

Appendix C: Results of linear mixed-effects models predicting F1 and F2 for individual speakers in the palatal context. In each case, the intercept is the epenthetic vowel, and each other lexical vowel is compared to that epenthetic vowel to identify similarities. The label under each speaker's identifier indicates which epenthetic vowel(s) they seem to have used based on these results. For discussion of the ‘variable’ cases, see the main text (Section 3.5.1).

Speaker	Palatal										
	F1						F2				
		Estimate	SE	t value	Pr(> t)		Estimate	SE	t value	Pr(> t)	
F1 [ɯ]	(Intercept)	-0.61495	0.09271	-6.633	0.000521 ***		0.27487	0.06785	4.051	0.008634 **	
	Vowel[a]	2.67761	0.14206	18.848	2.16E-08 ***		-0.60716	0.10542	-5.759	0.000395 ***	
	Vowel[e]	0.69132	0.14206	4.866	0.00096 ***		0.21318	0.10542	2.022	0.077114 .	
	Vowel[i]	-0.04836	0.14206	-0.34	0.74159		0.54185	0.10542	5.14	8.33E-04 ***	
	Vowel[o]	0.79972	0.14206	5.629	0.000355 ***		-1.25913	0.10542	-11.944	1.88E-06 ***	
	Vowel[ɯ]	0.17281	0.14885	1.161	0.272403		-0.1695	0.11098	-1.527	0.159236	
F4 variable	(Intercept)	-0.5602	0.09586	-5.844	1.92E-06 ***		0.4576	0.1231	3.717	0.000797 ***	
	Vowel[a]	2.13278	0.15157	14.071	5.26E-15 ***		-0.4105	0.1946	-2.109	0.043104 *	
	Vowel[e]	0.41765	0.15157	2.755	0.00972 **		0.3973	0.1946	2.041	4.98E-02 *	
	Vowel[i]	-0.01898	0.17282	-0.11	0.91324		0.6414	0.2219	2.89	6.97E-03 **	
	Vowel[o]	0.40325	0.15157	2.66	0.01224 *		-1.5945	0.1946	-8.192	2.98E-09 ***	
	Vowel[ɯ]	0.0563	0.15157	0.371	0.71284		-0.7593	0.1946	-3.901	0.00048 ***	
F5 variable	(Intercept)	0.007664	0.213399	0.036	0.971963		-0.2513	0.1374	-1.829	0.0965 .	
	Vowel[a]	1.518191	0.310134	4.895	3.04E-04 ***		0.1452	0.2129	0.682	0.50593	
	Vowel[e]	0.05003	0.310134	0.161	0.874356		1.0593	0.2129	4.976	1.90E-04 ***	

