

Supplemental Material S1. Average age of acquisition of pulmonic and nonpulmonic consonants across studies.

75–89% criteria							90–100% criteria					
Consonant	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a
Plosives												
p	28.71	28.00	8.28	13–48	35	ara, cmn, dan, deu, ell, eng, fra, hat, isl, jam, kor, mlt, nld, pot, slv, swa, tur, xho	33.08	35.00	10.10	15–60	36	afr, ara, cmn, dan, deu, ell, eng, fra, heb, hun, isl, ita, jpn, msa, nld, pot, slv, spa, tur, yue
p*	25.50	27.00	10.25	12–36	4	kor	—	—	—	—	—	—
p ^h	31.10	30.00	8.75	18–43	10	cmn, ell, isl, kor, tsn, xho	39.00	39.00	2.12	37–42	5	cmn, isl, yue
b	29.16	30.00	8.87	12–48	31	ara, dan, deu, ell, eng, fra, hat, jam, mlt, nld, pot, slv, swa, tsn, tur, xho	38.21	36.00	12.52	15–72	33	afr, ara, dan, deu, ell, eng, fra, heb, hun, ita, jpn, msa, nld, pot, spa, tur
^m b	24.00	24.00	—	—	1	ell	—	—	—	—	—	—
b:	—	—	—	—	—	—	46.00	46.00	—	—	1	ara
t	29.50	28.50	11.31	12–72	36	ara, cmn, dan, deu, ell, eng, fra, hat, isl, jam, kor, mlt, nld, pot, slv, swa, tur, xho	35.33	36.00	10.97	15–60	40	afr, ara, cmn, dan, deu, ell, eng, fra, heb, hun, isl, ita, jpn, msa, nld, pot, slv, spa, tur, yue
t*	25.50	27.00	10.25	12–36	4	kor	—	—	—	—	—	—

75–89% criteria							90–100% criteria					
Consonant	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a
t ^h	32.30	33.00	9.87	18–49	10	cmn, ell, isl, kor, tsn, xho	39.40	40.00	13.70	18–54	5	cmn, isl, yue
t ^ʃ	36.00	36.00	—	—	1	ara	55.00	55.00	—	—	1	ara
t ^{wh}	42.00	42.00	—	—	1	tsn	—	—	—	—	—	—
t: ^{ʃh}	—	—	—	—	—	—	46.00	46.00	—	—	1	ara
d	29.39	30.00	8.16	12–48	31	ara, dan, deu, ell, eng, fra, hat, jam, mlt, nld, pot, slv, swa, tsn, tur, xho	39.31	36.00	12.82	15–72	36	afr, ara, dan, deu, ell, eng, fra, heb, hun, ita, jpn, msa, nld, pot, slv, spa, tur
ⁿ d	28.00	28.00	—	—	1	ell	—	—	—	—	—	—
t	—	—	—	—	—	—	—	—	—	—	—	—
d	—	—	—	—	—	—	—	—	—	—	—	—
c	31.67	28.00	10.02	24–43	3	ell, isl	32.00	32.00	11.31	24–40	2	isl, tur
c ^h	56.00	56.00	22.63	40–72	2	isl, xho	40.00	40.00	—	—	1	isl
tʃ	51.50	55.00	20.60	24–72	4	ell, tur, xho	24.00	24.00	—	—	1	tur
ⁿ tʃ	32.00	32.00	—	—	1	ell	—	—	—	—	—	—
k	31.06	30.00	8.67	15–48	36	ara, cmn, dan, deu, ell, eng, fra, hat, isl, jam, kor, mlt, nld, pot, slv, swa, tur, xho	37.26	36.00	10.29	18–60	39	afr, ara, cmn, dan, deu, ell, eng, fra, heb, hun, isl, ita, jpn, msa, pot, slv, spa, tur, yue
k*	27.00	30.00	11.49	12–36	4	kor	—	—	—	—	—	—

75–89% criteria							90–100% criteria					
Consonant	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a
Fricatives												
ϕ	—	—	—	—	—	—	43.00	45.00	6.63	34–48	4	jpn
β	—	—	—	—	—	—	72.00	72.00	—	—	1	spa
f	31.76	32.00	5.92	18–43	33	ara, cmn, dan, deu, ell, eng, fra, hat, isl, jam, mlt, nld, pot, slv, swa, tsn, tur, xho	39.93	40.00	9.97	19–66	30	afr, ara, cmn, dan, deu, ell, eng, fra, heb, hun, isl, pot, slv, spa, tur, yue
v	40.48	36.00	17.86	20–102	25	dan, deu, ell, eng, fra, hat, jam, mlt, nld, pot, slv, swa, tur, xho	46.18	48.00	15.42	19–78	17	afr, dan, deu, ell, eng, fra, heb, hun, pot, tur
θ	64.70	63.00	21.01	28–102	10	ara, ell, eng, swa	71.29	72.00	11.47	55–90	7	ara, eng
ð	54.25	48.00	24.32	24–96	12	dan, ell, eng, swa	53.00	51.50	18.49	24–84	10	ara, dan, ell, eng, spa
ð ^c	36.00	36.00	—	—	1	ara	46.00	46.00	—	—	1	ara
ð̥	72.00	72.00	—	—	1	ara	—	—	—	—	—	—
ð̥̥	40.00	40.00	—	—	1	isl	—	—	—	—	—	—
s	36.76	36.00	12.06	18–60	34	ara, cmn, dan, deu, ell, eng, hat, isl, jam, kor, mlt, nld, pot, swa, tsn, tur, xho	50.36	48.00	18.56	16–90	28	ara, cmn, dan, deu, ell, eng, heb, hun, jpn, msa, pot, spa, tur, yue

