

Appendix A

Table A1

Experimental stimuli in cued language switching task.

	English name	Chinese name
1	bed	床
2	cloud	云
3	door	门
4	ear	耳
5	flower	花
6	goat	羊
7	hand	手
8	moon	月
filler	pen	笔
filler	sock	袜

Appendix B

Table B1

Mixed-effects models of switch costs for log latencies and accuracy in Experiment 1.

Fixed effects	Estimate	<i>SE</i>	<i>t/z</i> value	<i>p</i>	Power
Log latencies					
Intercept	6.709	0.019	358.10	< .001	
RSI	0.055	0.033	1.63	0.108	34.30%
Language	-0.020	0.010	-1.94	0.077	45.40%
Trial type (switch vs. repeat)	0.084	0.009	9.73	< .001	100.00%
RSI × Language	0.019	0.013	1.49	0.142	31.80%
RSI × Trial type	-0.017	0.011	-1.57	0.122	33.80%
Language × Trial type	-0.008	0.008	-0.97	0.331	18.00%
RSI × Language × Trial type	0.039	0.016	2.46	0.014	68.90%
Accuracy					
Intercept	3.988	0.115	34.57	< .001	
RSI	0.139	0.215	0.65	0.518	
Language	0.479	0.183	2.62	0.009	
Trial type (repeat vs. single)	-0.890	0.141	-6.32	< .001	
RSI × Language	0.376	0.319	1.18	0.238	
RSI × Trial type	0.033	0.282	0.12	0.907	
Language × Trial type	-0.303	0.282	-1.08	0.282	
RSI × Language × Trial type	-0.117	0.564	-0.21	0.836	

The formulas of the optimal models were as follows:

Log latencies ~ RSI * Language * Trial type + (1 + Language + Trial type | Participants) + (1 + RSI + Language + Trial type | Item)

Accuracy ~ RSI * Language * Trial type + (1 + Language | Participants)

Table B2

Mixed-effects models of mixing costs for log latencies and accuracy in Experiment 1.

Fixed effects	Estimate	<i>SE</i>	<i>t/z</i> value	<i>p</i>	Power
Log latencies					
Intercept	6.571	0.017	378.37	< .001	
RSI	0.048	0.029	1.69	0.097	9.30%
Language	0.028	0.007	3.94	< .001	100.00%
Trial type (switch vs. repeat)	0.191	0.014	13.25	< .001	100.00%
RSI × Language	-0.002	0.016	-0.12	0.903	2.10%
RSI × Trial type	0.028	0.025	1.14	0.261	22.50%
Language × Trial type	-0.087	0.013	-6.89	< .001	100.00%
RSI × Language × Trial type	0.005	0.025	0.19	0.850	8.30%
Accuracy					
Intercept	7.673	1.676	4.58	< .001	
RSI	-3.797	3.323	-1.14	0.253	
Language	-3.744	3.331	-1.12	0.261	
Trial type (repeat vs. single)	-6.436	3.325	-1.94	0.053	
RSI × Language	8.605	6.620	1.30	0.194	
RSI × Trial type	7.720	6.643	1.16	0.245	
Language × Trial type	8.439	6.645	1.27	0.204	
RSI × Language × Trial type	-16.202	13.222	-1.23	0.220	

The formulas of the optimal models were as follows:

Log latencies ~ RSI * Language * Trial type + (1 + Language * Trial type | Participants) + (1 + RSI + Trial type + RSI : Language | Item)

Accuracy ~ RSI * Language * Trial type + (1 + Language | Participants)

Table B3

Mixed-effects models of switch costs for log latencies and accuracy in Experiment 1.

