Information about Welsh speech

1. A comparison between Welsh and English phonology

Aspect	Language	Number	Details	Source
Consonants	Welsh	25 consonants	/p, b, t̪, d̪, k, g, m, n̪, ŋ, r, r̥ʰ f, v, θ, ð, s, ʃ, x, h, ɬ, j, l, w, tʃ, dʒ/	Munro, Ball, & Müller (2007)
	English	24 consonants	/p, b, t, d, k, g, m, n, ŋ, θ, ð, f, v, s, z, ʃ, ʒ, h, tʃ, dʒ, j, w, ɹ, l/	Smit (2004)
Consonant clusters	Welsh	Syllable-initial and syllable-final consonant clusters	Two and three element word-initial consonant clusters (e.g., /sb, kn, sdr, sgl/). Two element word-final consonant clusters (e.g., /sg, rn/).	Munro et al. (2007)
	English	23 consonant clusters	Many 2 and 3 element consonant clusters in initial position including /pl, bl, kl, gl, fl, sl, pɹ, bɹ, tɹ, dɹ, kɹ, gɹ, θɹ, fɹ, ʃɹ, pj, tj, fj, mj, nj, sm, sn, sp, st, sk, spl, spɹ, stɹ, skw/ and many 2 to 4 element consonant clusters in final position	Smit (2004)
Vowels and diphthongs	Welsh	North: 13 vowels + 13 diphthongs South: 11 vowels + 8 diphthongs	Northern vowels: /i, ɪ, e, ɛ, a, ɑ, u, ʊ, o, ɔ, ɨ, ɪ̈, ə/ Southern vowels: /i, ɪ, e, ɛ, a, ɑ, u, ʊ, o, ɔ, ə/ Northern diphthongs: /aɪ , ɔɪ, əɪ, ɪu, ɛu, au, əu, ɨu, aɪ̈, ɑɪ̈, ɔɪ̈, ʊɪ̈, əɪ̈/ Southern diphthongs: /aɪ , ɔɪ, əɪ, ɪu, ɛu, au, əu, ʊɪ/	Munro et al. (2007)
	English (US-General American)	14 vowels + 3 diphthongs	Vowels: /i, ɪ, e, ɛ, æ, ə, ɚ, ɝ, u, ʊ, o, ʌ, ɔ, ɑ/ Diphthongs: /aɪ, aʊ, ɔɪ/ (Smit also lists 5 'r'-colored diphthongs)	Smit (2007)
	English (Canadian)	14 vowels + 3 diphthongs	Vowels: /i, ɪ, e, ɛ, æ, ə, ɚ, ɝ, ʉ, ʊ, o, ʌ, ɔ, ɑ/ Diphthongs: /ʌɪ, ʌʊ, ɔɪ/	Bernhardt, & Deby (2007)
	English (UK-Received Pronunciation)	12 vowels + 8 diphthongs	Vowels: /i, ɪ, ɛ, æ, a, ə, ɜ, u, ʊ, ʌ, ɔ, ɒ/ Diphthongs: /aɪ, aʊ, ɔɪ, eɪ, oʊ, ɪə, ɛə, ʊə/	Howard (2007)
	English (Australian)	12 vowels + 8 diphthongs	Vowels: /iː, ɪ, e, æ, ɐː, ɐ, ɔ, oː, ʊ, ʉː, ɜː, ə/[i] OR /i, ɪ, ɛ, æ, a, ʌ, ɒ, ɔ, ʊ, u, ɜ, ə/[ii] Diphthongs: /æɪ, ɑe, əʉ, æɔ, ɔɪ, ɪə, eː, ʊə/[i] OR /eɪ, aɪ, oʊ, aʊ, ɔɪ, ɪə, ɛə, ʊə/[ii]	[i] Harrington, Cox, & Evans, (1997) [ii] Mitchell (1946)
	English (New Zealand)	12 vowels + 8 diphthongs	Vowels: /i, ɪ, ɛ, æ, ə, ɜ, u, ʊ, ʌ, ɔ, ɒ, ɑ/[i] OR / i, ɪ, e, æ, a, ə, ɜ, ʊ, ʌ, ɔ, ɒ/[ii] Diphthongs: /aɪ, aʊ, ɔi, eɪ, oʊ, iə, eə, ʊə/[i] OR /ai, aʊ, ɔi, ei, oʊ, iə, eə, ʊə/[ii]	[i] Bauer & Warren (2004) [ii] Maclagan (2009)
Tones	Welsh	0 tones	-	

	English	0 tones	-	
Syllable shape	**Welsh**	C$_{(0-3)}$VC$_{(0-2)}$		Munro et al. (2007)
	English	C$_{(0-3)}$VC$_{(0-4)}$	The smallest syllable is V and the largest is CCCVCCCC *strengths.*	Smit (2004) McLeod (2007)
Stress	**Welsh**		Word stress is regularly on the penult.	Munro et al. (2007)
	English	Stress-timed	Syllables can be strong or weak. Stress also is used for emphasis.	
Varieties	**Welsh**	Southern and northern dialects	Southern and northern dialects. Four traditional dialects: Venedotian, Powysian, Demetian, and Swentian.	
	English	Many dialects	Many dialects including General American English, Received Pronunciation (England), Scottish English, Irish English, Australian English, New Zealand English, South African English etc.	
Writing system	**Welsh**	Latin alphabet	Latin alphabet with close correspondence between sounds and letters.	Munro et al. (2007)
	English	Latin alphabet	Latin alphabet loosely related to phonetic realizations of the consonants and vowels.	

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2. Welsh speech assessments

For a list of speech assessments in Welsh see: www.csu.edu.au/research/multilingual-speech/speech-assessments
Intelligibility in Context Scale: Welsh www.csu.edu.au/research/multilingual-speech/ics

3. Monolingual speech acquisition (summaries and studies written in English)

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4. Multilingual speech acquisition (summaries and studies written in English)

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Studies of multilingual Welsh speech acquisition

Languages	Country	Study	Age of children	Total (no. of multilingual children)**	Typically/ atypically developing children	Speech /language	Production/ perception
Welsh-English	Wales	Munro, S., Ball, M. J., Müller, N., Duckworth, M., & Lyddy, F. (2005). Phonological acquisition in Welsh-English bilingual children. *Journal of Multilingual Communication Disorders, 3*, 24-49.	2;6 – 5;0	83 (83)	typical	speech	production
	Wales	Ball, M. J., Müller, N., & Munro, S. (2001). The acquisition of rhotic consonants by Welsh-English bilingual children. *International Journal of Bilingualism, 5*, 71-86.	2;6 – 5;0	83 (83)	typical	speech	production

Note. * Studies of typically and atypically developing multilingual children published in English were included; however, studies that only included monolingual children were excluded.

**The total number of children may have included both multilingual and monolingual children, so the number in brackets provides the total number of multilingual children.