		-	0.310134	-3.196	0.007134	**	1.2525	0.2129	5.884	3.64E-05	***
	Vowel[i]	0.991054									
	Vowel[o]	0.145543	0.310134	0.469	0.64674		-0.8241	0.2129	-3.872	0.00163	**
		-	0.310134	-2.43	0.030556	*	0.464	0.2129	2.18	0.04644	*
	Vowel[u]	0.753638									
F7	(Intercept)	-0.72617	0.1233	-5.89	2.16E-06	***	0.9457	0.10461	9.041	3.94E-06	***
[i]	Vowel[a]	2.11076	0.19881	10.617	1.67E-11	***	-0.94267	0.16413	-5.744	5.09E-05	***
	Vowel[e]	1.10538	0.18834	5.869	2.28E-06	***	-0.20574	0.15671	-1.313	2.13E-01	
	Vowel[i]	-0.02977	0.19881	-0.15	0.882		0.06365	0.16413	0.388	7.04E-01	
	Vowel[o]	1.22913	0.19881	6.182	9.67E-07	***	-1.67442	0.16413	-10.202	7.33E-08	***
	Vowel[u]	0.03623	0.18834	0.192	0.849		-0.99201	0.15671	-6.33	3.05E-05	***
F9	(Intercept)	0.423	0.2125	1.99	5.55E-02	.	0.1304	0.1129	1.155	0.25711	
variable	Vowel[a]	1.3864	0.3247	4.27	1.71E-04	***	-0.4707	0.1725	-2.729	0.01038	*
	Vowel[e]	-0.5088	0.3247	-1.567	0.127247		0.5593	0.1725	3.243	2.83E-03	**
	Vowel[i]	-1.0569	0.3247	-3.255	0.002739	**	0.8372	0.1725	4.853	3.27E-05	***
	Vowel[o]	-0.5631	0.3427	-1.643	0.110463		-1.2039	0.1821	-6.612	2.18E-07	***
	Vowel[u]	-0.9811	0.3247	-3.022	0.005003	**	-0.1813	0.1725	-1.051	0.30134	
F10	(Intercept)	-0.8842	0.1558	-5.675	0.000347	***	0.87334	0.07429	11.755	9.32E-13	***
[i]	Vowel[a]	2.5453	0.2347	10.846	2.88E-07	***	-0.82069	0.11747	-6.987	9.20E-08	***
	Vowel[e]	0.9978	0.2442	4.085	0.001405	**	-0.13094	0.12432	-1.053	0.301	
	Vowel[i]	-0.1662	0.2442	-0.68	0.508675		-0.02879	0.12432	-0.232	8.18E-01	
	Vowel[o]	1.3016	0.2442	5.329	0.000159	***	-1.35784	0.12432	-10.923	5.64E-12	***
	Vowel[u]	0.8199	0.2347	3.494	0.004927	**	-0.63273	0.11747	-5.386	7.82E-06	***
F12	(Intercept)	0.3389	0.2005	1.691	0.12013		0.19223	0.15757	1.22	2.48E-01	
variable	Vowel[a]	1.5127	0.3125	4.841	2.20E-04	***	-0.6048	0.23938	-2.527	0.023947	*
	Vowel[e]	-0.2757	0.3125	-0.882	0.39168		0.78798	0.23938	3.292	5.24E-03	**

	Vowel[i]	-1.1173	0.3125	-3.575	0.00279	**	0.94106	0.23938	3.931	1.46E-03	**
	Vowel[o]	-0.635	0.3125	-2.032	0.06039	.	-1.26487	0.23938	-5.284	0.000109	***
	Vowel[u]	-1.059	0.3125	-3.389	0.00408	**	0.02807	0.23938	0.117	0.908291	
F13	(Intercept)	-0.60505	0.11597	-5.217	1.15E-05	***	0.07266	0.08007	0.907	0.388285	
[ʊ]	Vowel[a]	2.40566	0.19405	12.397	1.50E-13	***	-0.0872	0.13021	-0.67	0.513987	
	Vowel[e]	0.80983	0.18336	4.417	0.000113	***	0.68753	0.12387	5.55	1.11E-04	***
	Vowel[i]	-0.16514	0.19405	-0.851	0.401285		0.70556	0.13021	5.418	9.10E-05	***
	Vowel[o]	0.52268	0.18336	2.851	0.007694	**	-1.19515	0.12387	-9.648	4.00E-07	***
	Vowel[ʊ]	0.07278	0.18336	0.397	0.694151		0.05958	0.12387	0.481	0.638871	
F15	(Intercept)	-0.1341	0.1639	-0.818	4.31E-01		0.4093	0.1087	3.766	0.00452	**
variable	Vowel[a]	1.9184	0.2507	7.654	2.02E-06	***	-0.5458	0.1687	-3.235	6.64E-03	**
	Vowel[e]	0.3663	0.2507	1.461	1.66E-01		0.2518	0.1687	1.493	1.60E-01	
	Vowel[i]	-0.1819	0.2507	-0.726	0.48		0.7643	0.1687	4.531	0.00059	***
	Vowel[o]	0.1476	0.2507	0.589	5.65E-01		-1.6475	0.1687	-9.767	2.75E-07	***
	Vowel[ʊ]	-0.1884	0.2507	-0.752	0.465		-0.4822	0.1687	-2.859	0.01363	*
F16	(Intercept)	-0.4818	0.09752	-4.94	2.20E-05	***	0.1107	0.04662	2.375	0.0235	*
[ʊ]	Vowel[a]	2.42568	0.1542	15.731	< 2e-16	***	-0.24604	0.07371	-3.338	0.0021	**
	Vowel[e]	0.44619	0.1542	2.894	0.006699	**	0.62485	0.07371	8.477	8.53E-10	***
	Vowel[i]	-0.19474	0.1542	-1.263	0.215471		0.97282	0.07371	13.198	1.02E-14	***
	Vowel[o]	0.64842	0.1542	4.205	0.000187	***	-1.1594	0.07371	-15.73	< 2e-16	***
	Vowel[ʊ]	0.16692	0.1542	1.082	0.286878		-0.01479	0.07371	-0.201	0.8422	
M1	(Intercept)	0.2556	0.186	1.374	0.18107		0.44588	0.17561	2.539	0.031458	*
variable	Vowel[a]	1.4421	0.2999	4.808	5.57E-05	***	-0.61597	0.28219	-2.183	4.73E-02	*
	Vowel[e]	-0.1338	0.3221	-0.415	0.68123		0.22668	0.30268	0.749	0.464828	
	Vowel[i]	-1.2556	0.3221	-3.898	6.10E-04	***	0.7507	0.30328	2.475	2.83E-02	*
	Vowel[o]	-0.0785	0.2999	-0.262	0.79559		-1.24632	0.28219	-4.417	0.000643	***

