Breathiness and pre-aspiration in Aberystwyth English

Michaela Hejná

Department of Linguistics and English Language, University of Manchester

misphrdina@gmail.com

Introduction
Previous research into pre-aspiration usually treats breathiness as its necessary component. Thus, pre-aspiration and breathiness tend to be added up in contextual analyses [1-9], or we do not know if breathiness was measured as part of pre-aspiration [10-12], and they are distinguished only sometimes [13-15], in which case differences in the segmental and social conditioning are found.

Main question: should they be treated as two components of a single phenomenon?

Hypothesis: they should if
1. They are subject to the same social conditioning
2. If they both share the same linguistic function: e.g. enhance a contrast
3. Or the same linguistic conditioning.

Defining pre-aspiration
A period of voicing (primarily) glottal friction in sequences of a sonorant and a voiceless obstruent:

Figure 1. pre-aspiration

Defining breathiness
A period of voiceless glottal friction, usually occurring with pre-aspiration (Figure 2) but sometimes on its own (Figure 3):

Figure 2. Breathing followed by pre-aspiration

Figure 3. Breathiness followed by pre-aspiration

However, only pre-aspiration occurrence is sensitive to gender: the young male speakers, the more frequent the pre-aspiration:

Figure 4. gender and pre-aspiration occurrence

Speakers

Aberystwyth
- 28 speakers born & raised in Aberystwyth
- most with parents also from mid-Wales
- 12 Welsh speakers, proficient in English
- 16 females, 6 males
- 20-90 years old

Data

Stressed syllables:
- /hv/, /hN/, /Nv/, /hv/, /Nv/, /hv/, /Nv/ combined with /N/, /N/, /N/, /N/, /N/ word-final (mostly, mocken)
- /hv/, /hv/, /Nv/, /hv/, /Nv/, /hv/, /Nv/ word-final (mainly)
- 3 tokens per word: 1s in isolation, 1s in a carrier sentence Say ______ once

Unstressed syllables:
- syllables with the second unstressed syllable
- /hv/, /hN/, /Nv/, /hv/, /Nv/, /hv/, /Nv/ word-final in the 2nd unstressed syllable [e.g. frode, kFonde, Merfli]
- 6 tokens per word in a carrier sentence

- 8,400 tokens for the stressed context, 460 for the unstressed one

Social conditioning

In apparent-time, pre-aspiration and breathiness occurrence show a very similar pattern. Pre-aspiration and breathiness durations show the same pattern, but breathiness is more variable across the individual.

Figure 5. (on the left) pre-aspiration and breathiness occurrence in apparent-time: for the right pre-aspiration and breathiness duration in apparent-time.

Pre-aspiration and breathiness show similariCes:
- Their occurrence and duration show on the whole the same patterns in apparent-time.
- They both enhance the fortis-les contrast.
- In the stressed context, breathiness is obligatory: but pre-aspiration is not.

However, they also show differences:
- Their occurrence is sensitive to gender in the same way.
- In the fricative stressed context (Fortis) and in the unstressed context (Frode), breathiness is obligatory, but pre-aspiration is not.

Conclusions:
The two should be analyzed separately unless it is demonstrated that they are consistently subject to the same conditioning.

Pre-aspiration and breathiness are not distinguished in phonological studies (e.g. [19-18], but they have been suggested that distinguishing the two may shed light on the affrication debates [18].

We may gain more insight regarding the linguistic and the social conditioning of pre-aspiration and breathiness, merging the two may lead to obscuring the patterns, as also illustrated by [13-15].

Co-occurrence

In the plosive stressed context (mock, mocken), pre-aspiration and breathiness co-occur in the vast majority of cases (Figure 6).

In the fricative stressed context (Frolis) and also in the unstressed context (Frolis), breathiness is obligatory but pre-aspiration is not (Figure 7):

$
\text{In the unstressed context, breathiness is obligatory irrespective of}
\text{the manner of articulation, although slightly less frequent in the plosive}
\text{context (Frolis): 99%; plosives: 85%}. \text{Pre-aspiration is much more}
\text{frequent in the plosive than the fricative context, but does not reach}
\text{values comparable to breathiness (Frolis: 12%; plosives: 67.5%).}$

Fortis-les contrast

Both pre-aspiration and breathiness enhance the fortis-les contrast (based on acoustic evidence). However, whilst pre-aspiration is never found in the lenis series, breathiness is.

Figure 8. (on the left) occurrence of pre-aspiration and breathiness in apparent-time: for the right pre-aspiration and breathiness duration in apparent-time

Figure 9. (on the right) occurrence of breathiness and the plosives series per position in word and sentence

Figure 10. (on the left) occurrence of pre-aspiration and the plosives series per position in word and sentence

Figure 11. (on the right) occurrence of breathiness and the plosives series per position in word and sentence

Segmental conditioning

- Phonological factors: vowel height, backness, length
- Phonetic factors: /l/, /l/, /l/
- Phonologically ambiguous factors: place & manner of articulation of the post-tonic plosive, type of the pre-tonic consonant

On the whole, there are more similarities than differences in the plosive context, especially concerning the phonological and uncertain variables. Most differences are found in the fricative and in the unstressed contexts.

Discussion

Pre-aspiration and breathiness show similariCes:
- Their occurrence and duration show on the whole the same patterns in apparent-time.
- They both enhance the fortis-les contrast.
- In the stressed context, breathiness is obligatory, but pre-aspiration is not.

However, they also show differences:
- Their occurrence is sensitive to gender in the same way.
- In the fricative stressed context (Fortis) and in the unstressed context (Frode), breathiness is obligatory, but pre-aspiration is not.

Conclusions:
The two should be analyzed separately unless it is demonstrated that they are consistently subject to the same conditioning.

Pre-aspiration and breathiness are not distinguished in phonological studies (e.g. [19-18], but they have been suggested that distinguishing the two may shed light on the affrication debates [18].

We may gain more insight regarding the linguistic and the social conditioning of pre-aspiration and breathiness, merging the two may lead to obscuring the patterns, as also illustrated by [13-15].

References


Suprasegmental factors: vowel height, backness, length
- Phonetic factors: /l/, /l/, /l/
- Phonologically ambiguous factors: place & manner of articulation of the post-tonic plosive, type of the pre-tonic consonant

On the whole, there are more similarities than differences in the plosive context, especially concerning the phonological and uncertain variables. Most differences are found in the fricative and in the unstressed contexts.