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# Verschärfung in Old Norse and Gothic

## Abstract

The main hypothesis presented in this paper is that the so-called *Verschärfung* in Germanic (or Holtzmann's Law) is an independent development in Gothic and Old Norse as shown by structural similarities. The sound change was not of Indo-European origin, but is a diphthongisation with stop articulation as the final step. It will be shown that neither the Indo-European (IE) laryngeals nor the IE accent played any role in the development of *-ddj/-ggj* and *-ggw/-ggv* in Gothic and Old Norse. Germanic *Verschärfung* originated, we will argue, in a structure like [eu.e/ei.e]. The conditions for the change were (i) a disyllabic word-form, (ii) a short vowel as the first part of an *-i* or *-u* diphthong, (iii) glide insertion [eu.we], and (iv) a change of the *-u/i* (or *-w/j*) part of the diphthong to a fricative [eɣ.we/eɣ.je] as an intermediate step before stop articulation. The fricative pronunciation occurred, we will argue, when the word-forms were in accented position in the sentence. This resulted in an alternation between an [ew.we] and [eɣ.we], which became opaque, once the fricative changed to a stop. This in turn leads to an analogical levelling of the stop to monosyllabic word-forms. It will be shown, with examples from Old Norse, that the stop articulation was original only in disyllabic word-forms, and spread to monosyllabic word forms. Crucial pairs are *hoggva* 'to hew' (infinitive) and past tense *hjó*. We will show that an exact typological parallel is found in the history of Faroese, and, with regard to accented sentence position, that we may find typological evidence from Danish dialects.

## 1. Introduction

The Germanic glides *\*j(j)* and *\*w(w)* show up as *-ddj/-ggw* in Gothic, and *-ggj/-ggw* in Old Norse. This is what is labelled *Verschärfung* or *Holtzmann's law*<sup>1</sup> as presented in Holtzmann (1835).

The present study relies heavily on structural similarities especially in

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<sup>1</sup> I would like to thank Dianne Jonas (Yale University, Dept. of Linguistics) for valuable comments and correcting my English and dr. Ulf Timmerman for valuable comments.

the history of Faroese, a North Germanic language, and, to some degree, observations made in Danish dialects in Jutland. We will have little to say about Indo-European correspondences and will reject any laryngeal explanation, since laryngeals did not have a significant influence on the development of Germanic, as discussed in Cowgill (1960) and Fulk (1988).

The account proposed here does not require any Indo-European laryngeals (see section 3.3.) and does not require any reference to Indo-European accent (see section 3.1.), since the development of *jj* and *ww* will be explained as glide insertion into a hiatus after a high, front/back vowel. Note that we will also refer to the position of the words in the sentence, that is to say, we will assume that the glides developed into a fricative, when the words were in accented position in the sentence (see section 4.3.). The hypothesis is that Germanic *Verschärfung* developed independently in Gothic and Old Norse due to equivalence of structure in both languages.

In figure 1 are examples of *Verschärfung* in Gothic and Old Norse.<sup>2</sup>

Figure 1

Gothic	Old Norse	Germ.	Non-Germ.
twaddje	tveggja	zwei(i)o <sup>OHG</sup>	dváyōh <sup>L Skt.</sup>
waddjus	veggr	wāg <sup>OE</sup>	váyati <sup>Skt.</sup>
triggws	tryggr	gi-triuwi <sup>OHG</sup>	druwis <sup>OPruss.</sup>
hōggva	houwan <sup>OHG</sup>		kovati <sup>OCS.</sup>

One recent formulation of Holtzmann's Law is that the IE structure *\*jH<sub>x</sub>* and *\*wH<sub>x</sub>* (where *H<sub>x</sub>* = any laryngeal) in intervocalic position changed to Gothic/Old Norse *ddj/ggj* and Gothic/Old Norse *ggw/ggv* just in case the preceding vowel was short (Elmegård-Rasmussen 1989). We will demonstrate that it is not necessary to make reference to the Indo-European laryngeals, when explaining the development in Gothic and Old Norse of Holtzmann's law.

Further Elmegård-Rasmussen (1989) does not mention the quality of the second vowel in the diphthong, which is crucial in the development of *Verschärfung*. The quality of the second vowel is in every instance [+high, ±back], c.f. Figure 2. Elmegård-Rasmussen mentions only the quantity of the initial vowel.

<sup>2</sup> See p. 27 for a list of abbreviations.

Figure 2

Germanic	Illustration	Attested word-form
*aw.wV	*haw.wōn	hōggva (infinitive) Old Norse 'to hew'
	*haw.wana	hōggvenn (preterite participle) Old Norse
*ew.wV	*hew.wum	hōggom (plural present) Old Norse
*uw.wV	*bluw.wana	bluggwans (preterite participle) Gothic 'beaten'
*ajjV	*waj.ju	waddjus (nom. sg.) Gothic 'wall'
*ij.jV	*ijja	iddja (infinitive) Gothic 'to go'

Verschärfung is the result of a phonetic change, where a glide was inserted after a high, short, front or back vowel as a hiatus-breaker in disyllabic (or polysyllabic) words in order to avoid the syllable structure with a vowel in the onset to the unmarked phonological structure #σ.

In this sense it is a regular sound change, which may be illustrated as (*e* = any short vowel): Germanic \**ej.e/ew.e* > \**ej.je/ew.we*, this is the basis for Verschärfung, and will be referred to as the Verschärfung-base in this article. In cases where Germanic had \**ej.je/ew.we* the former stage is obviously superfluous. \**ej.je/ew.we* changed further, via an intermediate step, \**ej.je/ew.we* to the stop articulation found in Gothic and Old Norse.

The explanation that we develop in this article resembles the one given in Jasanoff (1978), at least with regard to the insertion of a glide as a hiatus-breaker.

