

# Information about German speech

## 1. A comparison between German and English phonology

Aspect	Language	Number	Details	Source
<b>Consonants</b>	<b>German</b>	22-23 consonants	/p, b, t, d, k, g, ʔ, m, n, ŋ, r, f, v, s, z, ʃ, ç, x, ʁ, j, l, pf, ts/ <sup>i</sup>  /p, b, t, d, k, g, ʔ, m, n, ŋ, f, v, s, z, ʃ, ʒ, ç, ʁ, ʁ, h, j, l/ <sup>ii</sup>	<sup>i</sup> Fox (2007) <sup>ii</sup> Kohler (1999)
	<b>English</b>	24 consonants	/p, b, t, d, k, g, m, n, θ, ð, f, v, s, z, ʃ, ʒ, h, tʃ, ʧ, j, w, ɹ, l/	Smit (2004)
<b>Consonant clusters</b>	<b>German</b>	Syllable-initial and syllable-final	22 two-element consonant clusters, two three-element consonant clusters, and many within word and word-final consonant clusters	Fox (2007)
	<b>English</b>	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)
<b>Vowels and diphthongs</b>	<b>German</b>	13 vowels + 2 displaying lengthening contrasts + 3 diphthongs	Vowels: /i, ɪ, e, ε, ε:, y, ʏ, ø, a, a:, ə, u, ʊ, o, ɔ/ Diphthongs: /ai, ɔɪ, au/	Kohler (1999)
	<b>English</b> (US-General American)	14 vowels + 3 diphthongs	Vowels: /i, ɪ, e, ε, æ, ə, ə:, ɜ:, u, ʊ, o, ʌ, ɔ, ɑ/ Diphthongs: /ai, au, ɔɪ/ (Smit also lists 5 'r'-colored diphthongs)	Smit (2007)
	<b>English</b> (Canadian)	14 vowels + 3 diphthongs	Vowels: /i, ɪ, e, ε, æ, ə, ə:, ɜ:, ʌ, ʊ, o, ʌ, ɔ, ɑ/ Diphthongs: /ʌɪ, ʌʊ, ɔɪ/	Bernhardt, & Deby (2007)
	<b>English</b> (UK-Received Pronunciation)	12 vowels + 8 diphthongs	Vowels: /i, ɪ, e, æ, a, ə, ɜ, u, ʊ, ʌ, ɔ, ɒ/ Diphthongs: /ai, au, ɔɪ, eɪ, ou, iə, eə, uə/	Howard (2007)
	<b>English</b> (Australian)	12 vowels + 8 diphthongs	Vowels: /i:, ɪ, e, æ, ɛ:, ɐ, ɔ:, ʊ, ʌ:, ɜ:, ə/ <sup>i</sup> OR /i, ɪ, ε, æ, a, ʌ, ɒ, ɔ, ʊ, u, ɜ, ə/ <sup>ii</sup> Diphthongs: /æɪ, ae, əɛ, æɔ, ɔɪ, iə, eɪ, uə/ <sup>i</sup> OR /eɪ, aɪ, ou, au, ɔɪ, iə, eə, uə/ <sup>ii</sup>	<sup>i</sup> Harrington, Cox, & Evans, (1997) <sup>ii</sup> Mitchell (1946)
	<b>English</b> (New Zealand)	12 vowels + 8 diphthongs	Vowels: /i:, ɪ, ε, æ, ə, ɜ, u, ʊ, ʌ, ɔ, ɒ, ɑ/ <sup>i</sup> OR /i, ɪ, e, æ, a, ə, ɜ, ʊ, ʌ, ɔ, ɒ/ <sup>ii</sup> Diphthongs: /ai, au, ɔɪ, eɪ, ou, iə, eə, uə/ <sup>i</sup> OR /ai, au, ɔɪ, ei, ou, iə, eə, uə/ <sup>ii</sup>	<sup>i</sup> Bauer & Warren (2004) <sup>ii</sup> Maclagan (2009)

<b>Tones</b>	<b>German</b>	0 tones	-	
	<b>English</b>	0 tones	-	
<b>Syllable shape</b>	<b>German</b>	$C_{(0-3)}VC_{(0-3)}$		
	<b>English</b>	$C_{(0-3)}VC_{(0-4)}$	The smallest syllable is V and the largest is CCCVCCCC <i>strengths</i> .	Smit (2004) McLeod (2007)
<b>Stress-timed or syllable-timed?</b>	<b>German</b>	Stress-timed language	Stress-timed language. Similar to English with some modifications.	
	<b>English</b>	Stress-timed	Syllables can be strong or weak. Stress also is used for emphasis.	
<b>Varieties</b>	<b>German</b>	Many dialects	Hochdeutsch is the official language. Estimates of 50-250 dialects.	Fox (2007)
	<b>English</b>	Many dialects	Many dialects including General American English, Received Pronunciation (England), Scottish English, Irish English, Australian English, New Zealand English, South African English etc.	
<b>Writing system</b>	<b>German</b>	Latin alphabet	Latin alphabet with one-to-one correspondence between sounds and letters.	
	<b>English</b>	Latin alphabet	Roman script loosely related to phonetic realizations of the consonants and vowels.	

