

Supplemental Material

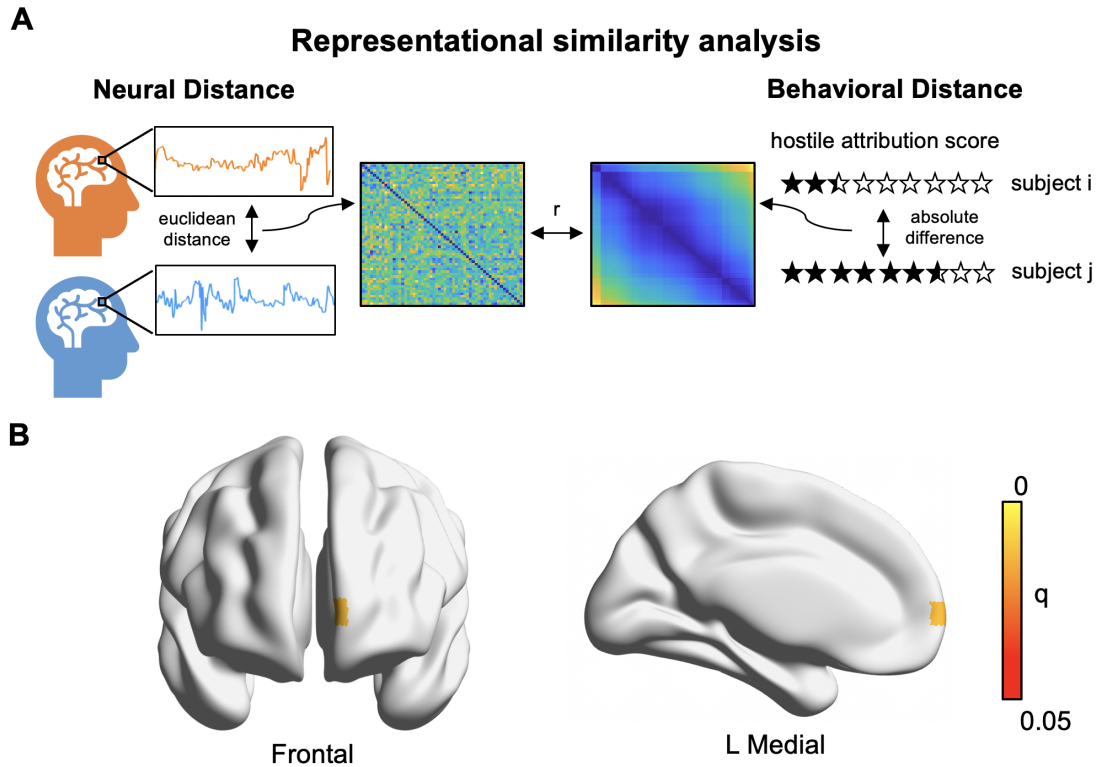


Figure 2-1. Neural synchrony results replicate using Euclidean distance as measure of neural distance. (A) Schematic of intersubject-representational similarity analysis. For each channel, we constructed a neural distance matrix by calculating the Euclidean distance between the time courses of every pair of participants. Each neural distance matrix was correlated with a behavioral distance matrix constructed from the absolute difference in hostile attribution bias scores for every pair of participants. (B) Left VMPFC (Channel 11) activity time course was more correlated between individuals with similar levels of hostile attribution bias. P values were computed nonparametrically using a Mantel test, and thresholded at a FDR of $q < 0.05$.

Table 2-1. Intersubject representational similarity analysis results when computing neural distance matrices using correlation distance. * $q < 0.05$

| Channel | <i>r</i> | <i>p-value</i> | <i>FDR q-value</i> |
|----------------|-----------------|-----------------------|---------------------------|
| 1 | -0.030 | 0.8061 | 0.893 |
| 2 | -0.000 | 0.4739 | 0.792 |
| 3 | 0.039 | 0.1417 | 0.733 |
| 4 | 0.011 | 0.3225 | 0.792 |
| 5 | -0.006 | 0.5790 | 0.792 |
| 6 | -0.010 | 0.6241 | 0.792 |
| 7 | -0.062 | 0.9976 | 0.998 |
| 8 | 0.029 | 0.1589 | 0.733 |
| 9 | -0.003 | 0.5235 | 0.792 |
| 10 | -0.006 | 0.5662 | 0.792 |
| 11 | 0.104 | 0.0010 | 0.024* |
| 12 | 0.013 | 0.3372 | 0.792 |
| 13 | 0.005 | 0.4153 | 0.792 |
| 14 | 0.003 | 0.1516 | 0.733 |
| 15 | 0.026 | 0.1863 | 0.733 |
| 16 | 0.022 | 0.2199 | 0.733 |
| 17 | -0.024 | 0.7427 | 0.874 |
| 18 | -0.042 | 0.8487 | 0.893 |
| 19 | -0.005 | 0.5536 | 0.792 |
| 20 | -0.015 | 0.6366 | 0.792 |

