale7_ResponderRESP:TimepointPOST:TaskEO	-0.004	-0.035	0.026	0.611
Scale7_ResponderRESP:TimepointFUP:TaskEO	0.011	-0.022	0.042	0.74
Scale8_Intercept	1.825	1.798	1.852	1
Scale8_ResponderRESP	0.008	-0.02	0.036	0.717
Scale8_TimepointPOST	0.016	-0.013	0.044	0.861
Scale8_TimepointFUP	0.012	-0.015	0.04	0.804
Scale8_TaskEO	-0.052	-0.076	-0.028	1
Scale8_ResponderRESP:TimepointPOST	-0.028	-0.061	0.006	0.949

Scale8_ResponderRESP:TimepointFUP	-0.029	-0.066	0.009	0.933
Scale8_ResponderRESP:TaskEO	-0.022	-0.049	0.006	0.939
Scale8_TimepointPOST:TaskEO	0.003	-0.025	0.03	0.585
Scale8_TimepointFUP:TaskEO	-0.017	-0.044	0.01	0.891
Scale8_ResponderRESP:TimepointPOST:TaskEO	-0.001	-0.034	0.033	0.522
Scale8_ResponderRESP:TimepointFUP:TaskEO	0.014	-0.022	0.049	0.779
Scale9_Intercept	1.81	1.782	1.839	1
Scale9_ResponderRESP	0.013	-0.018	0.042	0.798
Scale9_TimepointPOST	0.021	-0.009	0.05	0.913
Scale9_TimepointFUP	0.02	-0.009	0.049	0.91
Scale9_TaskEO	-0.05	-0.076	-0.024	1
Scale9_ResponderRESP:TimepointPOST	-0.03	-0.065	0.006	0.953
Scale9_ResponderRESP:TimepointFUP	-0.036	-0.075	0.003	0.966
Scale9_ResponderRESP:TaskEO	-0.036	-0.066	-0.006	0.99
Scale9_TimepointPOST:TaskEO	-0.007	-0.037	0.023	0.675
Scale9_TimepointFUP:TaskEO	-0.027	-0.056	0.002	0.967
Scale9_ResponderRESP:TimepointPOST:TaskEO	0.011	-0.025	0.047	0.724
Scale9_ResponderRESP:TimepointFUP:TaskEO	0.027	-0.012	0.065	0.915
Scale10_Intercept	1.796	1.764	1.828	1
Scale10_ResponderRESP	0.006	-0.028	0.039	0.635
Scale10_TimepointPOST	0.023	-0.009	0.054	0.92
Scale10_TimepointFUP	0.019	-0.013	0.05	0.881
Scale10_TaskEO	-0.055	-0.083	-0.026	1
Scale10_ResponderRESP:TimepointPOST	-0.029	-0.067	0.008	0.939
Scale10_ResponderRESP:TimepointFUP	-0.035	-0.077	0.008	0.946
Scale10_ResponderRESP:TaskEO	-0.028	-0.061	0.005	0.953
Scale10_TimepointPOST:TaskEO	-0.008	-0.041	0.026	0.668
Scale10_TimepointFUP:TaskEO	-0.027	-0.059	0.006	0.946
Scale10_ResponderRESP:TimepointPOST:TaskEO	0.01	-0.031	0.05	0.68
Scale10_ResponderRESP:TimepointFUP:TaskEO	0.024	-0.019	0.067	0.862

Supplementary G. Frequentist Statistics

Table S11. Frequentist statistics for Lempel-Ziv Complexity. Note: F-Ratio Statistic, F-Statistic.

Effect	F-Statistic	P-value
Responder	1.791	0.1808
Timepoint	1.125	0.3247
Task	77.584	<.001
Responder:Timepoint	0.077	0.926
Responder:Task	0.025	0.8735
Timepoint:Task	0.841	0.4313
Responder:Timepoint:Task	2.869	0.0568

Table S12. Frequentist statistics for Multi-Scale Entropy. Note: F-Ratio Statistic, F-Statistic; rep.meas, response measures (i.e. Scale 1, Scale 2, … Scale 10).

Effect	F-Statistic	P-value
Responder	0.239	0.6248
Timepoint	0.131	0.8776
Task	5.484	0.0192
rep.meas	226.114	<.001
Responder:Timepoint	6.716	0.0012
Responder:Task	7.909	0.0049
Responder:rep.meas	1.549	0.1243
Timepoint:Task	0.45	0.6378
Timepoint:rep.meas	0.44	0.9798
Task:rep.meas	43.551	<.001
Responder:Timepoint:Task	6.441	0.0016
Responder:Timepoint:rep.meas	0.126	1
Responder:Task:rep.meas	0.231	0.9902
Timepoint:Task:rep.meas	0.347	0.9951
Responder:Timepoint:Task:rep.meas	1.218	0.2354

Table S13. Frequentist statistics for channel-level Lempel-Ziv Complexity. Note: F-Ratio Statistic, F-Statistic; rep.meas, response measures (i.e. Fp1, AF3, FC1, F3).

Effect	F-Statistic	P-value
Responder	1.421	0.2333
Timepoint	2.018	0.1329
Task	106.046	<.001
rep.meas	13.218	<.001
Responder:Timepoint	8.702	0.0002
Responder:Task	0.756	0.3846
Responder:rep.meas	0.179	0.9107
Timepoint:Task	0.852	0.4265
Timepoint:rep.meas	0.579	0.7477
Task:rep.meas	8.179	<.001
Responder:Timepoint:Task	14.304	<.001
Responder:Timepoint:rep.meas	0.537	0.7804
Responder:Task:rep.meas	0.138	0.9373
Timepoint:Task:rep.meas	0.576	0.7496
Responder:Timepoint:Task:rep.meas	0.303	0.9354

Supplementary H. Marginal Means

Table S14. Estimated marginal means for Lempel-Ziv Complexity across timepoint, task, response status, and the interaction. Note: 95% Highest Posterior Density; 95% HPD.

