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Tone and intonation processing: from ambiguous acoustic signal to linguistic representation

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Appendix A

Table A1. Identification rate (%; SEs in parentheses) for each experimental condition under the tone identification task and the intonation identification task in Chapter 2.

Condition	Task	
	Tone	Intonation
QT2	98.0 (1.0)	64.0 (4.9)
QT4	92.7 (4.3)	68.0 (5.7)
ST2	98.0 (1.0)	91.3 (2.3)
ST4	99.0 (0.7)	99.3 (0.5)

Table A2. Time course analyses for the Midline Electrodes. *F*-values are reported for the main effects of T (Tone), I (Intonation) and interactions of T (Tone), I (Intonation) with R (Region).

Time window (ms)	T	I	T×I	T×R	I×R	T×I×R
0-50	8.87*	0.23	0.58	1.37	1.12	0.03
50-100	0.00	1.13	0.00	0.66	1.44	1.71
100-150	0.03	1.05	0.04	1.28	5.19*	0.49
150-200	4.04	2.42	0.48	1.00	1.14	2.20
200-250	0.63	3.93	0.42	1.56	3.13	5.71*
250-300	3.39	8.33*	1.57	0.26	1.48	3.68*
300-350	1.35	7.90*	2.13	1.22	4.49*	1.37
350-400	0.43	5.53*	0.57	0.13	2.63	6.21*
400-450	0.11	3.69	1.15	0.95	0.56	2.70
450-500	0.03	2.05	1.59	0.00	1.40	2.48*
500-550	9.19**	6.63*	2.26	0.66	1.09	1.83
550-600	1.34	2.78	3.03	3.42	2.66	4.21*
600-650	0.20	12.58**	1.30	0.79	0.09	2.28
650-700	0.97	3.33	0.61	1.59	3.43	0.79
700-750	1.25	9.73**	0.18	0.86	1.27	2.13
750-800	0.62	0.25	0.71	0.07	5.17*	1.76

Note. * $p < .05$; ** $p < .01$.

Table A3. Time course analyses for the Lateral Electrodes. F-values are reported for the main effect of T (Tone), I (Intonation) and interactions of T (Tone), I (Intonation) with R (Region) and H (Hemisphere).

Time window (ms)	T	I	T×I	T×R	I×R	T×H	I×H	T×I×R	T×I×H	T×R×H	I×R×H	T×I×R×H
0-50	7.31*	0.11	0.47	4.15*	0.93	1.61	0.82	0.05	0.27	2.04	1.34	0.01
50-100	0.00	1.59	0.01	0.03	2.66	0.05	0.53	0.36	1.07	6.63**	0.19	5.07*
100-150	0.00	1.74	0.13	0.56	6.98**	0.67	0.63	0.29	0.04	0.11	2.18	0.21
150-200	3.62	3.13	0.29	0.99	1.98	0.99	6.24*	0.37	0.05	3.08	0.73	1.90
200-250	0.49	4.29	0.39	1.45	3.91	0.11	0.87	1.80	1.02	0.34	0.92	0.68
250-300	3.51	8.57*	1.32	0.30	1.15	0.26	5.11*	0.76	0.22	1.19	1.50	2.39
300-350	1.31	8.70*	1.78	1.32	4.31*	0.39	0.00	0.26	0.02	0.60	0.80	0.55
350-400	0.62	7.52*	0.63	0.04	3.74	1.83	0.50	3.24	0.00	2.19	0.42	0.98
400-450	0.15	4.63*	1.08	1.07	1.89	1.11	0.08	1.16	0.49	0.30	0.14	0.39
450-500	0.00	3.66	1.75	0.02	3.99*	1.24	0.08	0.86	0.50	2.55	0.59	2.05
500-550	7.41*	8.02*	2.21	0.54	1.96	0.59	0.42	0.24	0.17	0.03	0.11	0.18
550-600	1.18	3.98	3.36	2.10	5.66*	0.04	0.13	1.56	0.21	0.93	0.17	0.69
600-650	0.11	13.43**	1.31	0.22	0.51	0.36	0.18	1.14	0.56	0.91	0.21	0.00
650-700	0.76	4.04	0.47	0.51	10.24**	1.17	7.35*	0.23	0.03	1.05	0.12	0.24
700-750	1.25	11.37**	0.24	0.46	1.73	1.69	0.04	1.37	0.15	0.94	1.13	0.25
750-800	0.83	0.53	0.69	0.03	8.53**	1.98	2.81	0.43	0.25	1.25	0.51	1.70

Note. * $p < .05$; ** $p < .01$.

Appendix B

Table B1. Response accuracy and average reaction time (SEs in parentheses) for each experimental condition in different tasks under different contexts in Chapter 3.

Condition	Response accuracy (%)						Reaction time (ms)					
	Neutral semantic context		Constraining semantic context		Neutral semantic context		Neutral semantic context		Constraining semantic context		Constraining semantic context	
	Tone	Intonation	Tone	Intonation	Tone	Intonation	Tone	Intonation	Tone	Intonation	Tone	Intonation
QT2	98.0 (1.0)	69.2 (6.9)	98.0 (0.8)	67.2 (7.2)	915 (18)	1074 (31)	851 (20)	1074 (31)	851 (20)	867 (27)	867 (27)	867 (27)
QT4	95.7 (1.8)	64.5 (6.7)	93.8 (2.8)	79.0 (5.0)	940 (19)	1076 (24)	800 (20)	1076 (24)	800 (20)	878 (20)	878 (20)	878 (20)
ST2	98.2 (0.7)	92.7 (2.3)	95.7 (1.0)	97.7 (0.9)	914 (14)	1109 (20)	808 (17)	1109 (20)	808 (17)	778 (15)	778 (15)	778 (15)
ST4	98.9 (0.9)	98.6 (0.5)	99.7 (0.3)	100.0 (0.0)	824 (12)	948 (15)	671 (13)	948 (15)	671 (13)	701 (14)	701 (14)	701 (14)

