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On Preaspirated Stops in a Norwegian Dialect

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1. Preaspiration of voiceless stops is a well-known feature in the pronunciation of e.g. Icelandic, and descriptions of the phenomenon may be found in any handbook on that language. *Sweet* describes related phenomena in Scotch ("voiceless onglides") and *Kantner* and *West* mention a slight tendency in English "toward aspiration preceding voiceless plosives". Preaspiration in Celtic languages is described by *Marstrander*, *Bloomfield* discusses occurrences in Fox and Hopi, and in Norwegian, *Storm* and *Ross* have found it in certain dialects, in particular that of Northern Gudbrandsdal. In the dialect to be discussed in this paper, that of Northern Jæren, only *Oftedal* has mentioned occurrences of preaspiration within a rather restricted area. But, on the whole, references to preaspiration are scanty. Perhaps a word by *Haugen* may help to explain this situation: "The phoneticians have had their eyes trained too exclusively on the end of the sound where aspiration traditionally occurs."

2. I have heard preaspiration of voiceless stops on Jæren in the area from Stavanger and as far south as Bryne (30 km), and have little doubt that it may be encountered still farther south, although this remains to be investigated. The present research is confined to Stavanger and the area immediately south of that town, as far as Sandnes.

3. The investigation is based on a list of 36 words constructed as follows: I. *-VC:- (polysyllables with toneme 2); II. -VC: (monosyllables); and III. *-CC- (polysyllabic toneme 2 words containing consonant clusters with the voiceless stops /p t k/ as former cluster mates.) In the VC: dyads, the vowels /y e o a/ were used. Thus, every VC: dyad is represented twice in the material, every cluster once. The clusters in question are /pl pr ps tl tn tr ts kl kn kr ks kt/. (Note that /r/ is velar or uvular.) To find out whether stops after

long vowels are preaspirated, a few recent loanwords were included in the list (e.g. *jeep*), the stop in -V:C- being voiced in native words in this dialect.

The list was read by 21 informants, all of them students at university or high school level. They were all unaware of this feature of their pronunciation. Each informant read the list twice. Because of noise caused by imperfect recording conditions, some of the series had to be omitted, leaving a total of 26 series (936 words). Recordings of this material were made by means of a Siemens Oscillomink, at 100 mm/sec. A sample of test words was also treated by means of a sound spectrograph.

4. The auditory impression of the preaspiration is rather like an [h], although in connexion with [t] it may sound like an [f], with which it has actually been confused. The puff of breath is not equally strong with all speakers, ranging all the way from a very clear [h]-sound to the slightest voiceless transition between vowel and consonant, nearly indiscernible by ear. The auditory impression that preaspiration is stronger after rounded vowels than after unrounded ones is not borne out by the figures obtained from the *mingograms*, the difference in average duration merely amounting to 0.12 centiseconds (cs) in polysyllables and to 0.07 cs in monosyllables. The postaspiration of the preaspirated stops is usually rather weak.

Preaspiration of the stops was also registered by ear in the dyad V:C, but no measurements have been made, the material not being representative of the words known and used by some of the informants.

5. There is a significant difference between polysyllables and monosyllables containing VC: as regards the duration of the preaspiration phase. Its average duration in polysyllables is 9.09 cs, vs 8.53 cs in monosyllables (difference: 0.56 cs). Preaspiration amounts to an average of 28.61% of the whole stop phase in polysyllables, to 31.73% in monosyllables (difference: 3.12%).

Classified after the consonant (C) of the VC: dyad, the polysyllables show the following pattern as regards average duration: /p/-8.67 cs; /t/-9.17 cs; /k/-9.41 cs, whereas the monosyllables show the inverse order: /k/-8.48 cs; /t/-8.53 cs; /p/-8.60 cs. In the latter case, however, the difference between /p/ and /k/ is so small as to seem accidental, while the corresponding difference in the polysyllable group, between /k/ and /p/, amounting to 0.74 cs,

seems to indicate that the phonetic quality of C exerts a certain influence on the duration of the preaspiration phase.

Preaspiration in polysyllables accounts for an average of 29.76 % of the stop phase of /k/ (highest average) and 27.88 % of /p/ (lowest average), difference: 1.88 %. The corresponding figures for monosyllables are /k/ 33.38 % vs /t/ 30.36 %, difference: 2.92 %. As will be seen, averages are slightly higher in monosyllables.

It may be concluded that, on the whole, the duration of the preaspiration phase is independent on the phonetic structure of the VC: dyad in which it occurs.

6. In consonant clusters, the highest average percentage occurs for /k/ in the cluster /kt/, viz 40.68 %. The average duration is 6.67 cs. The corresponding figures from other cluster types are: /n/-clusters: 31.52 % \approx 8.36 cs; /l/-clusters: 30.09 % \approx 7.23 cs; /r/-clusters: 27.49 % \approx 7.53 cs. No preaspiration is perceptible in /s/-clusters. This is borne out by the spectrograms.