Task	Timepoint	Responder	Marginal Means	Lower (2.5%) HPD	Upper (97.5%) HPD
EC			0.548	0.528	0.567
EO			0.606	0.584	0.627
	BAS		0.576	0.555	0.596
	POST		0.571	0.549	0.592
	FUP		0.583	0.562	0.605
		NR	0.569	0.546	0.593
		RESP	0.584	0.563	0.604
EC	BAS	NR	0.549	0.519	0.577
		RESP	0.553	0.53	0.575
	POST	NR	0.531	0.499	0.564
		RESP	0.551	0.527	0.575
	FUP	NR	0.539	0.512	0.566
		RESP	0.562	0.535	0.59
EO	BAS	NR	0.586	0.554	0.617
		RESP	0.617	0.593	0.642
	POST	NR	0.597	0.563	0.631
		RESP	0.603	0.576	0.627
	FUP	NR	0.613	0.583	0.642
		RESP	0.618	0.589	0.647

Table S15. Estimated marginal means for Multi-Scale Entropy for each scale across timepoint, task, response status. Note: 95% Highest Posterior Density; 95% HPD.

Response Measure	Task	Timepoint	Responder	Marginal Mean	Lower (2.5%) HPD	Upper (97.5%) HPD
Scale1	EC			0.962	0.928	0.996
	EO			1.087	1.05	1.126
Scale2	EC			1.561	1.525	1.596
	EO			1.695	1.655	1.735
Scale3	EC			1.723	1.698	1.748
	EO			1.8	1.773	1.828
Scale4	EC			1.778	1.758	1.797
	EO			1.811	1.79	1.831
Scale5	EC			1.807	1.79	1.823
	EO			1.802	1.783	1.82
Scale6	EC			1.821	1.805	1.837
	EO			1.79	1.773	1.808
Scale7	EC			1.829	1.813	1.845
	EO			1.778	1.76	1.796
Scale8	EC			1.829	1.811	1.846
	EO			1.764	1.744	1.783
Scale9	EC			1.819	1.8	1.838
	EO			1.746	1.726	1.767
Scale10	EC			1.802	1.781	1.824
	EO			1.728	1.704	1.75
Scale1		BAS		1.022	0.986	1.057
		POST		1.014	0.976	1.053
		FUP		1.039	1.001	1.078
Scale2		BAS		1.626	1.588	1.663
		POST		1.617	1.577	1.658
		FUP		1.64	1.598	1.68

Scale3		BAS		1.763	1.738	1.79
		POST		1.755	1.728	1.783
		FUP		1.767	1.738	1.796
Scale4		BAS		1.797	1.777	1.817
		POST		1.793	1.77	1.813
		FUP		1.794	1.772	1.817
Scale5		BAS		1.807	1.789	1.824
		POST		1.805	1.785	1.823
		FUP		1.801	1.781	1.821
Scale6		BAS		1.808	1.791	1.825
		POST		1.808	1.789	1.827
		FUP		1.802	1.782	1.821
Scale7		BAS		1.806	1.789	1.823
		POST		1.807	1.787	1.827
		FUP		1.799	1.78	1.818
Scale8		BAS		1.798	1.78	1.816
		POST		1.801	1.779	1.822
		FUP		1.791	1.77	1.811
Scale9		BAS		1.783	1.763	1.802
		POST		1.788	1.765	1.811
		FUP		1.777	1.756	1.798
Scale10		BAS		1.765	1.744	1.787
		POST		1.771	1.746	1.797
		FUP		1.759	1.734	1.782
Scale1			NR	1.008	0.968	1.049
			RESP	1.041	1.006	1.077
Scale2			NR	1.608	1.565	1.651
			RESP	1.648	1.609	1.685
Scale3			NR	1.748	1.717	1.778
			RESP	1.775	1.75	1.802

Scale4			NR	1.788	1.765	1.812
			RESP	1.801	1.78	1.821
Scale5			NR	1.804	1.783	1.825
			RESP	1.805	1.786	1.822
Scale6			NR	1.81	1.79	1.83
			RESP	1.802	1.785	1.82
Scale7			NR	1.811	1.791	1.831
			RESP	1.797	1.78	1.815
Scale8			NR	1.806	1.784	1.828
			RESP	1.787	1.767	1.805
Scale9			NR	1.793	1.77	1.816
			RESP	1.772	1.751	1.792
Scale10			NR	1.777	1.752	1.804
			RESP	1.753	1.731	1.776

Table S16. Estimated marginal means for Multi-Scale Entropy for each scale and the interaction of timepoint, task, and response status interaction. Note: 95% Highest Posterior Density; 95% HPD.

Response Measure	Task	Timepoint	Responder	Marginal Mean	Lower (2.5%) HPD	Upper (97.5%) HPD
Scale1	EC	BAS	NR	0.957	0.907	1.007
			RESP	0.969	0.931	1.009
		POST	NR	0.927	0.871	0.984
			RESP	0.976	0.934	1.019
		FUP	NR	0.949	0.902	0.999
			RESP	0.995	0.947	1.044
	EO	BAS	NR	1.053	0.999	1.107
			RESP	1.108	1.066	1.153
		POST	NR	1.065	1.002	1.124
			RESP	1.087	1.042	1.133
		FUP	NR	1.097	1.046	1.151
			RESP	1.114	1.062	1.167
Scale2	EC	BAS	NR	1.551	1.499	1.602
			RESP	1.575	1.535	1.617
		POST	NR	1.524	1.465	1.582
			RESP	1.577	1.532	1.621
		FUP	NR	1.545	1.494	1.595
			RESP	1.594	1.542	1.646
	EO	BAS	NR	1.656	1.597	1.712
			RESP	1.724	1.677	1.767
		POST	NR	1.675	1.612	1.737
			RESP	1.693	1.645	1.74
		FUP	NR	1.698	1.642	1.753
			RESP	1.725	1.669	1.78
Scale3	EC	BAS	NR	1.713	1.677	1.749
			RESP	1.739	1.711	1.766
		POST	NR	1.698	1.656	1.738

