

# Is spoken Danish more difficult to understand than spoken Swedish?

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PSYCHOLINGUISTIC APPROACHES TO SPEECH RECOGNITION IN ADVERSE CONDITIONS

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## 1. Background

### Danish and Swedish:

- Closely related
- In principle mutually intelligible
- Danes understand Swedish more easily than Swedes understand Danish
- During the last century Danish has undergone more phonetic changes than Swedish has

## 2. Research questions

- Is Danish intrinsically more difficult to understand than Swedish?
- Do elderly Danes have more difficulties understanding young people than elderly Swedes?



## 3. Intelligibility test

### Material:

- 12 SUS-sentences (Semantically Unpredictable Sentences), no contextual cues to word identity, e.g.:


*Et æg kræver en tekst som håber (Da)*  
*Ett ägg kräver en text som hoppas (Sw)*  
'An egg demands a text that hopes'

### Speakers:

- 3 Danish and 3 Swedish male students
- From Copenhagen and Stockholm

### Speech manipulations:

- Babble noise (mixed recordings of a large number of speakers)
- Four descending levels in steps of 3 dB from 0 to -9 dB speech-to-noise ratio + original recording

Listen: 

### Listeners:

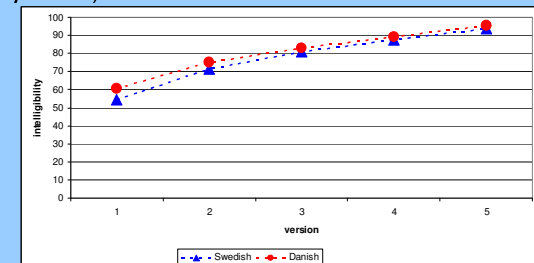
- Young (19-27 years):  
18 Danes, 24 Swedes
- Elderly (60-75 years):  
23 Danes, 26 Swedes

### Task:

- Listen via headphones and write down in mother tongue

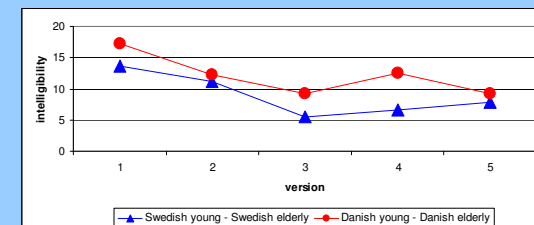
## 4. Results

a. Spoken Danish is as intelligible to Danes as Swedish is to Swedes ( $t = -1,428$ ,  $df = 358$ ,  $p = .08$ ):



→ Danish is not intrinsically more difficult than Swedish

b. The difference between elderly Danes and young Danes is not larger than between elderly Swedes and young Swedes ( $t = -1,513$ ,  $df = 358$ ,  $p = .06$ ):



→ Elderly Danes do not have more difficulties understanding young people than elderly Swedes