



Supporting Online Material for

Comment on “Phonemic Diversity Supports a Serial Founder Effect Model of Language Expansion from Africa”

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Comment on “Phonemic diversity supports a serial founder effect model of language expansion from Africa”

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Supporting tables

Table S1 - Information of 579 languages from literature (1), showing family affiliation, location, phoneme diversity and distance from the “best-fit origin” (2).

Notes: One tone stands for stress or pitch accent with weak lexical function. A star before the name indicates that the individual language was excluded from analyses for inter-family balance.

Continent	Family	Language	Population Size	Vowel Quality Inventory	Tone Inventory	Consonant Inventory	Normalized Vowel Diversity	Normalized Tone Diversity	Normalized Consonant Diversity	Total Normalized Phoneme Diversity	Latitude (N)	Longitude (E)	Distance from Africa	Distance from Central Asia	Distance from Europe
Oceania	Sepik	Abau	7270	8	0	9	0.8515	-0.5120	-1.4501	-0.3702	-4	141.15	14998.185	9597.5641	14513.97
N.Amer	Algic	Abenaki	5	5	0	18	-0.4738	-0.5120	-0.5576	-0.5145	44	-72.15	18421.84	9530.2711	18416.56
Europe	Northwest Caucasian	Abkhaz & Abaza	101000	2	0	67	-1.7991	-0.5120	4.3012	0.6634	43.5	41	5044.8325	1539.9195	3172.84
Africa	Nilo-Saharan	Acholi	1215000	10	2	17	1.7350	0.5782	-0.6568	0.5521	3	32.4	3095.3327	4640.1259	6450.21
Africa	Niger-Congo	Adangme	2200	7	3	22	0.4097	1.1233	-0.1610	0.4573	6.19	-0.24	709.19779	6766.2964	7718.75
Oceania	Pama-Nyungan (Australian)	Adnyamathanha	130	3	0	25	-1.3573	-0.5120	0.1365	-0.5776	-31.52	139.22	14608.319	11314.359	16235.81
Europe	Northwest Caucasian	Adyghe	1250000	3	0	56	-1.3573	-0.5120	3.2105	0.4471	45.14	40.35	5113.0324	1649.6128	3120.94
Africa	Afro-Asiatic	Afar	1078200	5	0	17	-0.4738	-0.5120	-0.6568	-0.5475	12	42	4005.6449	3269.0649	5682.49
Asia	Ainu	Ainu	15	5	0	11	-0.4738	-0.5120	-1.2518	-0.7458	43	143	12636.689	6830.2938	10117.15
Asia	Afro-Asiatic	Akkadian	0	4	0	20	-0.9156	-0.5120	-0.3593	-0.5956	32.52	44.41	4705.5319	1362.1479	3715.22
Europe	Indo-European	Albanian	80000	7	0	30	0.4097	-0.5120	0.6323	0.1767	41	20	3714.9821	3223.4474	1435.12
N.Amer	Eskimo-Aleut	Aleut	300	3	0	34	-1.3573	-0.5120	1.0289	-0.2801	54	-166	13861.54	8884.8202	13856.26
Asia	Altaic	Altay	67900	8	0	20	0.8515	-0.5120	-0.3593	-0.0066	50.37	86.14	8451.0428	2585.394	6370.77
Asia	Japonic	Amami	10000	6	0	41	-0.0320	-0.5120	1.7231	0.3930	28.22	129.29	12564.574	6511.8453	10727.53
Africa	Afro-Asiatic	Amharic	17400000	7	0	27	0.4097	-0.5120	0.3348	0.0775	10	38	3579.7569	3665.7697	5749.37
Asia	Austronesian	Amis	138000	5	0	19	-0.4738	-0.5120	-0.4585	-0.4814	23.2	121.2	12050.526	6096.3737	10591.79
N.Amer	Oto-Manguean	Amuzgo	23000	7	4	17	0.4097	1.6684	-0.6568	0.4738	16.5	-98	15933.26	11342.69	9866.76
Oceania	Anindilyakwa (Australian)	Anindilyakwa	1240	2	0	21	-1.7991	-0.5120	-0.2601	-0.8571	-14	136.3	14576.306	9879.6868	14649.74
Asia	Sino-Tibetan	Ao	141000	5	3	21	-0.4738	1.1233	-0.2601	0.1298	26.35	94.4	9372.8268	3602.6724	8299.13
S.Amer	Zaparoan	Arabela	50	5	0	11	-0.4738	-0.5120	-1.2518	-0.7458	-2	-75.1	22897.46	13670.056	22892.18
Asia	Afro-Asiatic	Arabic	20400000	3	0	28	-1.3573	-0.5120	0.4340	-0.4784	25.28	46.96	4692.3748	1739.9815	4287.58
Oceania	Pama-Nyungan (Australian)	Aranda	1000	2	0	52	-1.7991	-0.5120	2.8138	0.1676	-24	132.3	14107.021	10269.437	15158.57
N.Amer	Algic	Arapaho	1040	4	3	12	-0.9156	1.1233	-1.1526	-0.3149	40	-103	17454.68	11036.483	17449.39
Oceania	Torricelli	Arapesh	4340	7	0	16	0.4097	-0.5120	-0.7560	-0.2861	-3.28	143.1	15194.043	9716.6556	14681.08
Asia	Indo-European	Armenian	3140000	8	0	31	0.8515	-0.5120	0.7315	0.3570	40	45	5114.3401	1134.1214	3543.12
Europe	Indo-European	Aromanian	50000	9	0	22	1.2932	-0.5120	-0.1610	0.2068	22.32	41.08	4039.5503	2355.3638	4657.34
Asia	Indo-European	Assamese	16700000	8	0	21	0.8515	-0.5120	-0.2601	0.0265	26	93	9241.4895	3502.8195	8207.06

N.Amer	Siouan	Assiniboine	250	5	0	27	-0.4738	-0.5120	0.3348	-0.2170	47.36	-101	16868.2	10212.761	16862.92
Asia	Austronesian	Atayal	84300	6	0	19	-0.0320	-0.5120	-0.4585	-0.3342	24.3	121.2	12007.739	6034.2173	10504.73
N.Amer	Palaihnihan	Atsugewi	3	4	0	32	-0.9156	-0.5120	0.8306	-0.1990	40.45	-121	16615.78	11199.82	16610.5
Africa	Niger-Congo	Avatime	24000	9	3	27	1.2932	1.1233	0.3348	0.9171	7.37	-1.59	774.10027	6796.4133	7741.65
Africa	Afro-Asiatic	Awngi	500000	6	3	29	-0.0320	1.1233	0.5331	0.5415	10.5	36.4	3404.0531	3706.4116	5658.27
S.Amer	Aymaran	Aymara	1790000	3	0	26	-1.3573	-0.5120	0.2357	-0.5445	-17	-69	24692.72	14251.016	24687.43
Asia	Altaic	Aynu	30000	8	0	22	0.8515	-0.5120	-0.1610	0.0595	39.3	76	7606.3834	1553.5459	6100.86
Asia	Altaic	Azeri	6100000	9	0	25	1.2932	-0.5120	0.1365	0.3059	38.3	48.12	5267.6072	856.64012	3845.08
Asia	Sino-Tibetan	Bai	2500	10	8	27	1.7350	3.8487	0.3348	1.9728	26	100	9925.0278	4103.1918	8773.46
Oceania	Baining	Baining	11000	6	0	15	-0.0320	-0.5120	-0.8551	-0.4664	-4.58	152	16181.589	10576.249	15654.65
Asia	Indo-European	Balochi	1800000	5	0	22	-0.4738	-0.5120	-0.1610	-0.3822	28	62	6202.5111	1161.9968	5458.88
Africa	Niger-Congo	Bambara	4000000	7	2	21	0.4097	0.5782	-0.2601	0.2426	17.54	-4	1271.4601	6329.813	7540.35
Asia	Altaic	Baraba Tatar	8000	12	0	27	2.6185	-0.5120	0.3348	0.8138	55.2	78.2	7962.2866	2417.4614	5700.18
Africa	Niger-Congo	Basaa	230000	7	4	22	0.4097	1.6684	-0.1610	0.6390	3.55	10.3	917.15858	6108.3612	7166.84
Asia	Altaic	Bashkir	1380000	8	0	26	0.8515	-0.5120	0.2357	0.1917	53	58	6646.5289	1652.9483	4423.7
Europe	Basque	Basque	580000	5	1	24	-0.4738	0.0331	0.0373	-0.1344	43	-3	3716.9807	5030.0545	792.97
Europe	Indo-European	Belarussian	6720000	6	0	39	-0.0320	-0.5120	1.5247	0.3269	57.51	31.07	5682.473	2896.0597	2942.1
Africa	Niger-Congo	Bemba	296000	5	2	17	-0.4738	0.5782	-0.6568	-0.1841	-13.08	27.8	3562.3943	6435.0686	9418.25
Asia	Indo-European	Bengali	110000000	7	1	32	0.4097	0.0331	0.8306	0.4245	22.2	91.5	9150.6745	3609.6158	8325.28
N.Amer	Algic	Blackfoot	4500	3	1	11	-1.3573	0.0331	-1.2518	-0.8586	50	-112.4	16123.03	10102.468	16117.75
Africa	Afro-Asiatic	Blin	70000	7	0	31	0.4097	-0.5120	0.7315	0.2097	15.1	39.46	3745.0008	3102.3689	5257.47
N.Amer	Chibchan	Bribri	11000	7	4	14	0.4097	1.6684	-0.9543	0.3746	9.25	-83	21398.69	12767.71	21393.41
Europe	Indo-European	Bulgarian	7990000	6	0	23	-0.0320	-0.5120	-0.0618	-0.2019	42.3	25	4049.0149	2802.4749	1866.5
Oceania	Pama-Nyungan (Australian)	Bundjalung	10	4	0	12	-0.9156	-0.5120	-1.1526	-0.8600	-28.45	153	15957.042	12200.813	16995.5
Asia	Burushaski	Burushaski	87000	5	0	36	-0.4738	-0.5120	1.2273	0.0805	36.3	74.3	7434.5487	1442.3419	6100.04
Asia	Tai-Kadai	Buyang	300	9	6	58	1.2932	2.7586	3.4088	2.4869	24.01	105.04	10463.34	4648.6401	9309.64
N.Amer	Caddoan	Caddo	25	3	3	19	-1.3573	1.1233	-0.4585	-0.2308	33.2	-93.3	18544.21	11462.813	18538.93
Asia	Sino-Tibetan	Cantonese,Guangzhou	67000000	8	9	20	0.8515	4.3938	-0.3593	1.6287	23.133	113.25	11289.366	5410.0792	10009.43
S.Amer	Cariban	Carib	4450	6	0	10	-0.0320	-0.5120	-1.3509	-0.6316	5.3	-56	24217.94	11595.281	24212.66
N.Amer	Na-Dene	Carrier	2060	6	1	38	-0.0320	0.0331	1.4256	0.4756	53.45	-123.3	15342.26	9767.3061	15336.98
Europe	Indo-European	Catalan	18000	8	0	26	0.8515	-0.5120	0.2357	0.1917	41.45	2	3477.9074	4679.7077	410.03
N.Amer	Iroquoian	Cayuga	50	4	0	10	-0.9156	-0.5120	-1.3509	-0.9261	42.45	-76.45	18393.71	9870.5586	18388.42
Africa	Afro-Asiatic	Chaha	440000	8	0	37	0.8515	-0.5120	1.3264	0.5553	8	37.3	3521.1097	3895.3911	5949.71
Asia	Altaic	Chakhar	100000	8	0	25	0.8515	-0.5120	0.1365	0.1587	40.46	114.52	10792.055	4750.0584	8812.38
Europe	Nakh-Daghestanian	Chechen	1330000	11	0	37	2.1767	-0.5120	1.3264	0.9971	43.15	45.5	5324.0866	1188.7796	3538.44
N.Amer	Chimakuan	Chemakum	0	3	0	28	-1.3573	-0.5120	0.4340	-0.4784	48.5	-122.6	15800.14	10313.309	15794.86
Africa	Afro-Asiatic	Chenoua	76300	4	0	31	-0.9156	-0.5120	0.7315	-0.2320	28	1.39	2018.4974	5266.6058	6375.26
N.Amer	Iroquoian	Cherokee	16400	6	4	11	-0.0320	1.6684	-1.2518	0.1282	35.3	-83.3	18787.8	10849.583	18782.52
N.Amer	Algic	Cheyenne	1720	3	0	11	-1.3573	-0.5120	-1.2518	-1.0403	47	-95	17168.96	10105.667	17163.68
N.Amer	Muskogean	Chickasaw	1000	3	1	18	-1.3573	0.0331	-0.5576	-0.6273	34	-88	18704.96	11178.005	18699.68
N.Amer	Na-Dene	Chilcotin	1140	6	2	47	-0.0320	0.5782	2.3180	0.9547	49.57	-116	15996.08	10177.29	15990.8
N.Amer	Na-Dene	Chiricahua	279	4	0	31	-0.9156	-0.5120	0.7315	-0.2320	33.15	-108	17888.65	11872.946	17883.37
Africa	Niger-Congo	ChiYao	1916000	5	0	18	-0.4738	-0.5120	-0.5576	-0.5145	-12.07	33.42	3949.3799	6072.8688	8126.78
N.Amer	Muskogean	Choctaw	11400	3	0	16	-1.3573	-0.5120	-0.7560	-0.8751	32.15	-88.3	18871.7	11372.514	18866.42
Asia	Chukchi-Kamchatkan	Chukchi	7740	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	67	-173	11358.644	7516.5906	12713.41
Asia	Altaic	Chuvash	1640000	8	0	14	0.8515	-0.5120	-0.9543	-0.2049	55.3	47.3	6185.1664	2065.7268	3757.41

Africa	Niger-Congo	Cipu	20000	6	2	27	-0.0320	0.5782	0.3348	0.2937	9.2	8.02	339.76989	5865.9475	8445.14
Europe	Indo-European	Classic Greek	10700000	7	0	16	0.4097	-0.5120	-0.7560	-0.2861	39	22	3607.413	3087.1536	1593.32
N.Amer	Coahuiltecan	Coahuilteco	0	5	0	25	-0.4738	-0.5120	0.1365	-0.2831	28	-100	18751.69	12223.504	18746.41
N.Amer	Yuman	Cocopah	200	4	0	21	-0.9156	-0.5120	-0.2601	-0.5626	34.03	-111.1	17667.81	11828.614	17662.53
N.Amer	Uto-Aztecan	Comanche	200	6	0	12	-0.0320	-0.5120	-1.1526	-0.5655	33.3	-101.3	18173.44	11704.554	18168.15
N.Amer	Uto-Aztecan	Cora	8000	5	1	20	-0.4738	0.0331	-0.3593	-0.2667	22.1	-104.5	19140.44	12976.618	19135.16
Europe	Indo-European	Cornish	500	14	0	24	3.5020	-0.5120	0.0373	1.0091	50.2	-5	4522.82	5006.3244	1521.03
Europe	Indo-European	Corsican	341000	8	0	24	0.8515	-0.5120	0.0373	0.1256	42.02	9	3549.6657	4104.1811	634.79
N.Amer	Algic	Cree	90714	4	0	15	-0.9156	-0.5120	-0.8551	-0.7609	51	-74	17688.7	8994.527	17683.42
N.Amer	Muskogean	Creek	6213	3	3	13	-1.3573	1.1233	-1.0534	-0.4291	34	-85	18838.87	11050.05	18833.59
Asia	Altaic	Crimean Tatar	260000	9	0	22	1.2932	-0.5120	-0.1610	0.2068	45	34.5	4761.6735	2078.514	2661.69
Europe	Indo-European	Croatian	3980000	5	4	25	-0.4738	1.6684	0.1365	0.4437	44	19	3978.1185	3279.4139	1443.43
N.Amer	Siouan	Crow	4280	5	1	11	-0.4738	0.0331	-1.2518	-0.5641	47	-108	16585.08	10376.28	16579.8
N.Amer	Chibchan	Cuitlatec	0	6	0	17	-0.0320	-0.5120	-0.6568	-0.4003	17.3	-101	19778.29	12872.11	19773.01
Europe	Indo-European	Czech	9250000	6	0	23	-0.0320	-0.5120	-0.0618	-0.2019	50	15	4501.5442	3598.1485	1607.1
Africa	Niger-Congo	Dagaare	700000	7	1	32	0.4097	0.0331	0.8306	0.4245	12.24	-1.52	746.90898	6457.2588	8078.15
Africa	Niger-Congo	Dagbani	800000	6	2	20	-0.0320	0.5782	-0.3593	0.0623	9.35	-0.3	580.17265	6549.5908	7492.04
Europe	Indo-European	Dalmatian	0	9	0	24	1.2932	-0.5120	0.0373	0.2729	45.06	15.11	3980.7112	3579.9982	1229.75
Oceania	Tankic (Australia)	Damin	0	3	0	25	-1.3573	-0.5120	0.1365	-0.5776	-16.32	139.28	14890.596	10286.883	15060.42
Africa	Niger-Congo	Dan	800000	10	5	22	1.7350	2.2135	-0.1610	1.2625	7.51	-5.51	1176.9821	7119.4108	8656.17
Europe	Indo-European	Danish	5450000	16	0	21	4.3855	-0.5120	-0.2601	1.2045	56	10	5087.4207	4008.8428	2054.68
Africa	Niger-Congo	Defaka	200	7	2	19	0.4097	0.5782	-0.4585	0.1765	9.06	8.7	415.22706	5820.4998	8472.42
N.Amer	Na-Dene	Dena'ina	75	4	0	35	-0.9156	-0.5120	1.1281	-0.0998	52.56	-153.1	14250.85	9433.127	14245.57
N.Amer	Na-Dene	Dene Suline	9030	6	2	39	-0.0320	0.5782	1.5247	0.6903	52.58	-106.3	16180.6	9749.6732	16175.32
Africa	Nilo-Saharan	Dholuo	4270000	10	2	25	1.7350	0.5782	0.1365	0.8166	-0.3	34.45	3422.6299	4850.5276	6825.08
Africa	Niger-Congo	Dida	93800	5	6	25	-0.4738	2.7586	0.1365	0.8071	5.5	-5.25	1223.8414	7236.8271	8869.23
Africa	Nilo-Saharan	Dinka	1350000	7	2	20	0.4097	0.5782	-0.3593	0.2095	8.3	28	2508.7768	4426.5379	5899.32
Oceania	Pama-Nyungan (Australian)	Diyari	0	3	0	23	-1.3573	-0.5120	-0.0618	-0.6437	-28	139	14687.988	11062.147	15929.77
N.Amer	Na-Dene	Dogrib	2110	4	2	37	-0.9156	0.5782	1.3264	0.3297	64.5	-124.5	14545.98	8548.3539	14540.7
N.Amer	Na-Dene	Dunneza	300	8	0	34	0.8515	-0.5120	1.0289	0.4561	53.57	-116.4	15645.62	9740.1667	15640.33
Oceania	Pama-Nyungan (Australian)	Dyirbal	40	3	0	13	-1.3573	-0.5120	-1.0534	-0.9742	-17.5	145.35	15520.419	10871.458	15657.16
Oceania	East Geelvink Bay	East Geelvink Bay	7000	5	0	12	-0.4738	-0.5120	-1.1526	-0.7128	-2.3	137.3	14546.897	9149.5715	14046.86
N.Amer	Pomoan	Eastern Pomo	0	5	0	38	-0.4738	-0.5120	1.4256	0.1466	39	-122.4	16696.94	11360.248	16691.66
Africa	Niger-Congo	Edo	1000000	7	3	23	0.4097	1.1233	-0.0618	0.4904	6.5	5.93	398.79629	6233.9442	8712.01
Africa	Afro-Asiatic	Egyptian	0	4	0	24	-0.9156	-0.5120	0.0373	-0.4634	30	31	3462.4313	2608.6231	3516.6
Africa	Afro-Asiatic	Egyptian Arabic	54000000	5	0	32	-0.4738	-0.5120	0.8306	-0.0517	30	31	3462.4313	2608.6231	3516.6
Europe	Indo-European	English	58100000	13	0	24	3.0602	-0.5120	0.0373	0.8619	52	0	4649.9951	4638.7229	1582.36
Europe	Uralic	Erzya	614000	6	0	29	-0.0320	-0.5120	0.5331	-0.0036	53	45.3	5928.492	1915.8798	3578.4
Europe	Uralic	Estonian	953000	9	0	16	1.2932	-0.5120	-0.7560	0.0084	59	26	5676.4945	3231.7083	2825.04
Asia	Altaic	Evenki	19000	10	0	23	1.7350	-0.5120	-0.0618	0.3871	56	125	10753.957	5176.6293	8191.09
Africa	Niger-Congo	Ewe	2250000	7	3	22	0.4097	1.1233	-0.1610	0.4573	6.2	0.25	666.17597	6724.6439	7678.38
N.Amer	Na-Dene	Eyak	0	5	0	31	-0.4738	-0.5120	0.7315	-0.0848	60.3	-145	13864.48	8816.0405	13859.2
Europe	Uralic	Finnish	4700000	8	0	12	0.8515	-0.5120	-1.1526	-0.2710	62	25	5950.8594	3457.3284	3039.28
Africa	Niger-Congo	Fon	1400000	7	2	21	0.4097	0.5782	-0.2601	0.2426	9.3	2.27	306.4485	6336.2952	8383.14
N.Amer	Algic	Fox	1000	4	0	15	-0.9156	-0.5120	-0.8551	-0.7609	43	-83	18063.42	10100.731	18058.14
Africa	Niger-Congo	Frafra	850000	7	1	20	0.4097	0.0331	-0.3593	0.0278	7.9	-1.02	694.92997	6711.236	8549.81