Table 2-2. Intersubject representational similarity analysis results when computing neural distance matrices using Euclidean distance. * $q < 0.05$

| Channel | <i>r</i> | <i>p-value</i> | <i>FDR q-value</i> |
|---------|----------|----------------|--------------------|
| 1 | -0.033 | 0.8255 | 0.869 |
| 2 | 0.001 | 0.4716 | 0.806 |
| 3 | 0.040 | 0.1403 | 0.722 |
| 4 | 0.012 | 0.3109 | 0.806 |
| 5 | -0.005 | 0.5550 | 0.806 |
| 6 | -0.012 | 0.6472 | 0.809 |
| 7 | -0.062 | 0.9981 | 0.998 |
| 8 | 0.030 | 0.1443 | 0.722 |
| 9 | -0.002 | 0.5024 | 0.806 |
| 10 | -0.004 | 0.5384 | 0.806 |
| 11 | 0.104 | 0.0007 | 0.014* |
| 12 | 0.014 | 0.3478 | 0.806 |
| 13 | 0.005 | 0.4125 | 0.806 |
| 14 | 0.032 | 0.1335 | 0.722 |
| 15 | 0.025 | 0.1947 | 0.779 |
| 16 | 0.019 | 0.2461 | 0.806 |
| 17 | -0.024 | 0.7380 | 0.869 |
| 18 | -0.038 | 0.8167 | 0.869 |
| 19 | -0.005 | 0.5639 | 0.806 |
| 20 | -0.015 | 0.6373 | 0.809 |

Table 2-3. Intersubject representational similarity analysis results correlating neural distance matrix with dissimilarity in intentionality, anger and blameworthiness ratings.
FDR-correction was applied separately for each behavioral measure. * $q < 0.05$

| Channel | Intentionality | Anger | Blameworthiness |
|---------|-------------------------------------|------------------------------------|------------------------------------|
| 1 | $r = -0.016, p = 0.672, q = 0.827$ | $r = -0.050, p = 0.930, q = 0.930$ | $r = -0.031, p = 0.793, q = 0.830$ |
| 2 | $r = 0.009, p = 0.356, q = 0.726$ | $r = -0.031, p = 0.887, q = 0.930$ | $r = -0.017, p = 0.729, q = 0.810$ |
| 3 | $r = 0.025, p = 0.247, q = 0.726$ | $r = 0.029, p = 0.217, q = 0.609$ | $r = 0.045, p = 0.125, q = 0.472$ |
| 4 | $r = -0.003, p = 0.534, q = 0.827$ | $r = -0.009, p = 0.617, q = 0.822$ | $r = 0.011, p = 0.325, q = 0.541$ |
| 5 | $r = 0.014, p = 0.296, q = 0.726$ | $r = 0.041, p = 0.073, q = 0.609$ | $r = -0.027, p = 0.830, q = 0.830$ |
| 6 | $r = 0.033, p = 0.125, q = 0.623$ | $r = 0.025, p = 0.182, q = 0.609$ | $r = 0.073, p = 0.009, q = 0.180$ |
| 7 | $r = -0.039, p = 0.950, q = 0.950$ | $r = -0.021, p = 0.806, q = 0.930$ | $r = -0.015, p = 0.721, q = 0.810$ |
| 8 | $r = 0.046, p = 0.059, q = 0.590$ | $r = 0.023, p = 0.212, q = 0.609$ | $r = 0.026, p = 0.187, q = 0.472$ |
| 9 | $r = -0.018, p = 0.728, q = 0.827$ | $r = 0.008, p = 0.366, q = 0.609$ | $r = -0.007, p = 0.583, q = 0.777$ |
| 10 | $r = 0.007, p = 0.385, q = 0.726$ | $r = 0.011, p = 0.338, q = 0.609$ | $r = -0.012, p = 0.643, q = 0.804$ |
| 11 | $r = 0.095, p = 0.002, q = 0.036^*$ | $r = -0.004, p = 0.533, q = 0.761$ | $r = 0.010, p = 0.352, q = 0.541$ |
| 12 | $r = 0.008, p = 0.399, q = 0.726$ | $r = 0.013, p = 0.344, q = 0.609$ | $r = 0.047, p = 0.120, q = 0.472$ |
| 13 | $r = -0.019, p = 0.744, q = 0.827$ | $r = -0.037, p = 0.924, q = 0.930$ | $r = -0.007, p = 0.572, q = 0.777$ |
| 14 | $r = -0.004, p = 0.540, q = 0.827$ | $r = 0.002, p = 0.457, q = 0.702$ | $r = 0.016, p = 0.277, q = 0.504$ |
| 15 | $r = 0.036, p = 0.118, q = 0.623$ | $r = 0.043, p = 0.080, q = 0.609$ | $r = 0.026, p = 0.189, q = 0.472$ |
| 16 | $r = 0.010, p = 0.342, q = 0.726$ | $r = 0.016, p = 0.277, q = 0.609$ | $r = 0.038, p = 0.110, q = 0.472$ |
| 17 | $r = 0.011, p = 0.372, q = 0.726$ | $r = 0.032, p = 0.188, q = 0.609$ | $r = 0.037, p = 0.158, q = 0.472$ |
| 18 | $r = -0.010, p = 0.583, q = 0.827$ | $r = 0.034, p = 0.211, q = 0.609$ | $r = 0.030, p = 0.248, q = 0.495$ |
| 19 | $r = -0.015, p = 0.696, q = 0.827$ | $r = 0.016, p = 0.274, q = 0.609$ | $r = 0.041, p = 0.081, q = 0.472$ |
| 20 | $r = -0.055, p = 0.906, q = 0.950$ | $r = -0.027, p = 0.730, q = 0.912$ | $r = 0.034, p = 0.218, q = 0.485$ |