			RESP	1.733	1.702	1.763
		FUP	NR	1.711	1.676	1.747
			RESP	1.742	1.706	1.779
	EO	BAS	NR	1.775	1.734	1.813
			RESP	1.825	1.794	1.855
		POST	NR	1.793	1.75	1.836
			RESP	1.796	1.763	1.826
		FUP	NR	1.796	1.756	1.834
			RESP	1.818	1.78	1.856
Scale4	EC	BAS	NR	1.77	1.743	1.799
			RESP	1.792	1.771	1.814
		POST	NR	1.769	1.738	1.801
			RESP	1.782	1.758	1.805
		FUP	NR	1.771	1.744	1.799
			RESP	1.784	1.756	1.812
	EO	BAS	NR	1.798	1.769	1.829
			RESP	1.827	1.804	1.851
		POST	NR	1.816	1.783	1.848
			RESP	1.802	1.778	1.826
		FUP	NR	1.806	1.777	1.835
			RESP	1.816	1.787	1.846
Scale5	EC	BAS	NR	1.801	1.776	1.825
			RESP	1.819	1.8	1.837
		POST	NR	1.807	1.779	1.835
			RESP	1.806	1.785	1.827
		FUP	NR	1.804	1.779	1.828
			RESP	1.805	1.782	1.831
	EO	BAS	NR	1.799	1.773	1.825
			RESP	1.811	1.79	1.83
		POST	NR	1.816	1.786	1.845
			RESP	1.791	1.769	1.813

		FUP	NR	1.798	1.772	1.823
			RESP	1.796	1.77	1.822
Scale6	EC	BAS	NR	1.815	1.79	1.838
			RESP	1.83	1.812	1.849
		POST	NR	1.829	1.8	1.856
			RESP	1.816	1.796	1.837
		FUP	NR	1.822	1.797	1.844
			RESP	1.816	1.792	1.84
	EO	BAS	NR	1.793	1.767	1.819
			RESP	1.793	1.774	1.814
		POST	NR	1.811	1.782	1.841
			RESP	1.777	1.755	1.799
		FUP	NR	1.79	1.764	1.815
			RESP	1.779	1.754	1.805
Scale7	EC	BAS	NR	1.826	1.801	1.85
			RESP	1.838	1.819	1.856
		POST	NR	1.838	1.809	1.868
			RESP	1.822	1.801	1.844
		FUP	NR	1.833	1.809	1.857
			RESP	1.818	1.794	1.844
	EO	BAS	NR	1.784	1.758	1.81
			RESP	1.778	1.757	1.798
		POST	NR	1.802	1.771	1.833
			RESP	1.763	1.741	1.787
		FUP	NR	1.783	1.758	1.809
			RESP	1.761	1.735	1.787
Scale8	EC	BAS	NR	1.825	1.799	1.852
			RESP	1.833	1.813	1.853
		POST	NR	1.84	1.809	1.873
			RESP	1.821	1.797	1.844
		FUP	NR	1.837	1.812	1.863

			RESP	1.816	1.79	1.843
	EO	BAS	NR	1.773	1.744	1.802
			RESP	1.76	1.737	1.781
		POST	NR	1.792	1.757	1.825
			RESP	1.749	1.724	1.774
		FUP	NR	1.769	1.741	1.796
			RESP	1.74	1.713	1.768
Scale9	EC	BAS	NR	1.81	1.783	1.839
			RESP	1.823	1.802	1.844
		POST	NR	1.831	1.797	1.864
			RESP	1.814	1.788	1.839
		FUP	NR	1.83	1.803	1.857
			RESP	1.806	1.778	1.834
	EO	BAS	NR	1.76	1.729	1.79
			RESP	1.737	1.714	1.761
		POST	NR	1.774	1.737	1.81
			RESP	1.732	1.705	1.759
		FUP	NR	1.753	1.724	1.782
			RESP	1.72	1.689	1.748
Scale10	EC	BAS	NR	1.796	1.764	1.828
			RESP	1.802	1.777	1.826
		POST	NR	1.819	1.781	1.855
			RESP	1.795	1.767	1.823
		FUP	NR	1.815	1.785	1.846
			RESP	1.786	1.754	1.816
	EO	BAS	NR	1.741	1.708	1.775
			RESP	1.719	1.693	1.746
		POST	NR	1.757	1.717	1.796
			RESP	1.715	1.685	1.743
		FUP	NR	1.734	1.702	1.766
			RESP	1.701	1.669	1.732

Table S17. Estimated marginal means Lempel-Ziv Complexity at each channel across timepoint, task, response status, and their interaction. Note: 95% Highest Posterior Density; 95% HPD.

Response Measure	Task	Timepoint	Responder	Marginal Mean	Lower (2.5%) HPD	Upper (97.5%) HPD
Fp1	EC			0.551	0.527	0.574
	EO			0.645	0.616	0.675
AF3	EC			0.552	0.528	0.577
	EO			0.644	0.613	0.673
FC1	EC			0.529	0.511	0.547
	EO			0.566	0.547	0.586
F3	EC			0.575	0.552	0.598
	EO			0.654	0.628	0.679
Fp1		BAS		0.589	0.564	0.615
		POST		0.593	0.565	0.62
Fp1		FUP		0.612	0.581	0.643
		BAS		0.589	0.562	0.615
AF3		POST		0.593	0.565	0.62
		FUP		0.611	0.581	0.64
FC1		BAS		0.547	0.529	0.563
		POST		0.551	0.527	0.574
FC1		FUP		0.545	0.52	0.569
		BAS		0.61	0.585	0.635
F3		POST		0.605	0.58	0.632
		FUP		0.628	0.598	0.657
Fp1			NR	0.587	0.549	0.624
			RESP	0.609	0.583	0.634
AF3			NR	0.583	0.542	0.621
			RESP	0.612	0.585	0.638
FC1			NR	0.54	0.511	0.568
			RESP	0.555	0.535	0.575