Europe	Indo-European	French	53200000	11	0	20	2.1767	-0.5120	-0.3593	0.4351	48	2	4196.7257	4542.1655	1119.87
Africa	Niger-Congo	Fula	450000	5	0	33	-0.4738	-0.5120	0.9298	-0.0187	14.5	-14.45	2151.4271	7429.0156	8226.83
Africa	Niger-Congo	Ga	600000	7	2	31	0.4097	0.5782	0.7315	0.5731	10.2	12.35	797.69307	5440.907	6440.57
Oceania	Arnhem Land (Australia)	Gaagudju	6	5	0	17	-0.4738	-0.5120	-0.6568	-0.5475	-12.35	132.5	14162.518	9450.3721	14218.51
Oceania	Pama-Nyungan (Australian)	Gadhang	2500	3	0	24	-1.3573	-0.5120	0.0373	-0.6106	-31.16	146.54	15271.509	11851.189	16694.91
Oceania	Pama-Nyungan (Australian)	Gamilaraay	3	3	0	15	-1.3573	-0.5120	-0.8551	-0.9081	-29.5	149.3	15584.066	11966.412	16777.74
Asia	Sino-Tibetan	Gan,Nanchang	50000000	8	7	19	0.8515	3.3037	-0.4585	1.2322	28.682	115.9	11351.161	5343.7431	9787.43
Oceania	Pama-Nyungan (Australian)	Garawa	110	3	0	19	-1.3573	-0.5120	-0.4585	-0.7759	-17.5	137.1	14655.597	10189.939	14968.5
N.Amer	Arawakan	Garifuna	98000	6	0	17	-0.0320	-0.5120	-0.6568	-0.4003	15.4	-88	20551.37	12985.924	20546.09
Europe	Indo-European	Gaulish	0	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	46.12	2.12	3989.5284	4563.4295	911.77
Asia	Afro-Asiatic	Ge'ez	0	6	0	29	-0.0320	-0.5120	0.5331	-0.0036	42	44	5154.1271	1259.8306	3428.84
Asia	Kartvelian	Georgian	3900000	5	0	28	-0.4738	-0.5120	0.4340	-0.1839	42	44	5154.1271	1259.8306	3428.84
Europe	Indo-European	German	75300000	15	0	24	3.9437	-0.5120	0.0373	1.1564	52	10	4649.9951	3960.4324	1631.34
Africa	Niger-Congo	Gikuyu	7180000	7	2	18	0.4097	0.5782	-0.5576	0.1434	-0.45	36.45	3635.633	4768.8789	6862.62
Asia	Indo-European	Gilaki	3270000	7	0	23	0.4097	-0.5120	-0.0618	-0.0547	37.2	50	5369.877	703.95461	4035.99
Africa	Afro-Asiatic	Gimira	174000	5	6	28	-0.4738	2.7586	0.4340	0.9062	7	35.45	3333.8149	4090.6781	6027.3
Oceania	Trans-New Guinea	Golin	51100	5	3	15	-0.4738	1.1233	-0.8551	-0.0685	-6.2	144.45	15394.608	10032.071	14947.81
S.Amer	Guahiban	Guahibo	23000	6	0	17	-0.0320	-0.5120	-0.6568	-0.4003	5	-69	22834.03	12648.583	22828.75
S.Amer	Tucanoan	Guanano	550	6	0	13	-0.0320	-0.5120	-1.0534	-0.5325	0.5	-69.3	23061.89	13024.73	23056.61
S.Amer	Tupian	Guarani	6000	6	0	17	-0.0320	-0.5120	-0.6568	-0.4003	-26	56	10168.23	12055.61	8958.63
Oceania	Pama-Nyungan (Australian)	Gudang	10	4	0	22	-0.9156	-0.5120	-0.1610	-0.5295	-11.59	142.29	15213.104	10214.528	15022.45
Asia	Indo-European	Gujarati	45500000	8	0	31	0.8515	-0.5120	0.7315	0.3570	23	72	7167.0963	2115.8576	6604.97
Africa	Nilo-Saharan	Gula Iro	3500	9	2	15	1.2932	0.5782	-0.8551	0.3388	10.15	19.25	1546.0762	4902.4623	6020.86
Africa	Niger-Congo	Gusii	1500000	7	0	14	0.4097	-0.5120	-0.9543	-0.3522	-0.45	34.5	3433.532	4862.7779	6842.09
Oceania	Pama-Nyungan (Australian)	Guugu	200	3	0	17	-1.3573	-0.5120	-0.6568	-0.8420	-15	144.5	15449.762	10632.565	15427.42
N.Amer	Na-Dene	Gwich'in	500	5	2	49	-0.4738	0.5782	2.5163	0.8736	67	-146	13531.53	8101.2899	13526.25
Africa	Hadza	Hadza	800	5	0	64	-0.4738	-0.5120	4.0037	1.0060	-3.45	35.1	3620.895	5131.3244	7179.44
Asia	Sino-Tibetan	Hakka,Meixian	30000000	8	6	21	0.8515	2.7586	-0.2601	1.1166	25	115	11396.355	5458.1504	10000.62
N.Amer	Salishan	Halkomelem	200	5	0	43	-0.4738	-0.5120	1.9214	0.3119	49.3	-122.3	15740.24	10225.26	15734.96
N.Amer	Na-Dene	Hän	7	7	4	50	0.4097	1.6684	2.6155	1.5645	64.07	-139.4	13905.47	8496.681	13900.19
Africa	Afro-Asiatic	Harari	21300	6	0	25	-0.0320	-0.5120	0.1365	-0.1358	9.15	42.1	4030.4158	3549.2627	5977.99
Africa	Afro-Asiatic	Hassāniya Arabic	2770000	4	0	27	-0.9156	-0.5120	0.3348	-0.3642	18.53	4.42	942.01104	5539.7527	6483.85
Asia	Afro-Asiatic	Hebrew	4850000	5	0	25	-0.4738	-0.5120	0.1365	-0.2831	31.3	34.5	3818.9756	2247.6634	3615.96
Asia	Indo-European	Hindi	180000000	11	0	39	2.1767	-0.5120	1.5247	1.0632	25	77	7665.9768	2281.0244	6921.27
Europe	Nakh-Daghestanian	Hinukh	550	6	0	33	-0.0320	-0.5120	0.9298	0.1286	42.1	46	5300.4561	1107.457	3591.55
Europe	Indo-European	Hittite	0	4	0	18	-0.9156	-0.5120	-0.5576	-0.6617	36.53	30.42	3868.7662	2415.9405	2361.49
S.Amer	Cariban	Hixkaryana	600	5	0	18	-0.4738	-0.5120	-0.5576	-0.5145	-1	-59	24120.22	12301.945	24114.93
Asia	Hmong-Mien	Ho Nte	1200	8	8	33	0.8515	3.8487	0.9298	1.8767	22	86	8595.9844	3181.4577	7872.54
N.Amer	Uto-Aztecan	Hopi	5260	6	3	32	-0.0320	1.1233	0.8306	0.6406	36	-110	17522.9	11598.175	17517.62
N.Amer	Huave	Huave	4940	6	2	14	-0.0320	0.5782	-0.9543	-0.1360	16.13	-95	20162.85	12754.67	20157.57
N.Amer	Uto-Aztecan	Huichol	20000	6	0	13	-0.0320	-0.5120	-1.0534	-0.5325	22	-104	19172.41	12973.299	19167.13
Europe	Uralic	Hungarian	9550000	7	0	25	0.4097	-0.5120	0.1365	0.0114	47	20	4311.741	3207.9377	1663.49
Europe	Nakh-Daghestanian	Hunzib	1840	8	0	35	0.8515	-0.5120	1.1281	0.4892	42.1	46.15	5311.1135	1095.9471	3603.83
Africa	Niger-Congo	Igbo	18000000	8	2	27	0.8515	0.5782	0.3348	0.5882	6	7.2	501.90021	6167.853	7162.23
Africa	Niger-Congo	Ikwerre	200000	9	3	23	1.2932	1.1233	-0.0618	0.7849	4.8	6.82	606.53326	6288.2265	8908.4
Asia	Altaic	Ili Turki	120	7	0	22	0.4097	-0.5120	-0.1610	-0.0877	43.55	81.19	8061.1682	2022.3688	6312.54

Europe	Nakh-Daghestanian	Ingush	413000	7	0	36	0.4097	-0.5120	1.2273	0.3750	43.1	45.5	5321.2434	1186.5236	3538.94
N.Amer	Eskimo-Aleut	Inuit	50000	3	0	16	-1.3573	-0.5120	-0.7560	-0.8751	62	-73	16751.58	7994.6248	16746.3
S.Amer	Zaparoan	Iquito	35	4	0	10	-0.9156	-0.5120	-1.3509	-0.9261	-3.15	-74	23063.71	13675.474	23058.43
Asia	Indo-European	Iranian Persian	22000000	6	0	23	-0.0320	-0.5120	-0.0618	-0.2019	32	54	5533.7042	753.1768	4573.16
Oceania	Skou	I'saka	420	5	4	7	-0.4738	1.6684	-1.6484	-0.1513	-2.5	141.17	14968.735	9496.6663	14449.99
N.Amer	Uto-Aztecan	Isthmus Nahuatl	1500000	4	0	20	-0.9156	-0.5120	-0.3593	-0.5956	18.15	-94.5	19981.71	12530.275	19976.43
Europe	Indo-European	Italian	55000000	8	0	23	0.8515	-0.5120	-0.0618	0.0926	43	12	3698.2772	3846.3308	894.29
Asia	Chukchi-Kamchatkan	Itelmen	380	5	0	24	-0.4738	-0.5120	0.0373	-0.3161	57	157.3	12043.273	6996.1513	9168.08
S.Amer	Itonama	Itonama	10	6	0	19	-0.0320	-0.5120	-0.4585	-0.3342	-12.5	-64.2	24512.3	13544.966	24507.02
Oceania	Arnhem Land (Australia)	Iwaidjan	150	3	0	21	-1.3573	-0.5120	-0.2601	-0.7098	-11.3	132.4	14144.756	9367.1935	14133.09
Oceania	Sepik	Iwam	3000	6	0	11	-0.0320	-0.5120	-1.2518	-0.5986	-4.2	142	15094.039	9684.4911	14609.05
Africa	Niger-Congo	Izi	593000	9	2	26	1.2932	0.5782	0.2357	0.7024	6.16	7.97	532.93387	6093.825	8775.64
Africa	Niger-Congo	Jabo	10000	7	4	27	0.4097	1.6684	0.3348	0.8043	5.27	-8.42	1555.1899	7522.4243	8472.48
Asia	Japonic	Japanese	121000000	5	0	15	-0.4738	-0.5120	-0.8551	-0.6136	37	140	12879.881	6915.4753	10546.54
Asia	Andamanese	Jarawa	250	7	0	16	0.4097	-0.5120	-0.7560	-0.2861	12	92.35	9408.2633	4424.5919	9069.84
S.Amer	Arawakan	Jarawara	155	4	0	12	-0.9156	-0.5120	-1.1526	-0.8600	-7.3	-65.3	23986.55	13279.187	23981.27
N.Amer	Na-Dene	Jicarilla	812	4	3	34	-0.9156	1.1233	1.0289	0.4122	36.35	-104	17757.08	11447.455	17751.8
Asia	Sino-Tibetan	Jin,Lingqiu	45000000	9	4	21	1.2932	1.6684	-0.2601	0.9005	37.19	112.17	10721.327	4662.7356	8897.39
Oceania	Pama-Nyungan (Australian)	Jiwarli	0	3	0	20	-1.3573	-0.5120	-0.3593	-0.7429	-27.36	121.37	12995.424	9723.8422	14940.78
Africa	Afro-Asiatic	Kabyle	2540000	4	0	47	-0.9156	-0.5120	2.3180	0.2968	36.3	5	2898.1694	4596.0589	5975.89
Oceania	Pama-Nyungan (Australian)	Kala Lagaw Ya	930	8	0	17	0.8515	-0.5120	-0.6568	-0.1058	-10.7	142.7	15252.947	10188.618	15009.57
Oceania	Pama-Nyungan (Australian)	Kalkatungu	0	3	0	20	-1.3573	-0.5120	-0.3593	-0.7429	-21	139.3	14852.501	10610.057	15400.86
Asia	Tai-Kadai	Kam	5000	7	15	32	0.4097	7.3776	0.8303	2.8725	26	108.3	10725.982	4822.5735	9422.62
N.Amer	Mayan	Kaqchikel	100000	6	0	27	-0.0320	-0.5120	0.3348	-0.0697	14.3	-91	20527.07	12746.904	20521.79
Asia	Altaic	Karaim	1010	8	0	19	0.8515	-0.5120	-0.4585	-0.0397	54.4	24.55	5184.3699	3081.2476	2409.73
Asia	Altaic	Karakalpak	407000	9	0	25	1.2932	-0.5120	0.1365	0.3059	43	60	6380.0673	575.87069	4702.62
N.Amer	Hokan	Karuk	10	5	0	16	-0.4738	-0.5120	-0.7560	-0.5806	36.31	-118.2	17138.08	11647.134	17132.8
N.Amer	Hokan	Kashaya	45	5	0	40	-0.4738	-0.5120	1.6239	0.2127	38.4	-123.2	16722.22	11425.673	16716.94
Oceania	Trans-New Guinea	Kate	6130	6	0	25	-0.0320	-0.5120	0.1365	-0.1358	-6.3	147.45	15721.454	10297.889	15255.18
N.Amer	Uto-Aztecan	Kawaiisu	5	6	0	23	-0.0320	-0.5120	-0.0618	-0.2019	36	-117.3	17205.05	11676.266	17199.77
S.Amer	Alacalufan	Kawesqar	22	6	0	20	-0.0320	-0.5120	-0.3593	-0.3011	-49	-75	28035.41	15959.398	28030.13
Asia	Altaic	Kazakh	5290000	6	0	20	-0.0320	-0.5120	-0.3593	-0.3011	50	70	7316.9078	1624.7983	5284.48
Asia	Altaic	Kazan Tatar	6500000	13	0	27	3.0602	-0.5120	0.3348	0.9610	55.49	49.06	6286.4982	2038.2994	3870.55
Asia	Yeniseian	Ket	190	7	5	22	0.4097	2.2135	-0.1610	0.8207	64	87	8544.7154	3437.4313	5958.81
Asia	Altaic	Khalaj	42100	7	0	25	0.4097	-0.5120	0.1365	0.0114	35	50	5282.2181	781.75081	4108.33
Asia	Uralic	Khanty	13600	6	0	16	-0.0320	-0.5120	-0.7560	-0.4333	65	65	7556.9999	3009.6964	4905.64
Asia	Austro-Asiatic	Khmer	12300000	10	0	17	1.7350	-0.5120	-0.6568	0.1887	12.3	105	10741.785	5398.6522	10129.86
Africa	Khoisan	Khoekhoe	220000	5	3	31	-0.4738	1.1233	0.7315	0.4603	-5	35	3684.6944	5291.0663	7350.4
Asia	Altaic	Khorasani Turkic	400000	9	0	24	1.2932	-0.5120	0.0373	0.2729	36.4	56	5840.3796	248.82383	4572.43
N.Amer	Mayan	K'iche'	890000	6	0	24	-0.0320	-0.5120	0.0373	-0.1689	15	-91.25	20445.17	12691.184	20439.88
Asia	Austronesian	Kinaray-a	378000	4	0	16	-0.9156	-0.5120	-0.7560	-0.7278	10.45	121.55	12526.016	6922.9783	11975.1
Asia	Sino-Tibetan	Kinnauri	63800	5	3	29	-0.4738	1.1233	0.5331	0.3942	32.06	77.33	7691.0408	1858.9885	6559.07
Africa	Niger-Congo	Kinyarwanda	7500000	5	2	25	-0.4738	0.5782	0.1365	0.0803	-2	29.95	3040.154	5252.0206	10418.28
N.Amer	Tanoan	Kiowa	1100	6	3	22	-0.0320	1.1233	-0.1610	0.3101	37	-99	17920.26	11253.187	17914.98
Africa	Niger-Congo	Kirundi	8700000	5	2	25	-0.4738	0.5782	0.1365	0.0803	-3.35	29.96	3109.5165	5380.584	9550.07
N.Amer	Uto-Aztecan	Kitanemuk	0	6	0	18	-0.0320	-0.5120	-0.5576	-0.3672	34.38	-117.4	17359.89	11854.983	17354.6