Appendix C

Table C1. *The full monosyllabic words used in the two experiments in Chapter 4.*

Syllable ID	Tone			
	T1	T2	T3	T4
1	逼 (bī1, force)	鼻 (bí2, nose)	比 (bǐ3, compare)	闭 (bì4, close)
2	搭 (dā1, travel by)	达 (dá2, reach)	打 (dǎ3, hit)	大 (dà4, big)
3	低 (dī1, low)	敌 (dí2, enemy)	底 (dǐ3, bottom)	弟 (dì4, younger brother)
4	督 (dū1, supervise)	毒 (dú2, poison)	赌 (dǔ3, gamble)	度 (dù4, extent)
5	涛 (tāo1, great waves)	桃 (tāo2, peach)	讨 (tǎo3, ask for)	套 (tào4, encase)
6	梯 (tī1, ladder)	题 (tí2, question)	体 (tǐ3, body)	替 (tì4, substitute)
7	通 (tōng1, through)	铜 (tóng2, copper)	桶 (tǒng3, bucket)	痛 (tòng4, pain)
8	方 (fāng1, square)	房 (fāng2, house)	访 (fǎng3, visit)	放 (fàng4, put)
9	风 (fēng1, wind)	冯 (féng2, a surname)	讽 (fěng3, irony)	凤 (fèng4, phoenix)
10	呼 (hū1, call)	湖 (hú2, lake)	虎 (hǔ3, tiger)	户 (hù4, household)
11	灰 (huī1, gray)	回 (huí2, go back)	毁 (huǐ3, destroy)	会 (huì4, able)
12	吸 (xī1, absorb)	席 (xí2, mat)	洗 (xǐ3, wash)	戏 (xì4, drama)
13	歇 (xiē1, rest)	邪 (xié2, evil)	写 (xiě3, write)	谢 (xiè4, thank)
14	星 (xīng1, star)	形 (xíng2, shape)	醒 (xǐng3, awake)	姓 (xìng4, a surname)
15	虚 (xū1, virtual)	徐 (xú2, slowly)	许 (xǔ3, allow)	续 (xù4, continue)

Syllable ID	Tone			
	T1	T2	T3	T4
16	抽 (chou1, pump)	仇 (chou2, hatred)	丑 (chou3, ugly)	臭 (chou4, smelly)
17	鸡 (ji1, chicken)	急 (ji2, urgent)	挤 (ji3, crowded)	记 (ji4, remember)
18	街 (jie1, street)	杰 (jie2, hero)	姐 (jie3, elder sister)	戒 (jie4, quit)
19	居 (ju1, residence)	局 (ju2, bureau)	举 (ju3, lift)	句 (ju4, sentence)
20	期 (qi1, period)	旗 (qi2, flag)	起 (qi3, start)	气 (qi4, gas)
21	轻 (qing1, light)	晴 (qing2, sunny)	请 (qing3, invite)	庆 (qing4, celebration)
22	妈 (ma1, mom)	麻 (ma2, hemp)	马 (ma3, horse)	骂 (ma4, scold)
23	汪 (wang1, a surname)	王 (wang2, king)	网 (wang3, network)	旺 (wang4, prosperous)
24	屋 (wu1, house)	吴 (wu2, a surname)	五 (wu3, five)	误 (wu4, mistake)
25	优 (you1, excellent)	油 (you2, oil)	有 (you3, have)	右 (you4, right)
26	威 (wei1, prestige)	围 (wei2, surround)	伟 (wei3, great)	胃 (wei4, stomach)
27	敲 (qiao1, knock)	桥 (qiao2, bridge)	巧 (qiao3, skillful)	俏 (qiao4, pretty)
28	荒 (huang1, uncultivated)	黄 (huang2, yellow)	谎 (huang3, lies)	晃 (huang4, sway)
29	秃 (tu1, bald)	图 (tu2, picture)	土 (tu3, dust)	兔 (tu4, rabbit)
30	汤 (tang1, soup)	唐 (tang2, Tang dynasty)	躺 (tang3, lie down)	烫 (tang4, scalding)

Appendix D

Table D1. The complete set of word target stimuli in Chapter 5. For each ID, the first row is with a SC_T1 prime; the second row is with a XM_T4 prime.

ID	Prime	Target				
		SC_T1	XM_T4	XM_T1	SC_T4	Baseline
1	冰 bing1 <i>ice</i>	冰球 bing1qiu2 <i>ice hockey</i>	病情 bing4qing2 <i>state of an illness</i>	冰球 bing1qiu2 <i>ice hockey</i>	病情 bing4qing2 <i>state of an illness</i>	融合 rong2he2 <i>mix together</i>
	病 bing4 <i>illness</i>	冰球 bing1qiu2 <i>ice hockey</i>	病情 bing4qing2 <i>state of an illness</i>	冰球 bing1qiu2 <i>ice hockey</i>	病情 bing4qing2 <i>state of an illness</i>	岩石 yan2shi2 <i>rock</i>
2	思 si1 think	思维 si1wei2 thinking	四十 si4shi2 forty	思维 si1wei2 thinking	四十 si4shi2 forty	人格 ren2ge2 personality
	四 si4 <i>four</i>	思维 si1wei2 thinking	四十 si4shi2 forty	思维 si1wei2 thinking	四十 si4shi2 forty	偿还 chang2huan2 <i>pay back</i>
3	加 jia1 <i>add</i>	加油 jia1you2 <i>make an extra effort</i>	价值 jia4zhi2 <i>value</i>	加油 jia1you2 <i>make an extra effort</i>	价值 jia4zhi2 <i>value</i>	男孩 nan2hai2 <i>boy</i>
	价 jia4 <i>price</i>	加油 jia1you2 <i>make an extra effort</i>	价值 jia4zhi2 <i>value</i>	加油 jia1you2 <i>make an extra effort</i>	价值 jia4zhi2 <i>value</i>	厨房 chu2fang2 <i>kitchen</i>

