Remains of a submerged continent
Preaspiration in the languages of Northwest Europe*

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1. Introduction

Preaspiration can be defined pretheoretically as the development of a period of voicelessness — seemingly 'out of thin air' — preceding a consonant, typically a voiceless stop, where this aspiration acts phonologically as if it were an integral part of that consonant. Icelandic is probably the best known example of a language with preaspiration; some examples are shown in (1). Note that preaspiration has two manifestations: 'preaspiration proper' as in (1a) and 'sonorant devoicing' as in (1b), whereby a sonorant becomes voiceless before a [+spread glottis] ('fortis') stop. Throughout this paper, the unmodified term 'preaspiration' will be used in this broader sense.

(1) Examples from Modern Icelandic:

a. Preaspiration proper:

<table>
<thead>
<tr>
<th>English</th>
<th>Icelandic</th>
<th>Transcription</th>
</tr>
</thead>
<tbody>
<tr>
<td>hat</td>
<td>hattur</td>
<td>[hahtyr]</td>
</tr>
<tr>
<td>hate</td>
<td>hatur</td>
<td>[ha:tur]</td>
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<tr>
<td>open</td>
<td>opna</td>
<td>[Jhpna]</td>
</tr>
<tr>
<td>oven (GpL)</td>
<td>ofoa</td>
<td>[,pna]</td>
</tr>
</tbody>
</table>

b. Sonorant devoicing:

<table>
<thead>
<tr>
<th>English</th>
<th>Icelandic</th>
<th>Transcription</th>
</tr>
</thead>
<tbody>
<tr>
<td>rolled (3sG)</td>
<td>volt</td>
<td>[valt]</td>
</tr>
<tr>
<td>power</td>
<td>void</td>
<td>[valt]</td>
</tr>
<tr>
<td>lamb (Dsg)</td>
<td>lampi</td>
<td>[lampr]</td>
</tr>
<tr>
<td>lamb (DsG)</td>
<td>lambi</td>
<td>[lamblpr]</td>
</tr>
</tbody>
</table>

Preaspiration seems to be rare cross-linguistically, at least in the Old World. However, it appears in a cluster of languages spoken in a mostly contiguous area in Northwest (NW) Europe. The languages involved belong to three families: Germanic (Scandinavian), Celtic (Gaelic) and Uralic (Saami).

This paper outlines a unified historical explanation for this seemingly areal distribution of preaspiration in NW Europe, whereby Gaelic and Saami preaspiration are taken to be due to contact with Scandinavian. Such a hypothesis crucially...
hinges on the claim that preaspiration within Scandinavian goes back at least to the Viking Age, and this discussion will focus almost exclusively on this point. On the basis of various sources of evidence, I argue that preaspiration should be reconstructed for Late Proto-Scandinavian. Some of the claims have been made before (see, e.g., Liberman 1982; Salmons 1992; Page 1997), but the range of evidence examined here — and more so in Hansson (1997) — goes well beyond what previous scholars have adduced. Furthermore, the reconstruction I suggest also differs in important ways from earlier proposals.

2. Preaspiration in Scandinavian: A peripheral archaism

The strongest support for the hypothesis that Scandinavian preaspiration is an archaism comes from a convergence of evidence. In this section, I argue that the geographic distribution of preaspiration, as well as its phonological distribution within individual dialects, constitutes a pattern of retention rather than innovation. Note that in both cases we are dealing with preaspiration in the broad sense, i.e., including sonorant devoicing. Furthermore, there is tentative textual evidence for the existence of preaspiration as early as the 13th–14th centuries.

2.1 The geographic distribution

On the whole, preaspiration is more characteristic of West Scandinavian (Icelandic, Faroese, Norwegian) than of East Scandinavian (Swedish, Danish). Nevertheless, preaspiration proper has been attested in Swedish dialects, and an analogous phenomenon is found dialectally in Danish as well (see Section 3). Sonorant devoicing is also found in West and East Scandinavian alike, though it has a more extensive distribution in the western part of the area. The following survey gives an overview first of preaspiration proper, then of sonorant devoicing.

2.1.1 Preaspiration proper

Preaspiration proper is found in all dialects of the Insular Scandinavian languages (Icelandic and Faroese). There is also reason to believe that it existed in Shetland Norn, the extinct language once spoken on the Shetland islands, judging from transcriptions in Jakobsen (1921). It should be emphasized, however, that Jakobsen is not describing Norn as such, but the etymologically Norse vocabulary of the 19th century local dialect of Scots English. Since it is unlikely that these words had an entirely unique phonetic character, preaspiration (including sonorant devoicing) must have been a general feature of 19th century Shetland English. The crucial question is then whether this was in fact a direct carryover from Norn, or simply ‘imported’ to the islands as a feature of Scots English itself. (Many Scots dialects have preaspiration as a Gaelic substratum feature.) Which explanation is more plausible remains a matter of further investigation.

