

**Supplemental Table S10.** Generalized linear mixed effects model with gender, task, and congruence as the fixed effects, and reaction time as the dependent variable in Experiment 3 (pairwise contrasts are indented).

Parameter	Estimate	Standard error (SE)	z ratio	p	Cohen's <i>d</i> [95% CI]
<b>Gender</b>					
female vs. male	-0.11	0.06	-1.64	.100	-0.19 [-0.41, 0.04]
<b>Task</b>					
facial vs. prosodic	-0.26	0.03	-9.14	< .0001	-1.03 [-1.26, -0.81]
facial vs. semantic	-0.33	0.03	-11.54	< .0001	-1.31 [-1.53, -1.08]
prosodic vs. semantic	-0.06	0.03	-2.41	.042	-0.27 [-0.49, -0.05]
<b>Congruence</b>					
cross-channel congruent vs. semantic incongruent	-0.13	0.02	-4.61	< .0001	-0.52 [-0.74, -0.30]
cross-channel congruent vs. prosodic incongruent	-0.11	0.02	-3.88	.001	-0.44 [-0.66, -0.22]
cross-channel congruent vs. facial incongruent	-0.05	0.02	-1.83	.261	-0.21 [-0.43, 0.01]
<b>Gender * Task</b>					
facial (female vs. male)	-0.15	0.06	-2.31	.021	-0.26 [-0.48, -0.04]
prosodic (female vs. male)	-0.14	0.06	-2.08	.037	-0.24 [-0.46, -0.01]
semantic (female vs. male)	-0.02	0.06	-0.36	.717	-0.04 [-0.26, 0.18]
<b>Task * Congruence</b>					
facial (cross-channel congruent vs. semantic incongruent)	-0.09	0.05	-1.87	.242	-0.21 [-0.43, 0.01]
facial (cross-channel congruent vs. prosodic incongruent)	-0.06	0.05	-1.34	.536	-0.15 [-0.37, 0.07]
facial (cross-channel congruent vs. facial incongruent)	-0.03	0.05	-0.84	.836	-0.10 [-0.32, 0.13]
prosodic (cross-channel congruent vs. semantic incongruent)	-0.14	0.05	-3.03	.013	-0.34 [-0.57, -0.12]
prosodic (cross-channel congruent vs. prosodic incongruent)	-0.15	0.05	-3.28	.006	-0.37 [-0.59, -0.15]
prosodic (cross-channel congruent vs. facial incongruent)	-0.10	0.05	-2.08	.160	-0.24 [-0.46, -0.01]
semantic (cross-channel congruent vs. semantic incongruent)	-0.16	0.05	-3.38	.004	-0.38 [-0.60, -0.16]
semantic (cross-channel congruent vs. prosodic incongruent)	-0.11	0.05	-2.37	.082	-0.27 [-0.49, -0.05]
semantic (cross-channel congruent vs. facial incongruent)	-0.02	0.05	-0.37	.982	-0.04 [-0.26, 0.18]
<b>Gender * Congruence</b>					
cross-channel congruent (female vs. male)	-0.10	0.07	-1.50	.134	-0.17 [-0.39, 0.05]
semantic incongruent (female vs. male)	-0.12	0.07	-1.80	.072	-0.20 [-0.43, 0.02]
prosodic incongruent (female vs. male)	-0.08	0.07	-1.24	.217	-0.14 [-0.36, 0.08]
facial incongruent (female vs. male)	-0.11	0.07	-1.74	.082	-0.20 [-0.42, 0.02]
<b>Gender * Task * Congruence</b>					
facial, cross-channel congruent (female vs. male)	-0.11	0.06	-1.62	.105	-0.18 [-0.41, 0.04]
facial, semantic incongruent (female vs. male)	-0.21	0.06	-3.01	.003	-0.34 [-0.56, -0.12]
facial, prosodic incongruent (female vs. male)	-0.12	0.06	-1.78	.075	-0.20 [-0.42, 0.02]
facial, facial incongruent (female vs. male)	-0.15	0.06	-2.20	.028	-0.25 [-0.47, -0.03]
prosodic, cross-channel congruent (female vs. male)	-0.14	0.06	-1.97	.049	-0.22 [-0.44, 0.00]
prosodic, semantic incongruent (female vs. male)	-0.14	0.06	-2.02	.043	-0.23 [-0.45, -0.01]

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prosodic, prosodic incongruent (female vs. male)	-0.11	0.06	-1.58	.114	-0.18 [-0.40, 0.04]
prosodic, facial incongruent (female vs. male)	-0.15	0.06	-2.11	.035	-0.24 [-0.46, -0.02]
semantic, cross-channel congruent (female vs. male)	-0.04	0.06	-0.63	.527	-0.07 [-0.29, 0.15]
semantic, semantic incongruent (female vs. male)	0.001	0.06	0.03	.980	0.003 [-0.22, 0.23]
semantic, prosodic incongruent (female vs. male)	-0.01	0.06	-0.11	.911	-0.01 [-0.23, 0.21]
semantic, facial incongruent (female vs. male)	-0.04	0.06	-0.57	.569	-0.06 [-0.29, 0.16]

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*Note.* The female participants, the facial task, and the cross-channel congruent condition were used as the default level of gender, task, and congruence respectively. When conducting a pairwise comparison between prosodic and semantic tasks, prosody was set as the baseline level.