|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Behavior** | **Intercept** | 86.39 | 1 | 775 | \*1.47 x 10-19 |
| **Word Valence** | 0.30 | 1 | 775 | 0.59 |
| **Word Arousal** | 0.43 | 1 | 775 | 0.51 |
| **Dopamine** | **Intercept** | 0.27 | 1 | 772 | 0.61 |
| **Reaction Time** | 1.50 | 1 | 772 | 0.22 |
| **Word Valence** | 1.47 | 1 | 772 | 0.23 |
| **Word Arousal** | 1.36 | 1 | 772 | 0.24 |
| **Reaction Time x Word Valence** | 0.09 | 1 | 772 | 0.76 |
| **Reaction Time x Word Arousal** | 2.71 | 1 | 772 | 0.10 |
| **Serotonin** | **Intercept** | 0.04 | 1 | 772 | 0.84 |
| **Reaction Time** | 0.35 | 1 | 772 | 0.56 |
| **Word Valence** | 2.03 | 1 | 772 | 0.15 |
| **Word Arousal** | 0.11 | 1 | 772 | 0.74 |
| **Reaction Time x Word Valence** | 0.07 | 1 | 772 | 0.79 |
| **Reaction Time x Word Arousal** | 0.63 | 1 | 772 | 0.43 |
| **Norepinephrine** | **Intercept** | 6.28 | 1 | 772 | \*0.01 |
| **Reaction Time** | 0.75 | 1 | 772 | 0.39 |
| **Word Valence** | 1.22 | 1 | 772 | 0.27 |
| **Word Arousal** | 5.00 | 1 | 772 | \*0.03 |
| **Reaction Time x Word Valence** | 2.62 | 1 | 772 | 0.11 |
| **Reaction Time x Word Arousal** | 0.07 | 1 | 772 | 0.79 |

**Statistics for Omnibus Models Used to Analyze Randomized Task Data from VIM Thalamus**

This table displays the statistics for the behavioral model (Model 4) as well as the omnibus neuromodulator models (Model 5) for the randomized word task in VIM. Note we ran a model per neuromodulator (i.e. neuromodulator was not a factor in the model). The above shows statistics reported and not reported in the main text. An asterisks (\*) signifies statistical significance at *p* < 0.05. Yellow highlight signifies significant results that were reported in the text and are of the most interest.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Norepinephrine** | **Intercept** | 2.72 | 1 | 793 | \*0.01 |
| **Word Arousal** | 4.94 | 1 | 793 | \*0.03 |
| **Reaction Time** | 1.29 | 1 | 793 | 0.26 |
| **Reaction Time x Word Arousal** | 0.43 | 1 | 793 | 0.51 |

**Statistics for Categorical Models Used to Analyze Randomized Task Data from VIM Thalamus**

This table displays the statistics for the categorical linear mixed-effects arousal results for norepinephrine (Model 6). Note we ran a model only on norepinephrine (i.e. neuromodulator was not a factor in the model). The above shows statistics reported and not reported in the main text. An asterisks (\*) signifies statistical significance at *p* < 0.05. Yellow highlight signifies significant results that were reported in the text and are of the most interest.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Behavior** | **Intercept** | 446.48 | 1 | 1413 | \*2.45 x 10-86 |
| **Word Valence** | 0.31 | 1 | 1413 | 0.58 |
| **Word Arousal** | 1.10 | 1 | 1413 | 0.29 |
| **Dopamine** | **Intercept** | 1.00 | 1 | 1410 | 0.32 |
| **Reaction Time** | 0.71 | 1 | 1410 | 0.40 |
| **Word Valence** | 1.26 | 1 | 1410 | 0.26 |
| **Word Arousal** | 0.03 | 1 | 1410 | 0.87 |
| **Reaction Time x Word Valence** | 0.06 | 1 | 1410 | 0.80 |
| **Reaction Time x Word Arousal** | 0.30 | 1 | 1410 | 0.58 |
| **Serotonin** | **Intercept** | 2.81 | 1 | 1410 | 0.09 |
| **Reaction Time** | 0.39 | 1 | 1410 | 0.53 |
| **Word Valence** | 4.72 | 1 | 1410 | \*0.03 |
| **Word Arousal** | 0.76 | 1 | 1410 | 0.38 |
| **Reaction Time x Word Valence** | 0.54 | 1 | 1410 | 0.46 |
| **Reaction Time x Word Arousal** | 0.15 | 1 | 1410 | 0.70 |
| **Norepinephrine** | **Intercept** | 0.09 | 1 | 1410 | 0.77 |
| **Reaction Time** | 0.01 | 1 | 1410 | 0.91 |
| **Word Valence** | 1.48 | 1 | 1410 | 0.22 |
| **Word Arousal** | 1.16 | 1 | 1410 | 0.28 |
| **Reaction Time x Word Valence** | 0.86 | 1 | 1410 | 0.35 |
| **Reaction Time x Word Arousal** | 0.29 | 1 | 1410 | 0.59 |