75–89% criteria							90–100% criteria					
Consonant	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a
s*	36.00	36.00	—	—	1	kor	—	—	—	—	—	—
ʒ	72.00	72.00	—	—	1	ara	—	—	—	—	—	—
s ^f	40.00	40.00	—	—	1	ara	—	—	—	—	—	—
s ^w	36.00	36.00	—	—	1	tsn	—	—	—	—	—	—
z	41.29	36.00	16.19	18–84	24	ara, deu, ell, eng, fra, hat, jam, pot, swa, tur, xho	54.17	54.00	20.18	24–90	18	afr, deu, eng, fra, heb, hun, jpn, pot, tur
ʃ	40.75	42.00	10.87	20–60	24	ara, deu, eng, fra, hat, jam, mlt, pot, swa, tsn, tur, xho	54.87	54.00	16.01	30–90	15	afr, ara, deu, eng, heb, hun, pot, tur
ʒ	47.85	48.00	14.29	28–84	13	eng, fra, hat, pot, tur	60.00	66.00	16.16	36–78	9	eng, hun, pot, spa, tur
ʒ	25.00	25.00	—	—	1	cmn	43.00	43.00	—	—	1	cmn
ʒ	—	—	—	—	—	—	—	—	—	—	—	—
ç	41.67	40.00	6.66	36–49	3	deu, ell, isl	48.20	48.00	0.45	48–49	6	deu, ell, jpn
ɟ	39.50	39.50	4.95	36–43	2	ell	43.00	43.00	—	—	1	ell
ç	28.00	30.00	9.17	18–36	3	cmn, dan	45.71	52.00	15.72	18–66	7	cmn, dan, jpn
ʒ	—	—	—	—	—	—	—	—	—	—	—	—
x	38.42	36.00	13.24	18–72	12	ara, cmn, deu, ell, pot, slv, tsn, xho	40.70	42.50	15.13	18–60	10	afr, cmn, deu, ell, heb, pot, slv, spa
x ^w	42.00	42.00	—	—	1	tsn	—	—	—	—	—	—
ɣ	33.00	32.00	7.07	24–43	5	ell, tur, xho	48.00	48.00	—	—	1	tur

75–89% criteria							90–100% criteria					
Consonant	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a
j	30.00	30.00	9.27	12–48	27	ara, dan, deu, eng, fra, hat, isl, jam, mlt, nld, slv, swa, tsn, tur, xho	38.48	36.00	10.50	15–60	33	afr, ara, dan, deu, eng, heb, hun, isl, jpn, msa, nld, slv, spa, tur, yue
ɥ	—	—	—	—	—	—	—	—	—	—	—	—
l	37.65	36.00	12.95	19–72	37	ara, cmn, dan, deu, ell, eng, fra, hat, isl, jam, kor, mlt, nld, pot, slv, swa, tsn, tur, xho	43.56	44.00	12.99	21–78	32	afr, ara, cmn, dan, deu, ell, eng, fra, heb, hun, isl, ita, msa, pot, slv, spa, tur, yue
lʷ	36.00	36.00	—	—	1	tsn	—	—	—	—	—	—
ɮ	—	—	—	—	—	—	30.00	30.00	—	—	1	tur
ʌ	40.33	36.00	7.51	36–49	3	ell, pot	49.00	49.00	—	—	1	ell
ɫ	—	—	—	—	—	—	—	—	—	—	—	—
w	30.33	30.00	5.94	16–36	21	ara, dan, eng, fra, hat, jam, mlt, swa, tsn, xho	40.92	41.00	10.32	24–60	24	ara, dan, eng, fra, jpn, msa, spa, yue
ɥ	42.00	42.00	8.49	36–48	2	fra, hat	39.00	39.00	12.73	30–48	2	ara, fra
Affricates												
pf	30.00	30.00	—	—	1	deu	36.00	36.00	—	—	1	deu
ts	36.67	36.00	6.03	31–43	3	cmn, deu, ell	50.09	49.00	9.89	30–66	11	cmn, deu, ell, heb, hun, jpn, yue

