



# Multilingual Children's Speech Development



# **DANISH**

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

**Presented by: Marit C. Clausen**



# Danish Author

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# Danish

- **Commonly spoken in**

- Denmark
- Greenland and Faroese Islands
- Northern Germany (Southern Schleswig)

- **Dialects and variants**

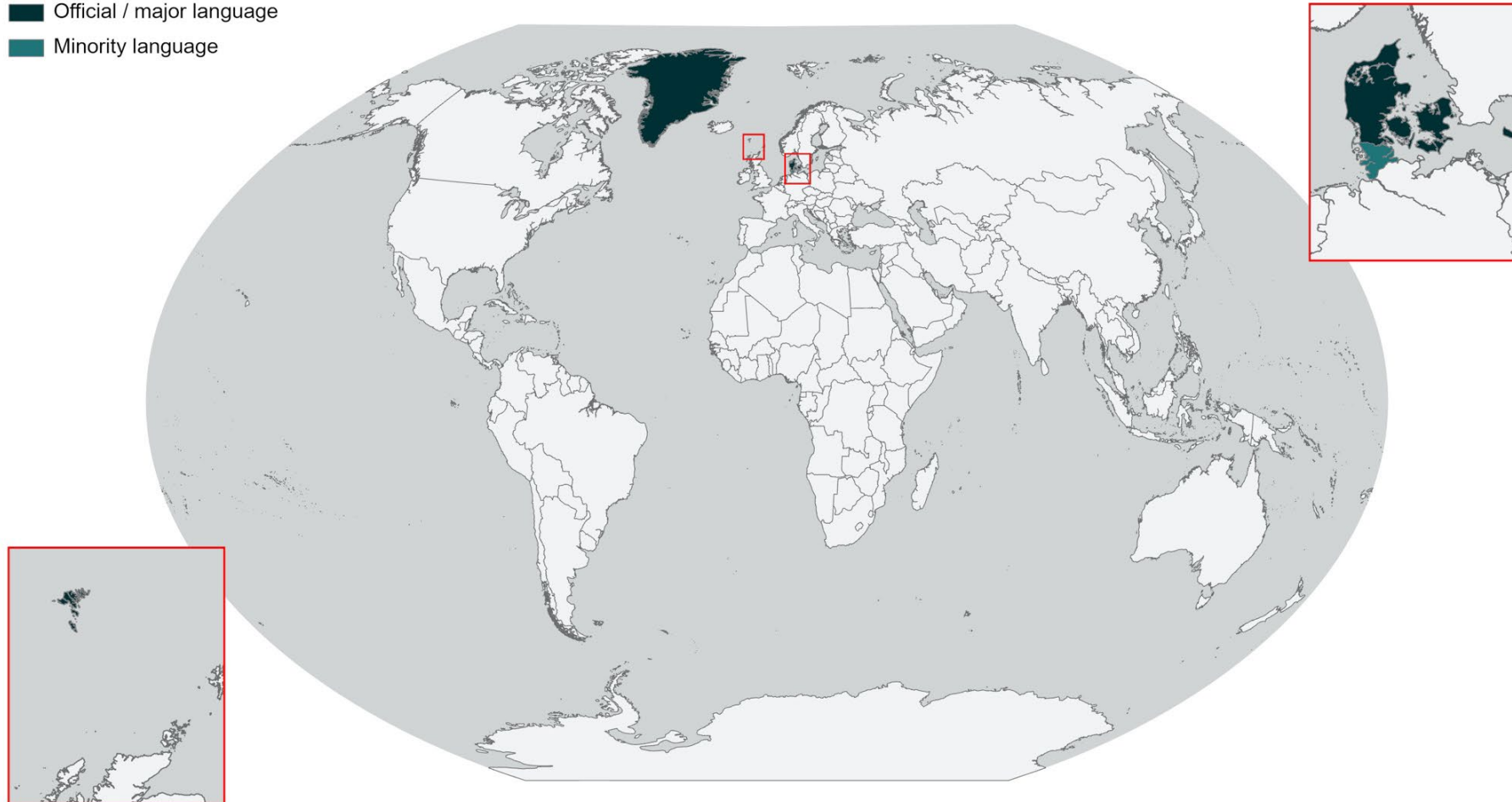
- The three major Danish dialect subgroups are:
  - Eastern Danish (*Østdansk*)
  - Island Danish (*Ømål*)
  - Jutlandish (*Jysk*)