## References

### German studies

- Fox, A. V. (2007). German speech acquisition. In S. McLeod (Ed.), *The international guide to speech acquisition* (pp. 386-397). Clifton Park, NY: Thomson Delmar Learning.
- Kohler, K. (1999). German. In International Phonetic Association (Ed.), *Handbook of the International Phonetic Association* (pp. 86-89). Cambridge: Cambridge University Press.

### English studies

- Bauer, L., & Warren, P. (2004). New Zealand English: Phonology. In E. Schneider, K. Burrige, B. Kortmann, R. Mesthrie & C. Upton (Eds.). *A handbook of varieties of English: Vol. 1. Phonology* (pp. 580-602). Berlin, Germany: Mouton de Gruyter.
- Bernhardt, B. M. H., & Deby, J. (2007). Canadian English speech acquisition. In S. McLeod (Ed.), *The international guide to speech acquisition* (pp. 177-187). Clifton Park, NY: Thomson Delmar Learning.
- Harrington, J., Cox, F., & Evans, Z. (1997). An acoustic phonetic study of broad, general, and cultivated Australian English vowels. *Australian Journal of Linguistics*, 17, 155-184.
- Howard, S. (2007). English speech acquisition. In S. McLeod (Ed.), *The international guide to speech acquisition* (pp. 188-203). Clifton Park, NY: Thomson Delmar Learning.
- Maclagan, M. (2009). Reflecting connections with the local language: New Zealand English. *International Journal of Speech-Language Pathology*, 11(2), 113-121.
- McLeod, S. (2007). Australian English speech acquisition. In S. McLeod (Ed.), *The international guide to speech acquisition* (pp. 241-256). Clifton Park, NY: Thomson Delmar Learning.
- Mitchell, A. G. (1946). *The pronunciation of English in Australia*. Sydney, Australia: Angus & Robertson.
- Smit, A. B. (2004). *Articulation and phonology: Resource guide for school-age children and adults*. Clifton Park, NY: Thomson Delmar Learning.

Smit, A. B. (2007). General American English speech acquisition. In S. McLeod (Ed.), *The international guide to speech acquisition* (pp. 128-147). Clifton Park, NY: Thomson Delmar Learning.

### **Comparative summaries**

Swan, M. (2001). German speakers. In M. Swan & B. Smith (Eds.), *Learner English: A teacher's guide to interference and other problems* (pp. 37-51). Cambridge: Cambridge University Press.

## 2. German speech assessments

For a list of speech assessments in German see: [www.csu.edu.au/research/multilingual-speech/speech-assessments](http://www.csu.edu.au/research/multilingual-speech/speech-assessments)  
Intelligibility in Context Scale: German [www.csu.edu.au/research/multilingual-speech/ics](http://www.csu.edu.au/research/multilingual-speech/ics)

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

Fox, A. V. (2006). Evidence from German-speaking children. In Zhu Hua & B. Dodd (Eds.), *Phonological development and disorders in children: A multilingual perspective* (pp. 56-80). Cleavdon, UK: Multilingual Matters.

Fox, A. V. (2007). German speech acquisition. In S. McLeod (Ed.), *The international guide to speech acquisition* (pp. 386-397). Clifton Park, NY: Thomson Delmar Learning.

## 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.

Zhu Hua & Dodd, B. (Eds.). (2006). *Phonological development and disorders in children: A multilingual perspective*. Cleavdon, UK: Multilingual Matters.

Yavaş, M. (2007). Multilingual speech acquisition. In S. McLeod (Ed.), *The international guide to speech acquisition* (pp. 96-100). Clifton Park, NY: Thomson Delmar Learning.

### **Summaries of multilingual German speech acquisition**

Fox-Boyer, A. V. (2012). Translation to practice: Intervention for multilingual children with speech sound disorders in Germany. In S. McLeod & B. A. Goldstein (Eds.), *Multilingual aspects of speech sound disorders in children* (pp. 228-232). Bristol, UK: Multilingual Matters.

## Studies of multilingual German speech acquisition

Languages	Country	Study	Age of children	Total number of children (no. of multilingual children)**	Typically/atypically developing children	Speech /language	Production/perception
Spanish-German	Germany	Lleó, C., Kuchenbrandt, I., Kehoe, M., & Trujillo, C. (2003). Syllable final consonants in Spanish and German monolingual and bilingual acquisition. In N. Müller (Ed.), <i>(In)vulnerable domains in multilingualism</i> (pp. 191-220). Amsterdam: John Benjamins.	1;0 – 3;0	11 (5)	typical	speech	production
Turkish-German; Turkish-Norwegian	Germany, Austria, Norway, Turkey	Yazıcı, Z., İltel, B. G., & Glover, P. (2010). How bilingual is bilingual? Mother-tongue proficiency and learning through a second language. <i>International Journal of Early Years Education, 18</i> (3), 259-268.	5- to 6-years	120 (90)	typical	language	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.