

Supplemental Material S3. Model selection for word rate, syllable rate, and RTs DTC.

Word Rate DTC: Model Selected = Model 9

Parameters	<i>df</i>	AIC	BIC	Likelihood ratio test	<i>f</i> ²
Model 1: Imer(Word rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age + Mattis-DRS + Disease severity + Disease duration) + (1|Participant))	15	-272.71	-241.29	$\chi^2(1) = 0.12$, $p = .732$	0
Model 2: Imer(Word rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age + Mattis-DRS + Disease severity) + (1|Participant))	14	-274.59	-245.27	$\chi^2(3) = 1.95$, $p = .583$	.04
Model 3: Imer(Word rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age + Mattis-DRS) + (1|Participant))	11	-278.64	-255.60	$\chi^2(1) = 0.64$, $p = .425$	.01
Model 4: Imer(Word rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age) + (1|Participant))	10	-280.00	-259.06	$\chi^2(1) = 0.71$, $p = .398$	.01
Model 5: Imer(Word rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity D:Task) + (1|Participant))	9	-281.29	-262.44	$\chi^2(1) = 0.18$, $p = .671$	0
Model 6: Imer(Word rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency) + (1|Participant))	8	-283.11	-266.35	$\chi^2(1) = 3.63$, $p = .057$	.08
Model 7: Imer(Word rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex) + (1|Participant))	7	-281.48	-266.82	$\chi^2(1) = 0.05$, $p = .815$	0
Model 8: Imer(Word rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex) + (1|Participant))	6	-283.43	-270.86	$\chi^2(1) = 0.07$, $p = .790$	0
Model 9: Imer(Word rate DTC ~ (Task + DysarthriaSeverity) + (1|Participant))	5	-285.36	-274.88	$\chi^2(1) = 6.14$, $p = .013$	.14
Model 10: Imer(Word rate DTC ~ (Task) + (1|Participant))	4	-281.22	-272.84	$\chi^2(1) = 2.47$, $p = .116$	.03
Model 11: Imer(Word rate DTC ~ 1 + (1|Participant))	3	-280.75	-274.46		

Model 9 Parameters

Imer(word rate DTC ~ (Task + Dysarthria severity) + (1|Participants), data=data[abs(scale(resid(model9)))<2.5,], REML=FALSE)			
Effect	<i>F</i>	<i>df</i>	<i>p</i>
Task	2.93	1, 26.15	.099
Dysarthria severity	9.94	1, 25.78	.004

Syllable Rate DTC: Model Selected = Model 8

Parameters	df	AIC	BIC	Likelihood ratio test	f^2
Model 1: lmer(Syllable rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age + Mattis-DRS + Disease severity + Disease duration) + (1|Participant))	15	-303.18	-271.77	$\chi^2(1) = 0.33$, $p = .568$	0
Model 2: lmer(Syllable rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age + Mattis-DRS + Disease severity) + (1|Participant))	14	-304.86	-275.54	$\chi^2(3) = 2.02$, $p = .569$	.05
Model 3: lmer(Syllable rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age + Mattis-DRS) + (1|Participant))	11	-308.84	-285.80	$\chi^2(1) = 0.18$, $p = .672$	0
Model 4: lmer(Syllable rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age) + (1|Participant))	10	-310.66	-289.71	$\chi^2(1) = 0.41$, $p = .521$	.01
Model 5: lmer(Syllable rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task) + (1|Participant))	9	-312.25	-293.40	$\chi^2(1) = 0.73$, $p = .392$	.01
Model 6: lmer(Syllable rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency) + (1|Participant))	8	-313.51	-296.76	$\chi^2(1) = 0.82$, $p = .365$	.02
Model 7: lmer(Syllable rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex) + (1|Participant))	7	-314.69	300.04	$\chi^2(1) = 0.51$, $p = .475$	0
Model 8: lmer(Syllable rate DTC ~ (Task + DysarthriaSeverity + ShiftingIndex) + (1|Participant))	6	-316.18	-303.62	$\chi^2(1) = 4.02$, $p = .045$	.11
Model 9: lmer(Syllable rate DTC ~ (Task + DysarthriaSeverity) + (1|Participant))	5	-314.16	-303.69	$\chi^2(1) = 1.32$, $p = .250$	.03
Model 10: lmer(Syllable rate DTC ~ (Task) + (1|Participant))	4	-314.84	-306.46	$\chi^2(1) = 3.13$, $p = .077$	.03
Model 11: lmer(Syllable rate DTC ~ 1 + (1|Participant))	3	-313.71	-307.42		

Model 8 Parameters

lmer(syllable rate DTC ~ (Task + Dysarthria severity) + (1|Participants), data=data[abs(scale(resid(model8)))<2.5,], REML=FALSE)			
Effect	F	df	p
Task	7.49	1, 29.71	.010
Dysarthria severity	2.30	1, 30.69	.139
Shifting	5.65	1, 30.04	.024

RTs DTC : Model Selected = Model 10

Parameters	df	AIC	BIC	Likelihood ratio test	f ²
Model 1: lmer(RTs DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age + Mattis-DRS + Disease severity + Disease duration) + (1|Participant))	15	-230.35	-198.94	$\chi^2(1) = 0.40$, $p = .528$	0
Model 2: lmer(RTs DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age + Mattis-DRS + Disease severity) + (1|Participant))	14	-231.95	-202.63	$\chi^2(3) = 4.81$, $p = .186$	.11
Model 3: lmer(RTs DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age + Mattis-DRS) + (1|Participant))	11	-233.14	-210.10	$\chi^2(1) = 0.02$, $p = .900$	.01
Model 4: lmer(RTs DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task + Age) + (1|Participant))	10	-235.13	-214.18	$\chi^2(1) = 0.61$, $p = .434$	.01
Model 5: lmer(RTs DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency + DysarthriaSeverity:Task) + (1|Participant))	9	-236.51	-217.66	$\chi^2(1) = 0.19$, $p = .662$	0
Model 6: lmer(RTs DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex + Phonemic Verbal Fluency) + (1|Participant))	8	-238.32	-221.57	$\chi^2(1) = 2.35$, $p = .125$	.05
Model 7: lmer(RTs DTC ~ (Task + DysarthriaSeverity + ShiftingIndex + InhibitionIndex) + (1|Participant))	7	-237.97	-223.31	$\chi^2(1) = 0.48$, $p = .487$	.01
Model 8: lmer(RTs DTC ~ (Task + DysarthriaSeverity + ShiftingIndex) + (1|Participant))	6	-239.49	-226.93	$\chi^2(1) = 0.39$, $p = .534$	0
Model 9: lmer(RTs DTC ~ (Task + DysarthriaSeverity) + (1|Participant))	5	-241.10	-230.63	$\chi^2(1) = 0.57$, $p = .449$	.01
Model 10: lmer(RTs DTC ~ (Task) + (1|Participant))	4	-242.53	-234.16	$\chi^2(1) = 18.88$, $p < .001$	.27
Model 11: lmer(RTs DTC ~ 1 + (1|Participant))	3	-225.65	-219.37		

Model 10 Parameters

lmer(RTs DTC ~ (Task) + (1|Participants), data=data[abs(scale(resid(model10)))<2.5,], REML=FALSE)			
Effect	F	df	p
Task	35.72	1, 29.72	< .001