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Consonant	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a
ts ^h	34.33	36.00	3.79	30–37	3	cmn, tsn, xho	50.75	50.00	2.36	49–54	4	cmn, yue
ts ^{hw}	36.00	36.00	—	—	1	tsn	—	—	—	—	—	—
dz	44.67	43.00	3.79	42–49	3	ell, xho	—	—	—	—	—	—
tʂ	25.00	25.00	—	—	1	cmn	25.00	25.00	—	—	1	cmn
tʂ ^h	25.00	25.00	—	—	1	cmn	37.00	37.00	—	—	1	cmn
ɬ	33.60	36.00	9.10	18–42	5	cmn, kor	18.00	18.00	—	—	1	cmn
ɬ*	36.00	36.00	0.00	36	4	kor	—	—	—	—	—	—
ɬ ^h	32.40	36.00	8.05	18–36	5	cmn, kor	18.00	18.00	—	—	1	cmn
tɰ	61.00	61.00	—	—	1	xho	—	—	—	—	—	—
tɰ ^h	36.00	36.00	—	—	1	tsn	—	—	—	—	—	—
tɰ ^{wh}	42.00	42.00	—	—	1	tsn	—	—	—	—	—	—
tʃ	38.33	36.00	10.72	20–54	18	ara, eng, jam, mlt, pot, swa, tur, xho	47.38	48.00	10.68	24–72	16	ara, eng, heb, hun, msa, pot, spa, tur
tʃ ^h	39.50	39.50	4.95	36–43	2	tsn, xho	—	—	—	—	—	—
dʒ	42.42	42.00	14.25	20–84	19	ara, eng, hat, jam, mlt, pot, tsn, tur, xho	48.50	48.00	12.12	24–72	12	eng, msa, pot, spa, tur
dʒ ^w	42.00	42.00	—	—	1	tsn	—	—	—	—	—	—
cç	—	—	—	—	—	—	60.00	60.00	—	—	1	hun
cç	—	—	—	—	—	—	36.60	36.00	6.99	29–48	5	jpn
ʃɰ	—	—	—	—	—	—	48.00	48.00	—	—	1	hun
ʃz	—	—	—	—	—	—	39.60	40.00	6.07	32–48	5	jpn

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Consonant	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a
kx ^{hw}	36.00	36.00	—	—	1	tsn	—	—	—	—	—	—
Clicks												
ǀ	—	—	—	—	—	—	—	—	—	—	—	—
	33.00	33.00	4.24	30–36	2	xho	—	—	—	—	—	—
^h	36.00	36.00	—	—	1	xho	—	—	—	—	—	—
!	33.00	33.00	4.24	30–36	2	xho	—	—	—	—	—	—
! ^h	49.00	49.00	—	—	1	xho	—	—	—	—	—	—
ǀ	—	—	—	—	—	—	—	—	—	—	—	—
	42.50	42.50	0.71	42–43	2	xho	—	—	—	—	—	—
^h	36.00	36.00	—	—	1	xho	—	—	—	—	—	—
Implosives												
ɓ	33.00	33.00	4.24	30–36	2	xho	—	—	—	—	—	—
Ejectives												
p’	33.00	33.00	4.24	30–36	2	tsn, xho	—	—	—	—	—	—
t’	33.00	33.00	4.24	30–36	2	tsn, xho	—	—	—	—	—	—
t ^{w’}	36.00	36.00	—	—	1	tsn	—	—	—	—	—	—
c’	33.00	33.00	4.24	30–36	2	xho	—	—	—	—	—	—
k’	33.00	33.00	4.24	30–36	2	tsn, xho	—	—	—	—	—	—
k ^{w’}	36.00	36.00	—	—	1	tsn	—	—	—	—	—	—
ts’	36.33	36.00	6.51	30–43	3	tsn, xho	—	—	—	—	—	—
ts ^{w’}	36.00	36.00	—	—	1	tsn	—	—	—	—	—	—
tʃ’	54.50	54.50	7.78	49–60	2	xho	—	—	—	—	—	—

75–89% criteria							90–100% criteria					
Consonant	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a	Mean (months)	Median (months)	SD (months)	Range (months)	No. of studies	Languages ^a
kx'	39.50	39.50	13.44	30–49	2	xho	—	—	—	—	—	—

Note. SD = standard deviation; — = not acquired by the oldest child in the study, not assessed, or no variability.

^aLanguage names are listed using the ISO 639—3:2007 standard abbreviations: afr = Afrikaans; ara = Arabic; cmn = Putonghua (Mandarin); dan = Danish; deu = German; ell = Greek; eng = English; fra = French; hat = Haitian Creole; heb = Hebrew; hun = Hungarian; isl = Icelandic; ita = Italian; jam = Jamaican Creole; jpn = Japanese; kor = Korean; mlt = Maltese; msa = Malay; nld = Dutch; pot = Portuguese; slv = Slovenian; spa = Spanish; swa = Swahili; tsn = Setswana; tur = Turkish; xho = Xhosa; yue = Cantonese.