**Supplementary Material**

Table 1 *Fixed effects in the fitted linear mixed-effect models of group comparisons for the ANT*

*Model for overall RTs: lmer (RT ~ Group \* Session + (1 | Subject) + (1 | Item), ANT)*

|  |  |  |  |
| --- | --- | --- | --- |
|  | RTs |  |  |
| *Predictors* | *Estimates* | 95% CI | *p* |
| (Intercept) | 482.29 | [461.33, 503.25] | **<0.001** |
| Group [Non-language] | -4.03 | [-28.18, 20.12] | 0.744 |
| Session[W3] | -14.52 | [-38.52, 9.47] | 0.236 |
| Session[W6] | -14.62 | [-38.62, 9.37] | 0.232 |
| Session[W10] | -17.6 | [-41.92, 6.72] | 0.156 |
| Group [Non-language] \*Session[W3] | 4.93 | [-29.22, 39.09] | 0.777 |
| Group [Non-language] \*Session[W6] | 0.81 | [-33.35, 34.96] | 0.963 |
| Group [Non-language] \*Session[W10] | 5.63 | [-28.99, 40.25] | 0.75 |
| **Random Effects** |  |  |  |
| σ2 | 7872.45 |  |  |
| τ00 Subject | 2894.74 |  |  |
| τ00 Item | 1893.07 |  |  |
| ICC | 0.38 |  |  |
| N Subject | 304 |  |  |
| N Item | 48 |  |  |
| Observations | 85128 |  |  |
| **Marginal R2 / Conditional R2** | 0.003 / 0.380 |  |  |

Table 2 *Fixed effects in the fitted linear mixed-effect models of group comparisons for the ANT*