Moving to the Scandinavian mainland, we find preaspiration proper well attested in several Norwegian dialect areas, all indicated on Map 1. Two of these are Jæren in the southwest and North Gudbrandsdal. A third area comprises most of Härjedalen and the two northwesternmost parishes of Dalecarlia: Särna and Idre. This area, along with the province of Jämtland, has been Swedish territory since 1645, but linguistically it is best seen as part of the East Norwegian dialect continuum. Finally, preaspiration is attested on the island of Senja. Aside from these four well-defined areas, stray examples of preaspirated stops can also be found in transcribed texts from various dialects close to the Härjedalen and/or North Gudbrandsdal areas. For example, Reitan (1930:73) makes vague reference to preaspirated geminates in Roros, just across the Norwegian border from Härjedalen. This may indicate that North Gudbrandsdal and Härjedalen are best seen as belonging to the same macro-area with respect to preaspiration.

In Swedish, preaspiration has been found in a few dialect areas, also shown on Map 1. One of these is northeastern Uppland, where it is best attested on Gräsö, but also on the adjacent mainland (Valö, Hallnäs, Forshmark). Preaspiration was also characteristic of the peculiar dialect once spoken on Kôkar, the most isolated of the Åland islands, as well as some nearby dialects (Kumlinge, Korpo, Hitis, Finnby). In the Estonian Swedish dialect on Ormsö, Tiberg (1962:64) cites the form vaihp ‘blanket’ (Old Norse veipa), but notes that such phonotactic sequences are otherwise unattested in Estonian Swedish. One isolated example has little empirical weight, and it must remain unclear whether preaspiration was ever a regular feature of Estonian Swedish. Two dialects spoken in the Lapland parts of Västerbotten (Vihelmima) and Norrbotten (Arjeplog), respectively, have also been reported to have preaspiration. These are very young settlements (two centuries old or less), and a certain degree of dialect mixture must have occurred in their formation. More importantly, these dialects are spoken within the Saami language area. The settlers had extensive contact with Saami speakers over a long period, at times with widespread bilingualism. This, and the fact that preaspiration is pervasive in Saami phonology (see Section 5), makes it plausible that the preaspiration found here is of secondary origin, i.e., due to contact with Saami. Finally, preaspiration is occasionally claimed to exist in Stockholm Swedish. Statements to this effect (e.g., in Liberman 1982) are usually based on antiquated phonetic studies whose interpretation is by no means straightforward. For example, what Rostvåge (1940) describes is hardly related to preaspiration at all (a point made also by Page 1997). Nevertheless, it should be pointed out that Helgason (1999) has found preaspiration to occur in spoken corpus data from Central Standard Swedish. I shall address the potential implications of these findings in Section 4 below.

Map 1 shows the areas where preaspiration proper is attested in Norwegian and
Swedish dialects, as well as the extent of West Jutlandic preglottalization (see Section 3). Recall that beyond the territory shown on the map, preaspiration proper is also found in all dialects of Icelandic and Faroese.

Several of the dialects in which preaspiration has been found have either become extinct or have lost all traces of preaspiration. Furthermore, existing descriptions, even those of living dialects, are at times inaccurate, vague, or incomplete, especially regarding fine-grained phonetic detail (e.g., the relative duration of vowel vs. aspiration vs. stop closure). This makes it difficult to analyze the phonological status of preaspiration in many cases. It is safe to say that only in Icelandic have the properties of preaspiration been studied well enough to warrant extensive phonological analysis—as witnessed by the proliferation of such analyses in the theoretical phonological literature over the last two decades, starting with Thráinsson (1978). On the other hand, the less well-known durational aspects of Faroese and Jæren Norwegian preaspiration seem to suggest that the situation in

Icelandic is in fact not representative at all, and may in part be due to secondary phonological restructuring. I will return to this issue in Section 4.

Even though descriptions are often lacking in phonetic detail, they usually contain enough data to give a good picture of the distribution of preaspiration across phonological environments. The range of environments in which preaspiration occurs can be divided into the following classes:

(2) A: Original geminate /pp, tt, kk/
   A2: Secondary geminate /pp, tt, kk/ (from lengthened /p, t, k/)
B: /p, t, k/ + sonorant (nasal or /l/, sometimes also /r/)
C: /p, t, k/ + obstruent (/ptl, /ksl, etc.)
D: Singleton /p, t, k/

Not all of the above classes are relevant for every dialect. For example, A2 is relevant only for dialects which have secondary lengthening of /p, t, k/; this automatically excludes Icelandic, Faroese, and the Norwegian dialects of Jæren and Gudbrandsdal. Furthermore, C is irrelevant for Icelandic, where stops usually spirantize before another obstruent (/ptl → [f], etc.). The distribution across environments for each preaspirating dialect is as follows (N = Norwegian, S = Swedish):

