

Faroese Preaspiration

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ABSTRACT

This paper presents findings on the phonological distribution and phonetic realization of Faroese stops, with particular emphasis on preaspiration. Spontaneous speech data from 4 speakers of the Tórshavn dialect were recorded, and their stop production was analyzed. The data show that the somewhat contradictory accounts of the phonological distribution of preaspiration in previous works partly reflect a lack of uniformity among subjects in the phonological distribution of preaspirated variants. Further, the production of preaspiration was found to have a high degree of contextual variation. Lastly, when compared with preaspiration in other Scandinavian languages, the detailed phonological distribution of preaspiration was found to differ considerably between languages, although some central characteristics are shared between all of them. The implications of these data for historical sound change are discussed.

1. INTRODUCTION

Faroese is spoken by approximately 45,000 people on the Faroe Islands in the North-Atlantic. It belongs to the West-Scandinavian branch of the Germanic language family, and has close linguistic affinities with Icelandic in the west and the dialects of Western Norway in the east. There are a number of dialects which differ considerably. The dialect under consideration here is the Tórshavn dialect.

There are two contrasting stop series in Tórshavn Faroese, which will here be referred to as fortis and lenis. The use of these terms provides a way of distinguishing between the two series which have varying realizations. In traditional accounts, the fortis vs. lenis contrast in word-initial position is described as voiceless postaspirated vs. voiceless unaspirated. In word-medial, postvocalic position the contrast is described as voiceless preaspirated vs. voiceless unaspirated. However, Helgason [1] has found that the lenis stops are often voiced, especially in word-initial position, and that fortis stops in particular tend to be produced as fricatives without any stop closure. Thus, the terms fortis and lenis should not be taken as a statement about the phonetic realization of the two stop series.

Previous accounts of the phonological distribution of preaspiration in Faroese seem to agree that if preceded by a short vowel a fortis stop cognate is preaspirated and a lenis stop is voiceless and unaspirated. As for V:C sequences, accounts have diverged, a fact that might be attributed to dialectal differences ([2]). The present data

analysis addresses the issue of the expression of the fortis vs. lenis contrast in the Tórshavn dialect of Faroese. The data are also analysed with regard to the variation present in the phonetic expression of preaspiration in the dialect.

2. METHOD

The Faroese data come from four subjects, two male (SG and EI) and two female (MS and BJ), all speakers of the Tórshavn dialect. Spontaneous speech interaction between the subjects was elicited using map tasks ([3]). The subjects were recorded in pairs on separate channels. EI and MS formed one pair, SG and BJ another. The data were recorded on a DAT recorder, using directional microphones to minimize overlap between channels. This overlap was further reduced by placing the subjects so that they faced away from one another. The microphones were mounted on a headset so that they were placed approximately 2.5 cm out and to the side of the corner of a subject's mouth. The recordings were made on location in the Faroes. The amount of material analyzed for each subject varies between 11 to 16 minutes of uninterrupted speech. The material was transliterated by a native speaker of Tórshavn Faroese. Labeling and acoustic analysis were performed by the author.

A total of 1356 word-medial fortis and lenis stops were analyzed for the four subjects. Of these, 195 cases were discarded for various reasons. In a further 318 cases the subjects produced a voiced or voiceless fricative without a full stop closure. No measurements of preaspiration or closure duration were obtained for these cases.

In labeling, the same acoustic events were identified for all stops, irrespective of their orthographic representation or historical origin. Thus no assumptions were made as to their phonological status. The relevant events labeled were:

- Vowel onset
- Modal voice offset
- Voice offset
- Onset of stop closure
- Onset of stop release

Often, preaspiration manifests itself only as a breathiness in the vowel preceding a stop. This entails, that a preaspiration can be quite audible, even if voice offset does not occur at all before the stop closure is reached. Therefore, modal voice offset time, rather than simply voice offset time, is used here as a measure for the onset of preaspiration.

3. RESULTS

3.1. Distribution of variants

The phonological distribution of stop variants in word-medial VC:/VCC sequences was very similar for the four subjects. Fortis stop cognates in such sequences, e.g. in words like *átta*, *vatnið*, *sex*, tended to be preaspirated. (A tendency to produce less than a full stop closure, resulting in the production of a fricative, was also observed. This applied particularly to the male subjects.) Lenis stop cognates, i.e. in words like *oddur*, *radari*, were invariably unaspirated but varied with regard to voicing. This also applied to stops that can be derived historically from the “pre-stopping” of long laterals and nasals, i.e. in words like *ƒallið*, *oynni*.. Voiced variants were observed more frequently for stops with a short closure duration.

