Supplemental Materials

Table 1. Participant additional assessment performance.

Participant ID	KDT	Verb Naming	HANA	BNT	PPT	Verbal Fluency
svPPA01	93	100	83	6.66	n/a	6.66
svPPA02	n/a	n/a	n/a	23	n/a	23
svPPA03	66.7	n/a	6.7	3.3	86	3.3
svPPA04	87	35.3	n/a	73	92.9	73
nfvPPA01	80	81	83	76.6	n/a	76.6
nfvPPA02	93	93.8	90	100	100	100
nfvPPA03	87	94	77	n/a	n/a	n/a
nfvPPA04	100	100	73.3	80	n/a	80
nfvPPA05	66	68	20	20	92	20
lvPPA01	86.7	68.75	33.33	53.33	100	53.33
lvPPA02	87	56	11	40	n/a	40
lvPPA03	93	81	43	27	100	27
lvPPA04	47	93.8	30	n/a	n/a	n/a
lvPPA05	67	100	67	40	93	40
lvPPA06	80	75	50	56	100	56
lvPPA07	87	87	73	93	93	93
lvPPA08	80	81	70	93	100	93
lvPPA09	93	75	73	n/a	100	n/a
lvPPA10	93	100	73	57	100	57

Note: "n/a" indicates information was not available. svPPA = semantic variant primary progressive aphasia; nfvPPA = non-fluent variant primary progressive aphasia; lvPPA = logopenic variant primary progressive aphasia; KDT = Kissing and Dancing Test short version (unpublished version of Mansur et al., 1980); Verb Naming = (Berndt et al., 1997 and unpublished version of Breining, 2011); HANA = Hopkins Assessment of Naming Actions (Breining et al., 2022); BNT = Boston Naming Test (Kaplan et al., 1983); PPT = Pyramids and Palm Trees test short version (Breining et al., 2015); Verbal Fluency = National Alzheimer's Coordinating Center (NACC) Frontotemporal Lobar Degeneration Module (naccdata.org); other assessments are not reported due to many instances of missing data.

Table 2. Bayesian model results.

	Estimate	Est. Error	Lower 95% CI	Upper 95% CI	$\widehat{R}$	Bulk ESS	Tail ESS
Intercept	1.08	0.75	-0.35	2.62	1	9704	11027
Component	0.16	0.34	-0.50	0.82	1	14248	14121
Subtype-Nonfluent	1.05	0.94	-0.80	2.91	1	10332	12118
Subtype-Semantic	-0.17	0.82	-1.74	1.49	1	10787	10784
Task	-0.38	0.36	***-1.08***	***-0.03***	1	12417	13327
Severity	-0.04	0.13	-0.30	0.20	1	10405	11213
MonthsPostDx	-0.02	0.02	-0.06	0.00	1	13181	12232
Component:Subtype-Nonfluent	0.36	0.69	-0.98	1.73	1	17565	14758
Component:Subtype-Semantic	1.83	0.61	***0.67***	***3.05***	1	15495	14240
Component:Task	1.92	0.58	***0.81***	***3.09***	1	12594	12289
Subtype-Nonfluent:Task	-0.91	0.62	-2.14	0.28	1	15724	14052
Subtype-Semantic:Task	-0.38	0.55	-1.47	0.70	1	14332	14680
Component:Subtype-Nonfluent:Task	0.46	1.10	-1.62	2.72	1	16223	13865
Component:Subtype-Semantic:Task	-1.79	0.86	***-3.52***	***-0.14***	1	13082	13292