(3) Icelandic: A, B (A2, C irrelevant)
    Faroese: A, B, C, D (A2 irrelevant)
    Jæren (N): A, B, C, D (A2 irrelevant)
    Gudbrandsdal (N): A, B, C (A2 irrelevant)
    Härjedalen (N): A, B in most archaic dialect (Vemdalen)
                    A, A2, B in surrounding dialects
    Senja (N): A, ...? (description incomplete)
    NE Uppland (S): A, A2, ..., D (description incomplete)
    Kókar & surroundings (S): A, C, D on Kókar (oldest generation)
                            A, A2, C, D on Kókar (middle-aged speakers)
                            + evidence for B in nearby dialects
    Arjeplog, Vilhelmina (S): A, ..., D (description incomplete)

Note that several dialects have preaspiration in environment D, i.e., on singleton /p, t, k/ (in V_V or V_#), a fact which is not well-known and often ignored in the literature. In the dialects of Jæren and Kókar, this is clearly secondary, because the only words that have /p, t, k/ in such environments in the first place are loanwords (including dialect borrowings). The situation is less clear for Faroese and the NE Uppland (Grísö) dialects: here there is no a priori reason to assume that preaspiration of singleton /p, t, k/ is secondary. However, the dialect and age-group differences observed in Härjedalen and on Kókar suggest that, if singleton /p, t, k/ were originally preaspirated, they had lost their aspiration in these dialects by the time of the secondary lengthening of /p, t, k/.
2.1.2 Sonorant devoicing

The brief survey in the preceding section is based on facts that are relatively well documented, and other detailed overviews of the distribution of preaspiration proper can be found elsewhere — most notably in Liberman (1971a, 1982 et passim; but cf. Hansson 1997 for a more critical approach). It is quite remarkable how little attention has been paid to the full geographic extent of sonorant devoicing in relation to the origin and development of preaspiration proper, considering how intimately related the two are, phonetically and phonologically. Virtually all dialects with preaspiration proper also have preaspiration in the form of sonorant devoicing, but the fact is that the latter is much more widespread in Scandinavian than the former.

No comprehensive study of the extent of sonorant devoicing in Swedish or Norwegian dialects appears to exist. Hansson (1997) attempts to give a concise yet thorough survey of the dialectal distribution, but based on somewhat limited data resources. The overview given here is entirely based on that survey. As for the reliability of the sources, descriptions of individual dialects often contain gaps when it comes to allophonic phenomena such as sonorant devoicing. For example, one source may describe devoicing of /h/ but fail to even mention /r/, when another source on the same dialect explicitly states that devoicing applies to /h/ and /r/ alike. Furthermore, some gaps are inevitable due to the fact that no adequate (phonetic) dialect descriptions exist for certain parts of the Scandinavian language area. As a final caveat, it should be noted that a historically oriented overview such as this one is bound to be somewhat anachronistic — in the sense that the descriptions consulted may be as far as a century apart. Since the goal is to shed light on the past, the older (and more detailed) a source is, the greater its value. The upshot of this methodology is that the full picture, as presented in Map 2, does not depict the current geographic distribution, nor the complete distribution at any specific point in the past. Rather, it is intended to give a tentative idea of the ‘minimum extent’ of sonorant devoicing one or two centuries ago.

As it turns out, the environments in which devoicing occurs form a hierarchy, in that certain clusters seem more prone to show devoicing (or less prone to give way to voicing!) than others. In general, devoicing of /r/ is the most common, and devoicing of nasals the least common:

1. /l/ + /p, t, k/ (frequently [l] > [l], merging with /r/)
2. /l/ + /l/ (if /l/ often palatal [l])
3. /l/ + /p, k/ (often ‘thick l’, i.e., velarized [l] or flap [l])
4. nasal + /p, t, k/
5. sonorant + voiceless fricative (e.g., /s/)

The difference between classes B and C is most probably due to a widespread distinction — at least allophonic, if not phonemic — between two types of /l/:

- ‘clear’ vs. ‘dark’ /l/ (whatever the actual phonetic distinction was originally). As for class E, it is best understood as an extension of the devoicing pattern to all [+spread glottis] segments, rather than those that are [+spread glottis, -continuant].

Using the classification in (4), virtually all the dialects can in fact be arranged into a typological hierarchy, going from no devoicing whatsoever to devoicing in one or more of the above environments, where each class of environments presupposes the ones above it on the list:

- Type 0: No devoicing
- Type 1: Devoicing in A
- Type 2: Devoicing in A, B
- Type 3: Devoicing in A, B, C
- Type 4: Devoicing in A, B, C, D
- Type 5: Devoicing in A, B, C, D, E

Faroese is the only language exhibiting a Type 5 system (and possibly Shetland Norn as well). Icelandic has a Type 4 system throughout most of the country, but Type 2 is found in a limited and receding area in the northeast, with Type 3 occurring mostly in the transition area between the two. If we turn our attention to the geographic distribution of the above types on the Scandinavian mainland, as shown on Map 2, the resulting picture is quite interesting.