In the production of stops in word-medial V:C sequences the subjects differed more substantially. Two of the subjects, EI and MS, did not seem to distinguish between two stop series in such sequences. Thus they tended to produce all such stops as unaspirated, with varying degrees of voicing.

Subject SG did distinguish between two stop series in V:C sequences, but only after non-close vowels. Thus fortis stop cognates that occurred after a non-close long vowel (i.e. after [ɔ̃vɛ:], [ɛ̃vɛ:], [e:], [ø:], and [ɔ:] in words like *matur*, *bátur*) were preaspirated. Fortis stop cognates that occurred after a close long vowel (i.e. after [ũi:], [ỹũ:], [ɔ̃ũ:], [ṽi:], [ẽi:], [ɔ̃i:], [i:] and [u:] in words like *fótur*, *lita*) were unaspirated but varied with regard to voicing. Subject BJ followed the same pattern as SG with the exception that the status of preaspiration following [e:], e.g. in words like *eta*, *sleta*, is unclear. In such words, BJ variably produced preaspirated and unaspirated variants.

3.2. Acoustic characteristics of preaspiration

The phonetic variation in the production of Faroese preaspiration can be linked to three main sources.

1. Vocal-tract filtering of glottal friction
2. Friction noise due to stop articulation
3. Friction noise due to dorsal constriction corresponding approximately to maximal vocalic constriction

The first of these points has to do with the spectral characteristics of preaspiration proper (i.e., glottal friction), which are largely dependent on those of the preceding vowel. When preceded by [ɤ], preaspiration will assume spectral characteristics similar to those of [ɤ], and when preceded by [ɪ], they will be similar to [ɪ]. A comparison of the glottal friction produced in Figures 1 and 2 provides examples of slightly differing vocal tract filtering. In this respect, then, preaspiration in Faroese behaves like any other *h*-sound.

The second point refers to oral friction originating at the place of articulation of stop. In most cases when a clear glottal friction is produced (as in Figure 1) a short period of oral friction noise is produced that can best be seen as a by-product of the stop closure gesture. As the escape channel is being closed, air velocity increases resulting in

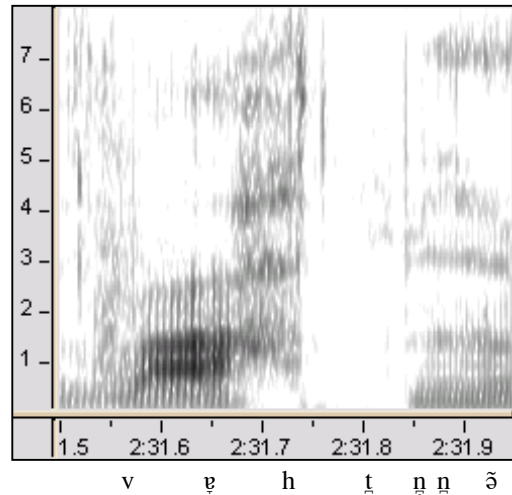


Figure 1. Subj. MS: [...eitt] *vatn* [tú...] ‘...a lake you...’

a friction noise. In the example in Figure 1, the friction noise is glottal during the initial 50 ms of preaspiration. During the last 15 ms of the friction interval, the closure gesture leaves its mark in the form of a mirrored release.

However, the duration of this type of stop closure friction is sometimes far greater than can be justified by seeing it as a mere by-product of the closure gesture. In Figure 2, a sequence of a half-open, back, rounded vowel and a dental stop is produced. The friction noise is glottal during the first 50 ms. Then, there follows a period of clearly audible dental friction for about 85 ms before the stop closure is reached. Given its duration, it is difficult to see this dental friction as a simple by-product of the stop closure gesture.

The third source of variation in the production of Faroese preaspiration seems to stem from an oral friction noise that has a place of articulation that corresponds approximately with the place of maximal dorsal constriction for the vowel. An example of this is given in Figure 3, where a close front vowel is followed by a dental stop. In this case, one might argue that the oral friction is a co-articulatory consequence of having a palatal vowel constriction followed by a dental stop constriction.

However, there are cases where it is less viable to see this type of vocalic constriction as a simple co-articulatory effect. For example, in the production of an open and central or back vowel (e.g., [ɤ] or [ɔ]) and a fortis stop, uvular friction may be produced before the stop closure is made. This is discernable in both auditory and spectral analysis. In Figure 4, for example, an interval of voiceless uvular friction of approximately 80 ms is produced before the stop closure is made. Such a long friction interval is unlikely to be a co-articulatory effect, i.e. a “natural” by-product of producing this particular vowel–stop sequence.