Jasanoff explains Germanic Verschärfung as glide insertion in a similar way as we will do here but he does not discuss monosyllabic word-forms that show up in Old Norse without any Verschärfung, for example Old Norse *hjǫ* (past tense of *hōggva* 'to hew'). It will be shown that Old Norse preserves an archaic pattern in the alternation between *hōggva* 'to hew' and past tense *hjǫ*. The same pattern is perhaps preserved in Gothic *snau*, which is past tense of *sniwan* 'to hurry'.

## 2. Organization of the article

The article is organized as follows. Section 2 consists of dating Verschärfung, and we conclude that it is not possible to do so with any certainty. Section 3 gives a short overview of other explanations of the Germanic Verschärfung, and points to some serious drawbacks that have been noted with these various approaches. In section 4 we discuss examples from Faroese, Norn, Danish dialects and other languages, which show how a stop may develop after a high vowel. The data in sections 4.1., 4.2.,

and 4.3. is crucial for our understanding of *Verschärfung* in Old Norse and Gothic. Section 5 discusses the sound changes and 6 provides an explanation as to why the glides changed. Section 7 is a summary and conclusion.

### 2.1. Dating *Verschärfung*

It is not possible to date *Verschärfung* with any certainty, although Lindeman (1964) dates it to Proto Indo-European. Other linguists take the stand that IE laryngeals or IE accent triggered *Verschärfung* in Germanic, see e.g. Elmegård-Rasmussen (1982) and Lindeman (1964) for the former view and Kluge (1879, 1913) and Bechtel (1885) for the latter. Under these accounts it appears to be an archaic feature of the Proto-Language, which is preserved in Germanic.

It is worth keeping in mind that the Gothic Bible translation and the Gallehus inscription are from the same period. Wulfila was appointed bishop in 341 BC (Braune & Ebbinghaus 1966). Gothic is a full-fledged language by this time, whereas Old Norse did not even exist. The Old Norse period is taken to be from 800 AD to 1050 (Noreen 1923). The language spoken in Scandinavia by the time of the Gallehus inscription, around 400, was Primitive Norse (PN) (Noreen 1923) and it is quite possible that Primitive Norse was North-West-Germanic (Nielsen 1989), a hypothesis that I will adopt without further discussion in this paper.

Gothic *skuggwa* 'mirror' was probably pronounced *skuw.wa* in Primitive Norse. The first evidence for a stop or fricative articulation in North Germanic is attested in 950 AD in the runic inscription *siktriku*, which corresponds to Old Norse name *Sigtrygg* (Noreen 1923).

One source for consideration in addition to Old Norse and Germanic is Finnish, which has a considerable number of Germanic and Old Norse loanwords. These words are better preserved in Finnish than in any Germanic language, because the sound changes in Germanic were more extensive than in Finnish. One frequently cited example is Finnish *kuningas* ~ Primitive Norse *kuningar* ~ Old Norse *konungr* ~ Danish *konge* 'king'.

Gothic *skuggwa* 'mirror' ~ Old Norse *skuggi* 'shadow' (< \*Germanic *skuggwan*) is borrowed into Finnish as *kuva* 'picture', a word that on the face of it does not show any trace of *Verschärfung*. Other loans point to the same direction, e.g. Finnish *haava* 'Wunde' ~ Old Norse *hogg*<sup>3</sup>, Finn.

<sup>3</sup> Koivulehto points out that *haava* is a loan from Primitive Norse, because of the change of Germanic  $\chi$  to *h*, since Germanic  $\chi$  is reflected as *k* in Finnish, that is *kana* 'rooster' Old Norse *hani* 'rooster'.

*naava* 'Bartflechte' ~ Swedish dialects *fnagg* and *fnugg* (Koivulehto 1977).

Although no reflex of Verschärfung is seen in the Finnish loans, it does not automatically allow us to conclude that it developed in Primitive Norse after the loans were borrowed into Finnish, since the Finnish word-forms may or may not reflect a Germanic/Primitive Norse voiced fricative (Koivulehto 1977). Finnish *haava* 'Wunde' may thus be either Primitive Norse *\*haw.wa* or *\*hay.wa*, and Finnish *kuva* 'picture' may reflect Primitive Norse or Germanic *skuw.wa* or *skuy.wa* 'shadow'. This would correspond to the alternation between accented sentence-position and unaccented sentence-position as one trigger of the change under discussion, and will be discussed in section 6.

Noreen (1923) points to a man's name *niuwila* in a runic inscription from Næsbjerg (200 AD) as an example of a Primitive Norse word-form with no Verschärfung, although the structural conditions are present, that is *\*eu.a* > *\*ew.wa* > *\*ey.wa*. This inscription is problematic, because the suffix *\*u/ila* is not common in the North Germanic, while correspondences to the name are found on the Continent (c. 600, 700 AD) in *Neufila*, *Neufredus*, *Nebriogatos*, *Niobaudis*, *Nivardus* (Petersen 1994). The question is then, if the word-form *niuwila* is a relic of what later became the some non North Germanic language, or a relic of some foreign element in the population of South Scandinavia (Petersen 1994). If so, it would not tell anything about when Verschärfung developed in North Germanic, but Petersen (1994) points out that the suffix *\*u/ila* exists in Nordic in commonly used names such as Old Norse *Óli* < *\*Anula*, *Áli* < *\*Anila*. The name from Næsbjerg, *niuwula*, could be North Germanic in origin, and stand as evidence for lack of Verschärfung in Primitive Norse.

Whatever may be said about different word-forms in Primitive Norse, Old Norse, Gothic and Finnish, we conclude that it is not possible to say anything conclusive with regard to the exact age of the Germanic Verschärfung. The only thing we know for certain is that it had developed by the time of Wulfila, and that it is attested in North Germanic in 950 in the writing of the name *siktriku* ~ Old Norse *Sigtrygg*.

Given what is said above one could easily say that Verschärfung developed independently in Old Norse and Gothic and is not a reflection of the Indo-European laryngeals or the Indo-European accent. We will show later that the structural similarities in Proto-Gothic and Proto-Norse gave rise to the stop articulation, and that the change is copied in Faroese centuries later.