The devoicing dialects form a very large, mostly contiguous area along the Scandinavian periphery. Within this area, dialects with more extensive sonorant devoicing emerge as areal pockets, contained within regions of less extensive devoicing; also, devoicing becomes more limited around important cities of commerce (Bergen in Norway, Vasa in Finland). Furthermore, a comparison of Maps 1 and 2 reveals the strong geographic correlation between preaspiration proper and the more extensive patterns of sonorant devoicing (Types 3, 4). Both tend to be found in languages and dialects that are relatively isolated — not on major trading routes — and/or notorious for being linguistically conservative. The overall peripheral orientation, the ‘nested-islands’ pattern, the correlation with isolated and/or conservative areas, are all hallmarks of a pattern of retention, not innovation.

2.2 The phonological distribution

Just as the geographic distribution suggests retention rather than innovation, so does the phonological distribution — especially of preaspiration proper — in many modern dialects. Preaspiration has often come to support a phonological contrast, but only as an indirect consequence of various independent sound changes which would otherwise have resulted in merger were it not for the presence of preaspiration. Such changes, most of which are listed in (6), can thus be said to have increased the ‘functional load’ of preaspiration, changing it from redundant to contrastive.
I suggest that preaspiration shows the distribution it does precisely because it has been *retained* in those environments where it has become contrastive. It is far less plausible that each individual dialect would have chosen to invent preaspiration—out of all conceivable alternative ‘strategies’—as a means of avoiding merger (but see Section 4 for a subtle reinterpretation of this alternative).

### 2.3 Textual and other evidence

In addition to the geographic and phonological arguments, the hypothesis that preaspiration is an archaic feature receives further support from philological evidence. In various Icelandic, Norwegian, and Swedish manuscripts, forms can be found where /tt/, or even /t/, is unexpectedly represented as (st), (pt) or (ft) (presumably reflecting [xt], [ft]). One possible explanation is that these represent a reinterpretation of the [h] portion of a preaspirated stop as a buccal fricative.

(7) Forms in manuscripts with unexpected (c), (p), (f) ([xt], [ft]):

- (doctir) = dottir, dottuf (Sweden, 14th c.)
- (aktag) = attak, (freckt) = frett (Iceland, early 15th c.)
- (recta) = retta, (gect) = gat, (lyricrar) = lyrirrar (various Icelandic mss.)
- (Suictun) = Svittun < OE Swithun (Iceland, Norway, 14–15th cc.)

These are paralleled by various attested dialectal forms which actually contain an unexpected /ft/ or /kt/ (possibly = [xt]), often in dialects that are not traditionally described as preaspirating.

(8) Examples of dialectal words with unexpected /kt/, /ft/:

- okta, ofta = ON öttu, ogte = ON ötti (Trøndelag, Norway)
- legi = ON hildir (Hallingdal, Norway)
- flytta = ModSw flykta; stikkt = ON stett (Dalecarlia, Sweden)

There is one additional piece of potential textual evidence, a 13th century runic inscription, consisting of a single word, found on a small wooden object unearthed in a 1985 excavation in Trondheim in what was probably a carpenter’s workshop. The object seems to be a template for a particular piece of a string instrument, and inscribed on it is the term for that piece. The runic spelling of the word on the inscription contains an unexpected (ht) (for /tt/ or /t/):

(9) Early 13th century runic inscription (Trondheim, Norway):

ruhta ‘part of string instrument’

(word found in various continental European mss. as rothu, rutta, rute, etc.)

cf. ‘phonetic’ spelling of foreign words and names, common in other runic material:

- santibusetar = Lat. sanctificetur, where (b) = [jb]
- pendihta = Benedicta, where (ht) = [xj] (1248)
The forms in (7)–(9) would hardly constitute persuasive evidence on their own. Combined with the evidence adduced in the previous sections, however, they lend further support to the hypothesis that preaspiration was present in Scandinavian at least as early as the 12th–13th centuries.

3. Preaspiration and West Jutlandic stød

Various Danish dialects spoken on Jutland and Northern Funen display a glottalization phenomenon referred to as West Jutlandic (WJ) stød (Ringgaard 1960; cf. Page 1997). WJ stød is phonetically distinct from the better-known Common Danish (CD) stød, in that it consistently involves full glottal closure. More importantly, the two occur in radically different environments: WJ stød is found only before reflexes of Old Norse /p, t, k/, where CD stød can never occur. It appears that, at least historically, WJ stød is best seen as preglottalization of stops, rather than a 'prosodic' element like CD stød (and its cognate pitch accents in Swedish and Norwegian).