**Statistics for Omnibus Models Used to Analyze Blocked Task Data from VIM Thalamus**

This table displays the statistics for the behavioral model (Model 4) as well as the omnibus neuromodulator models (Model 5). Note we ran a model per neuromodulator (i.e. neuromodulator was not a factor in the model). The above shows statistics reported and not reported in the main text. An asterisks (\*) signifies statistical significance at *p* < 0.05. Yellow highlight signifies significant results that were reported in the text and are of the most interest.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Negative vs Positive Valence Words for Serotonin** | **Intercept** | 0.35 | 1 | 720 | 0.55 |
| **Word Valence** | 4.94 | 1 | 720 | \*0.03 |
| **Reaction Time** | 0.46 | 1 | 720 | 0.50 |
| **Reaction Time x Word Valence** | 1.00 x 10-5 | 1 | 720 | 1.00 |
| **Serotonin vs. Dopamine for Negative Valence Words** | **Intercept** | 1.61 | 1 | 720 | 0.21 |
| **Neuromodulator Type** | 1.76 | 1 | 720 | 0.18 |
| **Reaction Time** | 0.35 | 1 | 720 | 0.56 |
| **Reaction Time x Neuromodulator Type** | 0.85 | 1 | 720 | 0.36 |
| **Serotonin vs. Dopamine for Positive Valence Words** | **Intercept** | 0.31 | 1 | 720 | 0.58 |
| **Neuromodulator Type** | 4.71 | 1 | 720 | \*0.03 |
| **Reaction Time** | 0.03 | 1 | 720 | 0.87 |
| **Reaction Time x Neuromodulator Type** | 0.19 | 1 | 720 | 0.66 |

