

# Boundary disputes and sociophonetic variation: schwa-epenthesis in Dutch *rC* clusters

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## Schwa-insertion or schwa-intrusion?

Dutch liquid+C clusters often broken up by epenthetic element

film	/fɪlm/	[fɪ.ləm]	'film'
hark	/hark/	[ha.rək]	'rake'
verf	/vərf/	[və.rəf]	'paint'
verven	/vər.və/	[və.rə.və]	'to paint'

Traditional phonological account: insertion rule

- Categorical, discrete: inserts segment /ə/       $\emptyset \rightarrow /ə/$
- Creates additional syllable

[19,20,3]

Phonetic alternative: vowel intrusion

[6,7]

- Vocalic percept due to coordination of C-gestures
- No new syllable created
  - Speaker intuitions
  - Total word duration
  - Phonological patterning



## Corpus and method

Needed: data from several speakers, dialect backgrounds, segmental contexts, etc., taking possible variation into account

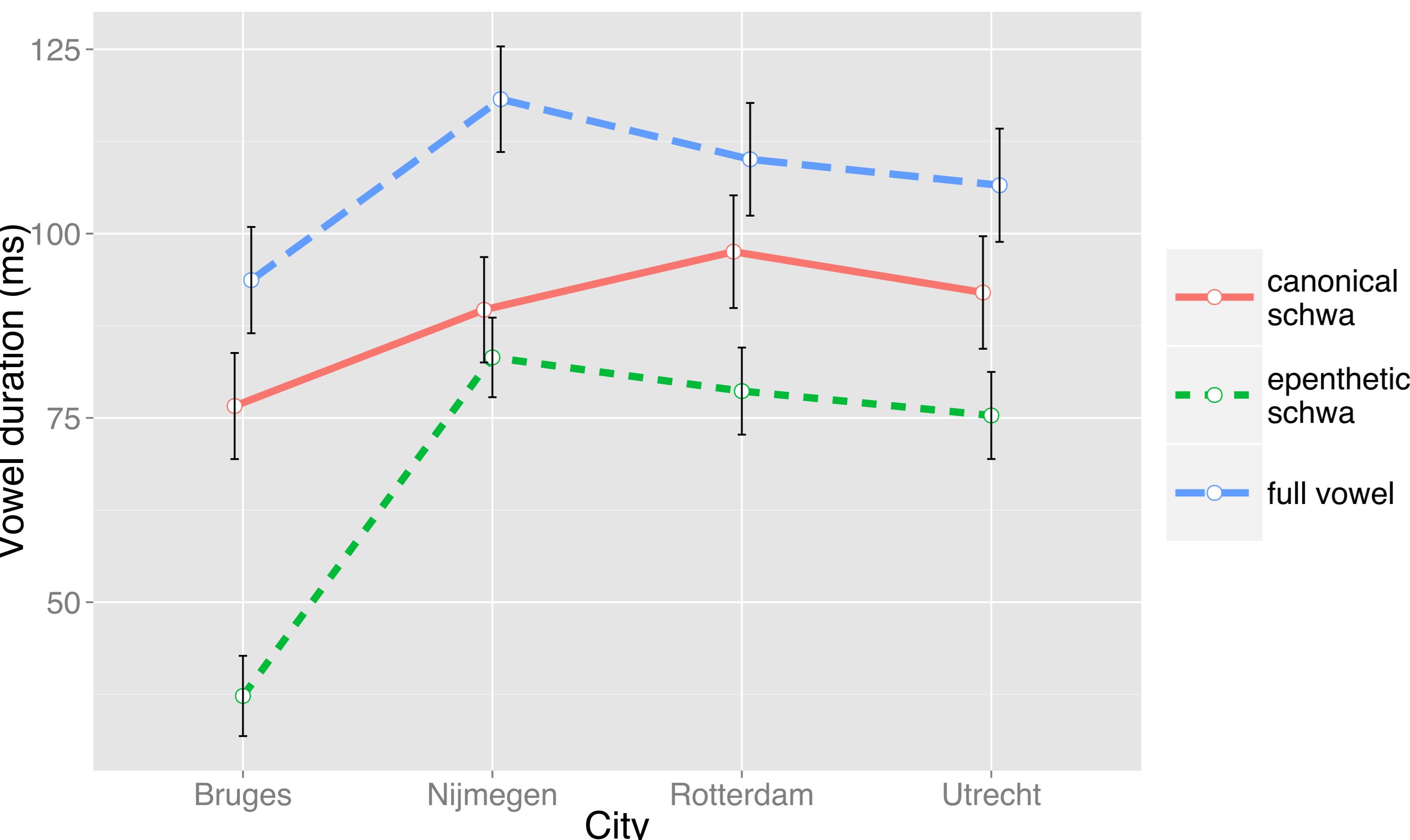
### Hema corpus

[17]

- Urban Dutch, 400 speakers from 10 cities in Netherlands and Flanders
- Focus on *r* variation, elicited & read speech
- Contains >3000 tokens with *rC* coda clusters

Analysis in R (lmer) [14,1,2]; Response variable = vowel duration

## Results



The duration data show:

- Schwa generally shorter than other short vowels (cf. [10])
- Epenthetic schwa shorter than canonical schwa overall
- **Bruges**: epenthetic schwa *much* shorter than canonical schwa
- **Nijmegen**: epenthetic not different from canonical schwa ( $p=.456$ )
- **Rotterdam/Utrecht**: pattern like Nijmegen, but categories closer
- No significant differences between Rotterdam and Utrecht (nor between uvular and alveolar *r* speakers in these cities)

**Boundary dispute:** a single process is claimed to be phonological by some and phonetic by others [13]

The two accounts make **contrasting predictions**:

- Under phonological account
  - [ə] should not behave differently from canonical (lexical) schwa
  - /r/ should behave as a syllable onset
- Under phonetic account
  - [ə] should behave as intrusive element, not full segment
  - /r/ should behave as a syllable coda
- Plus: Dutch /r/ is highly variable
  - Should not matter for the phonological account