F3			NR	0.608	0.572	0.643
			RESP	0.621	0.597	0.645
Fp1	EC	BAS	NR	0.537	0.493	0.582
AF3				0.531	0.484	0.577
FC1				0.525	0.495	0.555
F3				0.571	0.526	0.614
Fp1			RESP	0.554	0.523	0.585
AF3				0.559	0.526	0.59
FC1				0.537	0.515	0.558
F3				0.58	0.549	0.611
Fp1	EO		NR	0.591	0.537	0.646
AF3				0.582	0.528	0.638
FC1				0.533	0.5	0.566
F3				0.61	0.562	0.661
Fp1			RESP	0.675	0.637	0.714
AF3				0.683	0.646	0.721
FC1				0.592	0.567	0.615
F3				0.68	0.645	0.714
Fp1	EC	POST	NR	0.544	0.494	0.593
AF3				0.545	0.494	0.593
FC1				0.525	0.484	0.566
F3				0.548	0.502	0.597
Fp1			RESP	0.556	0.522	0.59
AF3				0.559	0.525	0.592
FC1				0.531	0.502	0.56
F3				0.577	0.545	0.61
Fp1	EO		NR	0.629	0.572	0.688
AF3				0.632	0.576	0.69
FC1				0.573	0.53	0.615

F3				0.64	0.585	0.69
Fp1			RESP	0.643	0.603	0.681
AF3				0.636	0.597	0.673
FC1				0.576	0.546	0.604
F3				0.657	0.621	0.691
Fp1	EC	FUP	NR	0.557	0.503	0.611
AF3				0.546	0.493	0.597
FC1				0.523	0.479	0.564
F3				0.589	0.535	0.641
Fp1			RESP	0.558	0.52	0.595
AF3				0.572	0.537	0.609
FC1				0.534	0.504	0.563
F3				0.588	0.551	0.625
Fp1	EO		NR	0.666	0.603	0.728
AF3				0.663	0.604	0.725
FC1				0.561	0.516	0.608
F3				0.689	0.631	0.747
Fp1			RESP	0.666	0.621	0.706
AF3				0.665	0.624	0.706
FC1				0.563	0.532	0.596
F3				0.645	0.604	0.683

Supplementary I. JASP Output

Table S18. Paired Samples T-Test of baseline Lempel-Ziv Complexity by task, and channel. Note: Eyes Closed, EC; Eyes Open, EC; Bayes Factor, BF_{10}; Credible Intervals, CIs; Standard Deviation, SD; Sample size, N.

Channel	Task	N	Mean (SD)	95% CIs [Lower; Upper]	BF_{10} (error %)
Fp1	EC	30	0.557 (0.084)	[0.525; 0.588]	742.923 (9.437×10-9)
	EO	28	0.657 (0.117)	[0.611; 0.702]	
AF3	EC	30	0.56 (0.096)	[0.524; 0.596]	1152.64 (6.123×10-9)
	EO	28	0.66 (0.125)	[0.611; 0.708]	
F7	EC	30	0.584 (0.097)	[0.548; 0.62]	104.058 (1.386×10-4)
	EO	28	0.664 (0.086)	[0.63; 0.697]	
F3	EC	30	0.586 (0.088)	[0.554; 0.619]	302.039 (1.003×10-4)
	EO	28	0.665 (0.099)	[0.626; 0.703]	
FC1	EC	30	0.537 (0.055)	[0.516; 0.558]	11.531 (4.152×10-8)
	EO	28	0.578 (0.068)	[0.551; 0.604]	
FC5	EC	30	0.601 (0.106)	[0.562; 0.641]	96.982 (1.792×10-4)
	EO	28	0.685 (0.1)	[0.646; 0.723]	
T7	EC	30	0.577 (0.09)	[0.543; 0.61]	2501.139 (3.778×10-9)
	EO	28	0.671 (0.093)	[0.635; 0.707]	
C3	EC	30	0.566 (0.09)	[0.533; 0.6]	3.525 (6.134×10-7)
	EO	28	0.606 (0.084)	[0.573; 0.638]	

CP1	EC	30	0.512 (0.06)	[0.49; 0.535]	6.023 (2.240×10-7)
	EO	28	0.535 (0.056)	[0.513; 0.556]	
CP5	EC	30	0.569 (0.089)	[0.536; 0.603]	7.533 (1.342×10-7)
	EO	28	0.62 (0.084)	[0.588; 0.653]	
P7	EC	30	0.546 (0.082)	[0.516; 0.577]	7502.38 (2.524×10-9)
	EO	28	0.633 (0.081)	[0.602; 0.665]	
P3	EC	30	0.504 (0.065)	[0.48; 0.528]	6.824 (1.699×10-7)
	EO	28	0.548 (0.067)	[0.522; 0.574]	
Pz	EC	30	0.488 (0.057)	[0.467; 0.509]	4.481 (4.031×10-7)
	EO	28	0.514 (0.038)	[0.499; 0.528]	
PO3	EC	30	0.501 (0.059)	[0.479; 0.523]	120.536 (7.086×10-5)
	EO	28	0.544 (0.06)	[0.521; 0.567]	
O1	EC	30	0.545 (0.09)	[0.512; 0.579]	229.426 (4.968×10-5)
	EO	28	0.608 (0.084)	[0.575; 0.64]	
Oz	EC	30	0.544 (0.089)	[0.511; 0.577]	528.419 (1.351×10-8)
	EO	28	0.594 (0.084)	[0.562; 0.627]	
O2	EC	30	0.555 (0.095)	[0.519; 0.591]	66.789 (4.963×10-4)
	EO	28	0.607 (0.082)	[0.575; 0.639]	
PO4	EC	30	0.512 (0.081)	[0.482; 0.542]	7.316 (1.442×10-7)