**Statistics for Categorical Models Used to Analyze Blocked Task Data from VIM Thalamus**

This table displays the statistics for serotonin positive vs negative word categorical model (Model 7). Note we ran a model only for serotonin (i.e. neuromodulator was not a factor in the model). The table also displays the statistics predicting max change for negative and positive valenced words for dopamine and serotonin (Model 8), here neuromodulator was a factor in the model. The above shows statistics reported and not reported in the main text. An asterisks (\*) signifies statistical significance at *p* < 0.05. Yellow highlight signifies significant results that were reported in the text and are of the most interest.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Behavior** | **Intercept** | 625.28 | 1 | 1030 | \*3.15 x 10-8 |
| **Word Valence** | 0.08 | 1 | 1030 | 0.78 |
| **Word Arousal** | 5.06 | 1 | 1030 | \*0.02 |
| **Dopamine** | **Intercept** | 2.31 | 1 | 1021 | 0.13 |
| **Reaction Time** | 0.36 | 1 | 1021 | 0.55 |
| **Hemisphere** | 3.45 | 1 | 1021 | 0.06 |
| **Word Valence** | 5.93 | 1 | 1021 | \*0.02 |
| **Word Arousal** | 0.55 | 1 | 1021 | 0.46 |
| **Reaction Time x Hemisphere** | 1.50 | 1 | 1021 | 0.22 |
| **Reaction Time x Word Valence** | 0.03 | 1 | 1021 | 0.87 |
| **Hemisphere x Word Valence** | 8.90 | 1 | 1021 | \*0.003 |
| **Reaction Time x Word Arousal** | 0.11 | 1 | 1021 | 0.74 |
| **Hemisphere x Word Arousal** | 0.47 | 1 | 1021 | 0.50 |
| **Reaction Time x Hemisphere x Word Valence** | 0.03 | 1 | 1021 | 0.87 |
| **Reaction Time x Hemisphere x Word Arousal** | 2.11 | 1 | 1021 | 0.15 |
| **Serotonin** | **Intercept** | 2.89 | 1 | 1021 | 0.09 |
| **Reaction Time** | 0.19 | 1 | 1021 | 0.66 |
| **Hemisphere** | 2.28 | 1 | 1021 | 0.13 |
| **Word Valence** | 0.23 | 1 | 1021 | 0.63 |
| **Word Arousal** | 1.57 | 1 | 1021 | 0.21 |
| **Reaction Time x Hemisphere** | 2.00 | 1 | 1021 | 0.16 |
| **Reaction Time x Word Valence** | 4.54 | 1 | 1021 | \*0.03 |
| **Hemisphere x Word Valence** | 4.85 x 10-6 | 1 | 1021 | 1.00 |
| **Reaction Time x Word Arousal** | 0.53 | 1 | 1021 | 0.47 |
| **Hemisphere x Word Arousal** | 1.63 | 1 | 1021 | 0.20 |
| **Reaction Time x Hemisphere x Word Valence** | 0.11 | 1 | 1021 | 0.74 |
| **Reaction Time x Hemisphere x Word Arousal** | 2.06 | 1 | 1021 | 0.15 |
| **Norepinephrine** | **Intercept** | 1.77 | 1 | 1021 | 0.18 |
| **Reaction Time** | 0.33 | 1 | 1021 | 0.56 |
| **Hemisphere** | 3.15 | 1 | 1021 | 0.08 |
| **Word Valence** | 0.01 | 1 | 1021 | 0.92 |
| **Word Arousal** | 2.90 | 1 | 1021 | 0.09 |
| **Reaction Time x Hemisphere** | 8.13 x 10-4 | 1 | 1021 | 0.98 |
| **Reaction Time x Word Valence** | 2.00 | 1 | 1021 | 0.16 |
| **Hemisphere x Word Valence** | 0.01 | 1 | 1021 | 0.92 |
| **Reaction Time x Word Arousal** | 0.15 | 1 | 1021 | 0.69 |
| **Hemisphere x Word Arousal** | 3.78 | 1 | 1021 | 0.05 |
| **Reaction Time x Hemisphere x Word Valence** | 1.11 | 1 | 1021 | 0.29 |
| **Reaction Time x Hemisphere x Word Arousal** | 0.30 | 1 | 1021 | 0.58 |