  - Likely to be of influence under the phonetic account

[17]

Detailed examination of data could adjudicate, but:

- Traditional accounts: no mention of source of data
- Hall (2003, 2006): single informant

Focus of current study is on **duration** of epenthetic element (for an examination of **spectral qualities** see [17])

→ Comparison with canonical schwa & full short vowels

### Subcorpus

Speakers selected from

- 25 x Bruges (alveolar *r*)
- 26 x Nijmegen (uvular *r*)
- 17 x Rotterdam (50% uv, 50% alv *r*)
- 17 x Utrecht

### Duration measurements of

- Epenthetic schwa (329 tokens)  
*har\_p, ar\_m, ber\_g, ker\_k*
- Canonical schwa (167 tokens)  
*beraad, sturen*
- Full vowel (163 tokens)  
*rok [ɔ], kruk [ɣ]*

## Discussion and Conclusion

The conclusion seems to be that phonological/phonetic status can depend on the variety of Dutch under consideration

- Epenthetic element in Bruges: intrusive, from gestural coordination
- Full segment in Nijmegen Dutch: phonological insertion

These differences cannot be reduced to differences in *r* realisations:

- No significant differences alveolar/uvular in Rotterdam/Utrecht

However, this leaves open a number of issues:

1. While Rotterdam & Utrecht pattern mostly like Nijmegen, suggesting a phonological account, the specifics differ

→ These subtle differences are not explained by simple "phonological" / "phonetic" labels

2. An intrusive vowel analysis for Bruges would mean the /r/ is in the coda (no new syllable is created)

→ But the *r* variants found before epenthetic schwa are typical intervocalic onset ones in Bruges (voiced alveolar taps), while typical coda *r* variants are not found (voiceless trills, taps, fricatives)

→ So even the very short vowels in Bruges behave as syllable nuclei

→ But if the process is phonological even here, how/why does the phonology make a distinction between the two schwas?

- Interpretation problematic if a phenomenon has to be either phonetic or phonological
- Dutch schwa-insertion is a phenomenon at the interface, or in the "overlap" area of phonology and phonetics [15, 16, 4]

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