

Supplemental Material S2. Details of the selected optimal logistic mixed model for tone match.

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation)

Family: binomial (logit)

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

Control: glmerControl(optimizer = "bobyqa")

AIC	BIC	logLik	deviance	df.resid
1787	1887.1	-875.5	1751	1905

Scaled residuals:

Min	1Q	Median	3Q	Max
-5.5894	0.1085	0.2779	0.5307	1.9923

Random effects:

Groups	Variance	Std.Dev.
speaker	0.5347	0.7313
word	0.1373	0.3706

Number of obs: 1923, groups: speaker, 82; word, 32

Fixed effects:

	Estimate	Std. Error	z value	p value
targetTone1	2.4588	0.34	7.231	< .001 ***
targetTone2	2.0578	0.3439	5.984	< .001 ***
targetTone3	0.6466	0.2616	2.472	.013 *
targetTone4	2.4306	0.3441	7.064	< .001 ***
groupL2	-2.0653	0.3504	-5.894	< .001 ***
gradeGrade3	1.2315	0.4255	2.894	.004 **
gradeGrade5	0.1126	0.3785	0.297	.766
targetTone2:groupL2	0.8798	0.4726	1.861	.063
targetTone3:groupL2	1.2495	0.3616	3.455	< .001 ***
targetTone4:groupL2	-0.3723	0.4272	-0.871	.384
targetTone2:gradeGrade3	-0.2893	0.5471	-0.529	.597
targetTone3:gradeGrade3	-0.5644	0.4387	-1.287	.198
targetTone4:gradeGrade3	-0.533	0.512	-1.041	.298
targetTone2:gradeGrade5	1.3798	0.5544	2.489	.013 *
targetTone3:gradeGrade5	-0.1984	0.3927	-0.505	.613
targetTone4:gradeGrade5	0.4004	0.4646	0.862	.389

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