The phonological distribution of WJ stød corresponds quite closely to that of preaspiration (including sonorant devoicing) in Modern Icelandic. There is one important difference, however: WJ stød occurs only in those forms that were polysyllabic in Old Norse — i.e., those that carried the pitch accent referred to as 'Accent 2'. In the modern dialects, minimal pairs exist, because the so-called Jutlandic apocope has rendered many polysyllabic forms monosyllabic. WJ stød is thus contrastive: [stærk] "strong (SG)" vs. [stærık] "strong (PL)" (cf. Old Norse stærkr vs. sterkir).

The traditional historical explanation has been to interpret WJ stød as triggered by the apocope, a compensatory effect to avoid the merger of many original polysyllables with original monosyllables.6 There is an alternative interpretation, however, namely that the conditioning by syllable count — or pitch accent, or apocope — is a secondary development (Hansson 1997). On this view, /p, t, k/ were originally preglottalized in all positions, regardless of syllable count or pitch accents. Preglottalization (i.e., [?]j) was subsequently lost under one of the two pitch contour patterns, Accent 1 (that of monosyllables), but it was preserved under the Accent 2 pattern (that of polysyllables). The Accent 1 vs. Accent 2 opposition has since been replaced by CD stød vs. no CD stød, just as it has elsewhere in Danish.

The crucial evidence for this hypothesis comes from the archaic dialects spoken on the island Als (off the SE coast of Jutland), where the pitch accent opposition is still preserved as such (Jensen 1961). The dialect of the most remote and isolated villages on Als also has WJ stød — which thus coexists with true pitch accents, rather than with a CD stød contrast as in all other dialects. As it turns out, this dialect has WJ stød on original monosyllables and polysyllables alike, i.e., cooccurring with both Accent 1 and 2. It is hard to interpret this as anything but an archaism.

We can thus conclude that WJ stød is cognate with preaspiration elsewhere in Scandinavian. The phonological distribution is virtually identical (note that this includes sonorant devoicing: Icelandic [gh] = West Jutlandic [nft]). Also, WJ stød is geographically peripheral, and its distribution fits quite nicely into the pan-Scandinavian preaspiration map, bolstering the archaism argument.

4. The origin and nature of Proto-Scandinavian preaspiration

If preaspiration — or perhaps preglottalization — existed already in Late Proto-Scandinavian, what was the range of its phonological distribution? The answer to this question may depend on what the ultimate origin of Scandinavian preaspiration is assumed to be. Marstrander (1932) proposed that preaspiration of /pp, tt, kk/ was the result of an incomplete assimilation of Proto-Scandinavian *mp, *nt, *nk, and *xt clusters into /pp, tt, kk/ (cf. also Page 1997).7

\[(10)\quad *mp > [np] > [hp], *nt > [gt] > [ht], *nk > [gk] > [hk], *xt > [ht]\]

The assimilations thus remained incomplete in certain parts of Scandinavia. As for preexisting /pp, tt, kk/ from other sources, it is necessary to assume that preaspiration was generalized to these by 'phonetic analogy'. Page (1997) argues for the scenario in (10), but assumes that other /pp, tt, kk/ were already phonetically preaspirated at the time it took place (p. 177). One advantage of this view is that the clusters in (10) can be assumed to have been reinterpreted as a phonotactic configuration already present in the language. However, this paradoxically entails that (10) is in fact not a hypothesis about the origin of preaspiration any more; rather, it constitutes a diachronic path along which additional tokens of preaspirated stops entered the lexicon.

Neither Marstrander (1932) nor Page (1997) appears to be aware of the existence of preaspirated singleton /p, t, k/, e.g., in Faroese or in NE Uppland dialects. If (10) represents the origin of preaspirated stops, then preaspiration on any non-geminate stops must be secondary. This is less problematic on Page's reinterpretation, but, on the other hand, he is not very explicit about the distribution of preaspiration at the stage preceding (10). Were /p, t, k/ preaspirated only as geminates, only in coda position, or perhaps only in heterosyllabic clusters?

The scenario I propose is somewhat similar to the one Page (1997) suggests, but different in that /p, t, k/ are here explicitly assumed to have been phonetically preaspirated in all non-initial positions in Late Proto-Scandinavian (Hansson 1997). This pattern may well have applied throughout the language area. A crucial assumption is that preaspiration did originally not have full segmental duration (unlike its Modern Icelandic descendant), but was a subsegmental feature, entirely
analogs to word-initial postaspiration. The \( /pp, tt, kk/ \) vs. \( /p, t, k/ \) distinction was thus realized in terms of closure duration alone — i.e., a true length contrast. In other words, both geminates and singletons were preaspirated: \([\text{ht}]\) vs. \([\text{kt}]\). (Note that this entails that after a sonorant, preaspiration was, in effect, partial sonorant devoicing: \([\text{rfk}]\), \([\text{prt}]\), etc.) Preaspiration has generally been on the retreat throughout Scandinavia ever since. Preaspiration proper on singleton \( /p, t, k/ \) is very rarely retained, possibly because these did not contrast with other stops, voiced or otherwise. In other words, preaspiration was redundant in postvocalic onset position: Old Norse had \( \text{saka} \) "accuse", but \( \text{[sa\text{\text{"}}ka]}\) were impossible (\( \text{saga} \) "tale" was phonetically \( \text{[\text{saya}]}\)).