Table 3-1. Single-channel classification accuracy. * $q < 0.01$

| Channel | <i>Accuracy</i> | <i>p-value</i> | <i>FDR q-value</i> |
|----------------|------------------------|-----------------------|---------------------------|
| 1 | 0.569 | 0.110 | 0.442 |
| 2 | 0.483 | 0.507 | 0.643 |
| 3 | 0.517 | 0.339 | 0.643 |
| 4 | 0.500 | 0.515 | 0.643 |
| 5 | 0.586 | 0.078 | 0.401 |
| 6 | 0.535 | 0.339 | 0.643 |
| 7 | 0.535 | 0.350 | 0.643 |
| 8 | 0.655 | 0.017 | 0.167 |
| 9 | 0.466 | 0.047 | 0.643 |
| 10 | 0.500 | 0.425 | 0.643 |
| 11 | 0.759 | < 0.001 | 0.004** |
| 12 | 0.621 | 0.080 | 0.401 |
| 13 | 0.535 | 0.385 | 0.643 |
| 14 | 0.517 | 0.387 | 0.643 |
| 15 | 0.483 | 0.552 | 0.649 |
| 16 | 0.483 | 0.618 | 0.687 |
| 17 | 0.517 | 0.339 | 0.643 |
| 18 | 0.397 | 0.820 | 0.820 |
| 19 | 0.535 | 0.380 | 0.643 |
| 20 | 0.448 | 0.722 | 0.760 |

Table 4-1. Differences in mean activity between hostile, ambiguous and benign narratives.
M indicates mean difference between two narrative types. FDR-correction was applied separately for each contrast.