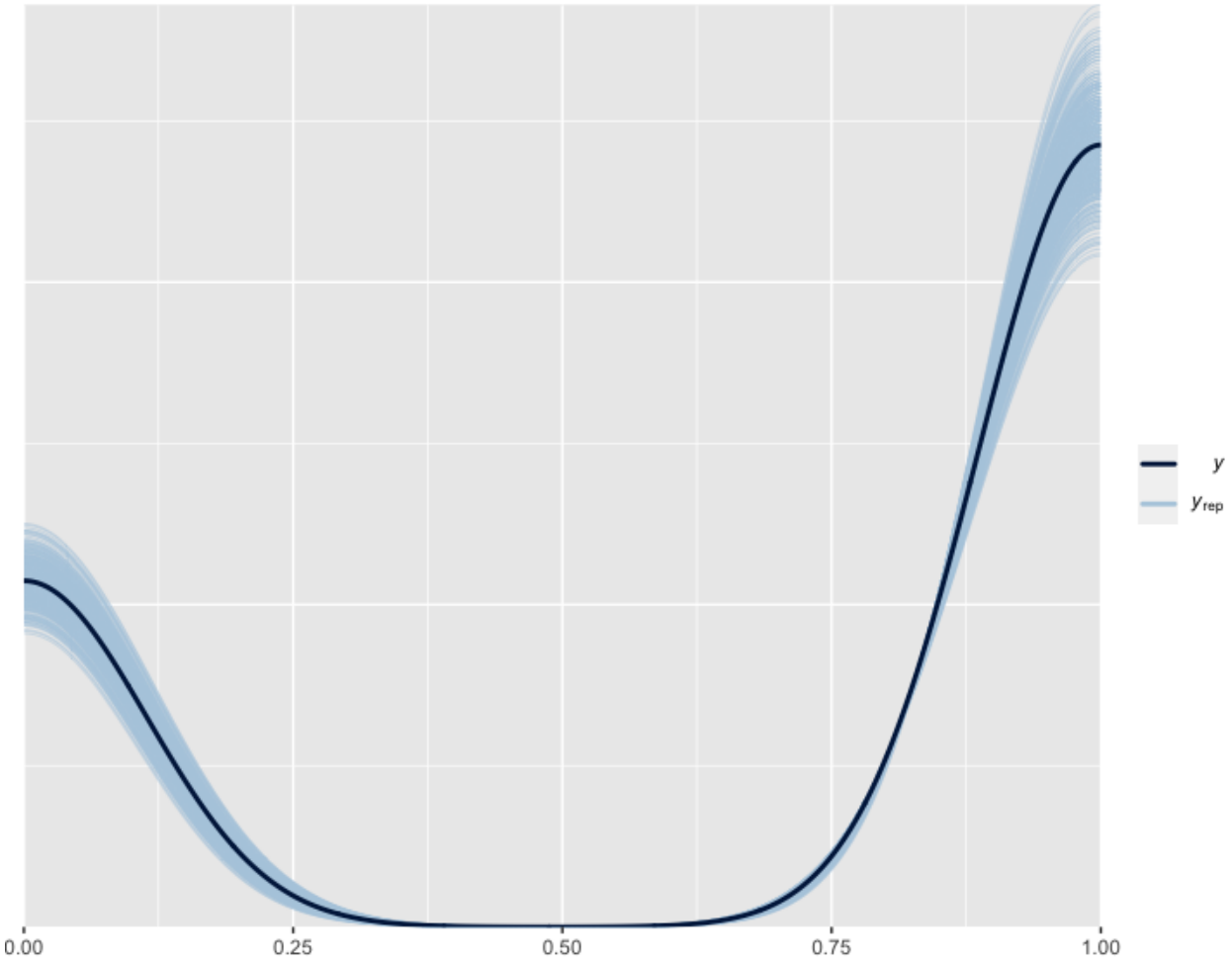
Note: SE = Standard Error. CI = Credible Interval. $\widehat{R}$ = Gelman-Rubin potential scale reduction statistic. ESS = Effective Sample Size. Task = Gesture meaning (meaningful or meaningless task). MonthsPostDx = Months post-PPA diagnosis. Subtype = PPA Variant, see pairwise comparisons in Table 2 (also Table 3 in *Dresang et al.* manuscript). Effects are considered reliable if the 95% credible interval does not overlap with zero. These are denoted with ***bold italics***.

Table 3. 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	***-1.98***	***-3.01***	***-1.00***	***-2.11***	***-3.13***	***-1.16***
lvPPA	-0.16	-0.82	0.50	***-2.06***	***-3.07***	***-1.13***
nfvPPA	-0.51	-1.73	0.73	***-2.83***	***-4.55***	***-1.33***

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.



Code for R analysis.

```
beta_coef_prior = prior(student_t(3, 0, 2.5), class = b)
BayesIntxn ← brm(Score ~ 1 + Component*Subtype*Task + Severity + MonthsPostDx +
                 (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", "Task>0")
hypothesis(BayesIntxn, class = "b", "Subtype>0")
hypothesis(BayesIntxn, class = "b", "Component>0")
hypothesis(BayesIntxn, class = "b", "Component:Subtype:Task>0")
```

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

References

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National Alzheimer's Coordinating Center. naccdata.org.