	EO	28	0.554 (0.056)	[0.533; 0.576]	
P4	EC	30	0.51 (0.078)	[0.48; 0.539]	2.499 (1.049×10-6)
	EO	28	0.539 (0.052)	[0.519; 0.559]	
P8	EC	30	0.553 (0.087)	[0.52; 0.585]	312.754 (1.062×10-4)
	EO	28	0.623 (0.083)	[0.591; 0.655]	
CP6	EC	30	0.588 (0.085)	[0.556; 0.619]	3.566 (6.016×10-7)
	EO	28	0.623 (0.085)	[0.59; 0.656]	
CP2	EC	30	0.528 (0.069)	[0.502; 0.554]	0.528 (0.028)
	EO	28	0.546 (0.05)	[0.526; 0.565]	
C4	EC	30	0.567 (0.065)	[0.542; 0.591]	33.742 (4.280×10-8)
	EO	28	0.611 (0.072)	[0.583; 0.639]	
T8	EC	30	0.595 (0.102)	[0.557; 0.634]	2.776 (8.969×10-7)
	EO	28	0.639 (0.085)	[0.606; 0.672]	
FC6	EC	30	0.589 (0.097)	[0.552; 0.625]	1298.428 (5.529×10-9)
	EO	28	0.668 (0.097)	[0.63; 0.705]	
FC2	EC	30	0.536 (0.058)	[0.514; 0.557]	3.745 (5.540×10-7)
	EO	28	0.561 (0.061)	[0.538; 0.585]	
F4	EC	30	0.593 (0.079)	[0.564; 0.623]	4519.35 (3.524×10-9)
	EO	28	0.667 (0.085)	[0.634; 0.7]	

F8	EC	30	0.599 (0.107)	[0.559; 0.639]	32.898 (4.201×10-8)
	EO	28	0.664 (0.084)	[0.631; 0.696]	
AF4	EC	30	0.572 (0.089)	[0.539; 0.605]	605.027 (1.171×10-8)
	EO	28	0.651 (0.106)	[0.61; 0.692]	
Fp2	EC	30	0.568 (0.093)	[0.534; 0.603]	578.716 (1.228×10-8)
	EO	28	0.656 (0.097)	[0.618; 0.694]	
Fz	EC	30	0.526 (0.067)	[0.501; 0.551]	6.021 (2.242×10-7)
	EO	28	0.546 (0.065)	[0.521; 0.571]	
Cz	EC	30	0.533 (0.047)	[0.515; 0.551]	0.847 (0.025)
	EO	28	0.548 (0.037)	[0.533; 0.562]	

Table S19. Independent Samples T-test of Baseline Lempel-Ziv Complexity by Response Status, Task, and Channel. Note: Eyes Closed, EC; Eyes Open, EC; Bayes Factor, BF_{10}; Credible Intervals, CIs; Non-Responder, NR; Responder, RESP; Standard Deviation, SD; Sample Size, N.

Channel	Task	Group	N	Mean (SD)	95% CIs [Lower; Upper]	BF_{10} (error %)
Fp1	EC	NR	9	0.549 (0.096)	[0.475; 0.623]	0.383 (0.002)
		RESP	21	0.56 (0.081)	[0.524; 0.597]	
	EO	NR	9	0.595 (0.142)	[0.486; 0.704]	1.581 (0.004)
		RESP	19	0.686 (0.094)	[0.641; 0.732]	
AF3	EC	NR	9	0.546 (0.092)	[0.476; 0.617]	0.403 (0.002)
		RESP	21	0.566 (0.1)	[0.52; 0.611]	
	EO	NR	9	0.583 (0.151)	[0.467; 0.699]	2.812 (0.006)
		RESP	19	0.696 (0.094)	[0.65; 0.741]	
F7	EC	NR	9	0.582 (0.114)	[0.494; 0.669]	0.368 (0.002)
		RESP	21	0.585 (0.092)	[0.543; 0.626]	
	EO	NR	9	0.629 (0.066)	[0.578; 0.679]	0.844 (0.003)
		RESP	19	0.68 (0.091)	[0.636; 0.724]	
F3	EC	NR	9	0.588 (0.084)	[0.524; 0.653]	0.368 (0.002)
		RESP	21	0.586 (0.092)	[0.544; 0.627]	
	EO	NR	9	0.609 (0.115)	[0.52; 0.697]	1.998 (0.004)
		RESP	19	0.691 (0.081)	[0.652; 0.73]	

FC1	EC	NR	9	0.531 (0.054)	[0.489; 0.572]	0.392 (0.002)
		RESP	21	0.54 (0.057)	[0.514; 0.566]	
	EO	NR	9	0.535 (0.079)	[0.474; 0.596]	3.34 (0.008)
		RESP	19	0.598 (0.053)	[0.573; 0.624]	
FC5	EC	NR	9	0.602 (0.138)	[0.496; 0.708]	0.367 (0.002)
		RESP	21	0.601 (0.093)	[0.559; 0.643]	
	EO	NR	9	0.654 (0.101)	[0.577; 0.732]	0.573 (0.002)
		RESP	19	0.699 (0.1)	[0.651; 0.747]	
T7	EC	NR	9	0.594 (0.113)	[0.507; 0.681]	0.437 (0.002)
		RESP	21	0.569 (0.079)	[0.533; 0.605]	
	EO	NR	9	0.648 (0.107)	[0.566; 0.731]	0.496 (0.002)
		RESP	19	0.682 (0.086)	[0.64; 0.724]	
C3	EC	NR	9	0.576 (0.132)	[0.474; 0.677]	0.384 (0.002)
		RESP	21	0.563 (0.068)	[0.531; 0.594]	
	EO	NR	9	0.572 (0.106)	[0.49; 0.653]	0.84 (0.003)
		RESP	19	0.622 (0.068)	[0.589; 0.655]	
CP1	EC	NR	9	0.509 (0.075)	[0.451; 0.566]	0.372 (0.002)
		RESP	21	0.513 (0.055)	[0.488; 0.539]	
	EO	NR	9	0.525 (0.067)	[0.473; 0.577]	0.427 (0.002)