When the Goths emigrated from *Scandza* (Jordanes), and settled in

*Gotiscandza*, probably on the southern Baltic coast near the Vistula estuary, they spoke a language that was practically the 'same' as the language of the people they left behind. It was this sameness in structure that gave rise to the independent development of \**jj* and \**ww* in the history of Old Norse and Gothic.

### 3. Some drawbacks with former explanations

An overview of former accounts of *Verschärfung* in Germanic is given in other sources (van Coetsem 1949, Polemé 1959, Lindeman 1962, 1964, Collinge 1985). We will not dwell on these, but will only mention just a few drawbacks with former explanations, and will concentrate on explanations that refer to the IE or Proto-Germanic accent, the IE laryngeals and an explanation, which relies on analogical changes, and does not consider at any length the possibility of a regular phonetic change (Kuryłowicz 1967).

#### 3.1. The accent

*Verschärfung* has been viewed as the result of the IE accent, which could be situated on a prefix, a root or a suffix. There are two main views here. A preceding accent lead to *Verschärfung*, opposite the other view, which is that a following accent lead to *Verschärfung*.

Kluge (1879, 1913) argued that a preceding accent on a short vowel lead to the stop articulation in Gothic and Old Norse. In a word-form like Gothic *bliggwan* 'schlagen' the accentual pattern in Proto-Germanic (and Indo-European — roughly) would be *bléu-* for Infinitive, *blâw-* in Past Tense Singular, \**blu-mé* in first person Plural and *blu-nós* in Pret. Part. This paradigm would give Gothic *bliggwan*, *blaggw*, \**bluwwum*, \**bluwwans*. The paradigm in Gothic is *bliggwan* ~ *blaggw* ~ *bluggwum* and *bluggwans*.

Bechtel (1885) took the opposite view. If the accent were on the following syllable, it would give rise to a stop articulation in Germanic. Lehmann (1952) points out that the Gothic paradigm would be \**bliwan* ~ \**blaw* ~ *bliggwum* and *bluggwans* and these forms are 'fatal for any explanation based strictly on accent position' (Collinge 1985). That is, since Gothic has *bliggwan* ~ *blaggw* ~ *bluggwum* and ~ *bluggwans*, the stop insertion can not reflect the accent, since the paradigm should be \**bliwan* ~ \**blaw* ~ *bliggwum* and *bluggwans*.

It is a well-known fact that a voiced fricative in Germanic came about as a reflex of IE *\*p, t, k*, when the accent was on the syllable immediately following the stop (Verner's Law): Sanskrit *pitár* ~ OE *fæder*. It is along these lines that Kluge and Bechtel wanted to explain Verschärfung, but we would expect to see more traces of it in the West-Germanic languages, as between the Verner correspondence in German *geslagen* and Old Norse *sleginn* preterite participle of *slá* 'to hit'. If the accent was crucial for the development of Verschärfung, there should be traces in West Germanic, which is not the case as witnessed in Gothic *triggws* ~ Old Norse *trygger* but OHG *triuwi* and OE *trēowe*, Old Norse *Frigg* ~ OHG *Frīja* ~ Skt. *prijá*.

Note also that there is no isomorphism between the IE accent and the accent in Germanic, since Old Norse *Frigg* would go back to *prijá*, while the corresponding word in Gothic *frijana* would go back to *prijos* (Hirt 1931). The same point may also be illustrated with Gothic sg. *iddja* < IE 3. pl. *jéH<sub>2</sub>r*, with the accent on the first syllable, cf. also sg. *\*jijóH<sub>2</sub>o* (Elmegård-Rasmussen 1990).

If Verschärfung is a change between Proto-Gothic and Gothic and Primitive Norse and Old Norse any reference to the IE accent is superfluous.

### 3.2. Morphological levelling

Kuylowicz (1967) explains Germanic Verschärfung as a morphological analogy, where the inherent zero-grade *\*CijV* and *\*CuwV* developed a secondary full-grade *\*CeijV* and *\*CeuwV*. In this way *\*breuwan* 'to brew' replaced the original full-grade *\*brewan*, because of the zero-grade *\*bruwana* in preterite participle. The word-form *\*breuwan* changed to *\*brewwan*, that is to say the *-u* of the diphthong changed to a glide *-w*, due to the status of other word-forms such as the conjugation of the strong verb *\*winnan* 'to win' ~ *wan* 'won'. This verb has two stops TT in infinitive and one stop in the past tense. There was an alternation between TT ~ T in the system<sup>4</sup> in *winnan* ~ *wan*, and this would lead to an analogical change of *\*breuwan* > *\*brewwan* giving an alternation between RR and R.

The steps in the derivation are:

Inherent zero-grade	<i>*CijV</i>	<i>*CuwV</i>
developed secondary full-grade	<i>*CeijV</i>	<i>*CeuwV</i>

<sup>4</sup> We use, as is the tradition in comparative linguistics, T as a cover symbol for a stop, and R as a cover symbol for a resonant.

- (1) Inherent alternation:    \*brewan : bruwana       (put in -e- instead of -u-)
- (2) Secondary full-grade:    \*breuhan               (put in -e in front of -u-)
- (3)                                \*breuhan will change to \*brewwan

because there are verbs in the system with TT/T alternation, which will give

TT/T
RR/R

that is:                                \*brewwan

One reason for not accepting this view is that a simple phonetic change is preferable to a complex analogical explanation. There is nothing strange in the development of e.g. \**hau.an* 'to hew' > \**haw.wan* or \**breu.an* > *brewwan*, where a glide is inserted into the hiatus giving the natural syllable structure CV, with a consonant in the onset.

### 3.3. The Indo-European Laryngeals

The presence of Indo-European laryngeals has been used to explain different sound changes between Indo-European and the daughter languages, and it has been suggested that the Germanic *Verschärfung* is a reflex of the IE laryngeals (Smith 1941, Austin 1946, Lehmann 1952, Lindeman 1964, Elmegård-Rasmussen 1989). Lindeman argued that the change of \**j* > \**jj* and \**w* > \**ww* took place already in Indo-European in the neighbourhood of a laryngeal.