*Models for attentional control: lmer (RT ~ Group \* Session \* TrialType + (1 + TrialType | Subject) + (1 | Item), ANT)*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Conflict** |  |  |  | **Alerting** |  |  |  | **Orienting** |  |  |
| *Predictors* | *Estimates* | 95% CI | *p* |  | *Estimates* | 95% CI | *p* |  | *Estimates* | 95% CI | *p* |
| (Intercept) | 455.72 | [433.39, 478.05] | **<0.001** |  | 473.34 | [448.48, 498.21] | **<0.001** |  | 483.29 | [456.47, 510.10] | **<0.001** |
| Group [Non-language] | -2.14 | [-26.18, 21.89] | 0.861 |  | -4.92 | [-27.74, 17.90] | 0.673 |  | -3.1 | [-28.50, 22.30] | 0.811 |
| Session[W3] | -8.46 | [-32.34, 15.42] | 0.488 |  | -17.38 | [-40.05, 5.29] | 0.133 |  | -17.46 | [-42.70, 7.77] | 0.175 |
| Session[W6] | -5.39 | [-29.27, 18.49] | 0.658 |  | -18.98 | [-41.65, 3.70] | 0.101 |  | -18.54 | [-43.77, 6.70] | 0.15 |
| Session[W10] | -8.32 | [-32.52, 15.88] | 0.5 |  | -22.75 | [-45.73, 0.22] | 0.052 |  | -21.92 | [-47.49, 3.66] | 0.093 |
| TrialType | 84.19 | [62.48, 105.90] | **<0.001** |  | 50.9 | [23.07, 78.73] | **<0.001** |  | -34.96 | [-63.78, -6.14] | **0.017** |
| Group [Non-language] \*Session[W3] | 0.31 | [-33.68, 34.31] | 0.986 |  | 7.17 | [-25.11, 39.45] | 0.663 |  | 2.86 | [-33.06, 38.78] | 0.876 |
| Group [Non-language] \*Session[W6] | -2.1 | [-36.09, 31.90] | 0.904 |  | 3.53 | [-28.75, 35.81] | 0.83 |  | 1.86 | [-34.07, 37.78] | 0.919 |
| Group [Non-language] \*Session[W10] | 3.03 | [-31.43, 37.48] | 0.863 |  | 7.58 | [-25.14, 40.29] | 0.65 |  | 7.66 | [-28.75, 44.07] | 0.68 |
| Group [Non-language] \*TrialType | -6.52 | [-16.03, 2.98] | 0.179 |  | -2.1 | [-12.39, 8.19] | 0.69 |  | 1.87 | [-5.89, 9.63] | 0.636 |
| Session[W3] \*TrialType | -16.82 | [-26.26, -7.37] | **<0.001** |  | 6.39 | [-3.83, 16.61] | 0.22 |  | 5.26 | [-2.46, 12.97] | 0.182 |
| Session[W6] \*TrialType | -24.04 | [-33.49, -14.6] | **<0.001** |  | 8.26 | [-1.96, 18.49] | 0.113 |  | 8.24 | [0.53, 15.96] | **0.036** |
| Session[W10] \*TrialType | -25.99 | [-35.56, -16.42] | **<0.001** |  | 9.55 | [-0.81, 19.90] | 0.071 |  | 9.38 | [1.55, 17.20] | **0.019** |
| Group\*Session[W3] \* TrialType | 7.04 | [-6.40, 20.48] | 0.305 |  | -0.32 | [-14.87, 14.23] | 0.966 |  | 0.04 | [-10.94, 11.02] | 0.994 |
| Group\*Session[W6] \* TrialType | 6.41 | [-7.04, 19.86] | 0.35 |  | -2.57 | [-17.12, 11.99] | 0.73 |  | -4.74 | [-15.71, 6.24] | 0.398 |
| Group\*Session[W10] \* TrialType | 1.91 | [-11.72, 15.54] | 0.784 |  | 1.27 | [-13.48, 16.02] | 0.866 |  | -9.01 | [-20.14, 2.13] | 0.113 |
| **Random Effects** |  |  |  |  |  |  |  |  |  |  |  |
| σ2 | 7879.96 |  |  |  | 8093.68 |  |  |  | 7523.14 |  |  |
| τ00 Subject | 2811.53 |  |  |  | 2494.61 |  |  |  | 3125.1 |  |  |
| τ00 Item | 888.95 |  |  |  | 1128.08 |  |  |  | 1251.1 |  |  |
| τ11 Subject.TrialType | 282.81 |  |  |  | 298.11 |  |  |  | 88.24 |  |  |
| ρ01 Subject | 0.26 |  |  |  | 0.33 |  |  |  | -0.34 |  |  |
| ICC | 0.34 |  |  |  | 0.33 |  |  |  | 0.36 |  |  |
| N Subject | 304 |  |  |  | 304 |  |  |  | 304 |  |  |
| N Item | 32 |  |  |  | 24 |  |  |  | 24 |  |  |
| Observations | 56434 |  |  |  | 42352 |  |  |  | 42776 |  |  |
| **Marginal R2 / Conditional R2** | 0.090 / 0.400 | |  |  | 0.063 / 0.376 | |  |  | 0.022 / 0.375 | |  |

Table 3 *Fixed effects in the fitted linear mixed-effect models of group comparisons for the Stroop task*

*Model for overall RTs: lmer (RT ~ Group \* Session + (1 | Subject) + (1 | Item), Stroop)*