Africa	Niger-Congo	Kituba	1160000	5	0	26	-0.4738	-0.5120	0.2357	-0.2500	-5	17.3	2134.3259	6305.1535	7644.83
N.Amer	Salishan	Klallam	4	4	0	34	-0.9156	-0.5120	1.0289	-0.1329	47.14	-116	16211.06	10444.127	16205.78
Oceania	Austronesian	Kokota	530	5	0	24	-0.4738	-0.5120	0.0373	-0.3161	-8	159.8	17084.601	11483.276	16593.55
Asia	Uralic	Komi	311644	6	0	26	-0.0320	-0.5120	0.2357	-0.1028	65	55	7147.9867	2981.6573	4445.84
Asia	Indo-European	Konkani	4000000	14	0	40	3.5020	-0.5120	1.6239	1.5380	15.15	74	7415.5504	2960.7437	7262.37
Asia	Korean	Korean	42000000	9	0	19	1.2932	-0.5120	-0.4585	0.1076	37.3	128	11986.569	5954.8505	9880.7
Africa	Niger-Congo	Koromfe	1960000	11	0	18	2.1767	-0.5120	-0.5576	0.3690	14.15	-0.55	752.75419	6247.7496	7192.64
Asia	Chukchi-Kamchatkan	Koryak	3500	5	0	23	-0.4738	-0.5120	-0.0618	-0.3492	61	167	11864.417	7227.087	8907.16
N.Amer	Na-Dene	Koyukon	100	7	0	29	0.4097	-0.5120	0.5331	0.1436	65	-155	13166.82	8146.2488	13161.54
N.Amer	Salishan	Ktunaxa	12	3	0	21	-1.3573	-0.5120	-0.2601	-0.7098	49.07	-116.4	16024.4	10234.535	16019.12
Oceania	Pama-Nyungan (Australian)	Kuku-Thaypan	1	6	0	24	-0.0320	-0.5120	0.0373	-0.1689	-14.5	143.1	15302.384	10480.917	15271.21
Oceania	Kuot	Kuot	2400	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	-3.03	151.3	16069.925	10410.711	15525.22
Asia	Indo-European	Kurdish	462000	7	0	30	0.4097	-0.5120	0.6323	0.1767	36	44	4831.702	1250.6906	4632.01
Asia	Sino-Tibetan	Kusunda	7	6	0	21	-0.0320	-0.5120	-0.2601	-0.2681	28	84.4	8378.5477	2665.2446	7373.6
N.Amer	Wakashan	Kwak'wala	250	6	0	42	-0.0320	-0.5120	1.8222	0.4261	50.14	-126.5	15482.88	10123.273	15477.6
Asia	Altaic	Kyrgyz	2450000	8	0	19	0.8515	-0.5120	-0.4585	-0.0397	42	75	7549.5183	1498.6864	5909.19
Asia	Austronesian	Labu	1600	7	2	17	0.4097	0.5782	-0.6568	0.1104	2.52	102.15	10644.386	5918.5203	11523.4
N.Amer	Siouan	Lakota	6200	5	0	33	-0.4738	-0.5120	0.9298	-0.0187	43.5	-101.5	17196.24	10631.828	17190.96
Asia	Tai-Kadai	Lao	3000000	9	6	28	1.2932	2.7586	0.4340	1.4952	18	103	10402.947	4841.5643	9563.94
Oceania	Pama-Nyungan (Australian)	Lardil	2	4	0	19	-0.9156	-0.5120	-0.4585	-0.6287	-16.3	139.2	14882.222	10278.903	15052.37
Europe	Indo-European	Latin	0	5	0	22	-0.4738	-0.5120	-0.1610	-0.3822	41.53	12.28	3545.6204	3848.2167	831
Europe	Indo-European	Latvian	1390000	6	3	25	-0.0320	1.1233	0.1365	0.4092	57	24	5427.2059	3228.7684	2583.28
Asia	Kartvelian	Laz	30000	5	0	30	-0.4738	-0.5120	0.6323	-0.1178	41.3	41.3	4925.4866	1460.692	3214.04
Africa	Afro-Asiatic	Libyan Arabic	4300000	7	0	30	0.4097	-0.5120	0.6323	0.1767	32	22	2979.7754	3295.6442	4364.93
Africa	Niger-Congo	Lingala	2040000	7	2	16	0.4097	0.5782	-0.7560	0.0773	2	18.3	1702.374	5635.8066	6882.06
Europe	Indo-European	Lithuanian	2960000	6	0	20	-0.0320	-0.5120	-0.3593	-0.3011	55	24	5228.1382	3138.7331	2427.63
Europe	Uralic	Livonian	30	9	0	24	1.2932	-0.5120	0.0373	0.2729	56.51	24.33	5386.9405	3187.4684	2558.59
Africa	Niger-Congo	Logba Kwa	7500	9	2	23	1.2932	0.5782	-0.0618	0.6032	7.37	-1.58	773.0904	6795.5694	7741.65
Europe	Indo-European	Lower Sorbian	7000	6	0	35	-0.0320	-0.5120	1.1281	0.1947	51.45	14.2	4642.4848	3669.4302	1705.58
Africa	Niger-Congo	Luganda	6000000	5	3	19	-0.4738	1.1233	-0.4585	0.0637	0.3	32.1	3156.8733	4914.4601	6750.23
N.Amer	Uto-Aztecan	Luiseno	35	5	1	24	-0.4738	0.0331	0.0373	-0.1344	33.2	-117.1	17489.16	11982.774	17483.88
Europe	Indo-European	Lydian	0	5	0	17	-0.4738	-0.5120	-0.6568	-0.5475	29.56	-91.47	9987.3567	11759.847	18977.35
Africa	Nilo-Saharan	Maasai	590000	9	5	22	1.2932	2.2135	-0.1610	1.1152	-3	36	3691.4347	5044.9485	7138.61
Europe	Indo-European	Macedonian	1390000	5	0	26	-0.4738	-0.5120	0.2357	-0.2500	41.4	21.45	3810.9319	3099.2443	1561.49
Asia	Indo-European	Mahal	33000	5	0	30	-0.4738	-0.5120	0.6323	-0.1178	4.13	73.29	7484.9795	4036.7868	7939.6
Oceania	Austronesian	Maisin	2610	5	0	16	-0.4738	-0.5120	-0.7560	-0.5806	-9.3	149.1	15936.527	10642.562	15557.37
Africa	Nilo-Saharan	Majang	15300	9	2	18	1.2932	0.5782	-0.5576	0.4379	6.45	35	3293.896	4167.8116	6082.51
N.Amer	Wakashan	Makah	2224	5	0	31	-0.4738	-0.5120	0.7315	-0.0848	48.2	-124.4	15746.09	10343.799	15740.81
S.Amer	Kalianan	Maku	2500	6	0	18	-0.0320	-0.5120	-0.5576	-0.3672	0.25	-49.5	25053.52	11412.266	25048.23
Africa	Austronesian	Malagasy	330000	5	0	30	-0.4738	-0.5120	0.6323	-0.1178	-20	47	5628.1506	6492.2053	7872.37
Asia	Austronesian	Malay	8880000	7	0	21	0.4097	-0.5120	-0.2601	-0.1208	3	102	10618.61	5868.5822	11487.35
Asia	Dravidian	Malayalam	35400000	7	0	39	0.4097	-0.5120	1.5247	0.4742	10	76.3	7720.106	3577.8733	7801.29
Africa	Afro-Asiatic	Maltese	300000	6	0	21	-0.0320	-0.5120	-0.2601	-0.2681	35.55	14.25	2964.4209	3836.5514	5141.34
N.Amer	Mayan	Mam	100000	5	0	31	-0.4738	-0.5120	0.7315	-0.0848	15	-91.5	20433.92	12703.513	20428.64
Oceania	Austronesian	Manam	7950	5	0	13	-0.4738	-0.5120	-1.0534	-0.6797	-4	145	15414.315	9929.9848	14906.43
Asia	Altaic	Manchu	60	6	0	20	-0.0320	-0.5120	-0.3593	-0.3011	49.3	127.3	11267.089	5465.7856	8839.83

N.Amer	Siouan	Mandan	6	5	0	10	-0.4738	-0.5120	-1.3509	-0.7789	46.3	-102.3	16905.13	10352.064	16899.85
Asia	Sino-Tibetan	Manderin,Standard,	1200000000	10	4	25	1.7350	1.6684	0.1365	1.1799	40	117	10729.343	4683.0885	9046.98
Asia	Sino-Tibetan	Manderin,SW,Gui-Liu	50000000	8	4	21	0.8515	1.6684	-0.2601	0.7532	30.4	104.03	10205.922	4235.1658	8790.08
Asia	Sino-Tibetan	Manderin,Yangtzi,Nanjing	78600000	12	5	19	2.6185	2.2135	-0.4585	1.4578	32.056	118.79	11479.186	5429.1429	9728.92
Africa	Niger-Congo	Mandinka	669000	5	2	19	-0.4738	0.5782	-0.4585	-0.1180	17.52	-4	1270.0556	6331.0562	7542.51
Europe	Indo-European	Manx	77000	6	0	28	-0.0320	-0.5120	0.4340	-0.0367	54.1	-4.3	4928.1901	4903.6541	1889.93
Oceania	Austronesian	Maori	60000	5	0	10	-0.4738	-0.5120	-1.3509	-0.7789	-40	176	16421.737	14632.576	19455.8
S.Amer	Araucanian	Mapudungun	200000	6	0	22	-0.0320	-0.5120	-0.1610	-0.2350	-38	-72	26857.38	15549.359	26852.1
Asia	Indo-European	Marathi	68000000	6	0	39	-0.0320	-0.5120	1.5247	0.3269	19	76	7594.965	2713.7968	7194.65
Asia	Uralic	Mari	30000	10	0	26	1.7350	-0.5120	0.2357	0.4862	57	58	6840.7281	2093.7346	4440.12
Oceania	Austronesian	Marquesan	3400	5	0	11	-0.4738	-0.5120	-1.2518	-0.7458	-8.55	-140.5	16081.635	16119.839	23026.62
Oceania	Austronesian	Marshallese	43900	4	0	22	-0.9156	-0.5120	-0.1610	-0.5295	7.07	171.3	17431.031	11408.115	17444.95
Oceania	Pama-Nyungan (Australian)	Martuthunira	5	3	0	20	-1.3573	-0.5120	-0.3593	-0.7429	-20.5	116.3	12487.936	8825.0266	14052.63
Africa	Niger-Congo	Masaba	1120000	5	0	15	-0.4738	-0.5120	-0.8551	-0.6136	1.21	32.16	3129.0532	4823.9764	6649.08
Asia	Austronesian	Masbateno	350000	3	0	16	-1.3573	-0.5120	-0.7560	-0.8751	11.29	124.51	12806.866	7122.2916	12295.12
N.Amer	Algic	Massachusett	5	4	0	11	-0.9156	-0.5120	-1.2518	-0.8931	42.3	-71	18632.13	9622.5242	18626.85
Oceania	Daly (Australia)	Matngele	15	5	0	18	-0.4738	-0.5120	-0.5576	-0.5145	-23.24	133.52	14238.393	10309.11	15170.28
S.Amer	Pano-Tacanan	Matses	1400	6	0	16	-0.0320	-0.5120	-0.7560	-0.4333	-5.25	-73.15	23315.09	13770.134	23309.81
S.Amer	Maxakalian	Maxakali	800	5	0	10	-0.4738	-0.5120	-1.3509	-0.7789	-18	-40	26862.49	11806.225	26857.21
N.Amer	Oto-Manguean	Mazahua	350000	8	0	46	0.8515	-0.5120	2.2189	0.8528	19.25	-99.55	19645.55	12618.554	19640.27
Oceania	Pama-Nyungan (Australian)	Mbaram	0	6	0	18	-0.0320	-0.5120	-0.5576	-0.3672	-17.1	145	15487.842	10815.457	15601.4
Asia	Austronesian	Melanau	113000	6	0	21	-0.0320	-0.5120	-0.2601	-0.2681	2.3	111.3	11638.819	6646.7452	11478.22
N.Amer	Algic	Menominee	39	6	0	12	-0.0320	-0.5120	-1.1526	-0.5655	45.3	-88.2	17623.37	10069.656	17618.09
N.Amer	Na-Dene	Mescalero	279	4	0	30	-0.9156	-0.5120	0.6323	-0.2651	33.15	-108	17888.65	11872.946	17883.37
N.Amer	Algic	Miami-Illinois	2000	4	0	13	-0.9156	-0.5120	-1.0534	-0.8270	40	-90	18039.6	10659.625	18034.32
N.Amer	Muskogean	Mikasuki	400	3	3	15	-1.3573	1.1233	-0.8551	-0.3630	32	-85	19034.12	11242.88	19028.84
N.Amer	Algic	Mikmaq	9080	6	0	13	-0.0320	-0.5120	-1.0534	-0.5325	52.59	-73.34	17568.15	9827.1029	17562.87
Asia	Sino-Tibetan	Mindong,Fuzhou,	8100000	11	7	17	2.1767	3.3037	-0.6568	1.6079	26.082	119.31	11762.175	5772.9868	10230.2
Asia	Sino-Tibetan	Mindong,Mango,	180000	9	6	20	1.2932	2.7586	-0.3593	1.2308	27.33	119.42	11723.951	5716.2604	10140.52
Asia	Sino-Tibetan	Minnamese,Swatow,	5391028	6	8	18	-0.0320	3.8487	-0.5576	1.0864	23.21	116.4	11591.342	5679.3016	10240.17
Asia	Sino-Tibetan	Minnamese,Taiwan,	16700000	6	7	18	-0.0320	3.3037	-0.5576	0.9047	23.43	120.23	11949.656	5999.2107	10503.85
N.Amer	Oto-Manguean	Mixtecan	15000	6	0	16	-0.0320	-0.5120	-0.7560	-0.4333	17.03	-96.43	20008.15	12725.071	20002.87
Europe	Indo-European	Modern Greek	10700000	5	0	27	-0.4738	-0.5120	0.3348	-0.2170	39	22	3607.413	3087.1536	1593.32
N.Amer	Iroquoian	Mohawk	760	4	0	10	-0.9156	-0.5120	-1.3509	-0.9261	43.3	-74.15	18407.58	9687.1663	18402.29
Europe	Uralic	Moksha	614000	6	0	34	-0.0320	-0.5120	1.0289	0.1616	54	44	5931.2438	2055.1457	3517.99
Asia	Austro-Asiatic	Mon	743000	8	0	22	0.8515	-0.5120	-0.1610	0.0595	14.5	100.3	10199.739	4857.4849	9580.74
Asia	Altaic	Mongolian	2330000	7	0	29	0.4097	-0.5120	0.5331	0.1436	45.6	104.1	9824.6158	3824.784	7794.65
Africa	Niger-Congo	Mono	300	8	2	33	0.8515	0.5782	0.9298	0.7865	-4.06	21.7	2400.1894	5934.3251	10248.97
S.Amer	Bora-Witoto	Muinane	150	6	2	22	-0.0320	0.5782	-0.1610	0.1284	-1	-72.3	22953.8	13375.514	22948.51
N.Amer	Algic	Munsee	7	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	41.3	-74.4	18589.52	9877.973	18584.24
Europe	Indo-European	Munster Irish	1243726	10	0	33	1.7350	-0.5120	0.9298	0.7176	52.3	-9	4826.8594	5238.135	1869.41
Oceania	Austronesian	Mussau-Emira	5000	5	0	11	-0.4738	-0.5120	-1.2518	-0.7458	-6.17	143.56	15297.619	9953.3604	14857.28
N.Amer	Penutian	Mutsun	0	5	0	19	-0.4738	-0.5120	-0.4585	-0.4814	36.5	-121.3	16987.4	11635.402	16982.12
Africa	Niger-Congo	Mwani	100000	5	0	22	-0.4738	-0.5120	-0.1610	-0.3822	-12.3	39.5	4505.8059	5862.8391	9922.22
Europe	Indo-European	Mycenaean	0	5	0	13	-0.4738	-0.5120	-1.0534	-0.6797	38.4	24.08	3653.0532	2921.815	1777.38
Oceania	South Bougainville	Naasioi	20000	5	0	9	-0.4738	-0.5120	-1.4501	-0.8119	-6.2	155.35	16575.17	10976.264	16064.2