7. On spectrograms, preaspiration manifests itself as high-frequency noise, not unlike that of [s], though considerably less strong, and poorer as regards constituent frequencies. Comparison of a large number of spectrograms might reveal a certain structure, dependent on the dyad or cluster in which the preaspiration occurs.

8. Preaspiration of voiceless stops is probably more widespread than has usually been accepted till now. Once the attention of phoneticians has been attracted to the phenomenon, the occurrence of this interesting feature will probably be detected in quite a few dialects, in which it has not yet been described.

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Discussion

Fliflet (Bergen): Es mag erwähnt werden, daß es in Skandinavien auch eine lappische Präaspiration der Tenuis gibt. Mindestens in Norwegen ist sie jedoch, soviel ich weiß, ohne Einfluß auf die lokale Artikulation der Landessprache geblieben. In engerem Kontakt mit dem Vortragsthema steht die Präaspiration in der Mundart von Nord-Gudbrandsdalen. Von den vier altnorwegischen phonematischen Silbenquantitäten haben sich hier die drei geläufigsten erhalten, nämlich die folgenden: 1. V : C, Beispiel: /^si : lə/; 2. VC, Beispiel: /^svili/; 3. VC:, Beispiel: /^svil : ə/. Wo bei diesen Silbengegensätzen der inter- bzw. postvokalische Konsonant ein Tenuis ist, wird dieser im Typus 3 präaspiriert, in den beiden anderen Typen hingegen nicht. In Fällen dieser Art involviert die Präaspiration somit eine perzeptorische Verdeutlichung der prosodischen Oppositionen. Andererseits muß bemerkt werden, daß die lokale Präaspiration der Tenuis nach kurzem Vokal in langer Silbe auch bei heterogenen Konsonantenverbindungen geläufig ist, genau wie in der von Herrn Wolter behandelten Mundart.

Werner (Erlangen): Ich freue mich, daß Sie uns, Herr Wolter, das Phänomen der Präaspiration instrumentalphonetisch nachgewiesen und genau beschrieben haben.

Erlauben Sie mir einige Anmerkungen, die sich mehr auf die phonematische Seite der Präaspiration beziehen.

Dient die Präaspiration nicht auch in Ihrem Untersuchungsgebiet dazu, die einstige (germ.) Opposition in den Explosiven sth./Lenis – stl./Fortis (?), sagen wir /d/ – /t/, abzulösen durch /d/ – /hd/, so daß sich nur noch eine einzige Explosivreihe ergibt? Läßt sich vielleicht auch instrumentalphonetisch zeigen, daß der Explosiv sowohl mit wie ohne *h* in bezug auf Stimme und Intensität frei variiert (je nach Folgelaut...)?

Für das Neuisländische und Färingische¹ wurde dieser Systemwandel nachgewiesen.

Diese Ablösung von einstigem /d/ – /t/ zeigt sich also in weiten Räumen des Westskandinavischen, und es ergibt sich die Frage nach Entstehung und Alter der Neuerung. Chapman² konnte solche Dinge leider nur mit wenig Material andeuten.

Ich möchte daran erinnern, daß auch in weiten Räumen des übrigen Germanischen die ehemalige Opposition /d/ – /t/ in vielerlei z. T. stellungsverschiedene Oppositionen überführt oder ganz aufgegeben wurde (z. B. südnorw./dän.-Systeme, binnendeutsche Konsonantenschwächung, mittelbair. Schwächung).

Beachtenswert und vielleicht sogar sensationell erscheint mir schließlich der Befund, daß die doch sehr seltenen phonetischen Erscheinungen (Präaspiration und stl. Nasale/Liquide) – soweit ich sehe – allein hier im Nordseeraum zu finden sind: im Skandinavischen, im Keltischen und – wie uns gerade Herr *Fliflet* mitteilt – im Lappischen. Ich darf die schon 1932 von *Marstrander*³ vorgenommene Zusammenschau nennen und meine, daß es sich lohnen würde, hier nochmals skandinavisch-keltologisch und fennougristisch zusammenzuarbeiten – am besten in strukturalistisch-phonologischer Methodik.

¹ Z. B. *E. Haugen*: The phonemics of modern Icelandic, *Language* 34 (1958); *O. Werner*: Aspiration und stimmlose Nasale/Liquide im phonologischen System des Färingischen, *Phonetica* 9 (1963).

² *K. G. Chapman*: Icelandic-Norwegian linguistic relationships, *NTS Suppl.* VII, 1962.

³ *C. J. S. Marstrander*: Okklusiver og Substrater, *NTS* 5 (1932).