*Models for Stroop effect: lmer (RT ~ Group \* Session \* TrialType + (1 + TrialType | Subject) + (1 | Item), Stroop)*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **RTs** |  |  |  |  | **Stroop effect** | |  |
| *Predictors* | *Estimates* | 95% CI | *p* |  | *Predictors* | *Estimates* | 95% CI | *p* |
| (Intercept) | 571.99 | [542.89, 601.10] | **<0.001** |  | (Intercept) | 529.78 | [503.35, 556.20] | **<0.001** |
| Group [Non-language] | 7.09 | [-26.87, 41.05] | 0.682 |  | Group [Non-language] | -31.79 | [-62.98, -0.60] | **0.046** |
| Session[W3] | -35.76 | [-69.50, -2.02] | **0.038** |  | Session[W3] | -43.41 | [-74.61, -12.22] | **0.006** |
| Session[W6] | -48.12 | [-81.86, -14.38] | **0.005** |  | Session[W6] | -46.3 | [-77.91, -14.69] | **0.004** |
| Session[W10] | -53.72 | [-87.92, -19.53] | **0.002** |  | Session[W10] | 76.55 | [56.42, 96.68] | **<0.001** |
| Group [Non-language] \*Session[W3] | -16.18 | [-64.21, 31.85] | 0.509 |  | TrialType [incongruent] | 4.92 | [-26.48, 36.31] | 0.759 |
| Group [Non-language] \*Session[W6] | -17.88 | [-65.91, 30.14] | 0.465 |  | Group [Non-language] \*Session[W3] | -15.36 | [-28.59, -2.13] | **0.023** |
| Group [Non-language] \*Session[W10] | -11.94 | [-60.80, 36.93] | 0.632 |  | Group [Non-language] \*Session[W6] | -14.63 | [-27.86, -1.39] | **0.03** |
| **Random Effects** |  |  |  |  | Group [Non-language] \*Session[W10] | -19.51 | [-32.92, -6.10] | **0.004** |
| σ2 | 9666.91 |  |  |  | Group [Non-language] \*TrialType | -10.95 | [-55.35, 33.45] | 0.629 |
| τ00 Subject | 5722.71 |  |  |  | Session[W3] \*TrialType | -12.35 | [-56.75, 32.05] | 0.586 |
| τ00 Item | 867.83 |  |  |  | Session[W6] \*TrialType | -8.53 | [-53.71, 36.64] | 0.711 |
| ICC | 0.41 |  |  |  | Session[W10] \*TrialType | 4.07 | [-9.26, 17.40] | 0.549 |
| N Subject | 303 |  |  |  | Group\*Session[W3] \* TrialType | -9.52 | [-28.35, 9.31] | 0.322 |
| N Item | 12 |  |  |  | Group\*Session[W6] \* TrialType | -11.75 | [-30.58, 7.07] | 0.221 |
| Observations | 52356 |  |  |  | Group\*Session[W10] \* TrialType | -12.04 | [-31.19, 7.11] | 0.218 |
| **Marginal R2 / Conditional R2** | 0.035 / 0.426 |  |  |  | **Random Effects** |  |  |  |
|  |  |  |  |  | σ2 | 9599.04 |  |  |
|  |  |  |  |  | τ00 Subject | 4776.27 |  |  |
|  |  |  |  |  | τ00 Item | 165.31 |  |  |
|  |  |  |  |  | τ11 Subject.TrialType | 550.9 |  |  |
|  |  |  |  |  | ρ01 Subject | 0.56 |  |  |
|  |  |  |  |  | ICC | 0.39 |  |  |
|  |  |  |  |  | N Subject | 303 |  |  |
|  |  |  |  |  | N Item | 9 |  |  |
|  |  |  |  |  | Observations | 34690 |  |  |
|  |  |  |  |  | **Marginal R2 / Conditional R2** | 0.094 / 0.446 | |  |

Table 4 *Fixed effects in the fitted linear regression models of group comparisons for TEA*