Africa	Niger-Congo	Nafaanra	61000	7	3	25	0.4097	1.1233	0.1365	0.5565	8	-2.35	829.73167	6816.7861	7761.17
N.Amer	Uto-Aztecan	Nahuan	0	4	0	14	-0.9156	-0.5120	-0.9543	-0.7939	13.48	-88.54	20720.72	12697.956	20715.44
Africa	Khoisan	Nama	200000	5	3	30	-0.4738	1.1233	0.6323	0.4273	-25.3	18	4132.7501	8108.6377	9776.66
Asia	Altaic	Nanai	3890	7	0	28	0.4097	-0.5120	0.4340	0.1106	49.3	137	11833.188	6130.8887	9278.82
Africa	Khoisan	Naro	10000	5	3	52	-0.4738	1.1233	2.8138	1.1544	-22.2	20.3	3914.5906	7696.2128	9386.81
Oceania	Austronesian	Nauruan	6000	6	0	18	-0.0320	-0.5120	-0.5576	-0.3672	-0.3	166.55	17549.11	11540.158	17078.99
N.Amer	Na-Dene	Navajo	149000	4	4	33	-0.9156	1.6684	0.9298	0.5609	36.1	-108	17602.05	11554.422	17596.77
Asia	Sino-Tibetan	Naxi	309000	9	4	48	1.2932	1.6684	2.4172	1.7929	27.3	100	9897.3438	4034.6342	8686.68
Asia	Uralic	Nenets	31300	8	0	27	0.8515	-0.5120	0.3348	0.2248	27.4	85.3	8471.0693	2774.6722	7484.06
Asia	Sino-Tibetan	Nepal Bhasa	840000	5	0	37	-0.4738	-0.5120	1.3264	0.1136	27.4	85.3	8471.0693	2774.6722	7484.06
Asia	Indo-European	Nepali	11100000	6	0	27	-0.0320	-0.5120	0.3348	-0.0697	28	85	8436.7808	2715.2748	7423.57
Asia	Austronesian	Ngaju	890000	6	0	18	-0.0320	-0.5120	-0.5576	-0.3672	-0.5	113	11880.165	6995.1374	11840.15
Oceania	Gunwinyguan (Australia)	Ngalakan	0	5	0	16	-0.4738	-0.5120	-0.7560	-0.5806	-14.15	134	14330.812	9701.3269	14473.02
Oceania	Pama-Nyungan (Australian)	Ngardi	80	3	0	17	-1.3573	-0.5120	-0.6568	-0.8420	-24.03	126.32	13506.846	9822.2795	14822.45
Oceania	Worrorran (Australia)	Ngarinyin	82	5	0	17	-0.4738	-0.5120	-0.6568	-0.5475	16.2	126	12785.52	6934.5813	12520.72
Oceania	Pama-Nyungan (Australian)	Ngkoth	0	7	0	17	0.4097	-0.5120	-0.6568	-0.2530	-27	114.1	12283.779	9208.6925	14703.25
Oceania	Pama-Nyungan (Australian)	Nhanda	0	3	0	21	-1.3573	-0.5120	-0.2601	-0.7098	-27	114.1	12283.779	9208.6925	14703.25
N.Amer	Penutian	Nisenan Maidu	1	7	0	17	0.4097	-0.5120	-0.6568	-0.2530	40	-120.4	16684.6	11248.412	16679.31
Oceania	Austronesian	Niuean	2030	5	0	10	-0.4738	-0.5120	-1.3509	-0.7789	-19.3	-170.7	18718.992	14780.752	20017.34
Asia	Nivkh	Nivkh	1089	6	0	28	-0.0320	-0.5120	0.4340	-0.0367	53.2	142	11796.574	6301.7795	9111.23
N.Amer	Salish	Nooksack	0	5	0	32	-0.4738	-0.5120	0.8306	-0.0517	48.49	-122.3	15812.91	10314.519	15807.63
N.Amer	Salish	North Straits Salish	20	4	0	31	-0.9156	-0.5120	0.7315	-0.2320	48.35	-122.4	15822.32	10329.92	15817.04
N.Amer	Penutian	Northern Maidu	2	6	0	18	-0.0320	-0.5120	-0.5576	-0.3672	40	-120.4	16684.6	11248.412	16679.31
Europe	Indo-European	Norwegian	4640000	14	2	27	3.5020	0.5782	0.3348	1.4717	61	8	5625.3429	4229.7867	2573.68
Oceania	Austronesian	Numbami	270	5	0	18	-0.4738	-0.5120	-0.5576	-0.5145	-6.17	143.56	15297.619	9953.3604	14857.28
Oceania	Gunwinyguan (Australia)	Nunggubuyu	360	3	0	20	-1.3573	-0.5120	-0.3593	-0.7429	-13.45	135.4	14478.678	9766.8161	14535.94
S.Amer	Bora-Witoto	Nupode	100	6	0	18	-0.0320	-0.5120	-0.5576	-0.3672	-9.07	-75.1	23644.82	14212.933	23639.54
N.Amer	Wakashan	Nuu-chah-nulth	150	3	0	35	-1.3573	-0.5120	1.1281	-0.2471	57.03	-127.2	14886.7	9362.659	14881.41
N.Amer	Salishan	Nuxalk	20	3	0	27	-1.3573	-0.5120	0.3348	-0.5115	52.3	-126.4	15299.93	9886.0896	15294.65
S.Amer	Bora-Witoto	Ocaina	54	5	2	26	-0.4738	0.5782	0.2357	0.1134	-2.45	-71.45	23139.7	13421.471	23134.42
Europe	Indo-European	Occitan	1940000	10	0	23	1.7350	-0.5120	-0.0618	0.3871	44	2	3757.6343	4615.614	681.87
N.Amer	Algic	Ojibwa	20000	7	0	17	0.4097	-0.5120	-0.6568	-0.2530	46	-80	17909.5	9696.0271	17904.22
Asia	Japonic	Okinawan	984000	5	0	19	-0.4738	-0.5120	-0.4585	-0.4814	26.23	127.62	12513.935	6479.1584	10787.39
Oceania	Trans-New Guinea	Oksapmin	8000	7	2	18	0.4097	0.5782	-0.5576	0.1434	-5.1	142.1	15121.547	9754.6306	14660.59
Europe	Indo-European	Old Irish	0	5	0	46	-0.4738	-0.5120	2.2189	0.4110	53	-8	4877.5239	5159.208	1894.6
Asia	Indo-European	Old Persian	0	3	0	22	-1.3573	-0.5120	-0.1610	-0.6767	32	54	5533.7042	753.1768	4573.16
S.Amer	Tupian	Old Tupi	0	6	0	16	-0.0320	-0.5120	-0.7560	-0.4333	-13.56	-51.59	25560.95	12525.278	25555.67
N.Amer	Iroquoian	Oneida	200	4	0	11	-0.9156	-0.5120	-1.2518	-0.8931	43	-75.4	18384.77	9772.3622	18379.49
Asia	Andamanese	Ongan	96	6	0	19	-0.0320	-0.5120	-0.4585	-0.3342	8.28	99.05	10194.686	5224.9088	11383.71
N.Amer	Iroquoian	Onondaga	75	5	0	9	-0.4738	-0.5120	-1.4501	-0.8119	42.45	-76.1	18408.31	9854.4728	18403.03
N.Amer	Uto-Aztecan	O'odham	9750	6	0	20	-0.0320	-0.5120	-0.3593	-0.3011	32	-112	17826.21	12062.345	17820.93
N.Amer	Wakashan	Oowekyala	280	4	0	45	-0.9156	-0.5120	2.1197	0.2307	51.4	-126.5	15371.88	9984.6807	15366.6
Asia	Indo-European	Oriya	31700000	6	0	28	-0.0320	-0.5120	0.4340	-0.0367	21	85	8505.4862	3176.4285	7849.63
N.Amer	Oto-Manguean	Otomi	49300	9	3	28	1.2932	1.1233	0.4340	0.9502	20.19	-99.1	19570.96	12505.208	19565.68
Oceania	Austronesian	Paic̓i	5500	10	3	19	1.7350	1.1233	-0.4585	0.7999	-20.54	165.37	17452.453	12769.229	17663.27
Oceania	Austronesian	Palauan	14800	6	0	21	-0.0320	-0.5120	-0.2601	-0.2681	7.3	134.35	13959.884	8240.4332	13412.53

Asia	Indo-European	Pali	0	5	0	33	-0.4738	-0.5120	0.9298	-0.0187	12.39	104.57	10694.445	5356.9069	10770.97
Asia	Austronesian	Pangasinan	1160000	5	0	17	-0.4738	-0.5120	-0.6568	-0.5475	15.55	120.2	12226.091	6472.4405	11905.12
Oceania	Pama-Nyungan (Australian)	Panyjima	50	3	0	20	-1.3573	-0.5120	-0.3593	-0.7429	-22.5	118.25	12693.825	9122.5439	14325.52
S.Amer	Arawakan	Paumari	870	3	0	21	-1.3573	-0.5120	-0.2601	-0.7098	-6	-64	23982.21	13078.028	23976.93
N.Amer	Caddoan	Pawnee Caddoan	20	4	0	8	-0.9156	-0.5120	-1.5492	-0.9922	31.5	-96.3	18574.36	11741.064	18569.08
Asia	Austronesian	Pazeh	0	6	0	17	-0.0320	-0.5120	-0.6568	-0.4003	23.43	120.58	11982.879	6029.5507	10529.07
Africa	Niger-Congo	Phuthi	20000	5	2	45	-0.4738	0.5782	2.1197	0.7414	29.3	28.13	3193.9302	2888.4553	3801.42
N.Amer	Tanoan	Picuris	803	6	3	14	-0.0320	1.1233	-0.9543	0.0457	35.9	-101.2	17926.46	11427.731	17921.18
S.Amer	Muran	Piraha	360	3	3	7	-1.3573	1.1233	-1.6484	-0.6275	-7	-62	24219.78	12980.8	24214.5
N.Amer	Algic	Potawatomi	50	5	0	20	-0.4738	-0.5120	-0.3593	-0.4484	44.3	-85	17855.17	10053.114	17849.89
Asia	Sino-Tibetan	Pumi	35000	11	3	50	2.1767	1.1233	2.6155	1.9718	28	101	9977.8414	4085.8667	8718.66
N.Amer	Tarascan	P'urhepecha	40000	6	0	22	-0.0320	-0.5120	-0.1610	-0.2350	19.34	-102.2	19519.87	12699.337	19514.59
N.Amer	Mayan	Q'anjob'al	77700	5	0	26	-0.4738	-0.5120	0.2357	-0.2500	15.2	-91.4	20418.24	12679.051	20412.96
Africa	Afro-Asiatic	Qimant	1650	6	0	25	-0.0320	-0.5120	0.1365	-0.1358	12.4	37.25	3494.1748	3480.1489	5470.85
S.Amer	Quechuan	Quechua	90000	3	0	25	-1.3573	-0.5120	0.1365	-0.5776	0.2	-78	22568.97	13709.432	22563.69
N.Amer	Chimakuan	Quileute	10	3	0	31	-1.3573	-0.5120	0.7315	-0.3793	47.55	-124.2	15815.67	10415.844	15810.39
N.Amer	Chibchan	Rama	24	3	0	17	-1.3573	-0.5120	-0.6568	-0.8420	11.45	-83.45	21155.71	12595.986	21150.43
Oceania	Austronesian	Rapanui	2200	5	0	10	-0.4738	-0.5120	-1.3509	-0.7789	-27.7	-109.2	12781.883	18201.468	26206.53
Asia	Sino-Tibetan	rGyal-rong	110000	7	0	49	0.4097	-0.5120	2.5163	0.8047	31.54	102.12	10002.247	4019.6409	8568.51
Oceania	North Bougainville	Rotokas	4320	5	0	9	-0.4738	-0.5120	-1.4501	-0.8119	-6	155.1	16544.521	10941.114	16030.73
Oceania	Austronesian	Rotuman	9000	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	-12.3	177.4	18976.183	13291.663	18573
N.Amer	Salishan	Salish	110	6	0	31	-0.0320	-0.5120	0.7315	0.0625	48.35	-122.4	15822.32	10329.92	15817.04
Oceania	Austronesian	Samoa	199000	10	0	13	1.7350	-0.5120	-1.0534	0.0565	-13.55	-171.5	19294.913	14334.293	19792
Africa	Khoisan	Sandawe	40000	5	7	54	-0.4738	3.3037	3.0121	1.9473	-5	35	3684.6944	5291.0663	7350.4
Africa	Niger-Congo	Sango	350000	7	3	25	0.4097	1.1233	0.1365	0.5565	12.18	16.06	1219.7783	4997.1263	7630.7
Oceania	Austronesian	Sawai	12000	7	0	14	0.4097	-0.5120	-0.9543	-0.3522	0.3	128	13485.414	8174.2862	12992.1
Asia	Austro-Asiatic	Sedang	101000	7	0	27	0.4097	-0.5120	0.3348	0.0775	14.5	108	11003.173	5496.0114	10222.96
N.Amer	Na-Dene	Sekani	35	6	2	33	-0.0320	0.5782	0.9298	0.4920	55.12	-124.1	15171.43	9582.1859	15166.15
N.Amer	Iroquoian	Seneca	150	5	0	11	-0.4738	-0.5120	-1.2518	-0.7458	42.3	-77.3	18372.44	9922.9717	18367.16
Africa	Niger-Congo	Serer	1130000	5	0	33	-0.4738	-0.5120	0.9298	-0.0187	14.8	-14	2111.1566	7370.758	8176.01
N.Amer	Seri	Seri	900	4	0	16	-0.9156	-0.5120	-0.7560	-0.7278	29	-112	18123.82	12389.305	18118.53
Asia	Tai-Kadai	Shan	3200000	9	6	19	1.2932	2.7586	-0.4585	1.1978	22	98	9809.363	4164.2593	8878.91
N.Amer	Shastan	Shasta	12	4	2	19	-0.9156	0.5782	-0.4585	-0.2653	41.5	-122.4	16455.68	11084.76	16450.4
N.Amer	Algic	Shawnee	200	4	0	13	-0.9156	-0.5120	-1.0534	-0.8270	40	-83	18348.13	10387.507	18342.85
Africa	Niger-Congo	Shona	10700000	5	0	34	-0.4738	-0.5120	1.0289	0.0144	-18	31	4185.9914	6774.658	8785.59
N.Amer	Uto-Aztecan	Shoshone	2910	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	41	-114	16867.62	11101.847	16862.34
N.Amer	Salishan	Shuswap	500	6	0	37	-0.0320	-0.5120	1.3264	0.2608	52	-120	15610.5	9925.7099	15605.21
Africa	Afro-Asiatic	Silt'e	1000000	6	0	23	-0.0320	-0.5120	-0.0618	-0.2019	9.1	38.39	3628.3782	3732.1359	5856.77
Oceania	Austronesian	Sio	3500	6	0	19	-0.0320	-0.5120	-0.4585	-0.3342	-6.16	143.54	15295.294	9950.957	14854.81
N.Amer	Eskimo-Aleut	Sireniki	0	3	0	31	-1.3573	-0.5120	0.7315	-0.3793	65.36	-171.2	12639.68	7706.303	12634.4
Oceania	Austronesian	Sissano	300	6	0	13	-0.0320	-0.5120	-1.0534	-0.5325	-3.46	141.28	15001.348	9571.8102	14502.85
Europe	Uralic	Skolt Sami	400	10	0	31	1.7350	-0.5120	0.7315	0.6515	69.3	28.33	6741.9638	3870.9491	3778.35
N.Amer	Na-Dene	Slavey	1030	6	2	30	-0.0320	0.5782	0.6323	0.3928	60	-120	15003.28	9044.5042	14998
Oceania	Austronesian	Sobei	1000	5	0	15	-0.4738	-0.5120	-0.8551	-0.6136	-1.55	138.45	14653.959	9196.9472	14130.49
Oceania	Trans-New Guinea	Sop	2250	6	0	14	-0.0320	-0.5120	-0.9543	-0.4994	-6.5	22	2605.3366	6136.645	7646.78
Africa	Niger-Congo	Sotho	4090000	5	2	39	-0.4738	0.5782	1.5247	0.5431	-24	29	4551.2197	7462.0574	9460.49