The \( [\text{ht}] \) vs. \( [\text{kt}] \) pattern reconstructed for Late Proto-Scandinavian is in fact identical to what is found phonetically in Faroese and in Jæren Norwegian today. This pattern stands in sharp contrast with the better-known Modern Icelandic one, where preaspiration has always a full-blown (moraic) segment \([\text{h}]\), the following stop closure is of relatively short duration (comparable to that found in CC clusters), and singleton postvocalic \( /p, t, k/ \) are never preaspirated. I propose that the Icelandic pattern be interpreted as a secondary development. This may well have been ultimately triggered by the general devoicing of \( /b, d, g/ \) (far less consistent or pervasive in Faroese than in Icelandic). The development may have been as outlined in (11), which can be interpreted as a chain-like constellation of sound changes. The three components of the ‘chain’ are presented here as sequential steps, but they equally well be interpreted as orthogonal factors operating in tandem (yielding the change \( [\text{gh}] : [\text{kh}] : [\text{kh} ] > [\text{kh}] ; [\text{kh}] ; [\text{k}] \) in one leap, as it were).

\begin{enumerate}
\item A conjectural history of [\text{Icelandic} preaspiration (velars only used as an example):  
\begin{itemize}
\item Devoicing of \( /g, g, k, k, k/ \) vs. \( /g, g, k, k, k/ \). As a consequence, \( /g, /k, /k, /k/ \) vs. \( /k, /k, /k/ \); \( /k, /k, /k/ \).
\item Polarization of \( /g, g, k, k, k/ \) vs. \( /k, k, k/ \) contrast: preaspiration of \( /k, k, k/ \) is segmentalized, with \( /g, g, k, k, k/ \) as a consequence, \( /k, k, k/ : /k, k, k/ = [\text{kh}] : [\text{kh}] ; [\text{k}]. \)
\item Polarization of \( /k, k, k/ \) vs. \( /k, k, k/ \) contrast: redundant preaspiration of \( /k, k, k/ \) is dropped, with \( /k, k, k/ \) as a consequence, \( /k, k, k/ : /k, k, k/ = [\text{kh}] : [\text{k}]. \)
\end{itemize}
\end{enumerate}

The hypothesis that preaspiration existed as a subsegmental property of stops already in Proto-Scandinavian does of course not constitute an explanation for how and when it arose. There seems to be no conclusive evidence for any relation between preaspiration and the Swedish–Norwegian pitch accents or Common Norse stød (pace Liberman 1982; Salmons 1992). A certain interaction between preaspiration and pitch accents is found (e.g., in the Flekkefjord case cited by Liberman 1982:66–67; cf. also the above discussion of WJ stød), but this is hardly surprising, given the shared physiological mechanism: pitch contours and laryngeal gestures/segments frequently interact. However, interaction alone does not constitute evidence of common historical origin.

Kortlandt (1988, 1996) suggests that preaspiration, as well as the cognate WJ stød, are direct reflexes of Proto-Indo-European ‘glottalic’ stops (as reconstructed by proponents of the Glottalic Theory). In effect, this explains away the development of preaspiration by pushing its roots even further back in time, into PIE. Kortlandt’s arguments are quite subtle, and a detailed discussion of his ideas goes well beyond the scope of this short paper. Although plausible in principle, the hypothesis of course hinges on the validity of the Glottalic Theory as such, as well as Kortlandt’s hypothesis of source being changed into preglottalized voiced stops (sic!) on the way to Proto-Germanic.

The question of the ultimate origins of Scandinavian preaspiration does not have a straightforward answer. Since the main claim of this paper is simply that preaspiration goes at least as far back as Late Proto-Scandinavian, I will take a rather agnostic position on this issue, and simply propose that Proto-Scandinavian \( /p, t, k/ \) became either preaspirated or preglottalized through a simple sound change. That change itself can be characterized as a slight misalignment of articulatory gestures, (laryngeal vs. oral). As for the relationship between WJ stød and preaspiration, I will assume (with Page 1997) that preglottalization developed out of preaspiration, rather than the other way around, although nothing that has been said here crucially hinges on that assumption.