**Statistics for Omnibus Models Used to Analyze Blocked Task Data from Anterior Cingulate Cortex**

This table displays the statistics for the behavioral model (Model 4) as well as the omnibus neuromodulator models (Model 9). Note we ran a model per neuromodulator (i.e. neuromodulator was not a factor in the model). The above shows statistics reported and not reported in the main text. An asterisks (\*) signifies statistical significance at *p* < 0.05. A Yellow highlight signifies significant results that were reported in the text and are of the most interest. A light blue highlight signifies trending results that were reported in the text and are of interest.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Serotonin: Negative Valence Words across Reaction Time** | **Intercept** | 0.75 | 1 | 259 | 0.39 |
| **Reaction Time** | 3.55 | 1 | 259 | 0.06 |
| **Hemisphere** | 0.71 | 1 | 259 | 0.40 |
| **Reaction Time x Hemisphere** | 0.07 | 1 | 259 | 0.80 |
| **Serotonin: Positive Valence Words across Reaction Time** | **Intercept** | 0.07 | 1 | 259 | 0.79 |
| **Reaction Time** | 2.00 | 1 | 259 | 0.16 |
| **Hemisphere** | 0.27 | 1 | 259 | 0.60 |
| **Reaction Time x Hemisphere** | 0.79 | 1 | 259 | 0.38 |
| **Serotonin: Negative vs Positive Valence Words for Fast Reaction Times** | **Intercept** | 1.66 | 1 | 170 | 0.20 |
| **Word Valence** | 0.74 | 1 | 170 | 0.39 |
| **Hemisphere** | 0.03 | 1 | 170 | 0.87 |
| **Hemisphere x Word Valence** | 0.02 | 1 | 170 | 0.90 |
| **Serotonin: Negative vs Positive Valence Words for Slow Reaction Times** | **Intercept** | 0.01 | 1 | 170 | 0.91 |
| **Word Valence** | 0.26 | 1 | 170 | 0.61 |
| **Hemisphere** | 1.60 | 1 | 170 | 0.21 |
| **Hemisphere x Word Valence** | 0.73 | 1 | 170 | 0.40 |

**Statistics for Categorical Models Used to Analyze Serotonin Data from Anterior Cingulate Cortex**

This table displays the statistics for the categorical model assessing the max change in serotonin across reaction time for negative and positive valence (Model 10) and the categorical model assessing the max change in serotonin within fast and slow reaction times across valence (Model 11). A light blue highlight signifies trending results that were reported in the text and are of interest.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Dopamine: Negative vs Positive Word Valence in Left Hemisphere** | **Intercept** | 0.48 | 1 | 260 | 0.49 |
| **Word Valence** | 7.65 | 1 | 260 | \*0.006 |
| **Reaction Time** | 0.11 | 1 | 260 | 0.74 |
| **Reaction Time x Word Valence** | 0.0003 | 1 | 260 | 0.99 |
| **Dopamine: Negative vs Positive Word Valence in Right Hemisphere** | **Intercept** | 0.72 | 1 | 258 | 0.40 |
| **Word Valence** | 2.44 | 1 | 258 | 0.12 |
| **Reaction Time** | 1.64 | 1 | 258 | 0.20 |
| **Reaction Time x Word Valence** | 0.002 | 1 | 258 | 0.97 |
| **Dopamine: Right vs Left Hemisphere for Negative Word Valence** | **Intercept** | 0.48 | 1 | 259 | 0.49 |
| **Reaction Time** | 0.02 | 1 | 259 | 0.88 |
| **Hemisphere** | 1.35 | 1 | 259 | 0.25 |
| **Reaction Time x Hemisphere** | 0.76 | 1 | 259 | 0.38 |
| **Dopamine: Right vs Left Hemisphere for Positive Word Valence** | **Intercept** | 8.64 | 1 | 259 | \*0.004 |
| **Reaction Time** | 0.04 | 1 | 259 | 0.85 |
| **Hemisphere** | 9.51 | 1 | 259 | \*0.002 |
| **Reaction Time x Hemisphere** | 0.96 | 1 | 259 | 0.33 |