N.Amer	Hokan	Southern Pomo	1	5	0	28	-0.4738	-0.5120	0.4340	-0.1839	39	-122.3	16701.12	11360.28	16695.84
Europe	Uralic	Southern Sami	600	9	0	23	1.2932	-0.5120	-0.0618	0.2398	64.4	16.45	6060.2779	3957.4372	3052.26
N.Amer	Yok-Utian	Southern Sierra Miwok	7	6	0	15	-0.0320	-0.5120	-0.8551	-0.4664	37.3	-120	16963.4	11544.915	16958.12
N.Amer	Salishan	St'at'imcets	200	8	0	44	0.8515	-0.5120	2.0205	0.7867	52.4	-127.3	15250.93	9871.1319	15245.65
Africa	Niger-Congo	Sucite	35000	8	3	30	0.8515	1.1233	0.6323	0.8690	12.13	-1.39	729.79694	6453.465	7396.2
Asia	Austronesian	Sundanese	33000000	6	0	18	-0.0320	-0.5120	-0.5576	-0.3672	-7	107	11346.659	7054.8115	12418.84
Africa	Niger-Congo	Supyire	364000	7	4	22	0.4097	1.6684	-0.1610	0.6390	12.6	-8	1433.486	6992.0349	7369.5
Asia	Kartvelian	Svan	15000	10	0	33	1.7350	-0.5120	0.9298	0.7176	43	42.3	5098.3251	1423.8272	3280.58
Africa	Niger-Congo	Swahili	1000	5	0	37	-0.4738	-0.5120	1.3264	0.1136	-6.3	39	4141.6728	5256.3711	7547.07
Oceania	Pama-Nyungan (Australian)	Sydney	0	3	0	16	-1.3573	-0.5120	-0.7560	-0.8751	-33.87	151.22	15532.994	12378.53	17223.79
Asia	Afro-Asiatic	Syriac	0	7	0	28	0.4097	-0.5120	0.4340	0.1106	34.51	38.56	4323.2494	1766.6351	3130.58
Asia	Austronesian	Tagalog	21500000	5	1	17	-0.4738	0.0331	-0.6568	-0.3658	15	121	12325.395	6576.8727	11969.17
Asia	Austronesian	Tagbanwa	10000	3	0	14	-1.3573	-0.5120	-0.9543	-0.9412	9.3	118.3	12218.615	6722.8529	11635.13
Africa	Niger-Congo	Tagoi Kordofanian	13000	10	3	13	1.7350	1.1233	-1.0534	0.6016	11.14	29.25	2629.2529	4096.7079	5566.85
Oceania	Austronesian	Tahitian	117000	7	0	9	0.4097	-0.5120	-1.4501	-0.5174	-17.4	-149.4	16979.913	16369.274	22201.2
Asia	Tai-Kadai	Tai Dam	699000	10	6	19	1.7350	2.7586	-0.4585	1.3450	19.52	102.29	10295.849	4683.1698	9400.13
Asia	Tai-Kadai	Tai Lü	700000	9	6	21	1.2932	2.7586	-0.2601	1.2639	22.01	100.47	10057.036	4373.186	9080.56
Asia	Tai-Kadai	Tai Nüa	540000	9	6	17	1.2932	2.7586	-0.6568	1.1317	24	97.5	9720.2356	4001.1499	8704.83
Oceania	Austronesian	Tamambo	3000	5	0	16	-0.4738	-0.5120	-0.7560	-0.5806	-15.4	167.1	17823.006	12600.48	17620.3
Asia	Dravidian	Tamil	61500000	5	0	18	-0.4738	-0.5120	-0.5576	-0.5145	11	78.3	7921.6373	3586.5746	7909.91
N.Amer	Na-Dene	Tanacross	35	6	2	38	-0.0320	0.5782	1.4256	0.6572	63.3	143.3	11352.65	12022.419	8200.17
Asia	Sino-Tibetan	Tangut	0	6	2	43	-0.0320	0.5782	1.9214	0.8225	30.22	88.19	8722.4696	2870.8101	7555.01
N.Amer	Tanoan	Taos	803	6	3	18	-0.0320	1.1233	-0.5576	0.1779	36.3	-105.3	17703.5	11480.891	17698.22
N.Amer	Uto-aztecan	Tarahumara	55000	5	0	18	-0.4738	-0.5120	-0.5576	-0.5145	27.3	-107.3	18497.14	12489.239	18491.86
Africa	Afro-Asiatic	Tashelhiyt	3000000	4	0	33	-0.9156	-0.5120	0.9298	-0.1659	34	-6	2868.7346	5610.6636	6972.62
Asia	Austronesian	Tausüg	900000	3	0	16	-1.3573	-0.5120	-0.7560	-0.8751	6	121	12593.571	7180.6901	12020.54
Asia	Dravidian	Telugu	69600000	5	0	35	-0.4738	-0.5120	1.1281	0.0474	16	79	7935.891	3166.4285	7645.55
Asia	Tai-Kadai	Thai	20200000	9	5	21	1.2932	2.2135	-0.2601	1.0822	16	101	10240.867	4809.5313	9536.23
Asia	Sino-Tibetan	Tibetan	3200000	8	2	28	0.8515	0.5782	0.4340	0.6212	29	89	8812.8723	3000.2447	7693.88
Africa	Afro-Asiatic	Tigre	1050000	6	0	26	-0.0320	-0.5120	0.2357	-0.1028	16.3	38.3	3635.5271	3059.7921	5088.32
Africa	Afro-Asiatic	Tigrinya	3200000	7	0	37	0.4097	-0.5120	1.3264	0.4081	14.3	38.3	3615.3456	3243.0693	5298.41
N.Amer	Salishan	Tillamook	0	4	0	28	-0.9156	-0.5120	0.4340	-0.3312	45.2	-123.5	16061.71	10676.02	16056.43
N.Amer	Uto-Aztecan	Timbisha	20	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	37.5	-121.5	16880.92	11525.384	16875.64
N.Amer	Timucua	Timucua	0	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	30.15	-82.3	19336.08	11291.556	19330.8
Asia	Austronesian	Tina	200000	3	1	17	-1.3573	0.0331	-0.6568	-0.6603	14.9	120.1	12237.188	6505.3844	11155.21
S.Amer	Cariban	Tiriyo	2000	7	0	10	0.4097	-0.5120	-1.3509	-0.4844	3.15	-55.45	24329.36	11706.716	24324.07
N.Amer	Na-Dene	Tlingit	1200	5	2	43	-0.4738	0.5782	1.9214	0.6753	59	-135	14394.91	9091.051	14389.63
Asia	Dravidian	Toda	1100	9	0	37	1.2932	-0.5120	1.3264	0.7026	11.25	76.45	7719.7435	3463.8902	7731.33
Oceania	Austronesian	Tongan	96300	5	0	12	-0.4738	-0.5120	-1.1526	-0.7128	-21.1	-175.1	18622.259	14511.609	19619.46
N.Amer	Tonkawa	Tonkawa	0	5	0	15	-0.4738	-0.5120	-0.8551	-0.6136	30.15	-96.45	18699.78	11885.062	18694.5
N.Amer	Toto-Zoquean	Totonacan	200000	3	0	17	-1.3573	-0.5120	-0.6568	-0.8420	20.2	-97.2	19654.71	12933.268	19649.43
Europe	Nakh-Daghestanian	Tsez	15000	5	0	33	-0.4738	-0.5120	0.9298	-0.0187	42.15	45.45	5264.2999	1151.6564	3545.86
Africa	Khoisan	Tsoa	3000	5	3	38	-0.4738	1.1233	1.4256	0.6917	22.17	24.41	2449.4121	3618.9661	4598.7
Asia	Austronesian	Tsou	2130	6	0	17	-0.0320	-0.5120	-0.6568	-0.4003	23.3	120.45	11975.482	6025.6674	10529.94
N.Amer	Na-Dene	Tsuu T'ina	50	4	3	33	-0.9156	1.1233	0.9298	0.3792	51.03	-114.2	15955.47	10004.997	15950.19
Africa	Niger-Congo	Tswana	1070000	6	2	29	-0.0320	0.5782	0.5331	0.3598	-24	26	4375.9931	7592.0576	9486.81

Africa	Afro-Asiatic	Tuareg	4000000	7	0	23	0.4097	-0.5120	-0.0618	-0.0547	25	10.1	1737.0673	4668.1019	5639.78
N.Amer	Uto-Aztecan	Tubatulabal	6	6	0	19	-0.0320	-0.5120	-0.4585	-0.3342	36	-118.2	17166.74	11681.243	17161.46
Asia	Altaic	Turkish	46300000	8	0	24	0.8515	-0.5120	0.0373	0.1256	39	35	4348.4647	1981.8669	2712.01
Asia	Altaic	Turkmen	3430000	9	0	26	1.2932	-0.5120	0.2357	0.3390	40	58	6122.4809	220.39311	4622.91
N.Amer	Iroquoian	Tuscarora	7	5	0	10	-0.4738	-0.5120	-1.3509	-0.7789	36	-77.3	18981.25	10500.069	18975.97
Oceania	Austronesian	Tuvaluan	10700	5	0	11	-0.4738	-0.5120	-1.2518	-0.7458	-8.3	179.1	19167.259	13164.523	18639.56
Asia	Altaic	Tuvan	264400	8	0	19	0.8515	-0.5120	-0.4585	-0.0397	52	95	9053.2735	3222.9369	6860.35
Africa	Niger-Congo	Twi Akan	8300000	10	3	18	1.7350	1.1233	-0.5576	0.7669	6.3	-1.15	784.94266	6834.7225	7784.73
N.Amer	Mayan	Tzotzil	130000	5	0	21	-0.4738	-0.5120	-0.2601	-0.4153	16.3	-92.4	20262.34	12619.232	20257.06
N.Amer	Mayan	Tz'utujil	50000	5	0	22	-0.4738	-0.5120	-0.1610	-0.3822	14.4	-91.2	20507.98	12747.19	20502.7
Europe	Northwest Caucasian	Ubykh	0	2	0	84	-1.7991	-0.5120	5.9869	1.2253	43.4	39.4	4935.9219	1659.9539	3044
Europe	Nakh-Daghestanian	Udi	4200	6	0	36	-0.0320	-0.5120	1.2273	0.2278	41	48	5388.0714	911.85443	3774.07
Asia	Uralic	Udmurt	464000	7	0	24	0.4097	-0.5120	0.0373	-0.0216	57.3	52.3	6562.0363	2166.6856	4103.37
Asia	Afro-Asiatic	Ugaritic	0	5	0	28	-0.4738	-0.5120	0.4340	-0.1839	35.05	36.12	4168.1585	1960.3908	2899.96
N.Amer	Algic	Unami	308	6	0	13	-0.0320	-0.5120	-1.0534	-0.5325	40	-75.1	18685.92	10028.648	18680.64
Oceania	Pama-Nyungan (Australian)	Urathi	0	4	0	18	-0.9156	-0.5120	-0.5576	-0.6617	-11.55	142.25	15208.622	10208.407	15016.41
Africa	Niger-Congo	Urhobo	546000	7	3	28	0.4097	1.1233	0.4340	0.6557	8.68	8.6	417.5952	5856.4009	8511.85
S.Amer	Chibchan	Uw Cuwa	2000	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	6.45	-72.15	22451.4	12767.266	22446.12
Asia	Altaic	Uyghur	8400000	8	0	25	0.8515	-0.5120	0.1365	0.1587	40	80	7949.4759	1892.5582	6382.02
Asia	Altaic	Uzbek	16500000	10	0	24	1.7350	-0.5120	0.0373	0.4201	39	66	6755.0888	698.61597	5310.66
Africa	Niger-Congo	Vai Mande	104000	7	2	29	0.4097	0.5782	0.5331	0.5070	6.55	-11.15	1801.3357	7668.4893	8625.78
Africa	Niger-Congo	Venda	980000	7	2	50	0.4097	0.5782	2.6155	1.2011	-30.3	23.16	4839.8038	8336.8331	9043.54
N.Amer	Chumashan	Ventureno Chumashan	0	6	0	34	-0.0320	-0.5120	1.0289	0.1616	34.29	-118.2	17337.08	11869.385	17331.8
Asia	Austro-Asiatic	Vietnamese	65800000	9	6	25	1.2932	2.7586	0.1365	1.3961	10.3	106.3	10924.984	5648.7524	10380.53
Europe	Uralic	Votic	20	10	0	23	1.7350	-0.5120	-0.0618	0.3871	59.3	30	5815.5584	3063.937	3014.84
Oceania	Gunwinyguan (Australia)	Wagiman	10	5	0	22	-0.4738	-0.5120	-0.1610	-0.3822	-14	131.15	14025.823	9458.8363	14239.56
Oceania	Austronesian	Wallisian	9620	5	0	11	-0.4738	-0.5120	-1.2518	-0.7458	-13.18	-176.1	19478.492	13921.338	19296.38
Oceania	Pama-Nyungan (Australian)	Walmajarri	860	3	0	17	-1.3573	-0.5120	-0.6568	-0.8420	-19.3	125.45	13433.214	9401.5161	14325.51
Oceania	Trans-New Guinea	Wambon	3000	5	0	16	-0.4738	-0.5120	-0.7560	-0.5806	-5.3	140.25	14924.503	9609.3441	14485.72
Asia	Austronesian	Waray Waray	2570000	3	0	16	-1.3573	-0.5120	-0.7560	-0.8751	12	125	12833.903	7117.9185	12349.36
Oceania	Lower Mamberamo	Warembori	600	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	-1.4	137.35	14532.028	9091.9023	14011.46
S.Amer	Chapacuran	Wari	1500	6	0	14	-0.0320	-0.5120	-0.9543	-0.4994	-11.2	65	9205.9	13469.579	8383.14
Oceania	Pama-Nyungan (Australian)	Warlpiri	2670	3	0	18	-1.3573	-0.5120	-0.5576	-0.8090	-20	132.2	14131.51	9974.6568	14806.89
S.Amer	Arawakan	Wayuu	135000	6	0	15	-0.0320	-0.5120	-0.8551	-0.4664	12	-72	21613.77	12296.753	21608.49
Africa	Niger-Congo	Wè	156000	9	10	22	1.2932	4.9389	-0.1610	2.0237	7.32	-5.31	1161.225	7115.4495	8061.83
Oceania	Pama-Nyungan (Australian)	Western Desert	3926	3	0	17	-1.3573	-0.5120	-0.6568	-0.8420	-30.3	132	13976.364	10697.235	15710.44
Oceania	Trans-New Guinea	Western Pantar	10000	5	0	15	-0.4738	-0.5120	-0.8551	-0.6136	-8.15	124.5	13257.699	8493.315	13269.17
Asia	Altaic	Western Yugur	4600	8	0	28	0.8515	-0.5120	0.4340	0.2578	38.5	99.36	9606.5441	3549.9737	7914.87
Asia	Hmong-Mien	White Hmong	4000000	6	7	51	-0.0320	3.3037	2.7147	1.9954	28	105	10357.758	4433.1781	9028.94
N.Amer	Caddoan	Wichita Caddoan	1	4	2	10	-0.9156	0.5782	-1.3509	-0.5627	33.2	-97.2	18368.07	11594.99	18362.79
N.Amer	Siouan	Winnebago	230	5	0	20	-0.4738	-0.5120	-0.3593	-0.4484	43.3	-88.3	17804.55	10271.129	17799.27
N.Amer	Wintuan	Wintu	5	6	0	27	-0.0320	-0.5120	0.3348	-0.0697	41	-122.3	16507.83	11139.888	16502.55
Oceania	Sepik	Wogamusin	700	6	0	17	-0.0320	-0.5120	-0.6568	-0.4003	-4.15	142.2	15114.699	9698.3186	14627.07
Oceania	Pama-Nyungan (Australian)	Woiwurrung	0	3	0	24	-1.3573	-0.5120	0.0373	-0.6106	-37.3	145.3	14886.774	12132.57	17085.69
Oceania	Austronesian	Woleaian	1630	8	0	23	0.8515	-0.5120	-0.0618	0.0926	7.2	143.5	14903.191	9041.5742	14410.21
Africa	Niger-Congo	Wolof	3930000	8	0	29	0.8515	-0.5120	0.5331	0.2909	14.5	-14.49	2155.615	7432.4893	8228.73

Asia	Sino-Tibetan	Wu,Fengxian,Dǒndāc	180000	20	8	41	6.1525	3.8487	1.7231	3.9081	30.92	121.48	11760.591	5711.2158	9997.91
Asia	Sino-Tibetan	Wu,Pinghu	780000	13	7	29	3.0602	3.3037	0.5331	2.2990	30.41	121.01	11741.252	5696.2186	10007.21
Oceania	Austronesian	Wuvulu-Aua	1000	5	0	15	-0.4738	-0.5120	-0.8551	-0.6136	-6.17	143.56	15297.619	9953.3604	14857.28
Africa	Afro-Asiatic	Xamtanga	143000	5	0	31	-0.4738	-0.5120	0.7315	-0.0848	11.22	37.56	3527.5504	3573.4653	5606.25
S.Amer	Macro-Ge	Xavante	10000	9	0	10	1.2932	-0.5120	-1.3509	-0.1899	-15	-52.3	25601.03	12679.271	25595.75
Africa	Niger-Congo	Xhosa	7790000	5	2	66	-0.4738	0.5782	4.2021	1.4355	-32	27	5176.4143	8344.7766	10361.57
Asia	Sino-Tibetan	Xiang,Changsha,	36000000	9	6	24	1.2932	2.7586	0.0373	1.3630	28.13	112.56	11062.7	5082.6817	9587.32
Africa	Niger-Congo	XiTswa	1200000	5	2	22	-0.4738	0.5782	-0.1610	-0.0189	-18.6	35.5	4574.3719	6658.1943	9316.8
Oceania	Austronesian	Yabem	2080	7	2	17	0.4097	0.5782	-0.6568	0.1104	-6.35	147.47	15724.408	10302.999	15259.4
Asia	Altaic	Yakut	363000	8	0	19	0.8515	-0.5120	-0.4585	-0.0397	62	130	10630.724	5386.9689	7903.79
S.Amer	Arawakan	Yanesha	9830	3	0	23	-1.3573	-0.5120	-0.0618	-0.6437	-10.3	-75.25	23773.74	14315.554	23768.46
N.Amer	Uto-Aztecán	Yaqui	14000	5	0	14	-0.4738	-0.5120	-0.9543	-0.6467	27.3	-110.2	18373.2	12545.548	18367.92
N.Amer	Yok-Utian	Yawelmani	25	4	0	30	-0.9156	-0.5120	0.6323	-0.2651	35.25	-119	17206.62	11767.369	17201.34
Oceania	Pama-Nyungan (Australian)	Yidiny	12	3	0	13	-1.3573	-0.5120	-1.0534	-0.9742	-17	145.45	15536.038	10846.493	15634.74
Oceania	Pama-Nyungan (Australian)	Yirrk	10	5	0	16	-0.4738	-0.5120	-0.7560	-0.5806	-11.59	142.29	15213.104	10214.528	15022.45
Oceania	Pama-Nyungan (Australian)	Yolngu	5600	3	0	25	-1.3573	-0.5120	0.1365	-0.5776	12.4	136	13932.248	8046.5132	13544.78
Africa	Niger-Congo	Yoruba	18900000	7	3	15	0.4097	1.1233	-0.8551	0.2260	8	4.2	236.96835	6267.3201	7225.6
N.Amer	Eskimo-Aleut	Yupik	830	4	0	22	-0.9156	-0.5120	-0.1610	-0.5295	64.3	-173	12781.99	7741.6051	12776.71
N.Amer	Algic	Yurok	12	6	0	30	-0.0320	-0.5120	0.6323	0.0294	41.2	-124	16417.15	11115.759	16411.87
Asia	Tai-Kadai	Zhuang	14935800	6	6	22	-0.0320	2.7586	-0.1610	0.8552	24	108	10752.914	4905.5486	9542.34
Europe	Basque	Zuberoan	180000	6	1	24	-0.0320	0.0331	0.0373	0.0128	43.06	-0.44	3680.4492	4828.853	662.08
Africa	Niger-Congo	Zulu	9980000	7	3	51	0.4097	1.1233	2.7147	1.4159	-30	30	5143.4696	8028.8806	10121.75
N.Amer	Zuni	Zuni	9650	5	0	16	-0.4738	-0.5120	-0.7560	-0.5806	35.05	-108.5	17681.43	11676.657	17676.14
Asia	Austronesian	*Abagatan Ilokano		6	0	22					16	121			
Oceania	Austronesian	*Adzera		3	0	23					-6.15	146.15			
Asia	Austronesian	*Amianan Ilokano		5	0	22					16	121			
Oceania	Austronesian	*Araki		5	0	16					-15.4	166.55			
Oceania	Austronesian	*Arop-Lokep		7	0	13					-5.23	147.3			
Asia	Austronesian	*Asi		3	0	15					10.59	122.32			
Asia	Austronesian	*Balinese		6	0	18					-8.2	115.15			
Asia	Austronesian	*Banjar Kuala		5	0	18					-3.21	117.35			
Asia	Austronesian	*Bantik		5	0	13					1.25	124.45			
Oceania	Austronesian	*Big Nambas		5	0	17					-16.05	167.12			
Asia	Austronesian	*Bolinao		5	0	22					6	125.2			
Asia	Austronesian	*Botolan		4	1	21					15.03	120.04			
Asia	Austronesian	*Buginese		5	0	18					-3.39	119.58			
Oceania	Austronesian	*Bukawa		8	2	30					-6.46	146.33			
Asia	Sino-Tibetan	*Cantonese,HongKong		9	9	19					23	113			
Asia	Austronesian	*Cebuano		3	1	16					10	124			
Oceania	Austronesian	*Chamorro		6	0	19					13.27	144.45			
Oceania	Austronesian	*Cook Island Maori		5	0	11					-20.22	-168.1			
Oceania	Austronesian	*Drehu		7	0	27					-21	167.15			
Europe	Indo-European	*Dutch		15	0	25					52.3	6			
Europe	Indo-European	*Faroese		11	0	21					62	-7			
Oceania	Austronesian	*Fijian		5	0	16					-17.5	178			
Asia	Sino-Tibetan	*Gan,Wuzhou		9	5	19					-17.5	137.1			