ID	Prime	Target				Baseline
		SC_T1	XM_T4	XM_T1	SC_T4	
4	知	知名	制服	知名	制服	才能
	zhi1	zhi1ming2	zhi4fu2	zhi1ming2	zhi4fu2	cai2neng2
	know	well-known	uniform	well-known	uniform	talent
	制	知名	制服	知名	制服	提前
5	zhi4	zhi1ming2	zhi4fu2	zhi1ming2	zhi4fu2	t2qian2
	system	well-known	uniform	well-known	uniform	beforehand
	街	街头	戒毒	街头	戒毒	隔离
	jie1	jie1tou2	jie4du2	jie1tou2	jie4du2	ge2li2
6	street	street	detoxification	street	detoxification	isolation
	戒	街头	戒毒	街头	戒毒	民族
	jie4	jie1tou2	jie4du2	jie1tou2	jie4du2	min2zu2
	give up	street	detoxification	street	detoxification	nation
7	惊	惊奇	镜头	惊奇	镜头	荷兰
	jing1	jing1qi2	jing4tou2	jing1qi2	jing4tou2	he2lan2
	surprise	surprise	camera lens	surprise	camera lens	Netherlands
	镜	惊奇	镜头	惊奇	镜头	联盟
8	jing4	jing1qi2	jing4tou2	jing1qi2	jing4tou2	lian2meng2
	mirror	surprise	camera lens	surprise	camera lens	union
	医	医疗	意图	医疗	意图	全国
	yi1	yi1liao2	yi4tu2	yi1liao2	yi4tu2	quan2guo2
9	doctor	medical treatment	intention	medical treatment	intention	entire country
	意	医疗	意图	医疗	意图	船员
	yi4	yi1liao2	yi4tu2	yi1liao2	yi4tu2	chuan2yuan2
	meaning	medical treatment	intention	medical treatment	intention	sailor

ID	Prime	Target				Baseline
		SC_T1	XM_T4	XM_T1	SC_T4	
8	拘	拘留	距离	拘留	距离	童年
	ju1	ju1liu2	ju4li2	ju1liu2	ju4li2	tong2nian2
	<i>restrain</i>	<i>detention</i>	<i>distance</i>	<i>detention</i>	<i>distance</i>	<i>childhood</i>
	距	拘留	距离	拘留	距离	贫穷
9	ju4	ju1liu2	ju4li2	ju1liu2	ju4li2	pin2qiong2
	<i>distance</i>	<i>detention</i>	<i>distance</i>	<i>detention</i>	<i>distance</i>	<i>poverty</i>
	孤	孤独	固执	孤独	固执	德国
	gu1	gu1du2	gu4zhi2	gu1du2	gu4zhi2	de2guo2
10	gu4	gu1du2	gu4zhi2	gu1du2	gu4zhi2	<i>Germany</i>
	<i>solid</i>	<i>lonely</i>	<i>stubborn</i>	<i>lonely</i>	<i>stubborn</i>	时髦
	辉	辉煌	画图	辉煌	画图	门铃
	hui1	hui1huang2	hui4tu2	hui1huang2	hui4tu2	men2ling2
11	hui4	hui1huang2	hui4tu2	hui1huang2	hui4tu2	doorbell
	<i>paint</i>	<i>glorious</i>	<i>draw</i>	<i>glorious</i>	<i>draw</i>	轮船
	虚	虚无	续集	虚无	续集	海豚
	xu1	xu1wu2	xu4ji2	xu1wu2	xu4ji2	he2tun2
11	<i>empty</i>	<i>nothingness</i>	<i>sequel</i>	<i>nothingness</i>	<i>sequel</i>	<i>puffer fish</i>
	续	虚无	续集	虚无	续集	游轮
	xu4	xu1wu2	xu4ji2	xu1wu2	xu4ji2	you2lun2
	<i>continue</i>	<i>nothingness</i>	<i>sequel</i>	<i>nothingness</i>	<i>sequel</i>	<i>cruise</i>

ID	Prime	Target				
		SC_T1	XM_T4	XM_T1	SC_T4	Baseline
12	吸	吸毒	戏迷	吸毒	戏迷	年龄
	xi1	xi1du2	xi4mi2	xi1du2	xi4mi2	nian2ling2
	suck	take drugs	theater fan	take drugs	theater fan	age
	戏	吸毒	戏迷	吸毒	戏迷	和平
	xi4	xi1du2	xi4mi2	xi1du2	xi4mi2	he2ping2
	drama	take drugs	theater fan	take drugs	theater fan	peace
13	帮	帮忙	棒球	帮忙	棒球	完成
	bang1	bang1mang2	bang4qiu2	bang1mang2	bang4qiu2	wan2cheng2
	help	help	baseball	help	baseball	complete
	棒	帮忙	棒球	帮忙	棒球	成熟
	bang4	bang1mang2	bang4qiu2	bang1mang2	bang4qiu2	cheng2shu2
	stick	help	baseball	help	baseball	mature
14	归	规模	贵族	规模	贵族	前台
	gui1	gui1mo2	gui4zu2	gui1mo2	gui4zu2	qian2tai2
	return	scale	noble	scale	noble	front desk
	贵	规模	贵族	规模	贵族	文明
	gui4	gui1mo2	gui4zu2	gui1mo2	gui4zu2	wen2ming2
	expensive	scale	noble	scale	noble	civilization
15	香	香肠	象棋	香肠	象棋	丛林
	xiang1	xiang1chang2	xiang4qi2	xiang1chang2	xiang4qi2	cong2lin2
	fragrant	sausage	chess	sausage	chess	jungle
	象	香肠	象棋	香肠	象棋	垂直
	xiang4	xiang1chang2	xiang4qi2	xiang1chang2	xiang4qi2	chui2zhi2
	elephant	sausage	chess	sausage	chess	vertical