	Vowel[ʊ]	-0.9539	0.2841	-3.357	2.43E-03	**	0.09107	0.26758	0.34	0.739444	
M2	(Intercept)	-0.72492	0.11824	-6.131	9.21E-05	***	0.58674	0.1533	3.827	0.0046	**
[ʊ]	Vowel[a]	1.96923	0.17011	11.576	1.40E-07	***	-0.29629	0.23207	-1.277	0.2278	
	Vowel[e]	0.77382	0.17011	4.549	0.000792	***	0.30512	0.23207	1.315	0.2151	
	Vowel[i]	-0.31143	0.17011	-1.831	0.093807	.	0.6763	0.23207	2.914	0.014	*
	Vowel[o]	0.80925	0.17262	4.688	0.000546	***	-1.42292	0.24203	-5.879	6.42E-05	***
	Vowel[ʊ]	0.08296	0.17011	0.488	0.635169		0.07814	0.23207	0.337	0.7426	
M3	(Intercept)	0.472	0.1929	2.447	0.02121	*	0.36262	0.13569	2.672	0.012612	*
variable	Vowel[a]	0.685	0.2989	2.292	2.99E-02	*	-0.40003	0.2102	-1.903	6.77E-02	.
	Vowel[e]	-0.3044	0.3199	-0.952	0.34973		0.39437	0.22501	1.753	0.091008	.
	Vowel[i]	-1.3046	0.284	-4.594	9.06E-05	***	0.89984	0.19973	4.505	1.15E-04	***
	Vowel[o]	-0.2005	0.284	-0.706	0.48622		-1.09876	0.19973	-5.501	7.95E-06	***
	Vowel[ʊ]	-1.2126	0.2989	-4.057	3.80E-04	***	0.05375	0.2102	0.256	0.800118	
M4	(Intercept)	-0.03363	0.18643	-0.18	0.860733		0.4766	0.11716	4.068	0.000317	***
variable	Vowel[a]	1.34521	0.30874	4.357	0.000564	***	-0.40143	0.19605	-2.048	0.049445	*
	Vowel[e]	-0.03423	0.29242	-0.117	0.908558		0.50941	0.18525	2.75	0.010005	*
	Vowel[i]	-1.28128	0.33141	-3.866	0.00114	**	0.80618	0.21122	3.817	6.30E-04	***
	Vowel[o]	0.30977	0.29242	1.059	0.308221		-1.06755	0.18525	-5.763	2.71E-06	***
	Vowel[ʊ]	-0.57505	0.29242	-1.967	0.070371	.	-0.06548	0.18525	-0.353	0.726196	