		RESP	19	0.539 (0.051)	[0.515; 0.564]	
CP5	EC	NR	9	0.574 (0.12)	[0.482; 0.666]	0.371 (0.002)
		RESP	21	0.567 (0.077)	[0.533; 0.602]	
	EO	NR	9	0.607 (0.103)	[0.528; 0.686]	0.42 (0.002)
		RESP	19	0.627 (0.076)	[0.59; 0.663]	
P7	EC	NR	9	0.561 (0.106)	[0.48; 0.642]	0.424 (0.002)
		RESP	21	0.54 (0.071)	[0.508; 0.573]	
	EO	NR	9	0.642 (0.09)	[0.573; 0.711]	0.392 (0.002)
		RESP	19	0.629 (0.079)	[0.591; 0.667]	
P3	EC	NR	9	0.511 (0.085)	[0.446; 0.577]	0.39 (0.002)
		RESP	21	0.5 (0.056)	[0.475; 0.526]	
	EO	NR	9	0.535 (0.072)	[0.48; 0.591]	0.436 (0.002)
		RESP	19	0.554 (0.066)	[0.522; 0.586]	
Pz	EC	NR	9	0.505 (0.079)	[0.444; 0.566]	0.574 (0.002)
		RESP	21	0.48 (0.044)	[0.46; 0.501]	
	EO	NR	9	0.513 (0.049)	[0.475; 0.551]	0.371 (0.002)
		RESP	19	0.514 (0.033)	[0.498; 0.53]	
PO3	EC	NR	9	0.528 (0.093)	[0.457; 0.6]	1.067 (0.003)
		RESP	21	0.489 (0.032)	[0.474; 0.504]	

	EO	NR	9	0.561 (0.061)	[0.514; 0.608]	0.554 (0.002)
		RESP	19	0.536 (0.059)	[0.507; 0.564]	
O1	EC	NR	9	0.584 (0.1)	[0.507; 0.661]	0.902 (0.003)
		RESP	21	0.529 (0.082)	[0.491; 0.566]	
	EO	NR	9	0.627 (0.092)	[0.557; 0.698]	0.486 (0.002)
		RESP	19	0.598 (0.08)	[0.559; 0.637]	
Oz	EC	NR	9	0.571 (0.099)	[0.495; 0.647]	0.559 (0.002)
		RESP	21	0.533 (0.085)	[0.494; 0.571]	
	EO	NR	9	0.627 (0.085)	[0.561; 0.692]	0.767 (0.003)
		RESP	19	0.579 (0.081)	[0.54; 0.618]	
O2	EC	NR	9	0.574 (0.111)	[0.489; 0.659]	0.445 (0.002)
		RESP	21	0.547 (0.09)	[0.506; 0.587]	
	EO	NR	9	0.642 (0.085)	[0.576; 0.707]	0.893 (0.003)
		RESP	19	0.591 (0.078)	[0.553; 0.628]	
PO4	EC	NR	9	0.521 (0.109)	[0.437; 0.605]	0.388 (0.002)
		RESP	21	0.508 (0.069)	[0.477; 0.539]	
	EO	NR	9	0.561 (0.076)	[0.502; 0.619]	0.395 (0.002)
		RESP	19	0.551 (0.046)	[0.529; 0.573]	
P4	EC	NR	9	0.517 (0.089)	[0.448; 0.586]	0.382 (0.002)

		RESP	21	0.507 (0.075)	[0.472; 0.541]	
	EO	NR	9	0.545 (0.067)	[0.493; 0.596]	0.392 (0.002)
		RESP	19	0.537 (0.045)	[0.515; 0.558]	
P8	EC	NR	9	0.579 (0.107)	[0.497; 0.661]	0.565 (0.002)
		RESP	21	0.541 (0.077)	[0.506; 0.576]	
	EO	NR	9	0.628 (0.097)	[0.553; 0.703]	0.378 (0.002)
		RESP	19	0.62 (0.079)	[0.582; 0.658]	
CP6	EC	NR	9	0.608 (0.104)	[0.528; 0.688]	0.483 (0.002)
		RESP	21	0.579 (0.076)	[0.544; 0.613]	
	EO	NR	9	0.631 (0.1)	[0.554; 0.708]	0.387 (0.002)
		RESP	19	0.619 (0.08)	[0.581; 0.658]	
CP2	EC	NR	9	0.523 (0.057)	[0.479; 0.566]	0.376 (0.002)
		RESP	21	0.53 (0.076)	[0.495; 0.564]	
	EO	NR	9	0.534 (0.062)	[0.487; 0.582]	0.47 (0.002)
		RESP	19	0.551 (0.045)	[0.529; 0.573]	
C4	EC	NR	9	0.561 (0.074)	[0.504; 0.617]	0.381 (0.002)
		RESP	21	0.569 (0.063)	[0.541; 0.598]	
	EO	NR	9	0.597 (0.072)	[0.541; 0.652]	0.453 (0.002)
		RESP	19	0.618 (0.073)	[0.583; 0.654]	