Lehmann (1952) explains Germanic *Verschärfung* according to the development of the following structures:

A -*w* and -*y* glide followed or preceded by a laryngeal, indicated by an <sub>e</sub>X, after a short vowel (e, o, a, u, i), changed to a geminate glide in Germanic.

*Figure 3*

ewX	>	eww
o,a,wX	>	aww
u,w <sub>e</sub> X	>	uww
o,a,y <sub>e</sub> X	>	ajj
i,yX	>	ijj
o,a, <sub>e</sub> Xy	>	aj

Indo-European *\*dwo-jH<sub>1</sub>-dH<sub>3</sub>*, (following Rasmussen's 1989) reconstruction — would become Gothic *twaddje* and Old Norse *tveggja* 'two', and Indo-European *\*b<sup>h</sup>euH<sub>2</sub>e-* should end up as Old Norse *byggva* 'to build'.

If Germanic Verschärfung is a change that occurred independently in the history of Gothic and Old Norse then any reference to an IE laryngeal is unnecessary. In addition to this we need more evidence for the role of laryngeals in the shaping of Germanic (Cowgill 1960). The examples listed in Lehmann (1952), that is the development of Indo-European *\*-RH* in West Germanic to a structure with an epenthetic vowel as Old English and Old High German *hærfest* < *\*harubist* 'autumn' ~ Gk. *krōpion* 'sickle' and so forth are proved to be a late change (Polomé 1959, 1988). The same point is made in Fulk (1988), who concludes, after discussing Lehmann's examples, that the only possible evidence for a laryngeal reflex in Germanic in the string *\*RH* is in the word for *duck*, that is Old Norse *ǫnd* and the word for *birch* ~ Old Norse *birk*. If the laryngeal survived into Germanic, it would be pre-Proto-Germanic, and only sporadic (Fulk 1988).

It has also been argued that *e<sub>2</sub>* in Germanic is a reflex of the Indo-European laryngeals. The exact change would be a change of the structure *\*eXy*, to *e<sub>2</sub>* (Lehmann 1952), that is the vowel *e* followed by a laryngeal followed by a glide. Polomé (1988) discusses *e<sub>2</sub>* and concludes that it might be analysed as a contraction of [ee] due to the strong stress on the first syllable: *\*hehait(a)* > *\*hehet* > *\*(Anglian heht)* > (elsewhere) *\*heet* > *he<sub>2</sub>t*. This observation is attributed to Meid (Polomé 1988). *e<sub>2</sub>* might also be explained as compensatory lengthening after the change of *z* to Zero: *\*séslēp(a)* > *\*sezlep* (Gothic *saizlēp*) > *\*slezep* (either) *\*sleep* > *\*slēp* or *\*slezp* > *\*slē<sub>2</sub>p* cf. *mē<sub>2</sub>d* (< *\*mezda* ~ OE *mēd* : *meord* 'recompense, payment' ~ Gothic *mizdō* 'reward'). A third origin of *e<sub>2</sub>* is due to lowering of the *\*i* off-glide in the diphthong *\*ei* under specific environmental conditions (Polomé 1988). Another source for *e<sub>2</sub>* is in borrowings from Latin *t(h)ēca* 'cover' > OHG *ziahha* 'pillow, cover'.

Thus Lehmann's evidence for laryngeals in Germanic are uncertain.

There are also words in Germanic that have Verschärfung, although it is not proven beyond doubt that these words inherently had a laryngeal (Rasmussen 1990). One is Old Norse *egg* 'egg' ~ Crimean Gothic *ada* 'egg'.

The Gothic word *iddja* 'went' is argued to go back to the Indo-European root *\*H<sub>2</sub>ej-* 'to go', Sanskrit *éti*, Old Lithuanian *eiti* 'goes' . . . It is not certain that this word had a laryngeal following the glide that is

Verschärfung basis. The development in Germanic was, according to Cowgill (1960) sg. *eóye* and pl. *eiyȳ* > \**eō* and \**ijjun*. \**eō* would change to \**i+a* 'I, he went', which alternates with pl. *iddj+un*. Cowgill (1960) assumes that *-ddj* spread to sg. from pl. \**iddj-*. The result was Gothic *iddja* and *iddjedun*. Note that Proto-Germanic \**ia* would without any problems give Germanic \**iddja* 'I, he went', since \**ia* is a Verschärfung-base, since it is disyllabic and has a high vowel in front of the hiatus. This would give \**i.ja* > *ij.ja* \**ij.ja* > *iddja*.

It is thus not certain and certainly not proved beyond doubt that the Indo-European laryngeals triggered Verschärfung in Germanic, and we will not take such an analysis into consideration in the remainder of this paper.

### 3.3.1. The change of the laryngeals to \*/k/ in Germanic

The Indo-European sequence \**-eH-* is supposed to give a vowel followed by a stop /k/ in Germanic (Austin 1946). An example is Indo-European \**g'iHw* ~ Old Norse *kvikr* 'alive', Old English *cwic*, Old Saxon *quik*, Old High German *quec*, which corresponds to Gothic *qius* and Sanskrit *jīvas* 'alive' < \**g'iHw*.

Note that all the examples Austin gives and his reconstructions which he attributes to Hirt (1931) have a high, front or back vowel.

We would like to suggest another explanation of Old Norse *kvikr* 'alive' and related cases. Languages are seen to have (sporadically) developed a stop articulation after a high vowel as in the Sino-Tibetan language Maru, where *yūk* 'bone' corresponds to Burmese *yôu* and Atsi *vüi* (Burling 1966). Burling shows that accent does not play any role in the development of the stop articulation<sup>5</sup>. Note also the stop articulation in Lithuanian *tūksantis* opposite to Faroese *túsund* and English *thousand* and in the Armenian word for *mouse* that is *mukn*, which is pronounced with a stop articulation in Danish dialects of Jutland, that is *mug<sup>u</sup>s*, ~ Standard Danish *mus* 'mouse' (Petersen 1997), and the stop articulation after the high vowels /i, èi, ài, iu, w, j/ in the dialect of Luhban in Latvian (Endzelin 1922).