- **Writing**

- Left to right. Latin alphabet (Roman script) and three additional vowel letters: æ, ø and å

# Danish Map

- Official / major language
- Minority language



The author acknowledges assistance provided by the Spatial Data Analysis Network (SPAN) at Charles Sturt University, and in particular Craig Poynter, for his work creating this map. Figures/maps/imagery created using ESRI ArcGIS Pro 3.1 software and data contained within ESRI's Living Atlas.

# Danish

## Speech Components

- **Consonants (19):** /p, t, k, b, d, g, f, s, ɐ, h, m, n, ŋ, l, w, v, ø, j, ʁ/
- **Consonant clusters (115)**
  - 45 initial consonant clusters:
    - plosive or fricative followed by a sonorant (e.g., /pl, kn, bj, fn/)
    - s-clusters with two or three elements (e.g., sl, sn, st, sk, spj, stj/)
  - 70 final consonant clusters:
    - 2-element clusters: different combinations of sonorants and obstruents (e.g., /mp, ms, nk, ns, lt, ls/) as well as of /s/ and a plosive (e.g., /sp, st, sk, ps, ts, ks/).
    - 3-element clusters: sonorant followed by /s/ and a plosive (e.g., /mst, nsk, lsk/)
    - Two 4-element clusters: /lmsk, ʁnst/
- **Vowels (15 short and 13 long)**
  - /i, i:, e, e:, ɛ, ɛ:, æ, æ:, a, a, a:, y, y:, ø, ø:, œ, œ:, œ, œ:, u, u:, o, o:, ɔ, ɔ:, ɒ, ɒ:, ʌ/
  - all long vowels have a *stød* contrast /ʔ/ which leads to a vowel inventory of 41 distinctive vowels
  - **Diphthongs (49):** 18 falling diphthongs consisting of a vowel and [j, w, ɐ], and 31 rising diphthongs through any combination of [j] and a full vowel
- **Tones (0):** None
- **Phonotactic restrictions:** C<sub>(0-3)</sub>VC<sub>(0-4)</sub>
- **Prosody:** stress-timed language

# Danish Speech Components

- “Special” Danish speech characteristics

- Extensive consonant weakening
- Strongly favored schwa-assimilation (progressive and regressive)

- **The two reduction processes** lead to long stretches of vocalic sounds which translates into an unclear sound structure (i.e., unclear syllable numbers and syllable boundaries)

Examples

- **Her er anden** ['he̥æ̯ æ̯ 'anʔn] ‘Here is the duck’ (Trecca et al., 2020)
- **Nordenvinden og solen** ['no̥æ̯nvenʔn̩ ʌ 'so:ʔln] ‘The Northwind and the Sun’

# Danish

## Age of Acquisition

### ■ Consonants

- All consonant phones mastered between 2;6-2;11 years except [ɕ] (Clausen & Fox-Boyer, 2017)
- Most consonant phonemes also acquired early (Holmer & Pedersen, 2017)
  - 2;0-2;5: /b, d, m, n, f, v, h, j/
  - 2;6-2;11: /p, t, k, g, s, l, ð/
  - After 3;0: /ŋ, ɞ, w, ʁ/ (Holmer & Pedersen, 2017; Mahler & Bødker, 2012)

### ■ Consonant clusters

- Most initial and final clusters are acquired before 4;0 years and mastered at 5;0 years of age
- 2-element clusters are acquired before 3-element clusters (Clausen & Fox-Boyer, 2017, 2018)

### ■ Vowels

- All vowel phones are typically mastered between 2;6-2;11 years (Clausen & Fox-Boyer, 2017)
- To date, there is no study of the acquisition of vowel phonemes in Danish-speaking children.