Fixed effects	Estimate	<i>SE</i>	<i>t/z</i> value	<i>p</i>	Power
Log latencies					
Intercept	6.939	0.021	33.75	< .001	
RSI	0.042	0.042	1.01	0.318	19.30%
Language	0.029	0.012	2.37	0.034	61.50%
Trial type (switch vs. repeat)	0.071	0.007	10.68	< .001	100.00%
RSI × Language	-0.013	0.015	-0.89	0.377	22.90%
RSI × Trial type	-0.031	0.010	-3.11	0.003	89.00%
Language × Trial type	-0.040	0.008	-4.98	< .001	100.00%
RSI × Language × Trial type	0.025	0.016	1.58	0.114	33.00%
Accuracy					
Intercept	3.920	0.134	29.24	< .001	
RSI	0.434	0.239	1.82	0.069	56.00%
Language	0.089	0.124	0.72	0.472	10.40%
Trial type (repeat vs. single)	-0.571	0.124	-4.60	< .001	99.30%
RSI × Language	-0.159	0.248	-0.64	0.521	9.90%
RSI × Trial type	0.044	0.248	0.18	0.858	6.30%
Language × Trial type	0.263	0.361	0.73	0.466	9.70%
RSI × Language × Trial type	-1.627	0.615	-2.64	0.008	83.40%

The formulas of the optimal models were as follows:

Log latencies ~ RSI * Language * Trial type + (1 + Language + Trial type | Participants) + (1 + Language + Trial type | Item)

Accuracy ~ RSI * Language * Trial type + (1 + Language: Trial type | Participants) + (1 | Item)

Table B4

LME results of switch costs and mixing costs for accuracy in Experiment 2.

从	Estimate	SE	t/z value	p	Power
Log latencies					
Intercept	6.839	0.019	358.26	< .001	
RSI	0.065	0.037	1.72	0.090	44.70%
Language	0.051	0.015	3.38	0.003	96.70%
Trial type (switch vs. repeat)	0.130	0.016	8.21	< .001	100.00%
RSI × Language	-0.030	0.022	-1.37	0.175	28.50%
RSI × Trial type	-0.013	0.029	-0.43	0.672	9.80%
Language × Trial type	-0.004	0.016	-0.26	0.800	2.40%
RSI × Language × Trial type	0.005	0.027	0.20	0.840	7.30%
Accuracy					
Intercept	7.331	1.877	3.91	< .001	
RSI	-3.649	3.724	-0.98	0.327	
Language	-4.454	3.727	-1.20	0.232	
Trial type (repeat vs. single)	-6.427	3.752	-1.71	0.087	
RSI × Language	8.323	7.433	1.12	0.263	
RSI × Trial type	8.141	7.445	1.09	0.274	
Language × Trial type	8.984	7.455	1.21	0.228	
RSI × Language × Trial type	-15.455	14.859	-1.04	0.298	

The formulas of the optimal models were as follows:

Log latencies ~ RSI * Language * Trial type + (1 + Language * Trial type | Participants) + (1 + Language * Trial type | Item)

Accuracy ~ RSI * Language * Trial type + (1 + Trial type | Participants) + (1 | Item)

Table B5

Mixed-effects models of switch costs for log latencies and accuracy in between-experiment comparison.

