**Supplemental Materials**

**Table 1. Bayesian model results.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Estimate** | **SE** | **Lower 90% CI** | **Upper**  **90% CI** |  | **Bulk**  **ESS** | **Tail**  **ESS** |
| Intercept | 1.29 | 0.42 | 0.61 | 1.98 | 1 | 10187 | 11889 |
| Component | 0.31 | 0.3 | -0.19 | 0.8 | 1 | 15191 | 13811 |
| Subtype-Nonfluent | 0.46 | 0.71 | -0.69 | 1.63 | 1 | 12123 | 12026 |
| Subtype-Semantic | -0.74 | 0.64 | -1.8 | 0.31 | 1 | 10692 | 11885 |
| Task | -0.55 | 0.3 | ***-1.04*** | ***-0.06*** | 1 | 14700 | 13686 |
| Severity | -0.11 | 0.08 | -0.25 | 0.02 | 1 | 10600 | 11938 |
| Component:Subtype-Nonfluent | 0.24 | 0.67 | -0.85 | 1.36 | 1 | 17071 | 13392 |
| Component:Subtype-Semantic | 1.62 | 0.57 | **0.7** | **2.57** | 1 | 15168 | 14175 |
| Component:Task | 1.45 | 0.48 | ***0.67*** | ***2.24*** | 1 | 13943 | 13603 |
| Subtype-Nonfluent:Task | -0.72 | 0.58 | -1.69 | 0.22 | 1 | 16013 | 13932 |
| Subtype-Semantic:Task | -0.19 | 0.51 | -1.04 | 0.66 | 1 | 15656 | 14808 |
| Component:Subtype-Nonfluent:Task | 0.84 | 1.03 | -0.8 | 2.58 | 1 | 16502 | 14290 |
| Component:Subtype-Semantic:Task | -1.35 | 0.8 | ***-2.68*** | ***-0.04*** | 1 | 14174 | 13657 |

*Note:* SE = Standard Error. CI = Credible Interval. = Gelman-Rubin potential scale reduction statistic. ESS = Effective Sample Size. Subtype = PPA Variant, see pairwise comparisons in Table 2 (also Table 3 in *Dresang et al.* manuscript). Effects are considered reliable if the 90% credible interval does not overlap with zero. These are denoted with ***bold italics***.

**Table 2. Pairwise comparisons (with Tukey corrections) of the PPA variant x gesture component x gesture meaning interaction.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **PPA Variant** | **Meaningful Kinematics–Hand Posture Contrast** | | | **Meaningless Kinematics–Hand Posture Contrast** | | |
| estimate | lower HPD | higher HPD | estimate | lower HPD | higher HPD |
| svPPA | ***-1.91*** | ***-2.94*** | ***-0.97*** | ***-2.02*** | ***-3.03*** | ***-1.10*** |
| lvPPA | -0.30 | -0.90 | 0.28 | ***-1.75*** | ***-2.53*** | ***-1.01*** |
| nfvPPA | -0.53 | -1.73 | 0.71 | ***-2.78*** | ***-4.48*** | ***-1.34*** |

*Note:* Effects are considered reliable if the highest posterior density (HPD) interval does not overlap with zero. These are denoted with ***bold italics***.

**Figure 1. Posterior Predictive Check.A picture containing screenshot, diagram, plot, line

Description automatically generated**

**Code for R analysis.**

beta\_coef\_prior = prior(student\_t(3, 0, 2.5), class = b)

BayesIntxn 🡨 brm(Score ~ 1 + Component\*Subtype\*Task + Severity + (1|Subject) + (1|Item),

data = ppaGnoAP, family = bernoulli, warmup = 1500, iter = 6000, chains = 4,

cores = 4, seed = 42, prior = beta\_coef\_prior, backend = 'cmdstan', init = "random", file\_refit = "on\_change")

pp\_check(BayesIntxn, ndraws = 600)

summary(BayesIntxn, prob = .9)

conditional\_effects(BayesIntxn)

prior\_summary(BayesIntxn)

mcmc\_plot(BayesIntxn, type = 'trace')

hypothesis(BayesIntxn, class = "b", "Taskmeaningless >0")

hypothesis(BayesIntxn, class = "b", "SubtypeSemantic >0")

hypothesis(BayesIntxn, class = "b", "SubtypeNonfluent >0")

hypothesis(BayesIntxn, class = "b", "ComponentKIN >0")

hypothesis(BayesIntxn, class = "b", "ComponentKIN:SubtypeSemantic:Taskmeaningless >0")

emmeans(BayesIntxn, pairwise~Component\*Subtype\*Task, adjust="tukey")