ID	Prime	Target				Baseline
		SC_T1	XM_T4	XM_T1	SC_T4	
16	征	征服	证实	征服	证实	寻常
	zheng1	zheng1fu2	zheng4shi2	zheng1fu2	zheng4shi2	xun2chang2
	<i>expedition</i>	<i>conquer</i>	<i>confirm</i>	<i>conquer</i>	<i>confirm</i>	<i>usual</i>
	证	征服	证实	征服	证实	迷人
17	zheng4	zheng1fu2	zheng4shi2	zheng1fu2	zheng4shi2	mi2ren2
	<i>proof</i>	<i>conquer</i>	<i>confirm</i>	<i>conquer</i>	<i>confirm</i>	<i>charming</i>
	伤	伤亡	上楼	伤亡	上楼	雷达
	shang1	shang1wang2	shang4lou2	shang1wang2	shang4lou2	lei2da2
18	<i>wound</i>	<i>casualties</i>	<i>go upstairs</i>	<i>casualties</i>	<i>go upstairs</i>	<i>radar</i>
	上	伤亡	上楼	伤亡	上楼	为难
	shang4	shang1wang2	shang4lou2	shang1wang2	shang4lou2	wei2nan2
	<i>on top</i>	<i>casualties</i>	<i>go upstairs</i>	<i>casualties</i>	<i>go upstairs</i>	<i>feel awkward</i>
19	交	交流	教堂	交流	教堂	符合
	jiao1	jiao1liu2	jiao4tang2	jiao1liu2	jiao4tang2	fu2he2
	<i>deliver</i>	<i>communication</i>	<i>church</i>	<i>communication</i>	<i>church</i>	<i>accord with</i>
	教	交流	教堂	交流	教堂	灵魂
20	jiao4	jiao1liu2	jiao4tang2	jiao1liu2	jiao4tang2	ling2hun2
	<i>teaching</i>	<i>communication</i>	<i>church</i>	<i>communication</i>	<i>church</i>	<i>soul</i>
	失	失明	世俗	失明	世俗	残疾
	shi1	shi1ming2	shi4su2	shi1ming2	shi4su2	can2ji2
21	<i>lose</i>	<i>go blind</i>	<i>secular</i>	<i>go blind</i>	<i>secular</i>	<i>disabled</i>
	世	失明	世俗	失明	世俗	油田
	shi4	shi1ming2	shi4su2	shi1ming2	shi4su2	you2tian2
	<i>generation</i>	<i>go blind</i>	<i>secular</i>	<i>go blind</i>	<i>secular</i>	<i>oilfield</i>

ID	Prime	Target				Baseline
		SC_T1	XM_T4	XM_T1	SC_T4	
20	升	升学	剩余	升学	剩余	循环
	sheng1	sheng1xue2	sheng4yu2	sheng1xue2	sheng4yu2	xun2huan2
	rise	enter a higher school	remainder	enter a higher school	remainder	cycle
	剩	升学	剩余	升学	剩余	难题
21	sheng4	sheng1xue2	sheng4yu2	sheng1xue2	sheng4yu2	nan2ti2
	remainder	enter a higher school	remainder	enter a higher school	remainder	problem
	推	推移	退学	推移	退学	纯洁
	tui1	tui1yi2	tui4xue2	tui1yi2	tui4xue2	chun2jie2
22	push	elapse	drop out	elapse	drop out	pure
	退	推移	退学	推移	退学	频繁
	tui4	tui1yi2	tui4xue2	tui1yi2	tui4xue2	pin2fan2
	retreat	elapse	drop out	elapse	drop out	frequent
23	搭	搭乘	大桥	搭乘	大桥	延迟
	da1	da1cheng2	da4qiao2	da1cheng2	da4qiao2	yan2chi2
	build	travel by	bridge	travel by	bridge	delay
	大	搭乘	大桥	搭乘	大桥	学员
24	da4	da1cheng2	da4qiao2	da1cheng2	da4qiao2	xue2yuan2
	big	travel by	bridge	travel by	bridge	student
	花	花瓶	化疗	花瓶	化疗	同谋
	hua1	hua1ping2	hua4hiao2	hua1ping2	hua4hiao2	tong2mou2
25	flower	nase	chemotherapy	nase	chemotherapy	conspirator
	化	花瓶	化疗	花瓶	化疗	传闻
	hua4	hua1ping2	hua4hiao2	hua1ping2	hua4hiao2	chuan2wen2
	transform	nase	chemotherapy	nase	chemotherapy	rumor

ID	Prime	Target				
		SC_T1	XM_T4	XM_T1	SC_T4	Baseline
24	飞	飞翔	费城	飞翔	费城	临床
	fei1	fei1xiang2	fei4cheng2	fei1xiang2	fei4cheng2	lin2chuang2
	fly	fly	Philadelphbia	fly	Philadelphbia	clinical
	费	飞翔	费城	飞翔	费城	才华
fei4	fei1xiang2	fei4cheng2	fei1xiang2	fei4cheng2	cai2hua2	
fee	fly	Philadelphbia	fly	Philadelphbia	talent	
25	低	低头	地牢	低头	地牢	拳王
	di1	di1tou2	di4lao2	di1tou2	di4lao2	quan2wang2
	low	lover one's head	dungeon	lover one's head	dungeon	boxing champion
	地	低头	地牢	低头	地牢	划船
	di4	di1tou2	di4lao2	di1tou2	di4lao2	hua2c2huan2
	ground	lover one's head	dungeon	lover one's head	dungeon	boating
	激	激活	继承	激活	继承	阳台
	ji1	ji1huo2	ji4cheng2	ji1huo2	ji4cheng2	yang2tai2
stimulate	activate	inherit	activate	inherit	balcony	
26	技	激活	继承	激活	继承	连环
	ji4	ji1huo2	ji4cheng2	ji1huo2	ji4cheng2	lian2huan2
	skill	activate	inherit	activate	inherit	serial
	枯	枯竭	酷刑	枯竭	酷刑	排查
gu1	ku1jie2	ku4xing2	ku1jie2	ku4xing2	pai2cha2	
withered	exhausted	cruel torture	exhausted	cruel torture	troubleshot	
27	酷	枯竭	酷刑	枯竭	酷刑	缠绵
	ku1	ku1jie2	ku4xing2	ku1jie2	ku4xing2	chan2mian2
	cool	exhausted	cruel torture	exhausted	cruel torture	lingering