T8	EC	NR	9	0.608 (0.131)	[0.507; 0.708]	0.393 (0.002)
		RESP	21	0.59 (0.09)	[0.549; 0.631]	
	EO	NR	9	0.631 (0.099)	[0.555; 0.708]	0.385 (0.002)
		RESP	19	0.643 (0.081)	[0.604; 0.682]	
FC6	EC	NR	9	0.597 (0.103)	[0.518; 0.677]	0.381 (0.002)
		RESP	21	0.585 (0.097)	[0.54; 0.629]	
	EO	NR	9	0.652 (0.108)	[0.569; 0.735]	0.419 (0.002)
		RESP	19	0.675 (0.093)	[0.63; 0.72]	
FC2	EC	NR	9	0.539 (0.035)	[0.512; 0.565]	0.372 (0.002)
		RESP	21	0.534 (0.067)	[0.504; 0.565]	
	EO	NR	9	0.553 (0.061)	[0.506; 0.599]	0.407 (0.002)
		RESP	19	0.565 (0.063)	[0.535; 0.596]	
F4	EC	NR	9	0.575 (0.07)	[0.521; 0.628]	0.471 (0.002)
		RESP	21	0.601 (0.083)	[0.563; 0.639]	
	EO	NR	9	0.642 (0.111)	[0.556; 0.727]	0.562 (0.002)
		RESP	19	0.679 (0.07)	[0.645; 0.713]	
F8	EC	NR	9	0.606 (0.112)	[0.52; 0.692]	0.374 (0.002)
		RESP	21	0.596 (0.107)	[0.547; 0.645]	
	EO	NR	9	0.634 (0.077)	[0.575; 0.694]	0.677 (0.002)

		RESP	19	0.678 (0.086)	[0.636; 0.719]	
AF4	EC	NR	9	0.557 (0.09)	[0.488; 0.626]	0.419 (0.002)
		RESP	21	0.578 (0.09)	[0.537; 0.62]	
	EO	NR	9	0.615 (0.132)	[0.514; 0.716]	0.66 (0.002)
		RESP	19	0.669 (0.09)	[0.625; 0.712]	
Fp2	EC	NR	9	0.565 (0.108)	[0.482; 0.649]	0.369 (0.002)
		RESP	21	0.57 (0.089)	[0.529; 0.61]	
	EO	NR	9	0.628 (0.122)	[0.534; 0.722]	0.556 (0.002)
		RESP	19	0.669 (0.083)	[0.629; 0.709]	
Fz	EC	NR	9	0.533 (0.063)	[0.484; 0.581]	0.383 (0.002)
		RESP	21	0.523 (0.07)	[0.492; 0.555]	
	EO	NR	9	0.535 (0.07)	[0.481; 0.589]	0.421 (0.002)
		RESP	19	0.551 (0.063)	[0.52; 0.581]	
Cz	EC	NR	9	0.54 (0.054)	[0.498; 0.581]	0.401 (0.002)
		RESP	21	0.53 (0.045)	[0.51; 0.551]	
	EO	NR	9	0.54 (0.044)	[0.506; 0.573]	0.456 (0.002)
		RESP	19	0.551 (0.035)	[0.535; 0.568]	

Supplementary J. Time of Day

Figure S20a. Estimated marginal means for Lempel-Ziv Complexity across recording time and task by response status. Note: Bars represent 95% Highest Posterior Density; Baseline, BAS; post-treatment, POST; follow-up, FUP; Before 12pm, Pre12; After 12pm, Post12; Eyes Closed, EC; Eyes Open, EO; NR, Non-Responder; RESP, Responder.

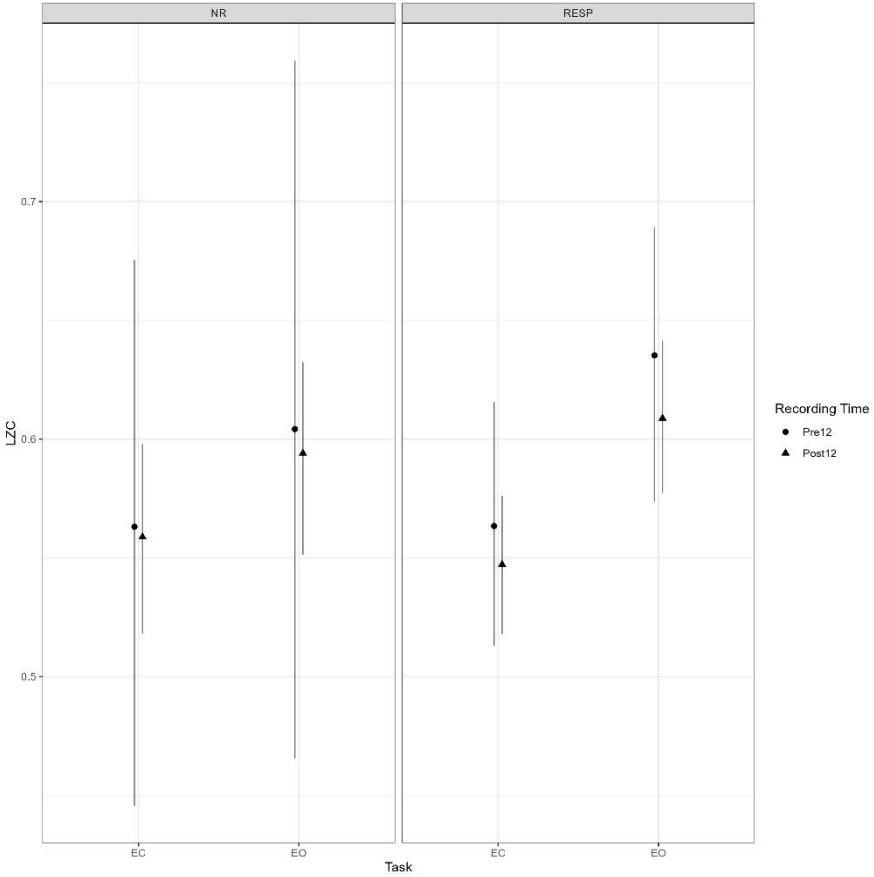


Figure S20b. Estimated marginal means for Lempel-Ziv Complexity across recording time and response status by task. Note: Bars represent 95% Highest Posterior Density; Baseline, BAS; post-treatment, POST; follow-up, FUP; Before 12pm, Pre12; After 12pm, Post12; Eyes Closed, EC; Eyes Open, EO; NR, Non-Responder; RESP, Responder.