All the examples from different language branches have a high vowel in front of the secondarily developed stop. It is some kind of a stop insertion after a high vowel, just as in Old Norse *kvikr* 'alive'. There is no need for a laryngeal explanation of Old Norse *kvikr* 'alive' discussed in Austin (1946), and the examples show indirect that laryngeal explana-

<sup>5</sup> I am aware of the fact that deletion of a stop results in different tones in many Asian languages as is shown in e.g. Rischel (1995).

tion of Verschärfung in Germanic is unnecessary. The examples are also relevant to our discussion of Verschärfung, because the vowel in front of the secondarily developed stop is high, just as what we assume to be crucial for the change Proto-Germanic \*/eu.e/ and \*/ej.e/ to Old Norse *eggv/ggj* and Gothic *ggw/ddj*.<sup>6 7</sup>

### 3.4. Old Norse *hrár* and related cases

It has been pointed out in the literature that if IE \*uH developed as Germanic *uw*, then words like Old Norse *hrár* 'raw' undergo Verschärfung, that is Germanic \**hrēwwa* (~ Finnish *rieva* 'fresh') < \**krēuH*<sub>2</sub> (Lindeman 1964, Jasanoff 1978). The lack of Verschärfung in this word is attributed to the length of the root vowel (Jasanoff 1978). This is not the exact generalization. The right generalization is that the length of the vowel leads to syllabification \**hrē.wa*, which is not a basis for Verschärfung, since the vowel in front of the hiatus is non-high (and long). \**hrē.wa* does not change to \**hrēwwa*, which could end undergoing Verschärfung. Related cases such as Gothic *sniwan* 'to hurry' can be explained in the same way if this word-form is analogical from plural preterite \**snēwum* and does not reflect Germanic infinitive \**snewwan* (Jasanoff 1978). Other cases are Old Norse *lé* genitive *ljá* 'scythe' < Germanic *lēw* — argued to be an r/n neuter stem in Rasmussen (1990).

## 4. Typology of glide, fricative and stop insertion

There are many examples from different languages and different language families, which show a stop or fricative insertion after a high, front

<sup>6</sup> It might even be the case that this stop insertion was at a point in time when North Germanic and West Germanic constituted one branch of the Germanic languages, although it might well be a later development. This matter does need more investigation, before anything definite can be said about the matter.

<sup>7</sup> Polomé (1949) mentions for example Old Norse *gnúa* 'to rub' and Old Swedish *gnugga* 'to rub' and argues that the former reflects the Indo-European root \* < *ghnúH*, with the accent preceding the laryngeal, while the latter \**gnu-hw-* with the accent following the laryngeal. The same is supposed to be in pairs like Old Norse *bryggja* : *brú* 'bridge' ~ Old English *brycg* ~ Old Frisian *brigge*, *bregge*, Middle Dutch *brugge* and Old High German *brugga*. These examples, and others, may as well be explained along the lines of *kvikr* above. An examination of his examples, see esp. p. 184–186 shows that all the roots (or words) do have a high front or back vowel, c.f. also Middle Swedish *myggia* ~ Middle Dutch *mugghe*, Old Saxon *muggia*, Old English *mucge*, Old High German *mucce* ~ Old Norse *mý* 'mosquito'. It is tempting to see these correspondences as a shared innovation in North-West Germanic. The matter does however need more careful investigation.

or back vowel. They are all relevant for the present explanation of Germanic *Verschärfung* because of the following: (i) they show glide insertion in disyllabic words after a high vowel, (ii) the stop became part of the stem, and spreads, due to analogy and morphologization to monosyllabic word forms (Faroese), and (iii) the words may have had a fricative (stop or affricate) insertion after a high vowel, when they are/were in accented position in the sentence (Danish dialects).

#### 4.1. *Verschärfung* in Faroese

An exact copy of the Germanic *Verschärfung*, only centuries later, is Faroese *Verschärfung* (Far. *skerping*), where an affricate [çç] is found after the Middle Faroese vowels /εɪ, aɪ, ɔɪ, uɪ/ (ey, ei, oy, i/ý). Similarly a stop [g] + a fricative [v] developed after the Middle Faroese vowels /æu, ɔu/ (ú, ó) (Petersen 1992).<sup>8</sup>

It is shown beyond any doubt that Faroese *Verschärfung* originated in disyllabic words, and that the stop articulation spread to monosyllabic word-forms due to analogy (Petersen 1992).

The sound change will be illustrated with the Old Norse words for *þrír* ~ Faroese *triggir* 'three' and Old Norse *róa* ~ Faroese *rógva* 'to row'. These two words show the development in disyllabic word-forms: Old Norse *þrír* > Old Faroese \**þrui:ir* > Middle Faroese \**truj:jir/truyjir* > Faroese *triggir* 'three', and Old Norse *róa* > Old Faroese *róa* /*rowa*/ > Middle Faroese \**row.wa/roy.wa* > Faroese *rógva* – for details of the development, see Fig. 4.

The change in monosyllabic word-forms is illustrated with Old Norse *þrjú* > Faroese *trý*, nom. acc. sg. neut. and Old Norse *ró* > Faroese (idiom) *ró* imp. sg. (-> *rógv*) with analogical spread of *-gv* in a monosyllabic word-form.

Fig. 4 shows *Verschärfung* in the history of Faroese. The Old Norse forms are listed under I. We are not quite sure if there was a diphthong in Old Faroese. Svabo refers to Jens Christian Svabo, who wrote a dictionary late in the 17<sup>th</sup> century and collected ballads.

The old monosyllabic word-forms with no *Verschärfung* in imperative form are preserved in the old idiom *Ró nú Snopprikkur* (Lit. row now Snopprikkur meaning 'now you are on your own'). This is not surprising, since both imperative and idioms often show archaic patterns (Meillet 1937).

<sup>8</sup> Middle Faroese refers to the period between 1400 and 1700.

