



# Multilingual Children's Speech Development



# **GERMAN**

## **Multilingual Children's Speech Development**

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# German

- **Commonly spoken in**
  - Germany, Austria, Switzerland, Liechtenstein, Luxembourg, Belgium as the **official state language**
- **Dialects and variants**
  - Large number of variations and dialects of German
- **Writing**
  - Left to right, Latin alphabet, Roman script
  - High phoneme-grapheme correspondence, special graphemes (ä, ö ,ü, ß)
  - Example: ***Haustürschlüssel*** ‘front door key’

# German Map

- Official / major language
- Official / minority language
- Diasporic language



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# German Speech Components

- **Consonants (23+2):** /p, b, t, d, k, g, ʔ, m, n, ŋ, r, f, v, s, z, ʃ, ç, x, R, ʁ, h, j, l, pf, ts/
- **Consonant clusters:**
  - Two-element clusters (22): /p, b, t, d, k, g, f, pf/ + /ʁ/ or //;  
/k/ + /v/ or /n/; /ʃ/ + /m, n, v, l, ʁ, p, t/
  - Three-element clusters (2): /ʃ/ + /p, t/ + /ʁ/
- **Vowels/diphthongs (20):** /i:, ɪ, e:, ε, ε:, a:, a, ə, u:, υ, e, o:, ɔ, y:, ʏ, ø:, œ;  
aɪ, aʊ, ɔɪ/
- **Tones (0):** None
- **Phonotactic restrictions:**  $C_{(0-3)} V_{(1)} C_{(0-3)}$
- **Prosody:** variable
  - = bisyllabic words: mostly trochee
  - = trisyllabic words: penultimate stress > ultimate stress
  - ≥ quadrisyllabic words: ultimate stress > penultimate stress

# German

## Age of Acquisition

### ■ Consonants

- Early: /p, b, t, d, m, n/  
Middle: /k, g, f, v, s, z, x, h, ŋ, l, j, ʀ, ʁ, ts, pf/  
Late: /ʃ, ç, r/

### ■ Consonant clusters

- Word initial CC: /kl/: 2;6-2;11  
All but /kʁ, kn, ʃpʁ, ʃtʁ/: 3;0-3;11  
/kʁ, kn, ʃpʁ, ʃtʁ/: 4;0-4;05
- Word final CC: Before the age of 2;11

### ■ Vowels

- Already at 1;6-2;11, only rarely vowel errors (Fox & Dodd, 1999)

### ■ Tones

- Not applicable

# German Speech Development

## ■ Percentage correct

- Fox & Dodd (1999): PPP/PCCi/f correct by age 1;06-5;11
- Fox-Boyer & Schäfer (2016): PCCC correct by age 2;0-2;11

## ■ Intelligibility

- ICS-D\* (Neumann et al., 2017)

## ■ Common phonological patterns

- Fronting /k, g, ŋ, ʃ, ç/, initial cluster reduction, assimilation, weak syllable deletion, glottal replacement /ʁ/, lateralisation /r/

\*ICS, Intelligibility in Context Scale (McLeod et al., 2012)

# German Children with Speech Sound Disorders

## ■ Also called

- **Aussprachestörungen** → **speech sound disorder**
- Phonetische / phonologische Störung → phonetic / phonological disorder
- Artikulationstörung → articulation disorder
- Verbale Entwicklungsdyspraxie → developmental verbal dyspraxia
- Kindliche Sprechapraxie → childhood apraxia of speech
- Kindliche Dysarthrie → childhood dysarthria

## ■ Research has focused on

- Prevalence, assessment, differential diagnosis, interventions,
- Childhood apraxia of speech (CAS), cleft lip and palate (CLP), dysarthria, hearing impairment

## ■ Studies (examples)

- Fox, A. V. & Dodd, B. (2001). Phonologically disordered German-speaking children. *American Journal of Speech Language Pathology*, 10, 291–307.
- Leonhartsberger, S., Huber, E., Brandstötter, G., Stoeckel, R., Baas, B., Weber, C., & Holzinger, D. (2022). Efficacy of treatment intensity in German-speaking children with childhood apraxia of speech. *Child Language Teaching and Therapy*, 38(1), 43-58.

# German Speech Assessments

- **PLAKSS-II Psycholinguistische Analyse kindlicher Aussprachestörungen**  
(for standard German, Zurich-German, Austrian German and Luxembourgian) [Psycholinguistic analysis of childhood SSD]  
(Fox-Boyer, 2014)
- **PDSS Patholinguistische Diagnostik bei Sprachentwicklungsstörungen – Untertest Phonologie** [Patholinguistic diagnosis of developmental language disorders – subtest phonology]  
(Kauschke & Siegmüller, 2023)
- **AVAK Analyseverfahren zu Aussprachestörungen bei Kindern**  
[Analysis of SSD in children] (Hacker & Wilgermein, 2002)
- **LOGO Ausspracheprüfung** [Assessment of speech production]  
(Wagner, 2011)

# German Speech Interventions

- **P.O.P.T**      **Psycholinguistisch orientierte Phonologie-Therapie**  
[Psycholinguistic orientated phonology intervention] (Fox-Boyer, 2019)
- **PLAN**      **Phonologische Therapie nach PLAN** [Phonological intervention following PLAN] (Kauschke & Siegmüller, 2019)
- **PhonoSens** (Siemons-Lühning et al., 2021)
- **Artikulationstherapie** [Traditional articulation intervention] (Van Riper, 1963)
- **Metaphon** (Howel & Dean, 1991; translated by Jahn, 2007)
- **PROMPT** (Hayden, 2010) / **TAKTKIN** (Lauer & Birner Janusch, 2010)
- **VEDit** (Schulte-Mäter, 2018)
- **DTTC** [Dynamic Temporal Tactile Cueing] (Strand et al., 2006; Leonhartsberger et al., 2022)

# Reference

## Book chapter

- Fox-Boyer, A., & Lang, S. (forthcoming). German speech development. In S. McLeod (Ed.). *The Oxford handbook of speech development in languages of the world*. Oxford University Press.

## Presentation

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<https://www.csu.edu.au/research/multilingual-speech/languages>
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