| Channel | hostile - ambiguous | hostile - benign | ambiguous - benign |
|---------|---|---|---|
| 1 | M = 0.07, $t(53) = 2.23$, $p = 0.030$, $q = 0.244$ | M = -0.07, $t(53) = -1.65$, $p = 0.106$, $q = 0.545$ | M = -0.14, $t(53) = -3.02$, $p = 0.004$, $q = 0.078$ |
| 2 | M = 0.08, $t(54) = 2.14$, $p = 0.037$, $q = 0.244$ | M = 0.05, $t(54) = 1.00$, $p = 0.322$, $q = 0.545$ | M = -0.03, $t(54) = -0.57$, $p = 0.569$, $q = 0.711$ |
| 3 | M = 0.01, $t(54) = 0.22$, $p = 0.829$, $q = 0.921$ | M = 0.06, $t(54) = 1.61$, $p = 0.114$, $q = 0.545$ | M = 0.06, $t(54) = 1.35$, $p = 0.183$, $q = 0.523$ |
| 4 | M = 0.04, $t(56) = 1.27$, $p = 0.210$, $q = 0.700$ | M = 0.07, $t(56) = 1.66$, $p = 0.103$, $q = 0.545$ | M = 0.03, $t(56) = 0.77$, $p = 0.442$, $q = 0.632$ |
| 5 | M = 0.09, $t(53) = 2.31$, $p = 0.025$, $q = 0.244$ | M = 0.04, $t(53) = 0.99$, $p = 0.325$, $q = 0.545$ | M = -0.05, $t(53) = -1.18$, $p = 0.243$, $q = 0.540$ |
| 6 | M = 0.05, $t(56) = 1.36$, $p = 0.179$, $q = 0.700$ | M = 0.00, $t(56) = -0.17$, $p = 0.868$, $q = 0.868$ | M = -0.06, $t(56) = -1.45$, $p = 0.153$, $q = 0.510$ |
| 7 | M = 0.01, $t(56) = 0.28$, $p = 0.782$, $q = 0.920$ | M = -0.07, $t(56) = -1.63$, $p = 0.108$, $q = 0.545$ | M = -0.07, $t(56) = -1.59$, $p = 0.118$, $q = 0.471$ |
| 8 | M = 0.07, $t(55) = 1.92$, $p = 0.060$, $q = 0.301$ | M = 0.03, $t(55) = 0.95$, $p = 0.346$, $q = 0.545$ | M = -0.03, $t(55) = -0.85$, $p = 0.398$, $q = 0.632$ |
| 9 | M = 0.02, $t(51) = 0.39$, $p = 0.696$, $q = 0.870$ | M = -0.02, $t(51) = -0.59$, $p = 0.560$, $q = 0.701$ | M = -0.04, $t(51) = -0.92$, $p = 0.364$, $q = 0.632$ |
| 10 | M = 0.03, $t(54) = 0.94$, $p = 0.351$, $q = 0.829$ | M = -0.04, $t(54) = -1.32$, $p = 0.192$, $q = 0.545$ | M = -0.08, $t(54) = -1.86$, $p = 0.068$, $q = 0.471$ |
| 11 | M = 0.03, $t(56) = 0.90$, $p = 0.373$, $q = 0.829$ | M = 0.03, $t(56) = 0.77$, $p = 0.444$, $q = 0.592$ | M = -0.01, $t(56) = -0.14$, $p = 0.889$, $q = 0.889$ |
| 12 | M = 0.02, $t(57) = 0.40$, $p = 0.688$, $q = 0.870$ | M = -0.01, $t(57) = -0.34$, $p = 0.733$, $q = 0.814$ | M = -0.03, $t(57) = -0.60$, $p = 0.548$, $q = 0.711$ |
| 13 | M = 0.04, $t(57) = 1.02$, $p = 0.312$, $q = 0.829$ | M = 0.05, $t(57) = 1.15$, $p = 0.257$, $q = 0.545$ | M = 0.01, $t(57) = 0.32$, $p = 0.750$, $q = 0.868$ |
| 14 | M = 0.02, $t(55) = 0.66$, $p = 0.510$, $q = 0.870$ | M = -0.04, $t(55) = -0.94$, $p = 0.354$, $q = 0.545$ | M = -0.07, $t(55) = -1.66$, $p = 0.102$, $q = 0.471$ |
| 15 | M = 0.00, $t(55) = 0.03$, $p = 0.975$, $q = 0.975$ | M = -0.03, $t(55) = -0.94$, $p = 0.351$, $q = 0.545$ | M = -0.04, $t(55) = -0.81$, $p = 0.421$, $q = 0.632$ |
| 16 | M = 0.00, $t(57) = 0.08$, $p = 0.936$, $q = 0.975$ | M = 0.01, $t(57) = 0.37$, $p = 0.714$, $q = 0.814$ | M = 0.01, $t(57) = 0.28$, $p = 0.781$, $q = 0.868$ |
| 17 | M = 0.02, $t(54) = 0.58$, $p = 0.562$, $q = 0.870$ | M = -0.03, $t(54) = -0.87$, $p = 0.388$, $q = 0.554$ | M = -0.05, $t(54) = -1.18$, $p = 0.243$, $q = 0.540$ |
| 18 | M = 0.02, $t(53) = 0.48$, $p = 0.631$, $q = 0.870$ | M = -0.05, $t(53) = -1.22$, $p = 0.228$, $q = 0.545$ | M = -0.07, $t(53) = -1.69$, $p = 0.097$, $q = 0.471$ |
| 19 | M = 0.02, $t(57) = 0.62$, $p = 0.541$, $q = 0.870$ | M = 0.06, $t(57) = 1.35$, $p = 0.181$, $q = 0.545$ | M = 0.04, $t(57) = 0.87$, $p = 0.390$, $q = 0.632$ |
| 20 | M = 0.02, $t(56) = 0.44$, $p = 0.663$, $q = 0.870$ | M = 0.01, $t(56) = 0.25$, $p = 0.803$, $q = 0.845$ | M = -0.01, $t(56) = -0.15$, $p = 0.886$, $q = 0.889$ |