**Statistics for Categorical Models Used to Analyze Dopamine Data from Anterior Cingulate Cortex**

This table displays the statistics for the categorical models comparing valence within hemisphere (Model 14) and for the models comparing hemispheres within valence (Model 15). The above shows statistics reported and not reported in the main text. An asterisks (\*) signifies statistical significance at *p* < 0.05. A Yellow highlight signifies significant results that were reported in the text and are of the most interest.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Norepinephrine: Neutral vs Arousing Word in Left Hemisphere** | **Intercept** | 0.91 | 1 | 524 | 0.34 |
| **Word Arousal** | 1.79 | 1 | 524 | 0.18 |
| **Reaction Time** | 0.004 | 1 | 524 | 0.95 |
| **Reaction Time x Word Arousal** | 0.36 | 1 | 524 | 0.55 |
| **Norepinephrine: Neutral vs Arousing Word in Right Hemisphere** | **Intercept** | 2.64 | 1 | 521 | 0.11 |
| **Word Arousal** | 3.12 | 1 | 521 | 0.08 |
| **Reaction Time** | 1.25 | 1 | 521 | 0.26 |
| **Reaction Time x Word Valence** | 0.06 | 1 | 521 | 0.80 |
| **Norepinephrine: Right vs Left Hemisphere for Neutral Word** | **Intercept** | 0.85 | 1 | 523 | 0.36 |
| **Reaction Time** | 0.01 | 1 | 523 | 0.91 |
| **Hemisphere** | 3.21 | 1 | 523 | 0.07 |
| **Reaction Time x Hemisphere** | 0.72 | 1 | 523 | 0.40 |
| **Norepinephrine: Right vs Left Hemisphere for Arousing Word** | **Intercept** | 0.86 | 1 | 522 | 0.35 |
| **Reaction Time** | 0.87 | 1 | 522 | 0.35 |
| **Hemisphere** | 1.42 | 1 | 522 | 0.23 |
| **Reaction Time x Hemisphere** | 0.12 | 1 | 522 | 0.73 |

**Statistics for Categorical Models Used to Analyze Norepinephrine Data from Anterior Cingulate Cortex**

This table displays the statistics for the categorical models assessing norepinephrine levels across arousal within hemisphere (Model 14) and for the models comparing across hemispheres within arousal (Model 15). A light blue highlight signifies trending results that were reported in the text and are of interest.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Dopamine** | **Intercept** | 0.07 | 1 | 1027 | 0.80 |
| **Reaction Time** | 0.21 | 1 | 1027 | 0.65 |
| **Word Valence** | 0.16 | 1 | 1027 | 0.69 |
| **Word Arousal** | 0.14 | 1 | 1027 | 0.71 |
| **Reaction Time x Word Valence** | 0.01 | 1 | 1027 | 0.92 |
| **Reaction Time x Word Arousal** | 1.19 | 1 | 1027 | 0.28 |
| **Serotonin** | **Intercept** | 0.84 | 1 | 1027 | 0.36 |
| **Reaction Time** | 4.29 | 1 | 1027 | \*0.04 |
| **Word Valence** | 0.46 | 1 | 1027 | 0.50 |
| **Word Arousal** | 0.26 | 1 | 1027 | 0.61 |
| **Reaction Time x Word Valence** | 6.38 | 1 | 1027 | \*0.01 |
| **Reaction Time x Word Arousal** | 0.25 | 1 | 1027 | 0.61 |
| **Norepinephrine** | **Intercept** | 0.01 | 1 | 1027 | 0.92 |
| **Reaction Time** | 0.78 | 1 | 1027 | 0.38 |
| **Word Valence** | 0.05 | 1 | 1027 | 0.82 |
| **Word Arousal** | 0.19 | 1 | 1027 | 0.67 |
| **Reaction Time x Word Valence** | 0.71 | 1 | 1027 | 0.40 |
| **Reaction Time x Word Arousal** | 0.007 | 1 | 1027 | 0.93 |

