

Supplementary Table 4a Phonemic inventory of English-speaking participants with pathogenic missense/loss-of-function variants disrupting *FOXP2*

	Case	1a	1b	1c	2	3a	3b	4a	4b	4c	5	6	17
	Age at assessment (years; months)	7;3	38;8	30;2	5;3	5;3	41;8	20;10	18;6	16;05	8	13;4	2;10
Expected age of acquisition	Phonetic feature												
3;0-3;5	Plosives (bilabial)	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g
	Nasals	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ
	Fricatives (Labiodental, Alveolar, Glottal, Velar, Uvular)	f, v, s, z, h	f, v, s, z, h	f, v, s, z, h	f, v, s, z, h	f, v, s, z, h	f, v, s, z, h	f, v, s, z, h	f, v, s, z, h	f, v, s, z, h	f, v, s, z, h	f, v, s, z, h	f, v, s, z, h
	Glides (bilabial, palatal) and liquid (alveolar)	w, j, l	w, j, l	w, j, l	w, j, l	w, j, l	w, j, l	w, j, l	w, j, l	w, j, l	w, j, l	w, j, l	w, j, l
3;6-3;11	Affricate (postalveolar, voiceless)	tʃ	tʃ	tʃ	tʃ	tʃ	tʃ	tʃ	tʃ	tʃ	tʃ	tʃ	tʃ
4;0-4;5	Fricative (palatal, voiced) Affricate (alveolar, voiced)	ʒ dʒ	ʒ dʒ	ʒ dʒ	ʒ dʒ	ʒ dʒ	ʒ dʒ	ʒ dʒ	ʒ dʒ	ʒ dʒ	ʒ dʒ	ʒ dʒ	ʒ dʒ
5;0-5;5	Fricative (postalveolar, voiceless)	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ
6;0-6;5	Glide (alveolar)	ɹ	ɹ	ɹ	ɹ	ɹ	ɹ	ɹ	ɹ	ɹ	ɹ	ɹ	ɹ
7;0 and above	Fricatives (dental, voiceless and voiced)	θ, ð	θ, ð	θ, ð	θ, ð	θ, ð	θ, ð	θ, ð	θ, ð	θ, ð	θ, ð	θ, ð	θ, ð

interdental lisp present. ● Sounds acquired, ● Sounds not yet acquired. Table normative data based on Dodd et al. (62), age at which 90% of n=684 British children acquired speech sounds.

Supplementary Table 4b Phonemic inventory of German-speaking participants with pathogenic missense/loss-of-function variants disrupting *FOXP2*

	Case	7a	7b	8b	10	11a	11b	
	Age at assessment (years; months)	15;3	15;3	16;8	9;9	41	8;5	
Expected age of acquisition	Phonetic feature							
3;0-3;5	Plosives (bilabial)	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	p, b, t, d, k, g	
	Nasals	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	m, n, ŋ	
	Fricatives (Labiodental, Alveolar, Glottal, Velar, Uvular)	f, v, s*, z*, h, x, ɸ	f, v, s*, z*, h, x, ɸ	f, v, s*#, z*, h, x, ɸ	f, v, s*, z*, h, x, ɸ	f, v, s*, z*, h, x, ɸ	f, v, s*, z*, h, x, ɸ	f, v, s*, z*, h, x, ɸ
	Affricate	pf	pf	pf	pf	pf	pf	pf
	Approximants (alveolar, palatal)	j, l	j, l	j, l	j, l	j, l	j, l	j, l
3;6-3;11	Affricate (alveolar, voiceless)	t͡s*	t͡s*	t͡s*	t͡s*	t͡s*	t͡s*	
4;0-4;5	Fricative (palatal, voiceless)	ç	ç	ç	ç	ç	ç	
4;6-4;11	Fricative (postalveolar, voiceless)	ʃ	ʃ	ʃ	ʃ	ʃ	ʃ	
Other phonemes in German	Affricate (post-alveolar, voiceless)	t͡ʃ	t͡ʃ	t͡ʃ	t͡ʃ	t͡ʃ	t͡ʃ	
	Fricative (post-alveolar, voiced)	ʒ	ʒ	ʒ	ʒ	ʒ	ʒ	
	Affricate (post-alveolar, voiced)	d͡ʒ	d͡ʒ	d͡ʒ	d͡ʒ	d͡ʒ	d͡ʒ	

[z] is not present in Southern German dialects (always substituted by [s]), therefore in parenthesis. # interdental lisp present. ● Sounds acquired, ● Sounds not yet acquired, ● Sounds absent in the speech sample. Table normative data based on Fox & Dodd (63), age at which sounds were acquired by 90% of n=177 German children. * [s], [z], [ts]: in Fox & Dodd (1999), 35% of children were not able to produce these sounds phonetically correct; however, as these sounds are mostly substituted by the interdental sounds [θ] and [ð], these substitutes are taken as allophones. Thus, phonemically, these sounds are rated as phonemically correct.