Table 4-2. Correlation between hostile attribution bias scores and difference in mean activity between hostile, ambiguous and benign narratives. FDR-correction was applied separately for each contrast.

| Channel | hostile - ambiguous | hostile - benign | ambiguous - benign |
|---------|------------------------------------|------------------------------------|------------------------------------|
| 1 | $r = 0.246, p = 0.072, q = 1.000$ | $r = 0.261, p = 0.056, q = 0.902$ | $r = 0.046, p = 0.741, q = 1.000$ |
| 2 | $r = 0.054, p = 0.696, q = 1.000$ | $r = 0.279, p = 0.039, q = 0.681$ | $r = 0.222, p = 0.103, q = 1.000$ |
| 3 | $r = 0.367, p = 0.006, q = 0.118$ | $r = 0.300, p = 0.026, q = 0.522$ | $r = -0.069, p = 0.618, q = 1.000$ |
| 4 | $r = 0.066, p = 0.627, q = 1.000$ | $r = 0.175, p = 0.194, q = 1.000$ | $r = 0.132, p = 0.326, q = 1.000$ |
| 5 | $r = -0.029, p = 0.833, q = 1.000$ | $r = -0.007, p = 0.960, q = 1.000$ | $r = 0.020, p = 0.884, q = 1.000$ |
| 6 | $r = 0.117, p = 0.385, q = 1.000$ | $r = 0.155, p = 0.251, q = 1.000$ | $r = 0.027, p = 0.842, q = 1.000$ |
| 7 | $r = -0.105, p = 0.435, q = 1.000$ | $r = -0.085, p = 0.528, q = 1.000$ | $r = 0.005, p = 0.973, q = 1.000$ |
| 8 | $r = -0.088, p = 0.520, q = 1.000$ | $r = 0.068, p = 0.621, q = 1.000$ | $r = 0.130, p = 0.340, q = 1.000$ |
| 9 | $r = -0.004, p = 0.977, q = 1.000$ | $r = 0.076, p = 0.590, q = 1.000$ | $r = 0.076, p = 0.593, q = 1.000$ |
| 10 | $r = 0.091, p = 0.508, q = 1.000$ | $r = 0.281, p = 0.038, q = 0.681$ | $r = 0.147, p = 0.285, q = 1.000$ |
| 11 | $r = 0.068, p = 0.613, q = 1.000$ | $r = 0.284, p = 0.032, q = 0.608$ | $r = 0.184, p = 0.170, q = 1.000$ |
| 12 | $r = 0.065, p = 0.630, q = 1.000$ | $r = 0.197, p = 0.139, q = 1.000$ | $r = 0.114, p = 0.396, q = 1.000$ |
| 13 | $r = 0.095, p = 0.480, q = 1.000$ | $r = 0.241, p = 0.068, q = 1.000$ | $r = 0.163, p = 0.222, q = 1.000$ |
| 14 | $r = -0.059, p = 0.664, q = 1.000$ | $r = 0.045, p = 0.745, q = 1.000$ | $r = 0.104, p = 0.446, q = 1.000$ |
| 15 | $r = -0.207, p = 0.126, q = 1.000$ | $r = -0.227, p = 0.093, q = 1.000$ | $r = 0.006, p = 0.967, q = 1.000$ |
| 16 | $r = -0.003, p = 0.984, q = 1.000$ | $r = 0.091, p = 0.497, q = 1.000$ | $r = 0.085, p = 0.524, q = 1.000$ |
| 17 | $r = -0.096, p = 0.485, q = 1.000$ | $r = -0.189, p = 0.167, q = 1.000$ | $r = -0.060, p = 0.664, q = 1.000$ |
| 18 | $r = 0.176, p = 0.203, q = 1.000$ | $r = 0.032, p = 0.816, q = 1.000$ | $r = -0.127, p = 0.362, q = 1.000$ |
| 19 | $r = 0.107, p = 0.425, q = 1.000$ | $r = 0.183, p = 0.170, q = 1.000$ | $r = 0.099, p = 0.458, q = 1.000$ |
| 20 | $r = 0.192, p = 0.152, q = 1.000$ | $r = 0.195, p = 0.146, q = 1.000$ | $r = 0.022, p = 0.869, q = 1.000$ |