

Supplemental Material S9. Pairwise comparisons of lexical tone pitch contours (slope and curvature) between groups (NH = 3, CI_Exp < 1, CI_Exp 1-2, CI_Exp 2-3, and CI_Exp 3-4) for each tone.

Tone	Group difference	Parameter	β	SE	df	<i>t</i>	<i>p</i>
T1	NH = 3 – CI_Exp < 1	Slope	0.12	1.37	612	0.09	1.000
		Curvature	0.66	1.28	841	0.52	.986
	NH = 3 – CI_Exp 1-2	Slope	-0.40	1.45	609	-0.28	.999
		Curvature	0.75	1.36	837	0.55	.982
	NH = 3 – CI_Exp 2-3	Slope	-1.73	3.21	586	-0.54	.983
		Curvature	0.74	3.01	808	0.24	.999
	NH = 3 – CI_Exp 3-4	Slope	-0.67	1.23	622	-0.55	.982
		Curvature	0.48	1.15	854	0.42	.994
	CI_Exp < 1 – CI_Exp 1-2	Slope	-0.52	1.08	580	-0.48	.989
		Curvature	0.09	1.02	801	0.09	1.000
	CI_Exp < 1 – CI_Exp 2-3	Slope	-1.85	3.07	580	-0.60	.975
		Curvature	0.07	2.87	801	0.03	1.000
	CI_Exp < 1 – CI_Exp 3-4	Slope	-0.79	0.76	584	-1.04	.838
		Curvature	-0.18	0.72	806	-0.26	.999
	CI_Exp 1-2 – CI_Exp 2-3	Slope	-1.33	3.10	580	-0.43	.993
		Curvature	-0.02	2.91	801	-0.01	1.000
	CI_Exp 1-2 – CI_Exp 3-4	Slope	-0.28	0.90	583	-0.31	.998
		Curvature	-0.27	0.84	804	-0.32	.998
CI_Exp 2-3 – CI_Exp 3-4	Slope	1.05	3.01	580	0.35	.997	
	Curvature	-0.26	2.82	801	-0.09	1.000	
T2	NH = 3 – CI_Exp < 1	Slope	2.61	1.26	801	2.07	< .05*
		Curvature	0.52	1.34	580	0.39	.995
	NH = 3 – CI_Exp 1-2	Slope	2.94	1.33	801	2.20	< .05*
		Curvature	2.54	1.42	580	1.78	.387
	NH = 3 – CI_Exp 2-3	Slope	2.85	3.00	801	2.62	< .01**
		Curvature	0.12	3.20	580	0.04	1.000
	NH = 3 – CI_Exp 3-4	Slope	3.48	1.20	581	2.90	< .01**
		Curvature	2.13	1.12	802	1.90	.318
	CI_Exp < 1 – CI_Exp 1-2	Slope	2.01	1.08	580	1.86	.342
		Curvature	0.33	1.02	801	0.32	.998
	CI_Exp < 1 – CI_Exp 2-3	Slope	0.41	3.07	580	0.13	1.000
		Curvature	4.46	2.87	801	1.55	.528
	CI_Exp < 1 – CI_Exp 3-4	Slope	2.96	0.76	583	3.87	< .001***
		Curvature	0.47	0.72	804	0.66	.964
	CI_Exp 1-2 – CI_Exp 2-3	Slope	2.42	3.10	580	0.78	.937

	Curvature	4.79	2.91	801	1.65	.467
CI_Exp 1-2 – CI_Exp 3-4	Slope	0.94	0.90	582	1.05	.830
	Curvature	0.80	0.84	803	0.96	.874
CI_Exp 2-3 – CI_Exp 3-4	Slope	3.36	3.01	580	1.12	.797
	Curvature	3.99	2.82	801	1.42	.618
NH = 3 – CI_Exp < 1	Slope	1.94	1.34	580	1.84	< .05*
	Curvature	1.05	1.26	801	0.83	.921
NH = 3 – CI_Exp 1-2	Slope	-0.73	1.42	580	-0.52	.986
	Curvature	6.08	1.33	801	2.81	< .01**
NH = 3 – CI_Exp 2-3	Slope	2.28	3.20	580	0.71	.954
	Curvature	8.27	3.00	801	2.75	< .05*
NH = 3 – CI_Exp 3-4	Slope	0.73	1.20	584	0.61	.974
	Curvature	5.37	1.13	806	4.77	< .001***
CI_Exp < 1 – CI_Exp 1-2	Slope	-2.67	1.08	580	-2.47	< .05*
	Curvature	-2.13	1.02	801	-2.10	.222
CI_Exp < 1 – CI_Exp 2-3	Slope	0.34	3.07	580	0.11	1.000
	Curvature	-9.31	2.87	801	-3.24	< .01**
CI_Exp < 1 – CI_Exp 3-4	Slope	-1.21	0.77	590	-1.58	.514
	Curvature	-6.41	0.72	813	-8.93	< .001***
CI_Exp 1-2 – CI_Exp 2-3	Slope	3.01	3.10	580	0.97	.868
	Curvature	-7.18	2.91	801	-2.47	< .05*
CI_Exp 1-2 – CI_Exp 3-4	Slope	1.46	0.90	587	1.63	.481
	Curvature	-4.29	0.84	810	-5.08	< .001***
CI_Exp 2-3 – CI_Exp 3-4	Slope	-1.55	3.01	581	-0.52	.986
	Curvature	2.90	2.82	801	1.03	.842
NH = 3 – CI_Exp < 1	Slope	-2.70	1.34	580	-1.82	< .05*
	Curvature	0.26	1.26	801	0.21	1.000
NH = 3 – CI_Exp 1-2	Slope	-3.27	1.42	580	-2.19	< .05*
	Curvature	-0.45	1.33	801	-0.34	.997
NH = 3 – CI_Exp 2-3	Slope	-4.50	3.20	580	-2.03	< .05*
	Curvature	3.60	3.00	801	1.20	.751
NH = 3 – CI_Exp 3-4	Slope	-2.66	1.20	581	-2.22	< .05*
	Curvature	1.90	1.12	801	1.70	.438
CI_Exp < 1 – CI_Exp 1-2	Slope	-0.96	1.08	580	-0.89	.901
	Curvature	0.18	1.02	801	0.18	1.000
CI_Exp < 1 – CI_Exp 2-3	Slope	2.20	3.07	580	2.35	< .05*

T3

T4

	Curvature	3.34	2.87	801	1.16	.773
CI_Exp < 1 – CI_Exp 3-4	Slope	3.36	0.76	582	4.40	< .001***
	Curvature	1.64	0.71	803	2.29	.148
CI_Exp 1-2 – CI_Exp 2-3	Slope	2.24	3.10	580	2.01	< .05*
	Curvature	3.16	2.91	801	1.09	.814
CI_Exp 1-2 – CI_Exp 3-4	Slope	2.39	0.90	581	2.67	< .05*
	Curvature	1.46	0.84	802	1.73	.414
CI_Exp 2-3 – CI_Exp 3-4	Slope	-3.84	3.01	580	-1.28	.704
	Curvature	-1.70	2.82	801	-0.60	.975

Note. NH = normal hearing; CI = cochlear implant.