Appendix D: Formant analysis

Linear mixed effects models were also fitted to the data with formant values as the dependent variable. Participant and word were entered as random intercepts, with random slopes for continuum presentation order by participant, and order and experimental condition by word. The fixed effects of experimental condition, order, and NZES were entered in a three-way interaction. The syntax of these models was as follows: F1 ~ (1 + order | participant) + (1 + condition + order | word) + condition * order * NZES F2 ~ (1 + order | participant) + (1 + condition + order | word) + condition * order * NZES

Fixed effects for F1 of KIT selections. Linear mixed model with Australia as default condition.

	Estimate	SE	df	t value	Pr(> |z|)	
(Intercept)	360.96	9.10	19.45	39.68	< 2e-16	***
condition = control	8.47	7.47	71.45	1.13	0.261	
condition = NZ	-3.21	7.52	70.16	-0.43	0.671	
order = reversed	-13.99	5.80	71.57	-2.41	0.018	*
NZES	-1.27	1.51	68.78	-0.84	0.406	
cond = control:order = reversed	3.62	7.51	69.23	0.48	0.631	
cond = NZ:order = reversed	-1.32	7.74	69.35	-0.17	0.865	
cond = control:NZES	1.16	1.87	69.08	0.62	0.537	
cond = NZ:NZES	2.14	1.88	68.83	1.14	0.259	
order = reversed:NZES	1.35	1.57	69.30	0.86	0.394	
cond = control:order = reversed:NZES	-3.08	1.94	69.36	-1.58	0.118	
cond = NZ:order = reversed:NZES	-1.06	1.95	69.12	-0.54	0.588	

Fixed effects for F1 of DRESS selections. Linear mixed model with Australia as default condition.

	Estimate	SE	df	t value	Pr(> |z|)	
(Intercept)	558.26	10.95	70.24	50.97	< 2e-16	***
condition = control	-14.57	15.03	68.83	-0.97	0.336	
condition = NZ	-18.65	15.31	70.23	-1.22	0.227	
order = reversed	31.79	16.45	71.88	1.93	0.057	.
NZES	-0.77	3.04	69.58	-0.26	0.800	
cond = control:order = reversed	8.36	21.49	69.43	0.39	0.699	
cond = NZ:order = reversed	6.04	22.14	69.37	0.27	0.786	
cond = control:NZES	3.53	3.76	69.43	0.94	0.350	

	Estimate	SE	df	t value	Pr(>|z|)
cond = NZ:NZES	0.29	3.76	69.43	0.08	0.940
order = reversed:NZES	-4.19	4.50	69.57	-0.93	0.355
cond = control:order = reversed:NZES	3.05	5.56	69.38	0.55	0.586
cond = NZ:order = reversed:NZES	3.73	5.57	69.30	0.67	0.505

Fixed effects for F1 of TRAP selections. Linear mixed model with Australia as default condition.

	Estimate	SE	df	t value	Pr(>|z|)	
(Intercept)	812.68	12.95	60.13	62.74	< 2e-16	***
condition = control	1.28	15.85	69.73	0.08	0.936	
condition = NZ	-4.45	16.21	69.81	-0.28	0.784	
order = reversed	-13.31	15.54	70.91	-0.86	0.395	
NZES	0.12	3.27	69.17	0.04	0.970	
cond = control:order = reversed	24.06	20.39	69.03	1.18	0.242	
cond = NZ:order = reversed	23.24	21.01	69.04	1.11	0.273	
cond = control:NZES	-0.21	4.05	69.10	-0.05	0.959	
cond = NZ:NZES	2.60	4.06	69.10	0.64	0.523	
order = reversed:NZES	4.70	4.27	69.05	1.10	0.275	
cond = control:order = reversed:NZES	-5.00	5.28	69.02	-0.95	0.347	
cond = NZ:order = reversed:NZES	-7.17	5.29	69.01	-1.36	0.180	

Fixed effects for F2 of KIT selections. Linear mixed model with Australia as default condition.

	Estimate	SE	df	t value	Pr(>|z|)	
(Intercept)	2272.06	38.02	40.52	59.77	< 2e-16	***
condition = control	-45.12	41.54	71.50	-1.09	0.281	
condition = NZ	15.21	41.89	70.63	0.36	0.718	
order = reversed	81.21	32.25	71.65	2.52	0.014	*
NZES	6.99	8.41	68.76	0.83	0.409	
cond = control:order = reversed	-19.67	41.40	69.23	-0.48	0.636	
cond = NZ:order = reversed	13.23	42.68	69.36	0.31	0.758	
cond = control:NZES	-6.46	10.41	69.05	-0.62	0.537	
cond = NZ:NZES	-11.64	10.42	68.80	-1.12	0.268	
order = reversed:NZES	-7.57	8.67	69.30	-0.87	0.385	
cond = control:order = reversed:NZES	16.81	10.72	69.36	1.57	0.122	
cond = NZ:order = reversed:NZES	5.12	10.74	69.12	0.48	0.635	

Fixed effects for F2 of DRESS selections. Linear mixed model with Australia as default condition.

	Estimate	SE	df	t value	Pr(>|z|)	
(Intercept)	1839.16	25.94	11.54	70.89	<2e-16	***
condition = control	13.90	12.97	69.26	1.07	0.288	
condition = NZ	16.67	13.11	67.19	1.27	0.208	
order = reversed	-25.40	13.92	72.37	-1.82	0.072	.
NZES	0.93	2.64	69.55	0.35	0.727	
cond = control:order = reversed	-8.34	17.99	69.39	-0.46	0.644	
cond = NZ:order = reversed	-6.35	18.53	69.32	-0.34	0.733	
cond = control:NZES	-3.45	3.26	69.40	-1.06	0.294	
cond = NZ:NZES	-0.51	3.27	69.40	-0.16	0.876	
order = reversed:NZES	3.05	3.77	69.54	0.81	0.421	
cond = control:order = reversed:NZES	-1.95	4.66	69.34	-0.42	0.677	
cond = NZ:order = reversed:NZES	-2.65	4.67	69.26	-0.57	0.5725	

Fixed effects for F2 of TRAP selections. Linear mixed model with Australia as default condition.

	Estimate	SE	df	t value	Pr(>|z|)	
(Intercept)	1627.96	33.14	19.20	49.12	<2e-16	***
condition = control	0.13	27.15	71.07	0.01	0.996	
condition = NZ	7.44	27.36	69.23	0.27	0.787	
order = reversed	26.29	25.78	70.75	1.02	0.311	
NZES	0.12	5.55	69.16	0.02	0.983	
cond = control:order = reversed	-41.97	33.85	69.03	-1.24	0.219	
cond = NZ:order = reversed	-39.52	34.89	69.04	-1.13	0.261	
cond = control:NZES	-0.36	6.86	69.10	-0.05	0.958	
cond = NZ:NZES	-4.54	6.88	69.10	-0.66	0.511	
order = reversed:NZES	-7.70	7.09	69.05	-1.09	0.281	
cond = control:order = reversed:NZES	8.41	8.77	69.02	0.96	0.341	
cond = NZ:order = reversed:NZES	11.82	8.78	69.02	1.35	0.183	