Finally, we must briefly address the issue of the precise phonological status of preaspiration in Proto-Scandinavian. I have already argued that it was subsegmental, not a full-fledged segment \([\text{h}]\). But does this necessarily mean that the subsegmental ‘gestural misalignment’ had become phonologized, i.e., incorporated into the phonological norm? Or could it be that the preaspiration reconstructed for Proto-Scandinavian was merely a characteristic tendency toward a particular pattern of gestural timing — i.e., an aspect of phonetic realization rather than phonological structure? There is some evidence that such low-level articulatory strategies may display areal distribution and variation. Gohn and Ni Chasaide (1988) found a tendency towards early glottal abduction before fortis stops in most of their Swedish speakers, and some of their English ones, as opposed to the tighter synchronization of glottal and oral gestures observed for French speakers. Helgason (1999) found the same tendency in speakers of Central Standard Swedish. This preaspiration, which is non-normative (but nonetheless articulatorily planned), varies with speech rate, sentential focus, etc. It stands in sharp contrast with the normative preaspiration found in Uppland dialects (Gräss) or Icelandic. Finally, similar non-normative preaspiration has been reported in Norwegian outside of traditionally preaspiring areas (see, e.g., van Dommelen 1999).

Was the preaspiration reconstructed for Proto-Scandinavian normative (i.e., phonologized), or could normative preaspiration — in Iceland, the Faroes, Jæren, Uppland, etc. — have developed later and independently in the individual dialects, perhaps in parallel to sound changes of the type listed in (6)? The evidence is hard to interpret on this point, but the full geographic distribution of
sonorant devoicing suggests, if anything, a relatively early phonologization, i.e., that devoicing of a preceding sonorant was full and categorical already at an early stage. The development of WJ stød may also be harder to reconcile with the notion of a late normativization.

5. Preaspiration outside Scandinavian

Due to space limitations, this topic can only be touched upon extremely briefly here. An in-depth discussion, including a detailed survey of relevant literature, is provided in Hansson (1997), where it is argued at length that preaspiration in both Gaelic and Saami is most likely due to contact with Scandinavian (following Borgström 1974 and Posti 1954, respectively).

The theory that preaspiration in Gaelic is due to Norse influence (Marstrander 1932; Borgström 1974) remains the most convincing explanation to date. According to this theory, preaspiration was a feature of Late Proto-Scandinavian at the time when Norse settlers first came to Scotland and Ireland. The geographical distribution of preaspiration in Scottish Gaelic matches this settlement history quite nicely. As pointed out by Borgström (1974), the counterargument that preaspiration is ‘strongest’ (phonetically [xp, xt, xk]) in areas further away from the main Scandinavian settlements is misguided. It is highly unlikely that preaspiration would have arisen directly as prefricative ([xp], etc.), and that the [hp] realization found in the Hebrides (e.g., on Lewis) is the result of subsequent lenition of [x]. Moreover, severe problems of relative chronology appear to result from this view (cf. Hansson 1997): the cluster /xk/ (from earlier /xt/) is retained as [xk] in all dialects, even ones where preaspirated /t(t), k(k)/ is [xt], [hk] and not [xt], [xk].

The particular mechanism of contact-induced change would in this case have been interference through language shift (from Norse to Gaelic). This is fairly unremarkable, given that preaspiration is frequently carried over from one language to another as an interference feature, e.g., from Gaelic into Scots English, from Saami into Norwegian, from Saami into Finnish, and as a characteristic feature of an Icelandic ‘accent’ in various foreign languages (cf. Thráinsson 1978).

As for the origins of preaspiration in Saami (a.k.a. Lapp, or Lappish), a popular opinion has been that it is inextricably tied to the development of so-called consonant gradation (cf. Ravila 1956; Liberman 1971b), a pervasive system of alternations — once quantitative, now mostly qualitative — which was originally conditioned by the weight of the following syllable. One of the many instantiations of gradation is an alternation between preaspirated and unaspirated stops (North Saami [johka] “river”, Gsg [joka]). The idea is, then, that preaspiration plays such an important role in Saami morphophonology that it cannot possibly be a contact phenomenon. However, this is a non sequitur: there is no inherent link between consonant gradation and preaspiration. What plays a central role in Saami grammar is not preaspiration as such but simply gradation itself, i.e., systematic *quantity* alternations. Since only geminates became preaspirated in Saami, geminate vs. singleton alternations (/lp/ vs. /p/) are realized in the modern dialects as alternations between preaspirates and non-preaspirates (/hp/ vs. /p/). Finally, the theory that Saami preaspiration is due to contact (Posti 1954) has an important advantage over the alternative account. The contact theory can, at least potentially, explain the fact that preaspiration gets less pervasive in terms of its phonological distribution towards northeast, i.e., in the direction away from Scandinavian-speaking areas.