Figure 4

Old Norse	Old Faroese	Middle Faroese	Svabo	Faroese
I	II	III	IV	V
þrír	þruj.ir	truj.jir/truyjir	truyggjir	triggir
róa	row.a	row.wa/roy.wa	røgva	rógva
þrjú	þruj	þruj	truj	trý
ró	row	row	rou	ró(gv)

The alternation between a monosyllabic word with no *Vershärfung* and one with *Vershärfung* is preserved even in the modern language in *triggir* 'three' nom. masc. pl. ~ *trý* 'three' nom. acc. sg. neut., and in for example *lúgva* 'to lie', *eg lúgvi* 'I lie', *tú/hann lúgur*<sup>9</sup> 'you/he lie(s)', not *\*\*lúggjur* and past tense *leyg* 'lied', not *\*\*leyggj*. Other examples are words like *jú* 'yes', *tú* 'you', *tey* 'they', *sjeý* 'seven' and so forth (Petersen 1992).

Another source that shows and proves that there originally was no *Vershärfung* in monosyllabic word-forms is the ballad language (Petersen 1992).

Row III of table 4 shows an alternation between a pronunciation with a glide and one with a fricative articulation. Based on evidence from Danish dialects and phonetic measurements of ambisyllabic glides in English (Gick 1998) we will say that the pronunciation with a voiced fricative occurred when the words were in accented position in the sentence. For a discussion of the Danish data see 4.3 *Danish Dialects*.

At some point in the history of Faroese the voiced fricative in words with *Vershärfung* changed to a stop/affricate. This resulted in an opaque alternation between *rógva* 'to row', infinitive and imperative *ró* 'row' and for example a definite word-form like *hoyggið* 'hay' nom. acc. sg. neut. and its indefinite counterpart *hoy* 'hay', which in turn lead to an analogical spread of the stop articulation to monosyllabic word-forms resulting in *rógva* ~ *rógv* and *hoyggið* ~ *hoyggj*. The stop became part of the stem and was morphologized. We will show in section 5 that this is presumably exactly the same pattern that may be observed in the history of Gothic and Old Norse.

<sup>9</sup> The original word-form was *lúgr*, the epenthetic vowel in Faroese and Icelandic is -u.

## 4.2. Norn

There are some words in Norn,<sup>10</sup> which show a stop in the exact same environment and words where Faroese has *Verschärfung*. The words were collected by George Low on the island Foula in 1774. The words that are relevant for the present discussion are S[c]eugin 'shoe-the' ~ Old Norse *skór* ~ Faroese *skógvur*, Seug 'sea' ~ Old Norse *sjór* ~ Faroese *sjógvur*, Ugan 'cap-the' ~ Old Norse *húa* ~ Faroese *húgva* (Renboe 1987). Note that the vowels in front of the stop are high, and that the words are disyllabic.

## 4.3. Danish Dialects

Dialects in Western-Jutland show a stop, affricate or a fricative insertion after high vowels, when the words are in accented position in the sentence, while a glide pronunciation occurs when the words are in unaccented position in the sentence (Andersen 1972, Nielsen 1978) and (I. L. Pedersen (pc)). The 'stop parasite' (Danish *klusilparasit*) as it is sometimes labeled in Danish dialectology, although the better term is diphthong hardening or simply diphthongisation, is usually found in monosyllabic words, but the insertion is found in mono- as well as disyllabic words in the dialect of Rømø (Nissen 1945). Observe also that a word-form like [stowg<sup>w</sup>ə] *stor* 'big' (Nielsen 1978) is disyllabic. Note further that the dialects do have apocope; hence we do not know what was there when the stop articulation developed.

Among the examples from Danish dialects are [prik<sub>s</sub>, gryk<sub>n</sub>, mug<sup>w</sup>s] *pris*, *gryn*, *mus* 'price, grain, mouse', and also *høydgeje* ~ Danish *hø* 'hay', Far. *hoyggj*. What is relevant for our understanding of *Verschärfung* in Germanic is (i) that the stop insertion occurs only when the words are in accented position in the sentence and (ii) that this insertion happens after high vowels.

## 4.4. Other languages

There are many other examples from Indo-European as well as non Indo-European languages that show a stop insertion after a high vowel. The examples above are sufficient for the present purpose. The reader is referred to among others van Coetsem (1949) for Romance, Burling (1966) for Maru, Trask (1997) for Basque, Werler (1983) for German dia-

<sup>10</sup> Norn was a North-Scandinavian language that was spoken in Shetland.

lects, Endzelin (1922) for Latvian; for examples in Germanic, especially West-Germanic see Polomé (1949).

## 5. The Development of \*jj and \*ww in Gothic and Old Norse

The Indo-European accent does not contribute to our understanding of Verschärfung in Old Norse and Gothic, since it leaves us with some unexplained word-forms such as Gothic *bliggwan* ~ *blaggw* ~ *bliggwum* and *bluggwans* instead of the expected \**bliwan* ~ \**blaw* ~ *bliggwum* ~ *bluggawns*, and the lack of traces in West-Germanic, c.f. the traces of Verner's Law in e.g. preterite participle in MHG *geslagen* ~ Old Norse *sleginn* and inf. *slá* 'to hit' < Primitive Norse \**slahan*.

The laryngeals are dubious, because they do not seem to have had any appreciable influence on the shaping of Germanic. In addition to this it is almost certain that they were lost, when Verschärfung developed.

It is thus not possible to explain the sound change as a development of some archaic features, which may be dated back to the Proto-language.

An analogical explanation as the one given by Kurylowicz (1967) was also ruled out as unlikely.

### 5.1. Verschärfung as a glide-insertion after a high vowel in disyllabic word-forms

What we are left with is an explanation of the Verschärfung as a diphthongisation or diphthong hardening, which originated as a glide-insertion in a hiatus after a high vowel in disyllabic words. This change did presumably happen independently and coincidentally in the history of Gothic and Old Norse due to similarity in structure, just as what we have observed happened in the history of Faroese and the related North-Germanic language Norn and Danish dialects.