ID	Prime	Target					Baseline
		SC_T1	XM_T4	XM_T1	SC_T4		
28	欺	欺凌	汽笛	欺凌	汽笛	红茶	
	qi1	qi1ling2	qi4di2	qi1ling2	qi4di2	hong2cha2	
	bully	<i>bully and humiliate</i>	<i>siren</i>	<i>bully and humiliate</i>	<i>siren</i>	<i>black tea</i>	
	汽	欺凌	汽笛	欺凌	汽笛	闲谈	
29	招	招摇	照明	招摇	照明	牛群	
	zhao1	zhao1yao2	zhao4ming2	zhao1yao2	zhao4ming2	niu2qun2	
	recruit	<i>flaunt</i>	<i>illuminate</i>	<i>flaunt</i>	<i>illuminate</i>	<i>cattle</i>	
	照	招摇	照明	招摇	照明	石棉	
30	优	优良	幼童	优良	幼童	顽皮	
	you1	you1liang2	you4tong2	you1liang2	you4tong2	wan2pi2	
	excellent	<i>good</i>	<i>young children</i>	<i>good</i>	<i>young children</i>	<i>naughty</i>	
	幼	优良	幼童	优良	幼童	云层	
31	松	松弛	送别	松弛	送别	翱翔	
	song1	song1chi2	song4bie2	song1chi2	song4bie2	ao2xiang2	
	pine	<i>loose</i>	<i>farewell</i>	<i>loose</i>	<i>farewell</i>	<i>hover</i>	
	送	松弛	送别	松弛	送别	繁华	
send	song1chi2	song4bie2	song1chi2	song4bie2	song1chi2	fan2hua2	
	<i>loose</i>	<i>farewell</i>	<i>loose</i>	<i>farewell</i>	<i>farewell</i>	<i>prosperous</i>	

ID	Prime	Target					Baseline
		SC_T1	XM_T4	XM_T1	SC_T4		
32	包	包围	报仇	包围	报仇	来源	
	bao1	bao1wei2	bao4chou2	bao1wei2	bao4chou2	lai2yuan2	
	bag	surround	revenge	surround	revenge	source	
	报	包围	报仇	包围	报仇	平民	
33	bao4	bao1wei2	bao4chou2	bao1wei2	bao4chou2	ping2min2	
	newspaper	surround	revenge	surround	revenge	cinlian	
	高	高潮	告别	高潮	告别	着迷	
	gao1	gao1chao2	gao4bie2	gao1chao2	gao4bie2	zhao2mi2	
34	high	climax	bid farewell to	climax	bid farewell to	fascinated	
	告	高潮	告别	高潮	告别	牛排	
	gao4	gao1chao2	gao4bie2	gao1chao2	gao4bie2	niu2pai2	
	tell	climax	bid farewell to	climax	bid farewell to	steak	
35	偷	偷袭	透明	偷袭	透明	弹琴	
	tou1	tou1xi2	tou4ming2	tou1xi2	tou4ming2	tan2qin2	
	steal	sneak attack	transparent	sneak attack	transparent	play the piano	
	透	偷袭	透明	偷袭	透明	神灵	
36	tou4	tou1xi2	tou4ming2	tou1xi2	tou4ming2	shen2ling2	
	penetrate	sneak attack	transparent	sneak attack	transparent	gods	
	纠	纠结	救活	纠结	救活	摇篮	
	jiu1	jiu1jie2	jiu4huo2	jiu1jie2	jiu4huo2	yao2lan2	
37	correct	conflicted	bring sb back to life	conflicted	bring sb back to life	cradle	
	救	纠结	救活	纠结	救活	重逢	
	jiu4	jiu1jie2	jiu4huo2	jiu1jie2	jiu4huo2	chong2feng2	
	save	conflicted	bring sb back to life	conflicted	bring sb back to life	reunion	

ID	Prime	Target				Baseline
		SC_T1	XM_T4	XM_T1	SC_T4	
36	风 feng1 <i>wind</i>	风情 feng1qing2 <i>flirtatious expression</i>	奉陪 feng4pei2 <i>keep sb company</i>	风情 feng1qing2 <i>flirtatious expression</i>	奉陪 feng4pei2 <i>keep sb company</i>	埋藏 mai2cang2 <i>bury</i>
	奉 feng4 <i>wait on</i>	风情 feng1qing2 <i>flirtatious expression</i>	奉陪 feng4pei2 <i>keep sb company</i>	风情 feng1qing2 <i>flirtatious expression</i>	奉陪 feng4pei2 <i>keep sb company</i>	查询 cha2xun2 <i>inquire</i>
	星 xing1 <i>star</i>	星球 xing1qiu2 <i>planet</i>	幸福 xing4fu2 <i>happiness</i>	星球 xing1qiu2 <i>planet</i>	幸福 xing4fu2 <i>happiness</i>	神奇 shen2qi2 <i>miracle</i>
	幸 xing4 <i>lucky</i>	星球 xing1qiu2 <i>planet</i>	幸福 xing4fu2 <i>happiness</i>	星球 xing1qiu2 <i>planet</i>	幸福 xing4fu2 <i>happiness</i>	随时 sui2shi2 <i>at any time</i>
37	公 gong1 <i>public</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	来临 lai2lin2 <i>approach</i>
	共 gong4 <i>all together</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	传奇 chuan2qi2 <i>legend</i>
	歌 ge1 <i>song</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	延长 yan2chang2 <i>extend</i>
	个 ge4 <i>individual</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	条纹 tiao2wen2 <i>stripe</i>
38	歌 ge1 <i>song</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	延长 yan2chang2 <i>extend</i>
	个 ge4 <i>individual</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	条纹 tiao2wen2 <i>stripe</i>
	公 gong1 <i>public</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	来临 lai2lin2 <i>approach</i>
	共 gong4 <i>all together</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	传奇 chuan2qi2 <i>legend</i>
39	歌 ge1 <i>song</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	延长 yan2chang2 <i>extend</i>
	个 ge4 <i>individual</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	歌迷 ge1mi2 <i>fan</i>	条纹 tiao2wen2 <i>stripe</i>
	公 gong1 <i>public</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	来临 lai2lin2 <i>approach</i>
	共 gong4 <i>all together</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	公爵 gong1jue2 <i>duke</i>	传奇 chuan2qi2 <i>legend</i>

