Pre-aspiration, sonorant devoicing, and the sonority hierarchy

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Main findings

This study suggests that

1. pre-aspiration and sonorant devoicing are one phenomenon in Welsh English

2. they differ in what types of segments they affect rather than in having inherently different properties; these segments however do have different properties and can also have various functions, which may in turn affect pre-aspiration in different ways in different environments

3. sonorant devoicing implies pre-aspiration, but not the other way round

Why these patterns? →

Why are nasals most frequently lagging behind, and vowels most frequently leading?

Contrast preservation?

- pre-aspiration may develop as an anticipatory gesture (supported by the conditioning of pre-aspiration and post-aspiration [1; 2; 3])
- this could start foot-finally pre-pausally, where burst properties may not be as audible as when a voiced segment follows [4; 5: 593]
- pre-aspiration could enhance the place contrast

- NP's show assimilation in place: /mp/, /nt/, /ŋk/
- sonorant devoicing may lead to obscuring the place of articulation [1: 232]
- or even the manner?

Why are consonantal liquids variably leading over vowels?

- variability of liquids could be due to variability in vocalisation and tongue contact area variation but also ↓

Consonantal conditioning →

Why is /t/ associated with most pre-aspiration across the contexts?

- /t/'s are heavily affricated [6]
- this leads to a longer and greater contact area [7] of the tongue with the palate

Defining pre-aspiration

Narrow sense of the term used here: a period of voiceless friction following a vowel and preceding a voiceless plosive:

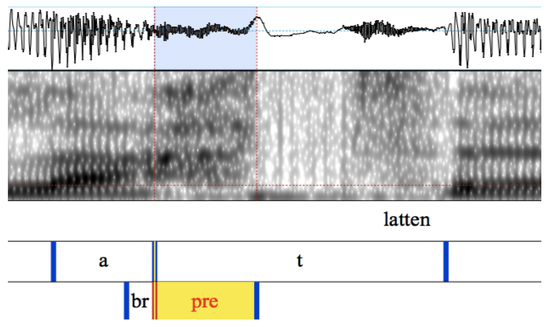

Figure 1: segmentation procedure showing the voiceless pre-aspiration and the voiced breathy transition within a VP sequence (P = plosive).

Defining sonorant devoicing

Corresponds to pre-aspiration: a period of voiceless friction following a consonantal sonorant and preceding a voiceless plosive:

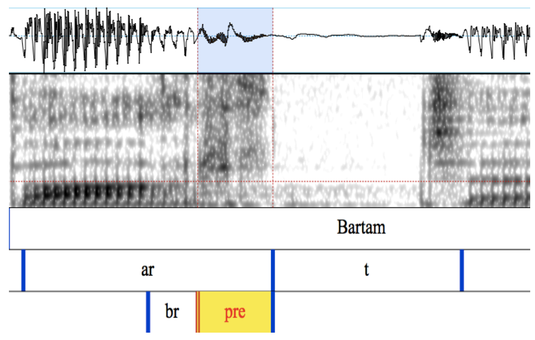

Figure 2: segmentation procedure showing the voiceless pre-aspiration and the voiced breathy transition within a VRP sequence (R = consonantal sonorant, P = plosive).

Pre-aspiration and sonorant devoicing in Welsh English

PATTERN 1
- pre-aspiration most frequent – VP (& V/r/ >) V/l/ > VN ($p < 0.05$-0.0001)
- 15 speakers
- sonorant devoicing implies pre-aspiration

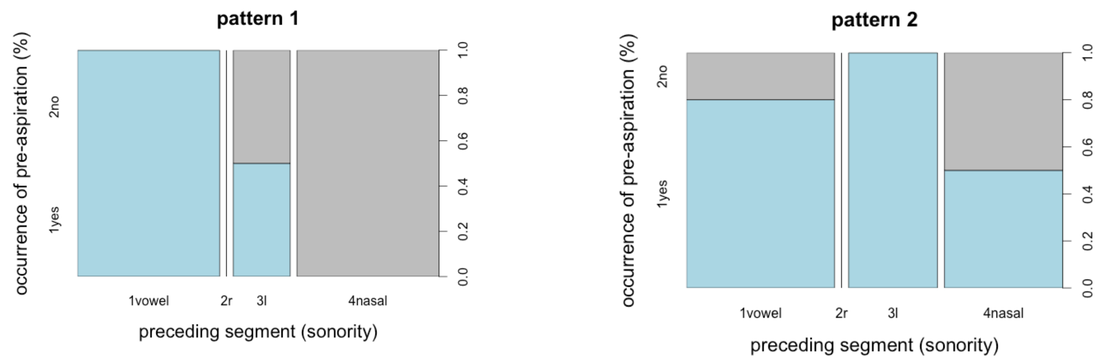

Figure 3 (left): pre-aspiration frequency strictly conditioned by the sonority hierarchy (1 speaker representative of 15).

Figure 4 (right): an example of another pattern, which doesn't strictly follow the hierarchy.

PATTERN 2
- pre-aspiration most frequent – V/l/ > VP > VN ($p < 0.01$-0.0001)
- 8 speakers

PATTERN 3
- VP > VN > V/l/
- 2 speakers

PATTERN 4
- 100% application across all sonority contexts
- 3 speakers

Other conditioning

pre-aspiration in VP sequences (*litter*)
- less frequent with high vowels (*latter* > *letter* > *litter*) ($p < 0.0001$)
- less frequent with long vowels (*latten* vs *tartan*) ($p < 0.0001$)
- less frequent with anterior plosive (/p/ < /t, k/) ($p < 0.0001$)
- females pre-aspirate more frequently ($p < 0.0001$)

pre-aspiration in V/l/P sequences (*Milton*)
- less frequent with anterior plosive (/p/ < /k/ < /t/) ($p < 0.001$-0.0001)

pre-aspiration in VNP sequences (*linter*)
- no conditioning found

Data

Wordlist data
- foot-medial fortis plosives (P)
- /p/, /t/, /k/

- preceded by vocalic sonorants
  - /ɪ/ e.g. *litter*
  - /a/ e.g. *latter*
  - /ɛ/ e.g. *letter*
  - /ɒ/ e.g. *otter*
  - /aː/ e.g. *party*

- as well as consonantal sonorants
  - /n, m, ŋ/ e.g. *linter*; *haunter*
  - (/r/ e.g. *party*)
  - /l/ e.g. *Hilton*

- V+P (plosive) = 511 tokens
- V+N (nasal) = 437 tokens
- V+/l/ = 473 tokens
- V+/r/ = 15 tokens

Speakers

- 28 speakers of Welsh English
- also L1 Welsh speakers
- South Wales, mid-Wales, North Wales

Typological perspective?

Languages reported to have sonorant devoicing also tend to have pre-aspiration:
Southern Icelandic, Tórshavn Faroese, Scottish Gaelic, Saami languages [8: 17; 10; 11], Sienese Italian [9]

Sonorant devoicing implies pre-aspiration in Welsh English

T_1 [Vht] *litter* > T_2 [Vnn̥t] *linter*

QUESTION:
Does sonorant devoicing/ consonantal sonorant pre-aspiration occur after vocalic sonorant pre-aspiration develops in the languages mentioned?

Possible problem:
- Sienese Italian [9]
- VT (48%); /lt/ (85%)

but
- 60 tokens for 6 speakers in total

References

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