*Models: lm(EC ~ Group \* Session, data = TEA); lm(ED ~ Group \* Session, data = TEA); lm(ER ~ Group \* Session, data = TEA)*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **EC** | | |  | **ED** | | |  | **ER** | | |
| *Predictors* | *Estimates* | 95% CI | *p* |  | *Estimates* | 95% CI | *p* |  | *Estimates* | 95% CI | *p* |
| (Intercept) | 99.27 | [97.37, 101.17] | **<0.001** |  | 77.69 | [71.78, 83.60] | **<0.001** |  | 68.21 | [61.37, 75.04] | **<0.001** |
| Group [Non-language] | -0.02 | [-2.73, 2.69] | 0.989 |  | -7.69 | [-16.10, 0.72] | 0.073 |  | 0.74 | [-8.99, 10.47] | 0.881 |
| Session[W3] | -1.47 | [-4.15, 1.22] | 0.284 |  | 9.74 | [1.39, 18.10] | **0.022** |  | 10.26 | [0.59, 19.92] | **0.038** |
| Session[W6] | -1.47 | [-4.15, 1.22] | 0.284 |  | 17.69 | [9.34, 26.05] | **<0.001** |  | 11.54 | [1.87, 21.20] | **0.019** |
| Session[W10] | -0.81 | [-3.54, 1.91] | 0.558 |  | 16.9 | [8.43, 25.37] | **<0.001** |  | 15.04 | [5.24, 24.83] | **0.003** |
| Group [Non-language] \*Session[W3] | -0.04 | [-3.87, 3.79] | 0.984 |  | -1.59 | [-13.48, 10.31] | 0.793 |  | -5.78 | [-19.54, 7.97] | 0.409 |
| Group [Non-language] \*Session[W6] | 2.22 | [-1.61, 6.04] | 0.255 |  | 1.78 | [-10.11, 13.68] | 0.768 |  | 2.15 | [-11.61, 15.90] | 0.759 |
| Group [Non-language] \*Session[W10] | -1.61 | [-5.49, 2.27] | 0.414 |  | 5.04 | [-7.01, 17.10] | 0.411 |  | 2.13 | [-11.82, 16.07] | 0.764 |
| Observations | 304 |  |  |  | 304 |  |  |  | 304 |  |  |
| R2 / R2 adjusted | 0.026 / 0.003 | |  |  | 0.179 / 0.159 | |  |  | 0.079 / 0.057 | |  |

Table 5 *Fixed effects in the fitted linear regression models of group comparisons for the Corsi Tapping task*

*Models: lm(Forward ~ Group \* Session, data = CTT); lm(Backward ~ Group \* Session, data = CTT);lm(Rotated ~ Group \* Session, data = CTT)*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Forward** | | |  | **Backward** | | |  | **Rotated** | | |
| *Predictors* | *Estimates* | 95% CI | *p* |  | *Estimates* | 95% CI | *p* |  | *Estimates* | 95% CI | *p* |
| (Intercept) | 51.76 | [48.70, 54.82] | **<0.001** |  | 39.9 | [36.89, 42.92] | **<0.001** |  | 38.03 | [33.41, 42.66] | **<0.001** |
| Group [Non-language] | -1.1 | [-5.46, 3.25] | 0.618 |  | 3.68 | [-0.61, 7.98] | 0.093 |  | -1.44 | [-8.03, 5.14] | 0.666 |
| Session[W3] | -0.16 | [-4.49, 4.16] | 0.942 |  | 3.04 | [-1.22, 7.31] | 0.161 |  | 5.01 | [-1.53, 11.55] | 0.133 |
| Session[W6] | 1.28 | [-3.04, 5.61] | 0.56 |  | 4.97 | [0.70, 9.24] | **0.023** |  | 6.55 | [0.01, 13.09] | **0.05** |
| Session[W10] | 2.29 | [-2.09, 6.67] | 0.304 |  | 5.87 | [1.55, 10.20] | **0.008** |  | 7.24 | [0.61, 13.87] | **0.033** |
| Group [Non-language] \*Session[W3] | 4.6 | [-1.56, 10.76] | 0.142 |  | -3.37 | [-9.45, 2.70] | 0.275 |  | 1.7 | [-7.61, 11.01] | 0.72 |
| Group [Non-language] \*Session[W6] | 2.17 | [-3.98, 8.33] | 0.488 |  | -3.16 | [-9.23, 2.92] | 0.307 |  | 4.23 | [-5.08, 13.54] | 0.372 |
| Group [Non-language] \*Session[W10] | 2.43 | [-3.81, 8.67] | 0.444 |  | -3.45 | [-9.61, 2.71] | 0.271 |  | 7.1 | [-2.34, 16.54] | 0.14 |
| Observations | 304 |  |  |  | 304 |  |  |  | 304 |  |  |
| R2 / R2 adjusted | 0.028 / 0.005 | |  |  | 0.039 / 0.016 | |  |  | 0.082 / 0.060 | |  |