Jasanoff (1978) explains Old Norse *byggva* 'to build' as a result of Pre-Germanic \**b<sup>h</sup>eu<sub>2</sub>-eje-* > *beu-ī* > \**beu<sub>w</sub>ī* > \**bi<sub>w</sub>ūī* \* > Old Norse *byggvi*. I will adopt this analysis with some refinements. I will assume that there was an intermediate step with a fricative \**bey<sub>w</sub>ūī*, which alternated with \**be<sub>w</sub>ūī* and a monosyllabic word-form \**bew*. The exact nature of this alternation will become clear below.

Figure 5 shows the Pre-Gothic and Primitive Norse structures from which *Verschärfung* developed. They are all *Verschärfung*bases, since they are disyllabic and have a high vowel.

Figure 5

Germanic	Illustration	Attested word-form
*aw.wV	*haw.wōn	hoggva (infinitive) Old Norse 'to hew'
	*haw.wana	hoggvenn (preterite participle) Old Norse
*ew.wV	*hew.wum	hoggom (plural present) Old Norse
*uw.wV	*bluw.wana	bluggwans (preterite participle) Gothic 'beaten'
*ajjV	*waj.ju	waddjus (nom. sg.) Gothic 'wall'
*ij.jV	*ijja	iddja (infinitive) Gothic 'to go'

It is fruitful to look at the Old Norse infinitive *hoggva* 'to hew' and its corresponding past tense *hjǫ*. The former goes back to a disyllabic form *\*hawwōn*, while past tense goes back to *\*hew*. Old Norse thus preserves an archaic feature, with no *Verschärfung* in a disyllabic word-form, just as was the case in the history of Faroese. This is illustrated in Figure 6.

Fig. 6 illustrates the development of infinitive *hoggva* 'to hew' and the past tense of the same verb in Old Norse.

Figure 6

Germanic	Primitive Norse		Old Norse
I	II	III	IV
*hawwōn	*hawwō	*hawwō/haywo	hoggva
*hew	*hew	*hew	hjǫ

Our hypothesis is that the alternation in III is the same as what we see in Danish dialects in Jutland where a fricative (affricate or stop) articulation occurs after high vowels, provided the word is in accented position in the sentence (Andersen 1972, Nielsen 1978). To this one may add findings from Modern English (Gick 1998), where it is shown that ambisyllabic glides are more consonant-like. These facts should account for the alternation between *\*hawwō* and *\*haywo*.

Past tense *hjǫ* shows that there was originally no stop articulation in monosyllabic words, since it is a reflection of Germanic *\*heu(w)*. The Indo-European conjugational suffix in first and third person sg. perf. *\*a < H<sub>2</sub>e* and *\*e* were deleted in Germanic.

If the sound change that is observed in *\*hawwa > hoggva* included word-forms such as *\*hew > \*hVggv*, it would be required that *-gv* was

deleted from the stem in past tense in Old Norse. Such a deletion is impossible. It would be like deleting something similar to *-gv* from *rógv* 'row' imp. sg. in Modern Faroese or *-d* in *mad* in English, a process that is impossible, since the phones are part of the stem and meaning of the word.

In the Faroese examples in 4.1. we saw analogical spread of *-gv* to word-forms such as *ró* -> *rógv* 'row' imp. sg. and we would expect to find similar analogies in Old Norse and this is what we find in for example *hnogga* ~ *hnogg* 'strike against, sever, bereave'.

The other structures with a [w]-glide show the expected and regular change in disyllabic word-forms such as Germanic *\*hew.wum* > *\*hew.wum/hey.wum* > Old Norse *hoggom* and Germanic *\*bluw.wana* > *\*bluw.wana/bluy.wana* > Gothic *bluggwans*.

The conditions for *-ddj/ggj* Verschärfung are also met in Gothic and Old Norse: *waddjus/veggr* 'wall' from Primitive Norse pl. *\*waj.jǫr/way.jǫr* and acc. pl. *\*waj.jī/way.jī* > Old Norse *veggir/veggi*, and e.g. Proto-Gothic dat. sg. *wajjeu*.

The last structure in Fig. 6 *\*ij.jV* is met in Gothic *iddja*. There are some controversies with regard to the exact Indo-European reconstruction of this word. Cowgill (1960) reconstructs *\*eóye* and the plural form *eiyǫt* > Germanic *eō* and *ijjun*. This gave *\*ia* and *ijjun*. Elmegård-Rasmussen (1990) has another reconstruction. Eager to get a laryngeal root, he cites the Vedic imperfect *áyāt*, perfect *yayáu* and aorist *áyāsam*. This leads him to reconstruct a root *\*jeH<sub>2</sub>*. IE perfect 3. sg. would be *\*jijóh<sub>2</sub>-o* and 3. pl. would be *\*jejH<sub>2</sub>-r*, which would give Proto-Germanic *\*ijo* *\*ejo* > *eō* and *\*jejj-* > *jijj* > *ijj*. Note that *\*ijj+V* e.g. 1. pl. *\*ij.jum* would without problems give the right output in Gothic according to the hypothesis put forward here, since it had what we have called Verschärfung-base.

### 5.1.1. A Note on Gothic

Figure 7 shows the alternation in the strong verb *bliggwan*.

Figure 7

Inf.	Past. Sg.	Past. Pl.	Pret. Partc.
bliggwan	blaggw	bluggwum	bliggwans

If we are to maintain that Verschärfung originated in disyllabic words, as we have shown to be the case, and spread to monosyllabic words, *-ggw* in *blaggw* < Proto-Gothic *\*blaw* would be analogical, just as the Old Norse

*hnoggva* ~ *hnogg* 'strike against, sever'. A proportional analogy like:

\*blaw : bliggwan : X  
 X => blaggw

could explain the pattern in Gothic *blaggw* and Old Norse *hnogg*.