Oceania	Austronesian	*Gilbertese		5	0	10					1.2	173		
Asia	Sino-Tibetan	*Hakka,Zhaoan		8	6	21					23.708	117.18		
Oceania	Austronesian	*Hawaiian		5	0	8					19.35	-155.3		
Asia	Austronesian	*Hiligaynon		3	0	16					10.15	123		
Oceania	Austronesian	*Iaai		11	0	36					-20.25	166.35		
Asia	Austronesian	*Ibanag		4	0	22					17.3	121.4		
Europe	Indo-European	*Icelandic		8	0	33					65	-17		
Asia	Austronesian	*Ida'an		6	0	17					5.15	118.5		
Asia	Austronesian	*Indonesian Malay		6	0	21					3	102		
Asia	Hmong-Mien	*Iu Mien		6	6	30					24	110.1		
Asia	Austronesian	*Ivatan		4	0	21					20.3	122		
Oceania	Austronesian	*Iwal		5	0	16					-6.17	143.56		
Asia	Austronesian	*Javanese		6	0	21					-7	111		
Asia	Austronesian	*Kapampangan		5	0	18					15.2	120.3		
Europe	Indo-European	*Limburgish		14	0	33					51.27	6.02		
Asia	Sino-Tibetan	*Mandarin,SW,Chengdu		9	4	20					34	111		
Asia	Sino-Tibetan	*Mindong,Fuan,		9	7	17					27.05	119.38		
Asia	Sino-Tibetan	*Mindong,Xiapu,		9	7	15					26.53	120		
Asia	Sino-Tibetan	*Minnameese,Amoy,		6	7	14					24.29	118.05		
Asia	Indo-European	*Pashto		6	0	29					33	67		
Europe	Indo-European	*Plautdietsch		13	0	28					52.05	8.38		
Europe	Indo-European	*Polish		6	0	23					52	20		
Europe	Indo-European	*Portuguese		9	0	19					39	-8		
Asia	Indo-European	*Punjabi		10	3	28					31.1	75.19		
Europe	Indo-European	*Romanian		9	0	20					46	25		
Europe	Indo-European	*Russian		5	0	37					56	38		
Europe	Indo-European	*Rusyn		7	0	21					48.25	31.04		
Asia	Indo-European	*Sanskrit		7	0	34					25.14	79.51		
Europe	Indo-European	*Sardinian		5	0	28					40	9		
Asia	Indo-European	*Sarikoli		8	0	31					37.46	75.12		
Europe	Indo-European	*Scottish Gaelic		10	0	30					57	-4		
Europe	Indo-European	*Serbian		5	0	25					44	19		
Asia	Indo-European	*Sindhi		10	0	46					26	69		
Asia	Indo-European	*Sinhala		6	0	25					7	80.3		
Europe	Indo-European	*Slovak		9	0	29					49	20		
Europe	Indo-European	*Slovene		8	4	21					46	15		
Europe	Indo-European	*Spanish		5	0	19					40	-4		
Europe	Indo-European	*Swedish		16	2	18					60	15		
Asia	Indo-European	*Tajik		6	0	24					38.4	70		
Asia	Indo-European	*Tocharian		7	0	17					40.29	89.55		
Europe	Indo-European	*Ukrainian		6	0	32					49	33		
Asia	Indo-European	*Urdu		11	0	39					25	67		
Europe	Indo-European	*Welsh		13	0	23					52	-3		
Europe	Indo-European	*West Frisian		11	0	25					53	6		
Asia	Sino-Tibetan	*Wu,Jinxiang		13	7	29					30.57	120.06		
Asia	Indo-European	*Yaghnobi		8	0	29					39	69		

Continued

Language	Vowel Qualities	Tones	Consonants
Abau	ieɛaəoou		m,n,p,k,s,h,r,j,w
Abenaki	iaəou		b,ts,d,g,h,dz,k,l,m,n,p,s,t,w,j,z,kw,gw
Abkhaz & Abaza	aə		m,n,p,t,tʰ,k',kʷ,b,d,dʰ,g',g,gʷ,p',t',tʰ',k',k',q',q',qʷ,tms,tmf,tmc,tmcʷ,tms,dmz,dmz',dmz,dmzʷ,dmz,tms',tmf',tmc',tmcʷ,tms',f,s,fjʷ,ɕ,ɕʷ,s,χ',χ,χʷ,χʷ',h,hʷ,v,z,z',zʷ,z,ʒ',ɛ,ɛʷ,l,j,u,w,r
Acholi	ieɛaəoou	□,□	m,n,ŋ,n,tʃ,dʒ,t,d,w,j,pf,p,b,k,g,l,r
Adangme	ieɛaəou	□,□,□	p,b,t,d,tʃ,dʒ,k,g,kp,gb,m,n,ŋ,nm,f,v,s,z,l,j,w
Adnyamathanha	iau		p,k,c,t,tʃ,ʔ,d,v,m,ŋ,n,n,n,ŋ,ʎ,l,l,r,r,w,j,ɟ
Adyghe	eaə		p,t,k,kʷ,q,qʷ,ʔ,ʔʷ,b,d,g,gʷ,p',pʷ,t',tʰ',k',kʷ,tms,tmsʷ,tmf,dmz,dmzʷ,dmz,tms',tmsʷ',tmf',f,s,t,fjʷ,ɕ,ɕ,x,xʷ,χ,χʷ,h,v,z,z',z,zʷ,ɛ,ɛʷ,f',t',f',fʷ,m,n,l,j,r
Afar	ieaou		t,k,b,d,d,g,f,s,h,h,ʎ,m,n,w,l,j,r
Ainu	ieaou		p,t,k,ts,m,n,s,h,w,j,r
Akkadian	ieau		m,n,p,t',k,q,ʔ,b,d,g,s,s',f',x,z,r,l,j,w
Albanian	ieaəouy		m,n,ŋ,p,b,t,d,c,j,k,g,ts,dz,tʃ,dʒ,f,v,θ,ð,s,z,f,ʒ,h,r,r,l,t,j
Aleut	iau		p,b,t,d,tʃ,ts,tʃ,k,g,q,f,v,θ,ð,s,z,x,χ,ɕ,m,ŋ,n,ŋ,ŋ,t,l,m,w,ɹ,ɕ,j,h
Altay	ieaʷoouy		p,b,t,d,c,j,k,g,m,n,ŋ,s,z,f,ʒ,x,ɣ,r,j,l
Amami	ieaou		p,pj,b,bj,t,d,tʃ,tʃ,k,kj,kw,g,gj,gw,ʔ,ʔj,ʔw,Q,l,jj,θ,s,sj,z,zj,ɕj,x,xj,h,hj,hw,m,mj,ʔm,n,nj,ʔn,ʔnj,N,j,w
Amharic	ieəəou		m,n,ŋ,p,t,k,ʔ,b,d,g,p',t',k',tʃ,dʒ,ts',tʃ',f,s,f,h,z,z',l,j,w,r
Amis	ieaou		m,ŋ,n,p,t,tms,k,ʔ,ʔ,v,ð,s,ɣ,h,h,r,j,w,j
Amuzgo	ieɛəoou	□,□,□,□□	m,n,ŋ,t,d,t',d',k,g,ʔ,tms,tmf,s,f,h,j,w
Anindilyakwa	ia		p,k,kʷ,c,t,tʃ,m,ŋ,ŋʷ,ŋ,n,n,n,ŋ,ʎ,l,l,r,ɟ,w,j
Ao	iaəu	□,□,□	p,t,k,ʔ,pʰ,tʰ,kʰ,ts,tʃ,tsʰ,tʃʰ,s,h,z,m,n,ŋ,w,ɹ,j,l
Arabela	iaəou		p,t,k,s,f,h,m,n,w,j,r
Arabic	iau		m,n,t',t,k,q,ʔ,b,d',d,ʒ,f,θ,s',s,f,x,h,h,ð,ð',z,ɣ,ʎ,l,j,w,r
Aranda	aə		p,pʷ,k,kʷ,c,cʷ,t,tʰ,tʰ',tʰ',m,mʷ,ŋ,ŋʷ,ŋ,nʷ,n,nʷ,n,nʷ,pm,pmʷ,kŋ,kŋʷ,ɕŋ,ɕŋʷ,tmŋ,tmŋʷ,tn,tnʷ,tŋ,tŋʷ,ʎ,ʎʷ,l,lʷ,l,lʷ,w,uj,jjʷ,ɟ,ɟʷ,r,rʷ
Arapaho	ieou	□,□,□□	n,b,t,tʃ,k,ʔ,θ,s,x,h,j,w
Arapesh	ieəəou		t,k,kʷ,d,g,gʷ,tʃ,dʒ,s,h,hʷ,m,n,ŋ,r,l
Armenian	ieəəəoouy		p,t,k,b,d,g,pʰ,tʰ,kʰ,f,s,f,x,h,v,z,z',y,tms,tmf,dmz,dmz',tmsʰ,tmfʰ,ɹ,l,j,m,n,r,r
Aromanian	ieəəəoouy		m,n,p,b,t,d,k,g,ts,tʃ,dʒ,f,v,s,z,f,ʒ,h,r,l,ð,ɣ
Assamese	ieɛaəoou		p,t,k,pʰ,tʰ,kʰ,b,d,g,bʰ,dʰ,gʰ,s,x,h,z,m,n,ŋ,w,l,ɹ
Assiniboine	ieaou		pʰ,tʰ,tʃʰ,kʰ,p',t',tʃ',k',ʔ,b,d,dʒ,g,s,f,x,h,s',f',x',z,z',y,m,n,w,j
Atayal	ieəəou		p,t,k,q,ʔ,ts,s,x,h,β,ɣ,m,n,ŋ,l,r,r,w,j
Atsugewi	ieao		m,n,m',n',p,t,t,k,q,ʔ,p',t',tʃ',k',q',pʰ,tʰ,tʃʰ,kʰ,qʰ,s,h,h,s',r,r',l,j,w,l',j',w'
Avatime	ieɛaəoou	□,□,□	m,n,ŋ,n,ŋʷ,p,b,t,d,k,g,kmp,gmb,tms,dmz,β,f,v,s,z,x,ɣ,xʷ,ɣʷ,l,j,w
Awngi	ieəəou	□,□,□	p,t,k,q,kʷ,qʷ,b,d,g,ɕ,gʷ,tms,tmf,dmz,dmz',f,s,f,smt,fmt,m,n,ŋ,ŋʷ,r,w,l,j
Aymara	iau		m,n,ŋ,p,t,tʃ,k,q,pʰ,tʰ,tʃʰ,kʰ,p',t',tʃ',k',q',s,x,χ,r,l,ʎ,j,w
Aynu	ieɛəəoou		p,b,t,d,k,g,q,tmf,dmz,v,s,z,f,χ,ɛ,h,m,n,ŋ,r,l,j
Azeri	ieəəaʷəoouy		m,n,p,b,t,d,tmf,dmz,c,j,k,g,f,v,s,z,f,ʒ,ɕ,x,ɣ,h,l,j,r

Korean	ieεαλwθου		m,b,p,ph,n,d,t,th,s,ʃ,l,tmε,tmε,tmεh,η,g,k,ph,h
Koromfe	iεεαλεθου		p,b,t,d,k,g,m,n,η,r,f,v,s,z,h,j,l,w
Koryak	ieaou		β,v,d,f,g,h,b,j,k,l,m,n,η,η,p,q,r,s,t,φ,w,z,ʃ
Koyukon	iæəθuu		p,t,ts,tʃ,k,q,ʔ,th,tsʰ,tʰ,kʰ,qʰ,tʰ,tsʰ,kʰ,qʰ,z,γ,s,x,h,m,n,l,j,η,l,m̃
Ktunaxa	iau		p,t,k,q,ʔ,pʰ,tʰ,kʰ,qʰ,ʃ,ʃʰ,s,x,h,t,m,n,mʰ,nʰ,w,y
Kuku-Thaypan	ieawou		p,t,c,k,t,m,n,η,η,mb,ʰd,η,ηg,ηd,β,δ,γ,r,l,l,j,w
Kuot	ieaou		m,n,η,p,t,k,b,d,g,φ,s,β,l,r
Kurdish	ieəəu		m,n,η,p,b,t,d,k,g,q,tmf,dmz,f,v,s,z,ʃ,z,ç,x,γ,ħ,ʃ,h,l,t,r,r,uj
Kusunda	ieəəou		m,n,η,ηʃ,p,b,t,d,k,g,q,ʔ,ts,dz,s,ε,h,w,l,j,r
Kwak'wala	ieəəou		m,n,mʰ,nʰ,p,t,kʰ,kʷ,q,qʷ,ʔ,b,d,gʰ,gʷ,ε,εʷ,pʰ,tʰ,kʰ,kʷ,qʰ,ts,tʃ,dz,dl,tsʰ,tʰ,s,t,xʰ,xʰ,χʰ,h,l,j,w,lʰ,jʰ,wʰ
Kyrgyz	ieowθouy		m,n,η,p,b,t,d,k,g,tʃ,dz,f,v,s,z,ʃ,l,r,j
Labu	iεəəou	□,□	p,t,k,b,d,g,mb,nd,ηg,m,n,η,s,h,l,w,j
Lakota	ieaou		m,n,p,t,tʃ,k,ʔ,b,g,pʰ,pʰ,tʰ,tʰ,kʰ,kʰ,pʰ,tʰ,tʰ,kʰ,s,ʃ,χ,z,z,ε,sʰ,ʃ,χʰ,w,l,j,h
Lao	ieεαλwθου	□□,□□,□□,□□,□□ □	b,d,p,t,c,cʷ,k,kʷ,ʔ,ʷ,pʰ,tʰ,tʰ,kʰ,kʰ,f,s,sʷ,h,m,n,η,η,ηʷ,l,lʷ,j,w
Lardil	ieau		p,t,t,t,t,k,m,n,η,η,η,w,j,l,ʃ,ʃ,r
Latin	ieaou		b,d,g,p,t,k,kʷ,pʰ,tʰ,kʰ,z,f,s,h,m,n,η,r,l,t,j,w
Latvian	iεəəəu	□□,□□,□-□	p,b,t,d,c,j,k,g,ts,dz,tʃ,dz,m,n,η,η,r,v,s,z,ʃ,z,j,l,ʃ
Laz	ieaou		b,g,d,v,z,t,kʰ,l,m,n,j,pʰ,z,r,s,tʰ,p,k,γ,qʰ,ʃ,tmf,tms,dmz,tmsʰ,tmfʰ,x,dmz,h,f
Libyan Arabic	iεəəəou		t,tʰ,k,b,d,dʰ,g,f,θ,s,sʰ,χ,ħ,h,δ,δʰ,z,zʰ,z,ε,ʃ,m,n,l,lʰ,r,rʰ,w,j
Lingala	ieεaou	□,□	m,n,η,p,b,t,d,k,g,f,v,s,z,ʃ,l,j
Lithuanian	ieəəou		m,n,p,t,k,b,d,g,s,ʃ,z,z,ts,tʃ,dz,uj,j,r
Livonian	iieəəəou		m,n,η,η,p,t,c,k,b,d,j,g,f,s,ʃ,h,v,z,z,r,rʰ,j,l,ʃ
Logba Kwa	iεεaou	□,□	m,n,η,η,p,b,t,d,k,g,kmp,gmb,tms,dmz,β,f,v,s,z,x,γ,l,j
Lower Sorbian	iieaou		p,pʰ,t,k,kʰ,b,bʰ,d,g,gʰ,tms,tmf,tmε,dmz,dmz,m,mʰ,n,nʰ,f,ʃ,s,ʃ,ε,x,h,v,vʰ,z,z,z,z,r,rʰ,l,j
Luganda	ieaou	□,□,□□	p,b,t,d,c,j,k,g,f,v,s,z,m,n,η,η,l~r,j,w
Luiseno	ieaou	□	m,n,η,p,t,tʃ,k,q,ʔ,b,d,g,f,s,ʃ,χ,h,v,δ,l,j,w,r
Lydian	ieaou		m,n,η,p,t,ts,k,kʷ,dz,f,s,ʃ,v,z,l,r,ʃ
Maasai	iεεaou	□□,□□,□□,□□□,□□	m,n,η,η,p,t,k,ʔ,b,d,f,g,ʃ,h,l,r,ʃ,w,j,ww,jj
Macedonian	ieaou		m,n,η,p,b,t,d,c,j,k,g,tms,dmz,tmf,dmz,f,v,s,z,ʃ,z,x,j,r,t,l
Mahal	ieaou		t,t,c,k,b,d,d,j,g,mb,ʰd,ηd,ηg,f,s,s,ε,h,v,z,m,n,η,η,η,l,l,j,r
Maisin	ieaou		p,t,k,b,d,g,m,n,φ,φʰ,s,β,j,r,j,w
Majang	iεεaou	□,□	m,n,η,η,p,t,tʃ,k,b,d,dz,g,β,d,r,l,j,w
Makah	iεəəu		p,t,k,kʷ,q,qʷ,ʔ,pʰ,tʰ,kʰ,qʰ,qʰ,b,d,ts,tʃ,tʃ,tsʰ,tʰ,tʃ,s,tʃ,x,xʷ,χ,χʷ,l,j,w
Maku	iieauy		p,b,t,d,k,ʔ,ts,s,ʃ,x,h,b,d,m,n,r,w,j
Malagasy	ieaou		m,n,η,p,t,ts,tʰ,k,mp,nt,nts,ηʰ,ηk,b,d,dz,dʰ,g,mb,nd,ndz,ηdʰ,ηg,f,s,h,v,z,l,r
Malay	ieaəəou		m,n,η,η,p,b,t,d,k,g,ʔ,tmf,dmz,s,z,ʃ,h,j,w,l,r
Malayalam	iieəəou		m,n,η,η,η,η,p,b,t,d,t,t,d,tmf,dmz,k,g,pʰ,bʰ,tʰ,dʰ,dʰ,tmʰ,dmzʰ,kʰ,gʰ,f,ʃ,s,ε,h,u,l,j,l,l,r