ID	Prime	Target					Baseline
		SC_T1	XM_T4	XM_T1	SC_T4		
40	窝	窝藏	卧房	窝藏	卧房	茶壶	
	wol	wo1cang2	wo4fang2	wo1cang2	wo4fang2	cha2hu2	
	nest	shelter	bedroom	shelter	bedroom	teapot	
	卧	窝藏	卧房	窝藏	卧房	存折	
	wol	wo1cang2	wo4fang2	wo1cang2	wo4fang2	cun2zhe2	
	lie	shelter	bedroom	shelter	bedroom	deposit book	

Table D2. The complete set of nonword target stimuli in Chapter 5. For each ID, the first row is with a SC_T3 prime; the second row is with a XM_T4 prime.

ID	Prime	Target				
		SC_T1	XM_T4	XM_T1	SC_T4	Baseline
1	马	马夺	妈苗	马夺	妈苗	这昨
	ma3(horse)	ma3duo2	ma1miao2	ma3duo2	ma1miao2	zh4zuo2
2	妈	马夺	妈苗	马夺	妈苗	厂闲
	ma1(mother)	ma3duo2	ma1miao2	ma3duo2	ma1miao2	chang3xian2
3	寡	寡杂	瓜敌	寡杂	瓜敌	那贫
	gua3(cu)	gua3za2	gua1di2	gua3za2	gua1di2	na4pin2
4	瓜	寡杂	瓜敌	寡杂	瓜敌	鸟盐
	gua1(melon)	gua3za2	gua1di2	gua3za2	gua1di2	niao3yan2
5	瓦	瓦粮	挖潮	瓦粮	挖潮	纵格
	wa3(tile)	wa3liang2	wa1chao2	wa3liang2	wa1chao2	zong4ge2
6	挖	瓦粮	挖潮	瓦粮	挖潮	打谈
	wa1(dig)	wa3liang2	wa1chao2	wa3liang2	wa1chao2	da3tan2
7	扯	扯胡	车茄	扯胡	车茄	怕群
	che3(pull)	che3hu2	che1qie2	che3hu2	che1qie2	pa4qun2
8	车	扯胡	车茄	扯胡	车茄	响棉
	che1(car)	che3hu2	che1qie2	che3hu2	che1qie2	xiang3mian2
9	躲	躲随	多卢	躲随	多卢	跨垂
	duo3(hide)	duo3sui2	duo1lu2	duo3sui2	duo1lu2	kua4chui2
10	多	躲随	多卢	躲随	多卢	火如
	duo1(many)	duo3sui2	duo1lu2	duo3sui2	duo1lu2	huo3ru2

ID	Prime	Target				Baseline
		SC_T1	XM_T4	XM_T1	SC_T4	
6	锁	锁停	缩曹	锁停	缩曹	赤除
	suo3(lock)	suo3ting2	suo1cao2	suo3ting2	suo1cao2	chi4chu2
	缩	锁停	缩曹	锁停	缩曹	写床
7	suo1(shrink)	suo3ting2	suo1cao2	suo3ting2	suo1cao2	xie3chuang2
	野	野宁	耶霞	野宁	耶霞	醋阜
	ye3(wild)	ye3ning2	ye1xia2	ye3ning2	ye1xia2	cu4zhuo2
8	耶	野宁	耶霞	野宁	耶霞	死瞞
	ye1(jesus)	ye3ning2	ye1xia2	ye3ning2	ye1xia2	si3man2
	紫	紫渠	姿泥	紫渠	姿泥	滤熬
9	zi3(purple)	zi3qu2	zi1ni2	zi3qu2	zi1ni2	lv4ao2
	姿	紫渠	姿泥	紫渠	姿泥	猛牙
	zi1(posture)	zi3qu2	zi1ni2	zi3qu2	zi1ni2	meng3ya2
10	彼	彼叠	逼黄	彼叠	逼黄	妙残
	bi3(another)	bi3die2	bi1huang2	bi3die2	bi1huang2	miao4can2
	逼	彼叠	逼黄	彼叠	逼黄	妥孩
11	bi1(force)	bi3die2	bi1huang2	bi3die2	bi1huang2	tuo3hai2
	普	普眉	扑虎	普眉	扑虎	货邻
	pu3(universal)	pu3mei2	pu1pang2	pu3mei2	pu1pang2	huo4lin2
12	扑	普眉	扑虎	普眉	扑虎	朗来
	pu1(rub at)	pu3mei2	pu1pang2	pu3mei2	pu1pang2	lang3lai2
	腐	腐狂	肤楼	腐狂	肤楼	颯宅
13	fu3(rotten)	fu3kuang2	fu1lou2	fu3kuang2	fu1lou2	ni4zhai2
	肤	腐狂	肤楼	腐狂	肤楼	果鞞
	fu1(skin)	fu3kuang2	fu1lou2	fu3kuang2	fu1lou2	guo3han2