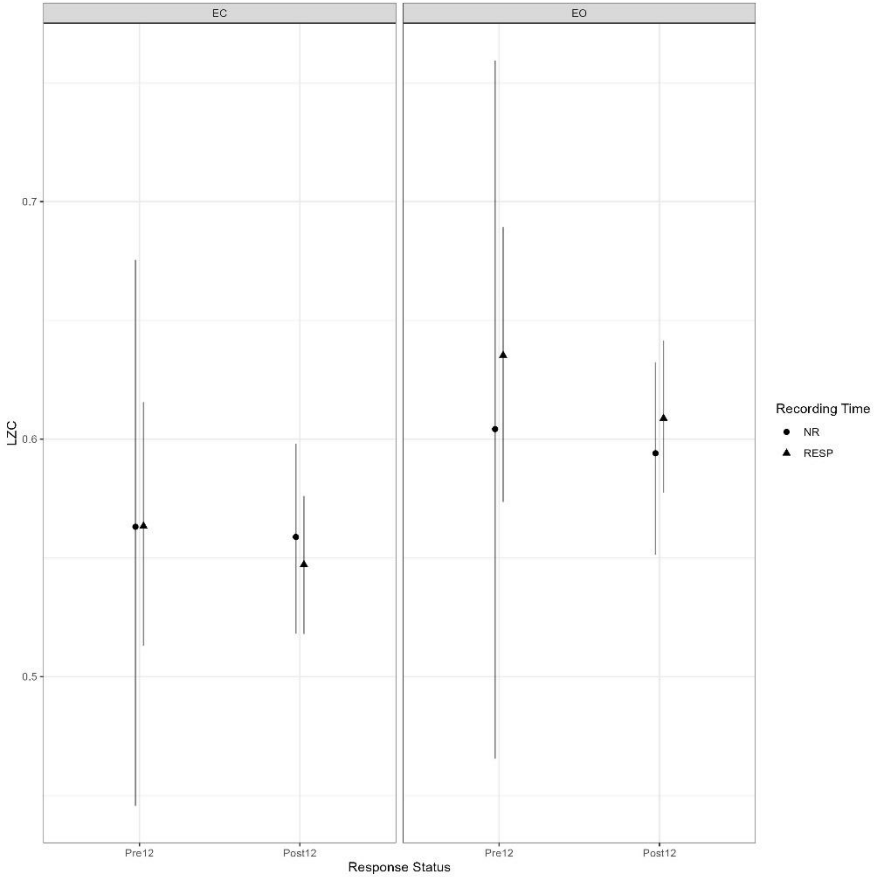


Figure S21a. Estimated marginal means for Multi-Scale Entropy across recording time and scale by task and response status. Note: Bars represent 95% Highest Posterior Density; Baseline, BAS; post-treatment, POST; follow-up, FUP; Before 12pm, Pre12; After 12pm, Post12; Eyes Closed, EC; Eyes Open, EO; NR, Non-Responder; RESP, Responder; Response Measures, resp.meas.

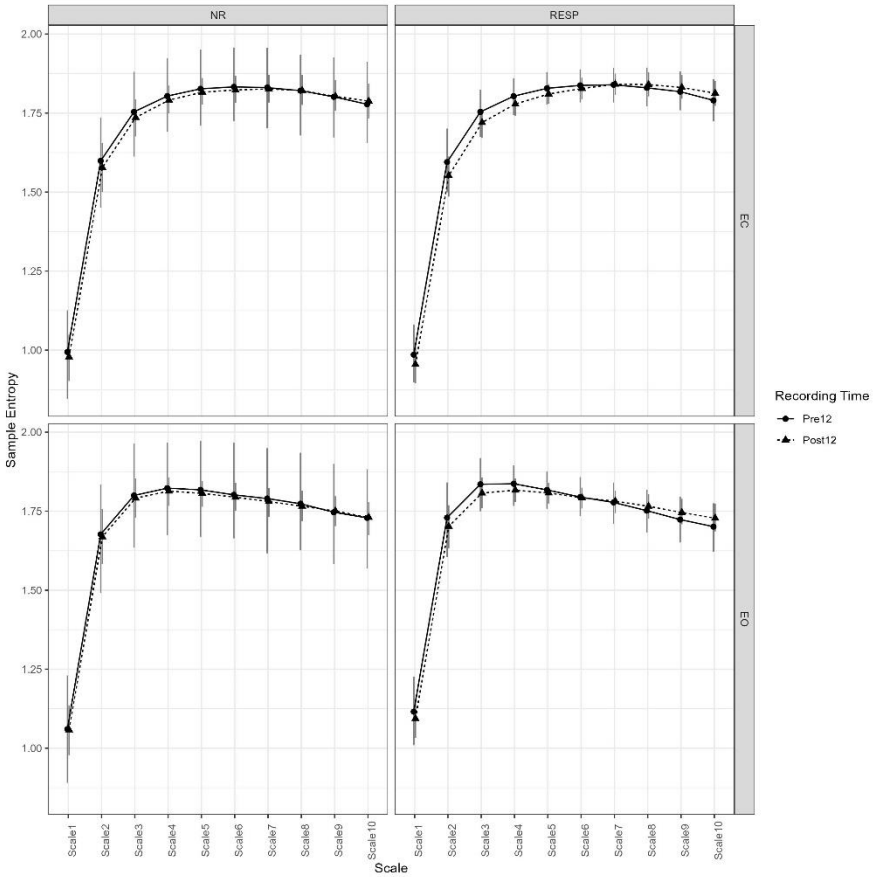


Figure S21b. Estimated marginal means for Multi-Scale Entropy across response status and scale by task and recording time. Note: Bars represent 95% Highest Posterior Density; Baseline, BAS; post-treatment, POST; follow-up, FUP; Before 12pm, Pre12; After 12pm, Post12; Eyes Closed, EC; Eyes Open, EO; NR, Non-Responder; RESP, Responder. Response Measures, resp.meas.