

Supplemental Material S4. Details of the selected optimal linear mixed model for tone duration.

Linear mixed model fit by REML. t-tests use Satterthwaite's method

Formula: duration ~ 0 + target + group + grade + target:grade + (1 | speaker) + (1 | word)

REML criterion at convergence: 22168.3

Scaled residuals:

Min	1Q	Median	3Q	Max
-4.1325	-0.5919	-0.0444	0.5451	7.454

Random effects:

Groups	Variance	Std.Dev.
speaker	2005	44.77
word	1178	34.33
Residual	5415	73.59

Number of obs: 1924, groups: speaker, 93; word, 33

Fixed effects:

	Estimate	Std. Error	df	t value	p value
targetTone1	294.0483	16.4927	74.0764	17.829	< .001***
targetTone2	324.474	17.2575	77.121	18.802	< .001***
targetTone3	318.1898	15.4122	83.0498	20.645	< .001***
targetTone4	238.2956	16.5936	75.8936	14.361	< .001***
groupL2	45.981	9.8273	109.9798	4.679	< .001***
gradeGrade3	-43.0015	14.6561	145.6102	-2.934	.004**
gradeGrade5	-47.0552	14.4426	150.1376	-3.258	.001**
targetTone2:gradeGrade3	20.2632	12.3921	1802.763	1.635	.102
targetTone3:gradeGrade3	30.3058	11.2426	1806.229	2.696	.007**
targetTone4:gradeGrade3	11.1889	12.0784	1811.17	0.926	.354
targetTone2:gradeGrade5	-0.8634	12.342	1802.408	-0.07	.944
targetTone3:gradeGrade5	-6.6191	11.1128	1804.266	-0.596	.552
targetTone4:gradeGrade5	22.0818	11.8087	1818.839	1.87	.062

Significant codes: *** $p < .001$, ** $p < .01$, * $p < .05$