ID	Prime	Target				Baseline
		SC_T1	XM_T4	XM_T1	SC_T4	
12	祖	祖绳	租罚	祖绳	租罚	利荷
	zu3(ancestor)	zu3sheng2	zu1fa2	zu3sheng2	zu1fa2	li4he2
	租	祖绳	租罚	祖绳	租罚	补匣
	zu1(rent)	zu3sheng2	zu1fa2	zu3sheng2	zu1fa2	bu3xia2
13	取	取朋	区仍	取朋	区仍	屁德
	qu3(fetch)	qu3peng2	qu1reng2	qu3peng2	qu1reng2	pi4de2
	区	取朋	区仍	取朋	区仍	顶桌
	qu1(distrid)	qu3peng2	qu1reng2	qu3peng2	qu1reng2	ding3quan2
14	伟	伟仇	威平	伟仇	威平	育浑
	wei3(great)	wei3chou2	wei1ping2	wei3chou2	wei1ping2	yu4hun2
	威	伟仇	威平	伟仇	威平	等虫
	wei1(prestige)	wei3chou2	wei1ping2	wei3chou2	wei1ping2	deng3chong2
15	跑	跑茄	抛藏	跑茄	抛藏	憎白
	pao3(run)	pao3qie2	pao1cang2	pao3qie2	pao1cang2	zeng4bai2
	抛	跑茄	抛藏	跑茄	抛藏	米才
	pao1(thron)	pao3qie2	pao1cang2	pao3qie2	pao1cang2	mi3cai2
16	岛	岛拔	刀吴	岛拔	刀吴	胖鞋
	dao3(island)	dao3ba2	dao1wu2	dao3ba2	dao1wu2	pang4xie2
	刀	岛拔	刀吴	岛拔	刀吴	体谋
	dao1(knife)	dao3ba2	dao1wu2	dao3ba2	dao1wu2	ti3mei2
17	讨	讨驴	涛红	讨驴	涛红	趣民
	tao3(ask for)	tao3lv2	tao1hong2	tao3lv2	tao1hong2	qu4min2
	涛	讨驴	涛红	讨驴	涛红	老存
	tao1(big wave)	tao3lv2	tao1hong2	tao3lv2	tao1hong2	lao3cun2

ID	Prime	Target				Baseline
		SC_T1	XM_T4	XM_T1	SC_T4	
18	早	早挪	遭牛	早挪	遭牛	对男
	zao3(early)	zao3nuo2	zao1niu2	zao3nuo2	zao1niu2	dui4nan2
	遭	早挪	遭牛	早挪	遭牛	努环
	zao1(suffer)	zao3nuo2	zao1niu2	zao3nuo2	zao1niu2	nu3huan2
	草	草痢	操强	草痢	操强	夏臀
19	cao3(grass)	cao3que2	cao1qiang2	cao3que2	cao1qiang2	xia4tun2
	操	草痢	操强	草痢	操强	楼坟
	cao1(exercise)	cao3que2	cao1qiang2	cao3que2	cao1qiang2	lou3fen2
	少	少爬	烧昨	少爬	烧昨	用鞅
	shao3(little)	shao3pa2	shao1zuo2	shao3pa2	shao1zuo2	yong4e2
20	烧	少爬	烧昨	少爬	烧昨	母文
	shao1(burn)	shao3pa2	shao1zuo2	shao3pa2	shao1zuo2	mu3wen2
	表	表狼	标娃	表狼	标娃	配付
	biao3(table)	biao3lang2	biao1wa2	biao3lang2	biao1wa2	pei4fu2
	标	表狼	标娃	表狼	标娃	虎鞋
21	biao1(sign)	biao3lang2	biao1wa2	biao3lang2	biao1wa2	hu3xie2
	丑	丑瓢	抽霞	丑瓢	抽霞	暴旋
	chou3(ugly)	chou3piao2	chou1xia2	chou3piao2	chou1xia2	bao4xuan2
	抽	丑瓢	抽霞	丑瓢	抽霞	冷元
	chou1(pump)	chou3piao2	chou1xia2	chou3piao2	chou1xia2	leng3yuan2
22	手	手苗	收葵	手苗	收葵	梦年
	shou3(hand)	shou3miao2	shou1kui2	shou3miao2	shou1kui2	meng4nian2
	收	手苗	收葵	手苗	收葵	扭神
	shou1(receive)	shou3miao2	shou1kui2	shou3miao2	shou1kui2	niu3shen2
	抽	丑瓢	抽霞	丑瓢	抽霞	