In some cases of preaspiration production it is evident that both the stop place and the vocalic constriction are involved in the production of oral friction. One such example is given in Figure 5. The vowel is back and half-open, and the stop is dental. Approximately 15–20 ms after glottal abduction is initiated a uvular stricture is formed. Some striations are visible, which indicate move-

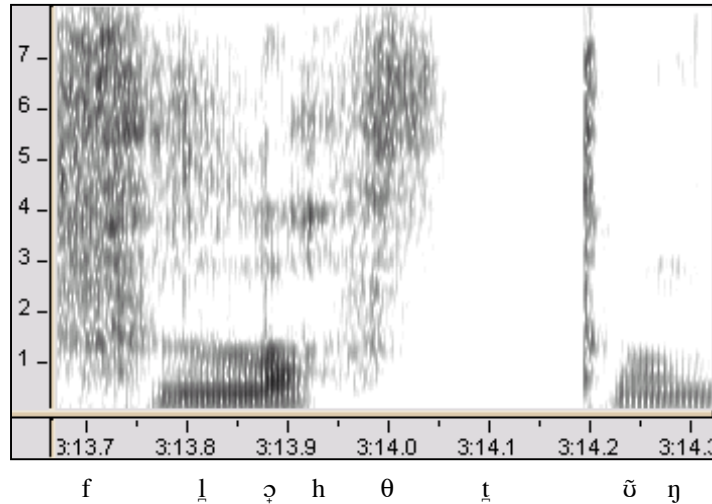


Figure 2. Inf. BJ: [...sovorðnum] **flottum** [geviri...] ‘...such fine antlers...’

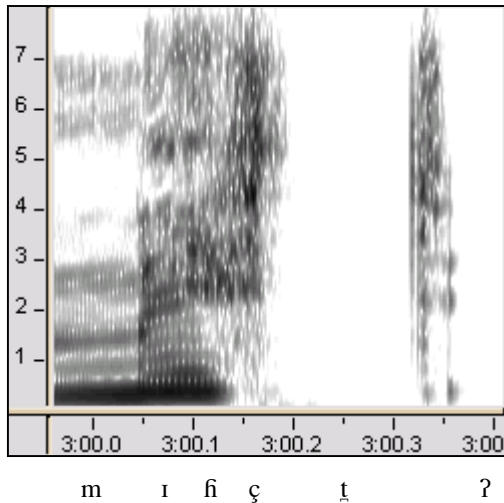


Figure 3. Subj. BJ: [...er] **mitt** [úti...] ‘...is in the middle...’

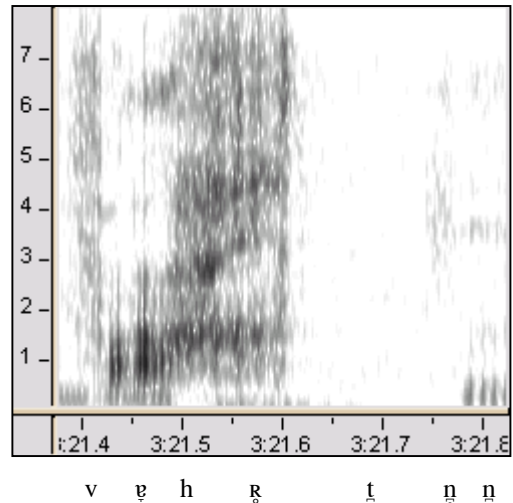


Figure 4. Subj. MS: [...eitt] **vatn** [har...] ‘...a lake here...’

ment of the uvula. This uvular stricture is maintained for approximately 55 ms. Then a dental stricture is formed, and maintained for approximately 60 ms, until a full dental closure has been made.

4. DISCUSSION

Recent findings suggest that preaspiration occurs as a non-normative (i.e. not obligatory) attribute of fortis stop cognates across the whole of Scandinavia (see [1], [5]). For example, many speakers of Central Standard Swedish (henceforth CSw) employ preaspiration as a regular attribute in fortis stop production, although it is not an obligatory feature of their dialect. Importantly, van Dommelen [6] has shown that those speakers of Norwegian who do not tend to preaspirate are still able to make use of the preaspiration percept in distinguishing between fortis and lenis stops.