One could suspect the original pattern with no *Verschärfung* in a monosyllabic word to be reflected in the past tense *snau* (\*< *snaw*) ~ infinitive *sniwan* 'to hurry, to hasten' (IE \**sneHw-*), cf. Skt. *snāvan* (Lindeman 1964). The word is problematic, since *Verschärfung* is expected in *sniwan* (< *snew.wan*). Lack of *Verschärfung* in *sniwan* is assumed to be due to influence from preterite plural \**snēwum* (Jasanoff 1978). This could also explain past tense *snau*, although it is tempting to take the form to be a direct reflection of the alternation between a fricative (later a stop) in disyllabic word forms, and no fricative (stop) in a monosyllabic word-form.

## 6. Why did the Glides Change?

There are at least three remaining questions to be addressed. Why did the glides change, and how are we to explain the change to a stop articulation. The remaining question is to explain, why the glides did not change to [β], an allophone that presumably was present when *Verschärfung* developed in Gothic and Old Norse

I will have nothing to say about the change of a fricative to a stop articulation since I do not know, why this change occurred. An attempt to explain the matter is given in Tanaka (1971).

The question why the glides changed will be addressed by referring to typological data (4.2. Danish Dialects) and measurements of ambisyllabic glides in Modern English, while gestural timing will provide an answer to the third question.

First the change of [w.w] to [ɣ.w]. What is the articulatory nature of this change?

There is a change in Shona where Pre-Shona *kumwa* changed to Shona [kumɣa] (Browman and Goldstein 1992). The labial gesture on [w] in the onset in the second syllable was lost. This is exactly what happens in Germanic, only in the opposite order, where the labial gesture in the coda was lost:

Figure 8

Stage I

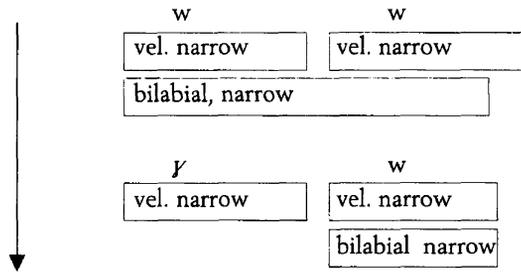
Tongue body

Lips

Stage II

Tongue body

Lips



Anderson (1976) cites a number of examples from different languages on the phonological behaviour of the glide [w]. In some languages it is the dorsum that is the primary articulator, in others the lips. Judging from the development in Gothic and Old Norse it was the dorsum or velar gesture that was or became the primary articulator, but why?

It will be shown in what follows that it is the ambisyllabic nature of the glides (in addition to the accented sentence position) that provides us with an answer to the question as to why *Verschärfung* happened in Gothic and Old Norse and Faroese.

It is argued in Gick (1998) that there will be a gestural conflict in an ambisyllabic glide [aw.wa], because it will be scaled (= magnitude of gesture in space and time) as both an initial and a final gesture. This scaling is a result of the fact that an ambisyllabic glide is phased simultaneously to preceding and following vowels. The result will be an intermediate scaling, which is more constricted than a final allophone, and less than an initial allophone. Gick (1998) shows that this is what is found in English.

The increased constriction degree in [w.w] results in a more consonant-like articulation where the bilabial gesture in coda position is lost, resulting in [y.w]. This increase was even more salient, when the words were in accented position in the sentence, just as the case with Danish dialects.

The reason for choosing the velar fricative instead of the labial [β], is due to the intergestural timing between the tongue backing gesture (TBG) and the lip aperture gesture (LAG) in ambisyllabic glides<sup>11</sup>. It is shown that they are at approximately the same time in English, while the TGB is significantly later in word initial position (Gick 1998). The

<sup>11</sup> A labial [β] is present in Gothic in e.g. *giban*, and was an allophone of *b* in Primitive Norse.

change in Gothic and Old Norse shows that the intergestural timing between the TBG and LAG changed, so that the TBG came to be timed before the LAG, which ultimately was lost.

## 7. Summary and Conclusion

The assumption behind this paper is that *Verschärfung* in Gothic and Old Norse is a glide insertion into hiatus after a high short vowel. *Verschärfung* base is, we have argued, *\*eu.e* and *\*ei.e* > *\*ew.we* and *ej.je*. The stop articulation occurred first in disyllabic words and spread analogically to monosyllabic word-forms. The original alternation is preserved in Old Norse *hoggva* ~ *hjǫ* 'to hew' and typological data from Faroese show the same pattern.

The intermediate step to a stop articulation was through, we presume, a fricative articulation, because of the ambisyllabic nature of the glides and the words accented position in the sentence. Evidence from Danish dialects support the latter assumption.

Discussing the change of the bilabial glide it became clear that this change was a result of intergestural timing. The tongue backing gesture came to be timed before the lip aperture gesture.

The explanation put forward here does not rely on Indo-European accent nor Indo-European laryngeals. Both have been shown by other linguistics to be problematic. The same holds for a morphological approach, which we ruled out since a simple phonological explanation is to be preferred to a morphological explanation that relies on analogy.

Our assumption is that *Verschärfung* developed independently in Gothic and Old Norse simply because these two Germanic languages had a sameness in structure. If this is the case then it will not be necessary to date the change back to the protolanguage, and data from Primitive Norse, although doubtful, suggests that *Verschärfung* had not developed in that language, something which in turn shows that the change might as well have happened independently in Gothic and Old Norse.

A related case is insertion of a stop after a high vowel in for example Old Norse *kvíkr* 'alive'. Our assumption is that there is no need for any laryngeal explanation, since all the words in question do have a high front/back vowel. A word-form such as Old Norse *hrár* 'raw' has been considered problematic in previous account since there is an ambisyllabic glide. This will not be problematic under our account, because

we assume the syllable structure to be *hrē.wwa* and this is not what we have called Verschärfung base.

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## Abbreviations

### Languages

Far.	Faroese
Gk.	Greek
IE	Indo-European
Non-Germ.	Non-Germanic languages
OCS	Old Church Slavonic
OE	Old English
OHG	Old High German
PN	Primitive Norse
Skt.	Sanskrit