ID	Prime	Target					Baseline
		SC_T1	XM_T4	XM_T1	SC_T4		
24	狗	狗妮	沟浮	狗妮	沟浮	漏林	
	<i>gou3(dog)</i>	<i>gou3ni2</i>	<i>gou1fu2</i>	<i>gou3ni2</i>	<i>gou1fu2</i>	<i>lou4lin2</i>	
	沟	狗妮	沟浮	狗妮	沟浮	涨秦	
	<i>gou1(ditch)</i>	<i>gou3ni2</i>	<i>gou1fu2</i>	<i>gou3ni2</i>	<i>gou1fu2</i>	<i>zhang3qin2</i>	
	访	访驼	方聊	访驼	方聊	另银	
25	<i>fang3(visi)</i>	<i>fang3tuo2</i>	<i>fang1liao2</i>	<i>fang3tuo2</i>	<i>fang1liao2</i>	<i>ling4yin2</i>	
	方	访驼	方聊	访驼	方聊	考繁	
	<i>fang1(square)</i>	<i>fang3tuo2</i>	<i>fang1liao2</i>	<i>fang3tuo2</i>	<i>fang1liao2</i>	<i>kao3fan2</i>	
	党	党姚	当鱼	党姚	当鱼	胜埋	
	<i>dang3(party)</i>	<i>dang3yao2</i>	<i>dang1yu2</i>	<i>dang3yao2</i>	<i>dang1yu2</i>	<i>sheng4mai2</i>	
26	当	党姚	当鱼	党姚	当鱼	可颜	
	<i>dang1(serve as)</i>	<i>dang3yao2</i>	<i>dang1yu2</i>	<i>dang3yao2</i>	<i>dang1yu2</i>	<i>ke3yan2</i>	
	耢	耢矛	汤伐	耢矛	汤伐	抗盆	
	<i>tang3(he down)</i>	<i>tang3mao2</i>	<i>tang1fa2</i>	<i>tang3mao2</i>	<i>tang1fa2</i>	<i>kang4pen2</i>	
	汤	耢矛	汤伐	耢矛	汤伐	走盘	
27	<i>tang1(soup)</i>	<i>tang3mao2</i>	<i>tang1fa2</i>	<i>tang3mao2</i>	<i>tang1fa2</i>	<i>zou3pan2</i>	
	港	港冯	刚详	港冯	刚详	岁茶	
	<i>gang3(harbor)</i>	<i>gang3feng2</i>	<i>gang1xiang2</i>	<i>gang3feng2</i>	<i>gang1xiang2</i>	<i>sui4cha2</i>	
	刚	港冯	刚详	港冯	刚详	扰然	
	<i>gang1(just)</i>	<i>gang3feng2</i>	<i>gang1xiang2</i>	<i>gang3feng2</i>	<i>gang1xiang2</i>	<i>rao3ran2</i>	
29	讲	讲衙	江奴	讲衙	江奴	妹群	
	<i>jiang3(speech)</i>	<i>jiang3ya2</i>	<i>jiang1nu2</i>	<i>jiang3ya2</i>	<i>jiang1nu2</i>	<i>mei4qun2</i>	
	江	讲衙	江奴	讲衙	江奴	旅田	
	<i>jiang1(river)</i>	<i>jiang3ya2</i>	<i>jiang1nu2</i>	<i>jiang3ya2</i>	<i>jiang1nu2</i>	<i>lv3tian2</i>	

ID	Prime	Target				Baseline
		SC_T1	XM_T4	XM_T1	SC_T4	
30	枪	枪毫	枪唯	枪毫	枪唯	翠时
	qiang3(rob)	qiang3hao2	qiang1wei2	qiang3hao2	qiang1wei2	cui4shi2
	枪	枪毫	枪唯	枪毫	枪唯	扫怀
	qiang1(gun)	qiang3hao2	qiang1wei2	qiang3hao2	qiang1wei2	sao3huai2
	养	养拿	央曾	养拿	央曾	挂云
31	yang3(raise)	yang3na2	yang1ceng2	yang3na2	yang1ceng2	gua4yun2
	央	养拿	央曾	养拿	央曾	惹容
	yang1(center)	yang3na2	yang1ceng2	yang3na2	yang1ceng2	re3rong2
	广	广罗	光娘	广罗	光娘	坐季
	guang3(wide)	guang3luo2	guang1niang2	guang3luo2	guang1niang2	zuo4luan2
32	光	广罗	光娘	广罗	光娘	女门
	guang1(light)	guang3luo2	guang1niang2	guang3luo2	guang1niang2	nv3men2
	谎	谎佛	慌哲	谎佛	慌哲	翁牌
	huang3(lie)	huang3fo2	huang1zhe2	huang3fo2	huang1zhe2	weng4pen2
	慌	谎佛	慌哲	谎佛	慌哲	巧联
33	huang1(nervous)	huang3fo2	huang1zhe2	huang3fo2	huang1zhe2	qiao3lian2
	等	等狂	登疼	等狂	登疼	闭熟
	deng3(wait)	deng3kuang2	deng1teng2	deng3kuang2	deng1teng2	bi4shou2
	登	等狂	登疼	等狂	登疼	脑唇
	deng1(climb)	deng3kuang2	deng1teng2	deng3kuang2	deng1teng2	nao3chun2
34	挺	挺梨	厅绳	挺梨	厅绳	栗国
	ting3	ting3li2	ting1sheng2	ting3li2	ting1sheng2	piao4guo2
	挺(rubber)	ting3li2	厅绳	挺梨	厅绳	雅寻
	厅	挺梨	厅绳	挺梨	厅绳	ya3xun2
	ting1(ball)	ting3li2	ting1sheng2	ting3li2	ting1sheng2	

ID	Prime	Target				
		SC_T1	XM_T4	XM_T1	SC_T4	Baseline
36	请	请奴	清持	请奴	清持	二竹
	qing3(request)	qing3nu2	qing1chi2	qing3nu2	qing1chi2	er4zhu2
	清	请奴	清持	请奴	清持	美坟
	qing1(clear)	qing3nu2	qing1chi2	qing3nu2	qing1chi2	mei3fen2
37	懂	懂柔	冬麻	懂柔	冬麻	次谈
	dong3(understand)	dong3rou2	dong1ma2	dong3rou2	dong1ma2	ci4tan2
	冬	懂柔	冬麻	懂柔	冬麻	雨槐
	dong1(winter)	dong3rou2	dong1ma2	dong3rou2	dong1ma2	yu3huai2
38	统	统猴	通陶	统猴	通陶	夜赎
	tong3(unite)	tong3hou2	tong1tao2	tong3hou2	tong1tao2	ye4shu2
	通	统猴	通陶	统猴	通陶	嘴抬
	tong1(go through)	tong3hou2	tong1tao2	tong3hou2	tong1tao2	zui3tai2
39	总	总梅	宗揉	总梅	宗揉	暮缠
	zong3(total)	zong3mei2	zong1rou2	zong3mei2	zong1rou2	mu4chan2
	宗	总梅	宗揉	总梅	宗揉	苦蛮
	zong1(action)	zong3mei2	zong1rou2	zong3mei2	zong1rou2	ku3man2
40	勇	勇棚	拥狭	勇棚	拥狭	亮儒
	yong3(brave)	yong3peng2	yong1xia2	yong3peng2	yong1xia2	liang4ru2
	拥	勇棚	拥狭	勇棚	拥狭	囤钱
	yong1(hug)	yong3peng2	yong1xia2	yong3peng2	yong1xia2	ji2ong3qian2