Information about French speech

1. A comparison between French and English phonology

Aspect	Language	Number	Details	Source
Consonants	**French**	20-24 consonants	/p, b, t, d, k, g, ʔ, m, n, ɲ, ŋ, r, ʀ, ɾ, f, v, s, z, ʃ, ʒ, ʁ, h, j, ɥ/	Rose & Wauquier-Gravelines (2007)
	English	24 consonants	/p, b, t, d, k, g, m, n, ŋ, θ, ð, f, v, s, z, ʃ, ʒ, h, ʧ, ʤ, j, w, ɹ, l/	Smit (2004)
Consonant clusters	**French**	Syllable-initial and syllable- final		
	English	Approx. 29 syllable-initial and many syllable-final 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	McLeod (2007) Smit (2004)
Vowels and diphthongs	**French**	France: 14 vowels Quebec: 19 vowels	France vowels: /i, y, a, ɛ, ø, œ, a, u, o, ɔ, ə, ɑ̃, ɛ̃, ɔ̃/ Quebec vowels: /i, ɪ, y, ʏ, a, ɛ, ø, œ, a, u, ʊ, o, ɔ, ɑ, ə, ɑ̃, ɛ̃, ɔ̃, œ̃/	Rose & Wauquier-Gravelines (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	**French**	0 tones	-	
	English	0 tones	-	

Syllable shape	**French**	$C_{(0-3)}VC_{(0-3)}$		
	English	$C_{(0-3)}VC_{(0-4)}$	The smallest syllable is V and the largest is CCCVCCCC *strengths.*	Smit (2004) McLeod (2007)
Stress-timed or syllable-timed?	**French**	Syllable-timed?	Stress is related to the syntactic structure.	Wenk & Wioland (1982)
	English	Stress-timed	Syllables can be strong or weak. Stress also is used for emphasis.	
Varieties	**French**	France French, Canadian French	France French, Canadian French	
	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	**French**	Latin alphabet	Latin alphabet with use of accents over vowels.	
	English	Latin alphabet	Roman script loosely related to phonetic realizations of the consonants and vowels.	

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Wenk, B. J., & Wioland, F. (1982). Is French really syllable-timed? *Journal of Phonetics, 10*(2), 193-216.

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Comparative summaries

Walter, C. (2001). French speakers. In M. Swan & B. Smith (Eds.), *Learner English: A teacher's guide to interference and other problems* (pp. 52-72). Cambridge: Cambridge University Press.

2. French speech assessments

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

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

Rose, Y., & Wauquier-Gravelines, S. (2007). French speech acquisition. In S. McLeod (Ed.), *The international guide to speech acquisition* (pp. 364-385). Clifton Park, NY: Thomson Delmar Learning.

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Demuth, K., & McCullough, E. (2009). The longitudinal development of clusters in French. *Journal of Child Language, 36*(2), 425-448.

MacLeod, A. A. N., Sutton, A., Trudeau, N., & Thordardottir, E. (2011). The acquisition of consonants in Quebecois French: A cross-sectional study of pre-school aged children. *International Journal of Speech-Language Pathology, 13*(2), 93-109.

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

General summaries

Goldstein, B. A., & McLeod, S. (2012). Typical and atypical multilingual speech acquisition. In S. McLeod & B. A. Goldstein (Eds.), Multilingual aspects of speech sound disorders in children (pp. 84-100). Bristol, UK: Multilingual Matters.

Grech, H., & McLeod, S. (2012). Multilingual speech and language development and disorders. In D. Battle (Ed.), *Communication disorders in multicultural and international populations* (4th ed., pp. 120-147). St Louis, MO: Elsevier.

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Summaries of multilingual French speech acquisition

Brulard, I., & Carr, P. (2003). French-English bilingual acquisition of phonology: One production system or two? *International Journal of Bilingualism, 7*(2), 177-202.

Studies of multilingual French speech acquisition

Languages	Country	Study	Age of children	Total number of children (no. of multilingual children)**	Typically/ atypically developing children	Speech /language	Production/ perception
Dutch-French	Belgium	De Houwer, A., Bornstein, M. H., & De Coster, S. (2006). Early understanding of two words for the same thing: A CDI study of lexical comprehension in infant bilinguals. *International Journal of Bilingualism, 10*(3), 331-347.	13 months	31 (31)	typical	language	perception

French-English	Canada	MacLeod, A. A. N., Laukys, K., & Rvachew, S. (2011). The impact of bilingual language learning on whole-word complexity and segmental accuracy among children aged 18 and 36 months. *International Journal of Speech-Language Pathology, 13*(6), 490-499.	18 – 36 months	40 (21)	typical	speech	production
	Canada	Paradis, J. (2001). Do bilingual two-year-olds have separate phonological systems? *International Journal of Bilingualism, 5*(1), 19-38.	23 – 35 months	53 (17)	typical	speech	production
	Canada and USA	Paradis, J., Crago, M., Genesee, F., & Rice, M. (2003). Bilingual children with specific language impairment. How do they compare with their monolingual peers? *Journal of Speech, Language, and Hearing Research, 46*, 1-15.	approx 7;0 to 7;6 (mean = 83 – 91 months)	47 (16)	atypical	language	production
	Canada	Sundara, M., Polka, L. & Genesee, F. (2006). Language-experience facilitates discrimination of /d-ð/ in monolingual and bilingual acquisition of English. *Cognition, 100,* 369-388.	4;0 – 5;09	36 (12) + 12 adults	typical	speech	perception
	Canada	Sundara, M., Polka, L., & Molnar, M. (2008). Development of coronal stop perception: Bilingual infants keep pace with their monolingual peers *Cognition, 108*, 232-242.	6 – 8 months + 10 – 12 months	96	typical	speech	perception

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.