The acoustic characteristics of the non-normative CSw preaspirations are quite unlike those for the normative

preaspirations in Faroese. In Faroese, oral friction is often produced in lieu of preaspiration proper. The duration of the oral friction makes it unfeasible to view as a simple co-articulatory effect. Rather, in Faroese, speakers frequently appear to enhance the perceptual effect of friction by producing largely oral friction instead of glottal friction. This is not the case in CSw. The non-normative preaspirations of CSw usually consist of mostly glottal friction, at least when preceded by non-close vowels, and are auditorily weaker than in Faroese ([1]).

Preaspiration is normative—i.e. an obligatory attribute in the production of fortis stop cognates—in several Nordic languages apart from Faroese. This applies to Icelandic, Faroese, the Jæren and Gudbrandsdalen dialects in Norway, and the Härjedalen and Gräsö dialects in Sweden (the preaspiration in the Arjeplog dialect in Sweden has probably come about through Saami influence).

The exact distribution of preaspiration in these areas differs. Common to all, though, is that fortis stop cognates in VC: sequences are preaspirated. Where the dialects

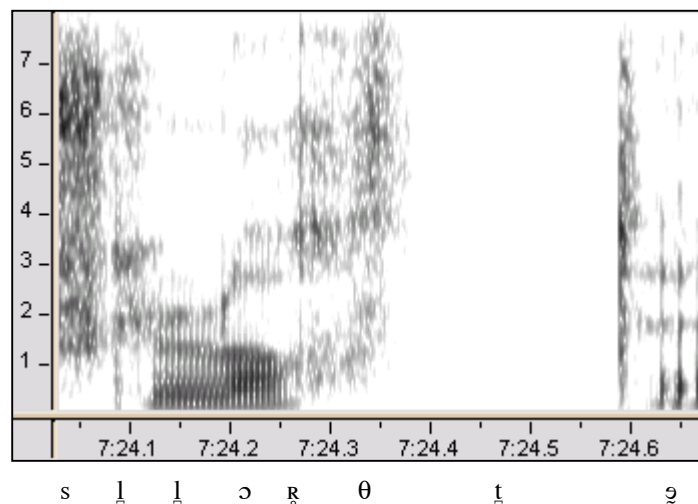


Figure 2. Inf. BJ: [...sovorðid] *slott e[lla...]* ‘...some sort of palace or...’

differ is in the expression of stops in VCC sequences (where the first consonant is a stop) and in V:C sequences. As regards VCC sequences, no two dialects appear to have exactly the same pattern of distribution. In V:C sequences, most languages/dialects (e.g. Icelandic and the Jæren dialect) do not have preaspiration in fortis stop cognates. In only two dialects, the Swedish Gräsö dialect and Faroese, does preaspiration appear in such sequences.

In the Gräsö dialect, preaspiration occurs in all fortis stop cognates in V:C sequences irrespective of the identity of the preceding vowel. In Faroese, the situation is more complex. The present Tórshavn data show that only two out of four subjects preaspirate in V:C sequences, and then only after non-close vowels. According to Petersen [4], the Faroes can be divided into three main areas with regard to stop production. In one of these areas the distribution of preaspiration seems identical to the distribution in the speech subject SG. In a second area, which apparently incorporates the town of Tórshavn, the distribution of preaspiration seems identical to the distribution in the speech of subjects EI and MS. (It should be reiterated that all subjects are genuine Tórshavn speakers.) It might thus be suggested that this lack of phonological uniformity is a result of dialectal admixture.

It is difficult to establish a phonetic motivation for the phonological distribution of preaspiration we observe in Faroese V:C sequences. The contexts that should most naturally induce voicelessness (close vowels) are precisely the contexts in which preaspiration fails to occur. Hansson [2] suggests that this also is the result of dialectal admixture. However, it is still difficult to motivate why such an admixture should result in the pattern observed. The issue as to what has led to the observed distribution is thus unresolved.

The presence of non-normative preaspiration in CSw, and the difference in phonetic character observed between the non-normative preaspiration in CSw and the normative preaspiration in Faroese may have implications for theories on the origins of preaspiration in Northwestern Europe. It

has previously been suggested that preaspiration is a retentive feature rather than a novelty in the Scandinavian languages ([7], [2]). The geographical spread of normative preaspiration is particularly indicative of this.

However, one should consider the possibility that preaspiration in the Old Norse language was non-normative, much like it is across Scandinavia today. Thus, instead of proposing that a putative normative preaspiration in Old Norse has become non-normative or disappeared altogether, it is suggested that non-normative preaspiration has been a stable phonetic pattern in Scandinavia for more than a millennium. Only in several relatively isolated locations, such as the Faroes, Iceland and Gräsö, has non-normative preaspiration developed into an obligatory attribute in fortis stop production.

5. References

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