**Statistics for Omnibus Models Used to Analyze Blocked Task Data from Anterior Cingulate Cortex Excluding Hemisphere**

This table displays the statistics for the neuromodulator models with hemisphere removed (Model 5). Note we ran a model per neuromodulator (i.e. neuromodulator was not a factor in the model). The purpose here is to show the statistics for the anterior cingulate cortex when hemisphere is removed. An asterisks (\*) signifies statistical significance at *p* < 0.05. A Yellow highlight signifies significant results that are of the most interest. Note that the word valence effects for dopamine and norepinephrine are lost when hemisphere is removed from the model, suggesting hemisphere is crucial to the effect. However, this model retains the significant word valence x reaction time interaction that was observed for serotonin when hemisphere was included in the model (Table S4).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Dopamine** | **Intercept** | 0.08 | 1 | 766 | 0.78 |
| **Reaction Time** | 0.40 | 1 | 766 | 0.53 |
| **Hemisphere** | 0.001 | 1 | 766 | 0.97 |
| **Word Valence** | 2.07 | 1 | 766 | 0.15 |
| **Word Arousal** | 0.86 | 1 | 766 | 0.35 |
| **Reaction Time x Hemisphere** | 0.68 | 1 | 766 | 0.41 |
| **Reaction Time x Word Valence** | 0.03 | 1 | 766 | 0.86 |
| **Hemisphere x Word Valence** | 0.58 | 1 | 766 | 0.45 |
| **Reaction Time x Word Arousal** | 1.87 | 1 | 766 | 0.17 |
| **Hemisphere x Word Arousal** | 0.05 | 1 | 766 | 0.83 |
| **Reaction Time x Hemisphere x Word Valence** | 0.14 | 1 | 766 | 0.71 |
| **Reaction Time x Hemisphere x Word Arousal** | 0.007 | 1 | 766 | 0.93 |
| **Serotonin** | **Intercept** | 0.14 | 1 | 766 | 0.71 |
| **Reaction Time** | 0.40 | 1 | 766 | 0.53 |
| **Hemisphere** | 0.09 | 1 | 766 | 0.77 |
| **Word Valence** | 3.02 | 1 | 766 | 0.08 |
| **Word Arousal** | 0.17 | 1 | 766 | 0.68 |
| **Reaction Time x Hemisphere** | 0.02 | 1 | 766 | 0.88 |
| **Reaction Time x Word Valence** | 390.0 x 10-6 | 1 | 766 | 1.00 |
| **Hemisphere x Word Valence** | 0.96 | 1 | 766 | 0.33 |
| **Reaction Time x Word Arousal** | 0.67 | 1 | 766 | 0.41 |
| **Hemisphere x Word Arousal** | 0.09 | 1 | 766 | 0.77 |
| **Reaction Time x Hemisphere x Word Valence** | 0.04 | 1 | 766 | 0.83 |
| **Reaction Time x Hemisphere x Word Arousal** | 0.05 | 1 | 766 | 0.82 |
| **Norepinephrine** | **Intercept** | 3.35 | 1 | 766 | 0.07 |
| **Reaction Time** | 1.03 | 1 | 766 | 0.31 |
| **Hemisphere** | 0.001 | 1 | 766 | 0.97 |
| **Word Valence** | 0.04 | 1 | 766 | 0.84 |
| **Word Arousal** | 3.05 | 1 | 766 | 0.08 |
| **Reaction Time x Hemisphere** | 0.07 | 1 | 766 | 0.80 |
| **Reaction Time x Word Valence** | 2.84 | 1 | 766 | 0.09 |
| **Hemisphere x Word Valence** | 0.87 | 1 | 766 | 0.35 |
| **Reaction Time x Word Arousal** | 0.34 | 1 | 766 | 0.56 |
| **Hemisphere x Word Arousal** | 0.02 | 1 | 766 | 0.89 |
| **Reaction Time x Hemisphere x Word Valence** | 0.21 | 1 | 766 | 0.65 |
| **Reaction Time x Hemisphere x Word Arousal** | 0.13 | 1 | 766 | 0.71 |