St'at'imcets	εεααλεοο		p,t,tmf,tms,k,k ^w ,q,q ^w ,p',tms',tm ^h ,k',k ^w ,qmx',qmx ^w ,ʔ,ʔf,ʂ,x,x ^w ,χ,χ ^w ,m,n,ʔm,ʔn,z,l,l
Sucite	ieεαεου	□,□,□	p,t,tmc,k,ʔ,b,d,dmz,gmb,b:,d:,dmz:,g:, ^h b, ^h d, ^h dmz, ^h g, ^h gmb,m,n,n',η,ηmm,f,f',s,x,w w',j
Sundanese	ieαεου		p,b,t,d,k,g,tʃ,j,h,η,η,m,n,s,w,l,r,j
Supyire	iueεεαα	□,□,□,□	p,t,tmf,k,ʔ,b,d,dmz,g,f,s,f,z,m,n,η,η,l,j,w
Svan	ieεααεαεου		p ^h ,b,p',t ^h ,d,t',k ^h ,g,k',q',ʔ,f,v,s,z,f,z,x,y,h,ts ^h ,dz,ts',tʃ ^h ,dʒ,tʃ,m,n,l,r,j,w
Swahili	ieαου		m,n,η,η,mb,nd,η,η,gb,d,f,g,p,t,tʃ,k,p ^h ,t ^h ,tʃ ^h ,k ^h ,m,v,nz,v,δ,z,γ,θ,s,f,x,h,r,l,j,w
Sydney	iau		b,k,c,t,t,m,η,η,η,n,l,l,r,l,w,j
Syriac	ieεαου		m,n,b,d,g,p,t,t ^h ,k,q,ʔ,v,δ,z,γ,ʃ,f,θ,s ^h ,s,f,x,h,h,l,j,w,r
Tagalog	ieαου	□	m,n,η,η,p,b,t,d,k,g,ʔ,v,s,h,r,l,j,w
Tagbanwa	iau		ʔ,k',k,η,t',t,n,p',p,m,j,l,w,s
Tagoi Kordofanian	iεεαεουου	□,□,□□	p,t,c,k,f,s,r,l,m,n,η,y,w
Tahitian	ieαουου		f,h,m,n,p,r,t,v,ʔ
Tai Dam	ieεαεωεου	□□,□□,□□,□□,□ □,□□	b,p,v,f,m,k,x,η,h,l,d,t,t ^h ,n,ʔ,s,tε,j,η
Tai Lü	ieεαγωου	□□,□,□□,□□,□, □	p,p ^h ,b,m,f,v,t,t ^h ,d,n,l,ts,s,j,k,η,x,k ^w ,x ^w ,ʔ,h
Tai Nüa	ieεαεωου	□□,□□,□,□□,□, □	p,p ^h ,f,m,t,t ^h ,ts,s,n,k,x,η,ʔ,h,l,j,w
Tamambo	ieαου		m,m ^w ,n,η,mb,mb ^w , ^h d,η,t,k,β,β ^w ,x,s,r,l
Tamil	ieαου		p,t,tʃ,k,m,η,n,η,η,η, ʃ,r,υ,ɹ,j,.,l,l
Tanacross	ieεαου	□,□	t,dmz,tmθ,tm ^h ,tmf,k,ʔ,t ^h ,tms ^h ,tmθ ^h ,tm ^h ,tmf ^h ,k ^h ,t',tms',tmθ',tm ^h ,tmf',z,δ,l,y,smz,tmδ,†mʒ,jmz,xmy,s,θ,†f,x,h,m,n,j,η,j
Tangut	iεαου	□□,□□	p,p ^h ,b,m,f,v,w,t,t ^h ,d,n,t,t ^h ,n,d,k,k ^h ,g,η,ts,ts ^h ,dz,s,tε,tε ^h ,dz,ε,h,x,y,l,z,r,z
Taos	ieαεου	□,□,□	b,d,g,p,t,k,ʔ,tʃ,t',s,x,h,m,n,w,l,j,r
Tarahumara	ieαου		m,n,p,t,k,ʔ,tms,tmf,β,s,f,y,h,w,ʃ,l,j,r
Tashelhiyt	ieαου		m,n,t,t ^h ,k,k ^w ,q,q ^w ,b,d,d ^h ,g,g ^w ,f,s,s ^h ,f,χ,χ ^w ,h,h,z,z ^h ,z,ε,ε ^w ,ʃ,l,l ^h ,j,w,r,r ^h
Tausūg	iau		b,d,g,h,dʒ,k,l,m,n,η,p,r,s,t,w,j
Telugu	ieαου		k,k ^h ,g,g ^h ,η,j,ε,h,tε,tε ^h ,dz,dz ^h ,η,t,t ^h ,d,q ^h ,η,r,l,ʂ,t,t ^h ,d,d ^h ,n,l,ʃ,s,v,p,p ^h ,b,b ^h ,m
Thai	ieεαγωου	□□,□□,□,□,□	m,n,η,p,p ^h ,b,t,t ^h ,d,k,k ^h ,ʔ,f,s,h,tε,tε ^h ,r,j,w,l
Tibetan	ieεαεου	□,□	m,n,η,η,p ^h ,t ^h ,c ^h ,k ^h ,p,t,t,c,k,ʔ,ts ^h ,tε ^h ,ts,tε,s,ε,ʂ,h,ɹ,j,w,l
Tigre	ieαου		m,n,t,tʃ,k,ʔ,b,d,dʒ,g,t',tʃ',k',f,s,f,h,h,z,z,ʃ,s',l,j,w,r
Tigrinya	ieεαου		m,n,η,p,t,tʃ,k,k ^w ,ʔ,b,d,dʒ,g,g ^w ,p',t',tʃ',k',k ^w ,f,s,f,x,x ^w ,h,h,v,z,z,ʃ,s',x',x ^w ,l,j,w,r
Tillamook	ieαε		t,k,k ^w ,q,q ^w ,ʔ,t',k',k ^w ,q',q ^w , tms,tmf,tms',tm ^h ,tmf,s,†f,x,x ^w ,χ,χ ^w ,h,n,l,j,w
Timbisha	ieαου		p,t,k,k ^w ,ʔ,ts,s,h,m,n,η,ηw,j,w
Timucua	ieαου		p,t,k,k ^w ,tʃ,β,f,s,h,m,n,r,l,j
Tina	iau	□	p,t,k,ʔ,b,d,g,tʃ,s,h,m,n,η,l,r,w,j
Tiriyo	ieεαου		m,n,p,t,k,s,h,r,β,j
Tlingit	ieελ	□,□	t,k,k ^w ,q,q ^w ,t ^h ,k ^h ,k ^w ,q ^h ,q ^w ,t',k',k ^w ,q',q ^w ,ʔ,ts,t,tʃ,ts ^h ,t ^h ,tʃ ^h ,ts',t',tʃ',s,†f,x,x ^w ,χ,χ ^w ,h,s',t',x',x ^w ,χ',χ ^w ,m,n,j,w
Toda	ieεαεου		m,n,η,p,t,tʃ,tʃ,t,k,b,d,dz,d,dʒ,d,g,f,θ,ʂ,†,s,f,ʂ,x,z,r,r',r',r',(mr,(mr',l,l,j,w
Tongan	ieαου		f,h,k,l,m,n,η,p,s,t,v,ʔ

Tonkawa	ieaou		p,t,k,k ^w ,ʔ,ts,s,x,x ^w ,h,m,n,l,j,w
Totonacan	iau		m,n,p,t,k,q,tms,tmʔ,tmf,s,t,f,x,h,l,j,w
Tsez	ieaou		p,b,p',t,d,t',k,g,k',q', tms,tms',tmʔ,tmʔ,tmf,tmf,qmχ,s,z,t,f,ʒ,χ,β,h,ʎ,h,m,n,r,l,w,j
Tsoa	ieaou	□,□,□	ŋl,ŋl,ŋll,ŋʃ,l,ŋl,l ^h ,!ŋl,l ^h ,ll,ŋll,ll ^h ,ʃ,ŋʃ,ʃ ^h ,l ^ʔ ,ll ^ʔ ,lqχ,llqχ,m,n,p,b,t,d,k,g,q,ʔ,dz,tʃ,dʒ,s,z,ʃ,χ,l
Tsou	iieəou		m,n,ŋ,p,t,k,ʔ,b,d,ts,f,v,s,z,h,w,j
Tsuu T'ina	iau	□,□,□	b,d,g,g ^w ,t,k,k ^w ,ʔ,t',k',k ^w ,dz,dʒ,dʒ,ts,tʃ,ts',tʃ',tʃ',z,ʒ,χ,s,t,f,x,h,m,n,w,l,j
Tswana	ieəəou	□,□	m,n,ŋ,n,ŋ,p,b,t,d,k,p ^h ,t ^h ,k ^h ,q ^h ,ts,tʃ,tʃ,dʒ,ts ^h ,tʃ ^h ,f,s,ʃ,χ,h,r,w,l,j
Tuareg	ieaāəou		b,t,t ^ʔ ,d,d ^ʔ ,j,k,g,q,f,s,s ^ʔ ,z,z ^ʔ ,ʃ,ʒ,χ,ʒ,ʔ,m,n,ŋ,l
Tubatulabal	iieəou		p,t,tms,tmf,k,ʔ,b,d,dmz,dmʒ,g,ʃ,h,m,n,ŋ,l,j,w
Turkish	ieawəəouy		m,n,p,b,t,d,tʃ,dʒ,c,j,k,g,f,v,s,z,ʃ,ʒ,ɯ,h,t,l,j,r
Turkmen	ieəawəəouy		p,b,t,d,t,d,k,q,g,β,m,n,ŋ,r,φ,β,θ,δ,ʃ,ʒ,h,x,tmf,dmʒ,l,j
Tuscarora	ieəəu		n,t,k,ʔ,θ,s,h,r,j,w
Tuvaluan	ieaou		p,t,k,m,n,ŋ,φ,β,s,h,l
Tuvan	ieawəəouy		m,n,ŋ,p,t,g,p ^h ,t ^h ,k,tmf,s,ʃ,x,z,ʒ,r,u,l,j
Twi Akan	ieɛəəəouou	□,□,□	p ^h ,t ^h ,k ^h ,k ^w ,b,d,g,g ^w ,f,s,h,h ^w ,m,n,ŋŋ ^w ,ŋŋq,r,w
Tzotzil	ieaou		m,n,p ^h ,b,p',t ^h ,t',k ^h ,k',ʔ,ts ^h ,ts',tʃ ^h ,tʃ',v,s,ʃ,h,l,j,r
Tzutujil	ieaou		p,b,t,d,k,k',q,q',ʔ,ts,ts',tʃ,tʃ',s,ʃ,χ,m,n,l,r,j,w
Ubykh	aə		p,p ^ʔ ,t,t ^w ,k',k,k ^w ,q',q,q ^w ,q ^ʔ ,q ^w ,b,b ^ʔ ,d,d ^w ,g',g,g ^w ,p ^ʔ ,p',t',t ^w ,k',k',k ^w ,q',q',q ^ʔ ,q ^w ,q ^ʔ ,q ^w ,tms,tmf,tmə,tmə ^w ,[mʒ,dmz,dmʒ,dmz,dmz ^w ,dmz,tms',tmf',tmə',tmə ^w ,[mʒ',f,s,t,f,j ^w ,ç,ç ^w ,ʒ,x,χ',χ',χ ^w ,χ ^ʔ ,χ ^w ,h,v,v ^ʔ ,z,ʒ,ʒ ^w ,z,z ^w ,z,ʒ,β',β,β ^w ,β',β ^w ,t',m,m ^ʔ ,n,l,j,w,w ^ʔ ,r
Udi	ieəəou		m,n,b,d,g,p,t,k,q,p',t',k',q',dmz,dmʒ,dmʒ',tms,tmf,tmf',tms',tmf',tmf',f,s,ʃ,ʃ',x,h,v,z,ʒ,ʒ',χ,r,l,j,
Udmurt	iieəlou		b,v,g,d,j,ʒ,dʒ,z,dʒ,k,t,m,n,p,r,s,t,f,x,tms,tmə,tmf,ʃ,ç
Ugaritic	ieaou		m,n,p,t,t ^ʔ ,k,q,ʔ,b,d,g,θ,s,s ^ʔ ,ʃ,x,h,h,δ,z,δ ^ʔ ,ʒ,ʒ',r,l,j,w
Unami	ieəəou		p,t,tʃ,k,s,ʃ,x,h,m,n,l,w,j
Urathi	ieəu		p,t,t,c,k,m,n,ŋ,n,ŋ,β,δ,ʒ,r,l,l,j,w
Urhobo	aɛiəou	□,□,□	m,n,ŋ,p,b,t,d,c,j,k,g,kmp,gmb,φ,f,v,s,z,ç,ʒ,h,r,l,u,l,j,w
Uw Cuwa	ieaou		t,k,k ^w ,ʔ,b,s,ʃ,h,m,n,r,w,j,w̃
Uyghur	ieawəəouy		m,n,ŋ,p,b,t,d,tmf,dmʒ,k,g,q,ʔ,f,s,z,ʃ,ʒ,x,β,h,r,l,j,w
Uzbek	iieəəəouy		b,d,φ,g,h,dʒ,k,l,m,n,p,q,r,s,t,w,χ,j,z,β,ʃ,tʃ,ʔ,ts
Vai Mande	ieəəou	□,□	p,t,tmf,k,kmp,b,d,dmʒ,g,gmb,dmʒ,g,gmb,b,d,'b, ^h d,f,s,h,v,z,m,n,ŋ,l,j,w
Venda	aɛiəou	□,□	b,β,v,bj,d,dmz,dmʒ,dmzw,d,f,φ,g,h,yw,k',k ^h ,k ^w ,l,l,m,n,ŋŋ,ndmz,n,ŋ,ŋw,p ^ʔ ,p ^h ,p ^ʔ ,r,s,ʃ,ʒ,t ^ʔ ,t ^h ,tms,tmf ^ʔ ,tmsw,c,t ^ʔ th,v,β,w,x,j,z,ʒ,z
Ventureno Chumashan	ieəəou		m,n,ŋ,n,p,t,k,q,ʔ,p',t',k',q',p ^h ,t ^h ,k ^h ,q ^h ,tms,tmf,tms',tmf',tms ^h ,tmf ^h ,s,ʃ,x,h,s ^h ,j ^h ,w,l,j,w,j
Vietnamese	iieɛəəou	□□,□□,□□,□,□□,□□	p,t,tʃ,c,k,t ^h ,b,d,f,s,s,x,h,v,z,z,z,γ,m,n,ŋ,w,l,j
Votic	iieəəəəouy		m,n,ŋ,p,b,t,d,k,g,ts,tʃ,f,v,s,z,ʃ,ʒ,j,x,h,r,l,l
Wagiman	ieaou		p,b,t,d,t,d,c,j,k,g,ʔ,m,n,ŋ,n,ŋ,r,l,l,w,l,j
Wallisian	ieaou		f,g,h,k,l,m,n,s,t,v,'
Walmajarri	iau		p,k,c,t,t,m,ŋ,n,n,ŋ,l,l,l,r,w,j,l
Wambon	ieaou		p,t,k,mb,nd,ŋg,m,n,w,l,j,β,s,dʒ,γ,h

