

Additional Supplementary Material: Partial Analyses of the Intelligibility of LI Recordings Using Model 8

As noted in the main thesis text (pp. 296–297), in the analysis of the intelligibility of LI recordings, the initially selected optimal random-effects structure was Model 8, which included a random slope for L1. However, this model exhibited estimation problems when testing the main effects of several predictors, including Sound, listener L1, and Pretest. Therefore, the random-effects structure selection was revisited, and Model 9, a random-intercepts-only model, was adopted.

Model 8: $\text{res} \sim \text{Sound} * \text{Caption} + \text{L1} + \text{Pretest} + (1 \mid \text{sub}) + (1 + \text{L1} \parallel \text{item})$

Model 9: $\text{res} \sim \text{Sound} * \text{Caption} + \text{L1} + \text{Pretest} + (1 \mid \text{sub}) + (1 \mid \text{item})$

In the main text, results based on Model 9 are reported. In this supplementary material, the results of the fixed effects tests obtained with Model 8 are briefly presented.

As shown in Table 1, estimation issues arose in the models used to test the main effects of Sound, L1, and Pretest, and the corresponding significance tests should therefore be interpreted with caution. Nevertheless, for completeness, the results from these models, including those affected by estimation problems, are reported. Across these tests, three predictors were statistically significant: Caption, L1, and Pretest.

Table 1: *Random Effects Model Comparison for Intelligibility Scores (HI recordings)*

Sample size		Total observations = 5760 Subjects = 120; Items = 48								
Model name	Model No.	Fixed effects	Model fit			LRT test				Warning
			AIC	BIC	logLik	Reference model	df	χ^2	p	
1. Interaction model										
	9	Sound + Caption + L1 + PreTest + Sound:Caption	4979.5	5046.3	-2479.8	-	-	-	-	No
2. No interaction model										
	12	Sound + Caption + L1 + PreTest	4979.7	5046.3	-2479.8	9	1	2.18	.140	No
3. No Sound model										
	13	Caption + L1 + PreTest	4979.9	5039.9	-2481	12	1	2.23	.136	Yes
4. No Caption model										
	14	Sound + L1 + PreTest	4982.4	5042.4	-2482.2	12	1	4.73	.030	No
5. No L1 model										
	15	Sound + Caption + PreTest	4986.5	5046.5	-2484.3	12	1	8.84	.003	Yes
6. No Pre-test model										
	16	Sound + Caption + L1	5040.5	5100.4	-2511.2	12	1	62.77	< .001	Yes