Fixed effects	Estimate	<i>SE</i>	<i>t/z</i> value	<i>p</i>	Power
Log latencies					
Intercept	6.824	0.014	475.63	< .001	
Modality	0.231	0.028	8.37	< .001	100.00%
RSI	0.048	0.027	1.82	0.072	43.20%
Language	0.005	0.009	0.51	0.617	9.50%
Trial type (switch vs. repeat)	0.078	0.004	21.15	< .001	100.00%
Modality × RSI	-0.013	0.053	-0.24	0.809	5.00%
Modality × Language	0.048	0.010	4.90	< .001	99.50%
RSI × Language	0.003	0.010	0.29	0.772	7.00%
Modality × Trial type	-0.013	0.012	-1.10	0.300	19.10%
RSI × Trial type	-0.024	0.007	-3.27	0.001	89.90%
Language × Trial type	-0.023	0.006	-3.87	< .001	95.50%
Modality × RSI × Language	-0.032	0.020	-1.63	0.105	43.70%
Modality × RSI × Trial type	-0.015	0.015	-1.03	0.308	18.10%
Modality × Language × Trial type	-0.032	0.012	-2.64	0.010	69.80%
RSI × Language × Trial type	0.033	0.012	2.71	0.008	77.90%
Modality × RSI × Language × Trial type	-0.012	0.024	-0.52	0.607	7.00%
Accuracy					
Intercept	3.968	0.094	42.06	< .001	
Modality	-0.147	0.161	-0.92	0.359	16.00%
RSI	0.300	0.161	1.87	0.062	48.10%
Language	0.326	0.126	2.59	0.010	70.10%
Trial type (switch vs. repeat)	-0.732	0.093	-7.83	< .001	100.00%
Modality × RSI	0.285	0.321	0.89	0.375	14.30%
Modality × Language	-0.510	0.325	-1.57	0.117	41.10%
RSI × Language	0.102	0.216	0.47	0.638	8.20%
Modality × Trial type	0.322	0.187	1.73	0.085	35.90%
RSI × Trial type	0.039	0.187	0.21	0.836	4.80%
Language × Trial type	-0.100	0.187	-0.54	0.591	9.50%
Modality × RSI × Language	-0.619	0.431	-1.44	0.151	33.80%
Modality × RSI × Trial type	0.012	0.373	0.03	0.974	4.80%
Modality × Language × Trial type	0.412	0.373	1.11	0.269	18.20%
RSI × Language × Trial type	-0.816	0.373	-2.19	0.029	58.90%
Modality × RSI × Language × Trial type	-1.398	0.745	-1.88	0.061	43.70%

Table B6

Mixed-effects models of mixing costs for log latencies and accuracy in between-experiment comparison.

Fixed effect	Estimate	<i>SE</i>	<i>t</i> value	<i>p</i>	Power
Log latencies					
Intercept	6.705	0.013	510.37	< .001	
Modality	0.268	0.023	11.43	< .001	100.00%
RSI	0.056	0.024	2.38	0.019	76.80%
Language	0.039	0.007	6.02	< .001	100.00%
Trial type (switch vs. repeat)	0.161	0.011	14.02	< .001	100.00%
Modality × RSI	0.016	0.047	0.35	0.728	5.10%
Modality × Language	0.023	0.013	1.75	0.083	51.50%
RSI × Language	-0.016	0.013	-1.23	0.220	23.20%
Modality × Trial type	-0.062	0.019	-3.19	0.002	86.90%
RSI × Trial type	0.008	0.019	0.41	0.686	10.10%
Language × Trial type	-0.046	0.014	-3.34	0.005	89.90%
Modality × RSI × Language	-0.028	0.026	-1.06	0.290	15.20%
Modality × RSI × Trial type	-0.041	0.039	-1.07	0.288	14.10%
Modality × Language × Trial type	0.083	0.018	4.53	< .001	98.00%
RSI × Language × Trial type	0.005	0.018	0.29	0.775	5.10%
Modality × RSI × Language × Trial type	0.001	0.037	0.03	0.976	4.00%
Accuracy					
Intercept	7.289	1.836	3.97	< .001	
Modality	-0.539	1.172	-0.46	0.645	
RSI	-3.464	3.659	-0.95	0.344	
Language	-3.742	3.662	-1.02	0.307	
Trial type (switch vs. repeat)	-5.974	3.666	-1.63	0.103	
Modality × RSI	0.091	2.340	0.04	0.969	
Modality × Language	-1.136	2.335	-0.49	0.627	
RSI × Language	8.051	7.314	1.10	0.271	
Modality × Trial type	0.421	2.331	0.18	0.857	
RSI × Trial type	7.451	7.314	1.02	0.308	
Language × Trial type	8.317	7.322	1.14	0.256	
Modality × RSI × Language	-0.027	4.563	-0.01	0.995	
Modality × RSI × Trial type	0.459	4.649	0.10	0.921	
Modality × Language × Trial type	0.569	4.693	0.12	0.903	
RSI × Language × Trial type	-15.044	14.627	-1.03	0.304	
Modality × RSI × Language × Trial type	0.319	9.094	0.04	0.972	