6. Conclusions

Preaspiration in the Scandinavian languages is a feature whose geographic distribution, and phonological patterning suggests that it constitutes an archaism, preserved on the (mostly western and northern) periphery of the language area, and in notoriously conservative dialects. I have argued on the basis of this and other evidence that preaspiration should be reconstructed for Late Proto-Scandinavian. Furthermore, the preglottalization referred to as West Jutlandic stød is clearly cognate with the preaspiration found elsewhere, and most likely developed out of the latter. However, it is still unclear whether preaspiration was already phonologized at that stage, or whether it was merely an (areal) pattern of low-level gestural timing, i.e., of phonetic implementation. Either way, the situation in Modern Icelandic is clearly secondary, the result of a phonological restructuring, possibly triggered by other independent sound changes. I have also suggested that distributional restrictions in terms of syllable count or pitch accent (e.g., for WJ stød) are secondary, and do not indicate that the preaspiration or preglottalization in question had a ‘prosodic’ function at any time. Finally, I briefly argued that the preaspiration found in Gaelic and Saami is most convincingly accounted for as due to contact with Scandinavian.

Notes

* During the extensive work on which this short paper is based, I benefitted greatly from discussion with more people than I could possibly enumerate. Höskuldur Thráinsson, Pétur Helgason, and Jan Ragnar Hagland deserve special thanks. Thanks also to the two anonymous referees for helpful comments. All errors are of course my own.

1. As for the possible existence of preaspiration further north than Uppland, Posti (1954:204, fn. 1) quotes Manne Eriksson as having claimed that “remnants of this phenomenon are found in Gästrikland and Hällingland”. Given the context of the quote, it seems likely that this refers
specifically to preaspiration proper, and not simply to sonorant devoicing (which is most certainly found in these provinces, cf. Map 2).

2. Other references to the existence of preaspiration proper in Estonian Swedish (e.g., in Liberman 1982) are apparently based on a misinterpretation of descriptions in the dialectological literature having to do with the development of the clusters /tt/ and /kt/ (often pronounced [xt] or even [ht]) in these dialects.

3. One reviewer suggests that this lengthening may be itself the direct reflection of a lost glottal element. However, the fact remains that in Hjarðarleina, only the more innovative dialects (as opposed to that of Vemdal) preaspirate these secondary geminates, and on Kókar, only younger speakers preaspirate them. Both are obvious cases of later generalization; thus, preaspiration in environment A2 is clearly more recent than the lengthening itself.

4. In fact, the northeastern Type 2 dialects seem to have had even more limited devoicing within class B in earlier times, with heteromorphic sequences of */v/ + */t/ showing no devoicing. It seems best to interpret this as an innovation — even though it is ‘archaic’ nowadays, in that it is disapperaring — namely a paradigmatic levelling of the voiced [l]. This levelling has a parallel in certain Swedish Type 2 dialects with ‘thick’ vs. ‘clear’ /l/, where the ‘thick’ I of, say, gul “yellow” (masc.) can spread to the neuter form gul, thus escaping devoicing.

5. One reviewer suggests that devoicing and hardening may never have taken place, i.e., that what happened was voicing and frication elsewhere. This is an intriguing idea, but hardening most certainly did take place in the documented history of Icelandic (e.g., [θ] > [θ]; [tʰ] > [θ]; [θ; yθ] > [θ; vel, yd] and [pθ, yθ] > [pθ, kθ] dialectally).

6. Ringgaard (1960), who instead assumes that /p, t, k/ became preglottalized already in Old Danish, attempts to explain the poly- vs. monosyllabic divergence by assuming that preglottalization arose only in medial position, not word-finally. Page (1997:185) takes a similar view: “[t]he laryngeal feature associated with the medial stop had acquired a prosodic function by the time of [WJ] apocope. Therefore, W] st0d is absent from more syllables”.

7. Curiously, Page (1997) consistently attributes this theory to Chapman (1962), even though it is clear that the latter is merely recapitulating Marstrander (1932). In fact, preaspiration is a mere side issue for Chapman, whose central thesis is that certain shared innovations in 14th -15th century Icelandic and Norwegian are due to contact.

8. It is quite possible that the Quantity Shift (which included closed-syllable shortening: [VCC.CV-] > [VC.CV-]) played a role in the segmentalization of Icelandic preaspiration. In Modern Icelandic -VC-C-contexts, the coda C appears to carry the ‘quantitative peak’ of the syllable; in preaspirated stops, this peak thus falls on the [h] portion, potentially increasing its duration. If /b, d, g/ were already voiceless in Proto-Scandinavian, as suggested by one reviewer, then perhaps the Quantity Shift might be listed instead of (1a-b) as the ‘imputes’ for (1c).

9. If glottalization of /p, t, k/ in English is related to preaspiration and WJ st0d (Ringgaard 1960), this view may need to be revised. One reviewer suggests that preaspiration “can easily have arisen from preglottalization by lenition”. It is true that [?] > [h] is quite common, but so is [h] > [ʔ], and besides, this use of the term ‘lenition’ is reminiscent of pencil-and-paper phonetics. There is no ‘weakening’, or target undershoot, involved in going from a glottal constricting gesture to the glottal spreading gesture required to articulate [h].

10. Notice that in the Gísle Ó case, preaspiration is still of subsegmental duration (unlike its Icelandic counterpart), even though it has nevertheless been phonologized and is now part of the pronunciation norm.

References