### ■ Tones

- Not applicable

# Danish Speech Development

## ■ Percentage correct (mean)

- 2;0-2;5: consonants (PCC-A): 77-84%; vowels: 91%
  - 2;5-2;11: consonants (PCC-A): 59-87%; vowels: 93%; consonant clusters: 86%
  - 3;0-3;5: consonants (PCC-A): 75%; vowels: 97%; consonant clusters: 92%
  - 3;6-3;11: consonants (PCC-A): 87%; vowels: 98%; consonant clusters: 95%
  - 4;0-4;5: consonants (PCC-A): 93%; vowels: 98%; consonant clusters: 97%
  - 4;6-4;11: consonants (PCC-A): 95%; vowels: 99%; consonant clusters: 99%
- (Clausen & Fox-Boyer, 2017; Holmer & Pedersen, 2017; Jørgensen & Bøgh, 2017)

## ■ Intelligibility

- To date, there is no study of children's intelligibility

## ■ Common phonological patterns

- Fronting of velars, fronting of /ø/, stopping and deletion of final consonants, deaspiration, assimilation, weak syllable deletion and cluster reduction  
(Clausen & Fox-Boyer, 2017; Jørgensen & Bøgh, 2017)

# Danish Children with Speech Sound Disorders

## ■ Also called

- udtaleforstyrrelser → speech sound disorder (SSD)
- fonologisk forstyrrelse → phonological disorder
- artikulationsvanskelighed → articulation disorder
- verbal dyspraksi → childhood apraxia of speech
- dysartri → dysarthria

## ■ Research has focused on

- Assessment, identification and classification of speech sound disorders
- Speech characteristics and treatment of children with cleft lip and palate (CLP)

## ■ Studies (examples)

- Clausen, M. C., & Fox-Boyer, A. V. (2022). Diagnostic validity, accuracy and inter-rater reliability of a phonological assessment for Danish-speaking children. *Journal of Communication Disorders*, 95, 106168. <https://doi.org/10.1016/j.jcomdis.2021.106168>
- Dahl Jørgensen, L., & Willadsen, E. (2020). Longitudinal study of the development of obstruent correctness from ages 3 to 5 years in 108 Danish children with unilateral cleft lip and palate: a sub-study within a multicentre randomized controlled trial. *International Journal of Language and Communication Disorders*, 55(1), 121-135. <https://doi.org/10.1111/1460-6984.12508>

# Danish Speech Assessments

- **Logopædisk udredning af fonologiske vanskeligheder (LogoFoVA)**  
[Logopedic assessment of phonological disorders] (Clausen, 2016)
  - Phonology test and inconsistency test
- **KAJ-testen. Spontanbenævnt fonologisk test**  
[KAJ-test. Phonological spontaneous picture-naming test] (Bergstrand et al., 2005)
- **Ny sproglydstest**  
[New speech sound assessment] (Ege, 2006)
- **Barnets forståelighed i sine omgivelser**  
[Intelligibility in Context Scale: Danish] (McLeod et al., 2012)  
(M. Kammersgaard Schmidt, Trans.)

# Danish Speech Interventions

- **Hit med lyden**  
[Give the sound] (Kjøge & Flarup, 2006)
- **POPT. En psykolingvistisk interventionsmetode til børn med udtalevanskeligheder**  
[POPT. A psycholinguistic intervention for children with speech sound disorders]  
(Fox-Boyer, 2017)
- **Metafonundervisning**  
[Metafon intervention] (Thomsen, 1996)
- **Kompendium til undervisning af læsp**  
[Compendium for lisp intervention] (Bau & Schöps, 2006)
- **Lydbyggeren**  
[The sound builder] (Hvitamar et al., 2011)
- **Core Vocabulary Therapy** (Crosbie et al., 2021)

# Reference

## Book chapter

- Clausen, M. C. (forthcoming). Danish speech development. In S. McLeod (Ed.). *The Oxford handbook of speech development in languages of the world*. Oxford University Press.

## Presentation

- Clausen, M. C. (2023). *Danish: Multilingual children's speech development*. Charles Sturt University, Australia.

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

- Sharynne McLeod, Charles Sturt University, Australia
- Helen L. Blake, University of Technology Sydney, Australia