Waray Waray	iau		p,t,k,b,d,g,m,n,ŋ,s,h,w,l,r,j
Warembori	ieaou		p,t,k,b,d,'b,'d,m,n,'m,'n,s,w,j
Wari	ieaəoy		m,n,p,t,k,kʷ,ʔ,tmb,f,xʷ,r,j,w,h
Warlpiri	iau		p,t,ṭ,c,k,m,n,n̩,ŋ,ŋ,r,ɽ,w,ɻ,j,l,ɭ,ɮ
Wayuu	ieawou		m,n,ñ,p,t,çh,k,ʔ,s,sh,j,l,r,w,j
Wè	ιεεαουου	□,□,□,□,□□,□□, □□,□□,□□,□□	p,b,kmp,gmb,t,d,c,j,k,g,kʷ,gʷb,m,n,ŋ,f,v,s,z,l,j,w
Western Desert	iau		p,m,w,t,n,r,l,ṭ,ŋ,ɭ,c,ŋ,ɮ,j,k,ŋ
Western Pantar	ieaou		p,t,k,b,d,g,s,h,m,n,ng,r,l,w,y
Western Yugur	ieawəouy		m,n,ŋ,pʰ,p,tʰ,t,kʰ,k,qʰ,q,ts,tsʰ,ts̥,ts̥ʰ,ts̥s̥,z,s,z̥,ç,x,y,h,r,l,j,w
White Hmong	ieaou	□□,□□,□,□□,□□ ,□,□□	ŋ,ŋ,ŋ,m,n,ŋ,p,pʰ,tʰ,ṭʰ,c,cʰ,k,kʰ,q,qʰ ʔ,d,dʰ,b,bʰ,ʰd,ʰdʰ,d,dʰ,ɻ,ɻʰ,g,gʰ,g,çʰ,ts,tsʰ,ts̥,ts̥ʰ,ʰdz,ʰdzʰ,ŋdz,ŋdzʰ,f,s,t,s,ç,h,v,z,ɻ,l
Wichita Caddoan	ieao	□,□	t,k,kʷ,ʔ,ts,s,r,j,w,h
Winnebago	ieaou		p,b,d,k,g,ʔ,tʃ,dʒ,m,n,s,z,ʃ,ʒ,x,y,h,r,w,j
Wintu	ieəəou		b,d,pʰ,tʰ,pʰ,tʰ,tmʰ,tmfʰ,kʰ,qʰ,p,t,ʌ,tmfʰ,k,q,ʔ,ʃ,x,χ,h,m,n,r,w,l,j
Wogamusin	ieəəou		m,n,ŋ,p,t,k,b,d,g,mb,ʰd,ŋg,s,h,l,j,w
Woiwurrung	iau		b,p,d,t,d,ṭ,ð,θ,ɟ,c,g,k,m,n,ŋ,ŋ,ŋ,l,l,r,r,j,w
Woleaian	ieaəəouy		b,p,f,t,s,l,sh,r,g,bb,pp,ff,tt,ss,nn,ch,k,mʷ,m,n,ŋ,w,j
Wolof	iueoɛəə		p,b,t,d,c,j,k,g,q,m,n,ŋ,ŋ,mb,nt,nd,nc,ŋ,ŋk,ŋg,n,q,r,f,s,x,w,j,l
Wu,Fengxian, Dōndāc	ιιιιεεαλγθεεəəθə ouyy	□□,□□□,□□□,□ □□,□□,□□,□,□	pʰ,b,b̥,f,u,kʰu,gu,m,w,tʰ,d,d̥,s,z,tsʰ,dz,n,l,ç,z,tsʰ,ts̥,dz,f,ŋ,j,kʰ,g,ŋ,ʔ,h,ɦ,pʰ,b̥,ʋ,mʰ,tʰ,d̥,ʋ,l
Wu,Pinghu	ιιεεαθəəəouyy	□□,□□,□□,□□,□ □,□,□	pʰ,b,p,f,u,m,tʰ,d,t,s,z,tsʰ,ts,n,l,ç,z,tsʰ,ts̥,dz,ŋ,j,kʰ,k,g,ŋ,ʔ,h,ɦ
Wuvulu-Aua	ieaou		p,b,t,d,ʔ,m,n,f,s,x,h,l,j,w,ð
Xamtanga	ieaəu		t,tmfʰ,k,kʷ,q,qʷ,b,d,dmʒ,g,gʷ,tʰ,tmfʰ,kʰ,kʷ,f,s,ʃ,χ,χʷ,hʰ,z,sʰ,m,n,ŋ,ŋʷ,l,r,j,w
Xavante	ieεaəou		p,t,c,ʔ,b,d,j,r,w,h
Xhosa	ieəu	□,□	kl,kil,k!l,q,kiʰ,kilʰ,k!ʰ,g!ʰ,gllʰ,g!ʰ,ŋl,ŋll,ŋ!ʰ,ŋllʰ,ŋ!ʰ,ŋllʰ,ŋ!ʰ,ŋllʰ,ŋ!ʰ,ŋllʰ,pʰ,tʰ,ṭʰ,kʰ,pʰ,tʰ,ṭʰ,kʰ,bʰ,dʰ,dʰ,gʰ,b,tsʰ,tʃʰ,kxʰ,tsʰ,tʃʰ,dzʰ,dʒʰ,f,s,t,ʃ,x,h,y,z,ʒ,ʒ,ʒ,ɦ,m,n,nʰ,ŋ,m,mh,ŋ,nʰ,ŋ,l,j,w,ḷ,j,w,r,r,rʰ
Xiang,Changsha,	ιεεəəəouy	□□,□□,□□,□□,□ □,□□	p,t,k,ʔ,pʰ,tʰ,kʰ,m,n,m,ŋ,f,s,ç,s,x,z,ts,ts̥,ts̥ʰ,ts̥ʰ,ts̥ʰ,l
XiTswa	aeiou	□,□	b,tʃ,d,g,h,dʒ,k,l,m,n,ŋ,p,r,s,ʃ,t,v,w,ʃ,j,z,ʒ
Yabem	ιεεαου	□,□	p,t,k,ʔ,b,d,g,mb,nd,ŋg,m,n,ŋ,s,l,w,j
Yakut	ieawəouy		m,n,ŋ,ŋ,p,b,t,d,c,j,k,g,s,x,y,h,l,j,r
Yanesha	eao		m,mʰ,n,nʰ,p,pʰ,t,ṭ,1,k,tms,tms,tmf,s,ʃ,x,β,z,γ,r,j,w,l
Yaqui	ieaou		b,tmfʰ,h,k,l,m,n,p,r,s,t,β,w,j
Yawelmani	iaou		p,t,ṭ,k,ʔ,pʰ,tʰ,ṭʰ,kʰ,pʰ,tʰ,ṭʰ,kʰ,tms,tmsʰ,tmsʰ,s,s,x,h,m,n,mʰ,nʰ,w,l,j,wʰ,lʰ,jʰ
Yidiny	iau		b,d,j,g,m,n,ŋ,ŋ,l,r,ɽ,j,w
Yirrk	ieaou		p,t,ṭ,k,m,n,ŋ,ŋ,tmfʰ,r,ṛ,ɻ,l,j,w
Yolngu	iau		b,p,m,w,ðd,θt,ðn,d,t,n,l,r,d,ṭ,ŋ,ɭ,ɽ,g,k,ʔ,dʰ,ṭ,nʰ,ŋ,j

Yoruba	ieɛaou	□,□,□	m,ŋ,b,t,j,k,kmp,f,s,f,h,l,j,w,r
Yupik	iaəu		p,t,k,q,c,f,s,t,x,χ,v,z,ʒ,ʏ,β,ŋ,ŋ̃,m,n,ŋ,w,j
Yurok	ieaəou		p,t,tʃ,k,kʷ,ʔ,p',t',tʃ',k',kʷ,t,ʃ,f,x,h,m,n,'m,'n,l,j,ɥ,w,'l,'ɥ,'j,'ɥ,'w
Zhuang	ieəəou	□□,□□,□,□□,□□ ,□	p,ɔ,m,f,β,t,d,n,θ,l,k,kʷ,ŋ,h,χ,ɕ,j,ŋ,ŋʷ,p',k',m'
Zuberoan	ieaθou	□	m,n,ŋ,p,t,c,k,b,d,j,g,tʃ,ts,tʃ,f,ʃ,ʃ,ʃ,h,j,l,ʎ,r,r
Zulu	ieɛaou	□,□□,□	m,m,n,n,ŋ,ŋ,ŋ̃,ŋ,ŋ̃,p',b,ɓ,t',t',d,kʰ,k',d,ǃ,tʃ,dʒ,kx,f,y,s,z,f,h,ɦ,t,ʒ,l,j,m,w,w,l,lʰ,ɡlʰ,ŋlʰ,lʰ,ŋlʰ,lʰ,ŋlʰ,lʰ,ŋlʰ,lʰ,ŋlʰ,lʰ,ŋlʰ,lʰ
Zuni	ieaou		p,t,k,kw,ʔ,ts,tʃ,s,tʃ,h,m,n,l,j,w
*Abagatan Ilokano	ieawou		p,t,k,ʔ,b,d,g,tʃ,dʒ,s,f,h,m,n,nj,ŋ,l,lj,r,r,w,j
*Adzera	iou		p,t,k,ʔ,b,d,g,mp,"t,ŋk,"ʔ,tʃ,dʒ,"tʃ,m,n,ŋ,r,f,s,h,w,j
*Amianan Ilokano	ieaou		p,t,k,ʔ,b,d,g,tʃ,dʒ,s,f,h,m,n,nj,ŋ,l,lj,r,r,w,j
*Araki	ieaou		p,t,t,k,tmf,s,h,β,ð,m,n,n,ŋ,r,r,l
*Arop-Lokep	ieaou		p,t,k,ʔ,b,d,g,m,n,ŋ,s,r,l
*Asi	iau		p,t,k,b,d,g,m,n,ŋ,s,h,w,l,r,j
*Balinese	ieaəou		p,b,t,d,c,j,k,g,m,n,ŋ,s,h,r,l,w,j
*Banjar Kuala	ieaou		p,b,t,d,c,j,k,g,m,n,ŋ,s,h,l,r,w,j
*Bantik	ieaou		p,t,k,ʔ,b,d,g,m,n,ŋ,s,h,r
*Big Nambas	ieaəu		p,t,p,t,k,"d,β,ð,β,s,χ,m,ŋ,ŋ,n,l,r
*Bolinao	iaəou		m,n,ŋ,ŋ,p,t,k,ʔ,b,d,g,ts,tʃ,dʒ,s,f,h,r,j,w,l,ʎ
*Botolan	ieau	□	p,t,k,ʔ,b,d,g,tʃ,dʒ,s,f,h,m,n,ŋ,ŋ,l,lj,r,w,j
*Buginese	ieəou		p,t,c,k,ʔ,b,d,j,g,s,m,n,ŋ,ŋ,l,r,w,j
*Bukawa	ieaəou	□,□	p,pw,t,k,kw,ʔ,b,bw,d,dw,g,gw,mb,mp,nd,nt,ŋg,ŋk,m,mw,n,ŋ,s,h,l,lh,w,wh,j,jh
*Cantonese, HongKong	ieaəəəou	□□,□□,□□,□□,□ □,□□,□,□,□	m,ŋ,p,t,tms,k,kʷ,ʔ,pʰ,tʰ,tmsʰ,kʰ,kʰʰ,f,s,h,l,j,w
*Cebuano	iau	□	m,n,ŋ,p,t,k,ʔ,b,d,g,s,h,r,l,w,j
*Chamorro	ieaəou		ʔ,b,ts,d,f,g,gʷ,h,k,l,m,n,ŋ,ŋ,p,r,s,t,dz
*Cook Island Maori	ieaou		m,n,ŋ,p,t,k,ʔ,r,v,s,h
*Drehu	ieaəθou		p,t,tʃ,tmf,k,d,d,g,ŋ,ŋ̃,ŋ̃,m,n,ŋ,ŋ,f,θ,s,x,h,ð,z,l,l,m,w
*Dutch	ieɛaəaəəəəou		m,n,ŋ,p,t,k,b,d,g,f,s,f,ç,x,v,z,ʒ,j,χ,β,ɦ,r,β,l,j
*Faroese	ieaəəəəou		pʰ,p,tʰ,t,kʰ,k,tʃʰ,tʃʰ,f,v,s,f,h,m,n,ŋ,w,l,j
*Fijian	ieaou		m,n,ŋ,t,k,mb,nd,ŋg,s,β,ð,r,ŋdʰ,l,j,w
*Gan,Wuzhou	ieaəəou	□,□□□,□□,□□,□ □	m,ŋ,ŋ,p,t,k,pʰ,tʰ,kʰ,z,f,s,ç,x,ts,tç,tçʰ,l
*Gilbertese	ieaou		m,mʷ,n,ŋ,p,pʷ,t,k,βʷ,r
*Hakka,Zhaoan	ieaəou	□□,□□,□□,□□,□ ,□	m,n,ŋ,ŋ,p,t,k,pʰ,tʰ,kʰ,ts,tç,tçʰ,tçʰ,f,s,ç,h,u,l,j
*Hawaiian	ieəou		m,n,p,k,ʔ,h,w,l
*Hiligaynon	iau		p,t,k,b,d,g,m,n,ŋ,s,h,w,l,r,j
*Iaai	ieaəaəəəou		p,t,tʃ,c,k,bʷ,d,d,j,g,ŋ,ŋʷ,ŋ̃,ŋ̃,ŋ̃,m,mʷ,ŋ,ŋ,ŋ,ŋ,f,θ,s,f,x,ð,ɥ,w,l,h,u,w,l,ç

*Tocharian	iiεαου		p,t,c,k,k ^w ,ts,s,ç,ş,w,j,r,m,n,ŋ,l,ʎ
*Ukrainian	iεαου		m,ŋ,n ^l ,p,b,t,d,t ^l ,d ^l ,k,g,tms,dmz,tms ^l ,dmz ^l ,tmf,dmʒ,f,s,z,s ^l ,z ^l ,ʃ,ʒ,x,ɦ,u,j,l,l ^l ,r,r ^l
*Urdu	iεεααουου		k,k ^h ,x,g,ɣ,g ^h ,ŋ,tmf,tmf ^h ,dmʒ,z,dmʒ ^h ,ŋ,t,t ^h ,d,ɽ,q ^h ,ɽ ^h ,n,t,t ^h ,d,d ^h ,n,p,p ^h ,f,b,b ^h ,m,j,r,l,u,ʃ,ʒ,s,h
*Welsh	iιίεεεααουου		p,b,t,d,k,g,f,v,θ,ð,s,t,ʃ,χ,h,m,n,ŋ,r,r ^l ,j,w
*West Frisian	iεεααουου		b,x,d,r,f,g,ɣ,h,j,k,l,m,n,p,r,s,ʂ,t,tʂj,v,f,w,ks,j,z
*Wu,Jinxiang	ιιεααωαουου	□,□□,□□,□□,□□ □,□□,□□	p ^h ,b,p,f,u,m,t ^h ,d,t,s,z,ts ^h ,ts,dz,n,l,ç,z,tç ^h ,tç,dz,j,k ^h ,k,g,ŋ,ʔ,h,ɦ
*Yaghnobi	iεαουuy		m,n,p,b,t,d,c,j,k,g,q,tʃ,dʒ,f,v,s,z,ç,z,χ,χ ^w ,ɛ,ɦ,ʕ,h,β,j,r,l

Table S2 - Comparison of inter-family distribution between the sampled languages and all languages in Ethnologue.

To balance among the linguistic families, a number of languages of Indo-European, Austronesian, and Chinese were excluded from analyses of this paper. The present inter-family distribution is similar to that of Atkinson's (2), and is not obviously biased from that of Ethnologue (3).

Sample of this paper			Atkinson's sample			All languages in Ethnologue		
Family	Count	Percent	Family	Count	Percent	Family	Count	Percent
Niger-Congo	56	10.98	Niger-Congo	62	12.30	Niger-Congo	1510	21.86
Austronesian	45	8.82	Austronesian	42	8.33	Austronesian	1231	17.82
Indo-European	47	9.22	Indo-European	30	5.95	Trans-New Guinea	475	6.88
Australian	39	7.65	Australian	28	5.56	Sino-Tibetan	445	6.44
Sino-Tibetan	24	4.71	Sino-Tibetan	25	4.96	Indo-European	426	6.17
Afro-Asiatic	27	5.29	Afro-Asiatic	27	5.36	Afro-Asiatic	353	5.11
Altaic	27	5.29	Nilo-Saharan	25	4.96	Nilo-Saharan	198	2.87
Na-Dene	19	3.73	Trans-New Guinea	19	3.77	Oto-Manguean	175	2.53
Algic	16	3.14	Austro-Asiatic	16	3.17	Austro-Asiatic	169	2.45
Uto-Aztecan	15	2.94	Altaic	15	2.98	Australian	153	2.21
Uralic	14	2.75	Oto-Manguean	9	1.79	Tai-Kadai	90	1.30
Tai-Kadai	9	1.76	Tai-Kadai	9	1.79	Dravidian	84	1.22
Salishan	8	1.57	Uto-Aztecan	9	1.79	Mayan	68	0.98
Iroquoian	7	1.37	Arawakan	8	1.59	Altaic	64	0.93
Mayan	6	1.18	Nakh-Daghestanian	8	1.59	Tupi	59	0.85
Nakh-Daghestanian	6	1.18	Na-Dene	7	1.39	Sepik	56	0.81
Nilo-Saharan	6	1.18	Uralic	7	1.39	Torricelli	56	0.81
Trans-New Guinea	6	1.18	Cariban	6	1.19	Uto-Aztecan	56	0.81
Arawakan	5	0.98	Dravidian	6	1.19	Arawakan	46	0.67
Khoisan	5	0.98	Khoisan	6	1.19	Quechuan	45	0.65
Siouan	5	0.98	Macro-Ge	6	1.19	Na-Dene	40	0.58
Austro-Asiatic	4	0.78	Penutian	6	1.19	Hmong-Mien	38	0.55
residual	114	22.35	residual	128	25.40	residual	850	12.71
Total	510		Total	504			6687	

Table S3 - Summary of Mantel and partial Mantel tests (1000 permutations) for correlations between total phoneme diversity and speaker population size and distance from the best-fit origin.

To further test the robustness of these findings, we repeated regressions using Mantel and partial Mantel tests as Atkinson did. Mantel tests were carried out on the full language dataset in Arlequin 3.11 program (4), using differences in distance from the origin and log population size to predict differences in phonemic diversity.

Dataset	Test	N	Partial correlation with distance - <i>r</i>	Determination of diversity by distance	Significance (p-value)
Global raw data	Diversity vs distance from Africa	510	-0.436	0.190	<0.001
Global raw data	Diversity vs distance from Asia	510	-0.441	0.195	<0.001
Global raw data	Diversity vs distance from Europe	510	-0.438	0.192	<0.001
Global simplified data	Diversity vs distance from Africa	510	-0.134	0.018	<0.001
Global simplified data	Diversity vs distance from Asia	510	-0.063	0.004	<0.001
Global simplified data	Diversity vs distance from Europe	510	-0.091	0.008	<0.001
Global raw data	Diversity vs distance from Africa, partial with logged population size	510	-0.315	0.143	<0.001
Global raw data	Diversity vs distance from Asia, partial with logged population size	510	-0.320	0.147	<0.001
Global raw data	Diversity vs distance from Europe, partial with logged population size	510	-0.322	0.145	<0.001
Global simplified data	Diversity vs distance from Africa, partial with logged population size	510	-0.123	0.019	<0.001
Global simplified data	Diversity vs distance from Asia, partial with logged population size	510	-0.043	0.003	<0.001
Global simplified data	Diversity vs distance from Europe, partial with logged population size	510	-0.075	0.008	<0.001

Table S4 - MM-estimators for models of total phoneme diversity as explained by distance from the best-fit origin.

In order to minimize the possible influence of outliers, we used robust regression with MM-estimators (5) fitted in R (6) using the robustbase package. Largest Estimate was found in Asia when using raw data, while it was in Africa when using simplified data.

Dataset	Test	N	Estimate	Std.Error	t value	Pr(> t)
Global raw data	Diversity vs distance from Africa	510	-4.345×10 ⁻⁵	2.843×10 ⁻⁶	-15.283	<2×10 ⁻¹⁶
Global raw data	Diversity vs distance from Asia	510	-6.918×10 ⁻⁵	5.167×10 ⁻⁶	-13.390	<2×10 ⁻¹⁶
Global raw data	Diversity vs distance from Europe	510	-4.378×10 ⁻⁵	3.172×10 ⁻⁶	-13.804	<2×10 ⁻¹⁶
Global simplified data	Diversity vs distance from Africa	510	-1.453×10 ⁻³	4.803×10 ⁻⁶	-3.025	<2.61×10 ⁻³
Global simplified data	Diversity vs distance from Asia	510	-1.160×10 ⁻⁵	8.318×10 ⁻⁶	-1.394	<1.64×10 ⁻¹
Global simplified data	Diversity vs distance from Europe	510	-1.022×10 ⁻⁵	4.993×10 ⁻⁶	-2.047	<4.12×10 ⁻²

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