**Statistics for Models Used to Analyze Randomized VIM Data Split by Hemisphere**

This table displays the statistics for the hemisphere model (Model 9) as applied to the randomize VIM data. Note we ran a model per neuromodulator (i.e. neuromodulator was not a factor in the model). Given our ACC data the purpose of these models was to retroactively assess if hemisphere had an effect in the VIM data. The above shows statistics reported and not reported in the main text. An asterisks (\*) signifies statistical significance at *p* < 0.05. The light blue highlight signifies trending results that are of interest. Note hemisphere interactions do not occur.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model for:** | **Independent Variables** | **F-Statistic** | **Factor Degrees of Freedom** | **Residual Degrees of Freedom** | ***p*-Value** |
| **Dopamine** | **Intercept** | 0.99 | 1 | 1404 | 0.32 |
| **Reaction Time** | 0.80 | 1 | 1404 | 0.37 |
| **Hemisphere** | 0.10 | 1 | 1404 | 0.75 |
| **Word Valence** | 1.02 | 1 | 1404 | 0.31 |
| **Word Arousal** | 0.02 | 1 | 1404 | 0.88 |
| **Reaction Time x Hemisphere** | 0.11 | 1 | 1404 | 0.74 |
| **Reaction Time x Word Valence** | 0.16 | 1 | 1404 | 0.69 |
| **Hemisphere x Word Valence** | 0.02 | 1 | 1404 | 0.88 |
| **Reaction Time x Word Arousal** | 0.33 | 1 | 1404 | 0.56 |
| **Hemisphere x Word Arousal** | 0.0008 | 1 | 1404 | 0.98 |
| **Reaction Time x Hemisphere x Word Valence** | 0.11 | 1 | 1404 | 0.74 |
| **Reaction Time x Hemisphere x Word Arousal** | 0.04 | 1 | 1404 | 0.83 |
| **Serotonin** | **Intercept** | 4.22 | 1 | 1404 | \*0.04 |
| **Reaction Time** | 1.28 | 1 | 1404 | 0.26 |
| **Hemisphere** | 1.70 | 1 | 1404 | 0.19 |
| **Word Valence** | 3.76 | 1 | 1404 | 0.05 |
| **Word Arousal** | 2.25 | 1 | 1404 | 0.13 |
| **Reaction Time x Hemisphere** | 0.93 | 1 | 1404 | 0.33 |
| **Reaction Time x Word Valence** | 1.86 | 1 | 1404 | 0.17 |
| **Hemisphere x Word Valence** | 0.11 | 1 | 1404 | 0.74 |
| **Reaction Time x Word Arousal** | 0.02 | 1 | 1404 | 0.90 |
| **Hemisphere x Word Arousal** | 2.03 | 1 | 1404 | 0.15 |
| **Reaction Time x Hemisphere x Word Valence** | 1.43 | 1 | 1404 | 0.23 |
| **Reaction Time x Hemisphere x Word Arousal** | 0.16 | 1 | 1404 | 0.69 |
| **Norepinephrine** | **Intercept** | 0.38 | 1 | 1404 | 0.54 |
| **Reaction Time** | 0.41 | 1 | 1404 | 0.52 |
| **Hemisphere** | 0.43 | 1 | 1404 | 0.51 |
| **Word Valence** | 0.06 | 1 | 1404 | 0.80 |
| **Word Arousal** | 0.99 | 1 | 1404 | 0.32 |
| **Reaction Time x Hemisphere** | 0.80 | 1 | 1404 | 0.37 |
| **Reaction Time x Word Valence** | 1.20 | 1 | 1404 | 0.27 |
| **Hemisphere x Word Valence** | 1.77 | 1 | 1404 | 0.18 |
| **Reaction Time x Word Arousal** | 0.002 | 1 | 1404 | 0.96 |
| **Hemisphere x Word Arousal** | 0.03 | 1 | 1404 | 0.87 |
| **Reaction Time x Hemisphere x Word Valence** | 0.30 | 1 | 1404 | 0.58 |
| **Reaction Time x Hemisphere x Word Arousal** | 0.40 | 1 | 1404 | 0.53 |

**Statistics for Models Used to Analyze Blocked VIM Data Split by Hemisphere**

This table displays the statistics for the hemisphere model (Model 9) as applied to the blocked VIM data. Note we ran a model per neuromodulator (i.e. neuromodulator was not a factor in the model). Given our ACC data the purpose of these models was to retroactively assess if hemisphere had an effect in the VIM data. The above shows statistics reported and not reported in the main text. An asterisks (\*) signifies statistical significance at *p* < 0.05. The light blue highlight signifies trending results that are of interest. Note hemisphere interactions do not occur.