

Review of the literature about reduplication and ablaut of Germanic strong verbs of class VII



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SUMMARY

In the course of history, many different pathways have been attempted by scholars trying to solve the problem of the rise and development of Gmc strong class VII, with special reference to the question if they are the result of some evolution of reduplicated forms rather than of an independent development of different origin. Many proposals have been formulated in order to explain the nature of the class VII preterites but, as of today, there is no agreement on any single line of thought. Indeed, the matter is far from being settled yet. In this thesis, we will try to illustrate the progress of the research through a selection of papers by scholars who pursued different approaches (morpho-phonological, structuralist, generative), sometimes positing a direct evolution from Indo-European aorists, reduplication, or laryngeals, and sometimes introducing a Germanic innovation. The proposed theories include innovative ablaut formations, material infixation, analogy, laryngeal developments. A key factor is the role of the Gmc accent shift, which may have triggered class VII transformations. For space reasons, the problem of \bar{e}_2 , also relevant, will be treated only partially.

FOREWORD

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
Gmc	Germanic
Got	Gothic
IE	Indo-European
NWG	Northwest Germanic
OE	Old English
OF	Old Frisian
OHG	Old High German
OIcel	Old Icelandic
ON	Old Norse
OS	Old Saxon
OWF	Old West Frisian
PGmc	Proto-Germanic
PIE	Proto-Indo-European
WGmc	West Germanic

Note 1: OIcel and ON, although they are often considered essentially the same language, have been kept separated to accommodate for specific references in the bibliography.

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INTRODUCTION

The topic of reduplication and ablaut of Germanic strong verbs of class VII has been investigated for a long time. It is of particular interest in the field of linguistics because strong verbs of class VII behave quite differently than those of classes I to VI. Germanic strong verbs are organised in classes I to VII depending on their ablaut and how their preterite tense is constructed. The aims of this thesis are to investigate the preterite formation of class VII in particular because of its unclear origins, and what happened between Proto-Germanic (PGmc for short) reduplication and modern Northwest Germanic languages (NWG). A brief summary of some concepts which will be largely used in the present work is in order.

Ablaut, also called vocalism, is the vowel alternation, common in Germanic strong verbs and it is used to mark the difference between the present and the preterite tense. In Indo-European (henceforth IE) linguistics, it is common to speak of *e-grade* or normal-grade (with /e/) and *o-grade* (with /o/) ablaut. The distinction between /e/ and /o/, and between /ē/ and /ō/, is labelled qualitative ablaut, while the distinction between /e/, /ē/, and \emptyset ('zero'), and between /o/, /ō/, and \emptyset , is called quantitative ablaut. With /e/ or /o/, the root is said to be in full grade; when the vowel is gone (\emptyset), it is in *zero grade*¹ (e.g., in Latin *pater/patris* the *e* is respectively in *e-grade* and zero grade).

Prokosch (1939) calls **heavy bases** those syllables whose normal grade contains a long vowel. They can be monophthongal or diphthongal, and cannot be lengthened though they can be reduced, but are not normally dropped to zero-grade – the rare zero-grade heavy bases are probably created analogically from light bases. **Light bases**, whose normal grade is generally short *e/o*, by contrast, tend to be weakened (reduced grade) or dropped (zero grade) when unstressed².

Reduplication is a morphological change of a word in which the root or the stem is repeated to change the meaning of a word. It may change verbs, nouns, adjectives; but in the present work it will be studied exclusively when referred to verbs. Such repetition, that is the reduplicated bit, can be partly changed or stay the same. An example of reduplication in which the stem remains as it is comes from Latin: the present *currō* (I run), perfect tense *cucurrī* (I ran). An example of a reduplicated form, in which the repeated part changes, again comes from Latin: present *cado* (I fall), perfect *cecidi* (I fell). Reduplication can also happen at the end of a word, for example Latin present *credo* (I believe), preterite *credidi* (I believed).

Reduplication is a very productive way of forming the perfect tense in Proto-Indo European (PIE from now on) and “virtually all PIE perfects were reduplicated” (Ringe 2006:185). Although PGmc strong verbs descend from PIE perfects, the strong verb classes I to VI did not preserve reduplication, meaning that reduplication did not have success in Germanic and stopped being productive. In PIE,

reduplication had three main characteristics, as summarised by Jasanoff 2007: first, *-e- in the reduplicated syllable; second, *o* : *zero* ablaut; third, specific desinences³. When PGmc started developing and evolving, some very important changes started distinguishing it from PIE, such as accent shift and some important sound changes as explained by Grimm’s law and Verner’s law⁴, which will be briefly described as follows.

I Grimm’s law (1822), or *I Lautverschiebung*, describes a phenomenon of shift in consonant sounds, from IE to PGmc between 400 BC and 200 BC. What happened was that some IE consonants developed different qualities and evolved into their Gmc counterparts⁵, as illustrated in the following Table 1.

PIE		PGmc	Phonetic transcription	Example
p, t, k, k ^w	>	f, Þ, h, hw	/f, θ, x, x ^w /	PIE *peku > PGmc *fehu (livestock)
bh, dh, gh, g ^{wh}	>	b, d, g, g ^w	/β, ð, γ, γ ^w /	PIE *ghostis > PGmc *gastiz (guest)
b, d, g, g ^w	>	p, t, k, k ^w	/p, t, k, k ^w	PIE *egom > PGmc *ek(an) (I)

Table 1: Grimm’s Law (from: Saibene, Buzzoni 2006:90)

Verner’s law (1877) completes Grimm’s law in that it points out something that Grimm did not formulate: IE *p, t, k, s* may change respectively into PGmc *b, d, g, z*, for example PIE *matér > PGmc *moder. The PIE consonants thus gain a voiced trait when their environment is voiced, provided that the PIE stress does not fall on the previous syllable. Verner’s law is generally considered antecedent to the stabilisation of the Germanic accent on the stem syllable⁶, which happened between the II and the I century BC⁷.

Then, “sometime before the breakup of Proto-Germanic” (Jasanoff 2007:243), that is when the Germanic languages started differentiating from one another, the strong preterites started losing their reduplicated syllable. This was completely successful in patterns with vocalic contrast between present and preterite (for example, see the transformation from PGmc infinitive *fanhan “take” to ON pret. fekk) but less so in pattern where such contrast was not as clear (e.g., Gothic: infinitive floka “fly”, preterite faiflok). Therefore, strong Germanic verbs kept vocalism without reduplication where possible, and reduplication without vocalism in the other instances.

Each Germanic language gradually evolved in their own direction. However, one feature is common to all of them, and it is the strong verb class VII, which is the only class that still shows somewhat evident signs of reduplication - Gothic, unlike its sister languages of the northern and western branches, even kept full reduplication.

So, the origin and development of strong verb class VII are closely related to the mechanism of reduplication inherited from PIE into PGmc, which then developed in the direction of vocalisms and

ablauts. How exactly this happened is unclear. Furthermore, the link between reduplication and ablaut is indisputable, despite it being somewhat hard to pinpoint. It is not even certain, according to Jasanoff 2007, that ablaut of class VII is directly descended from reduplication⁸, because several external or indirect factors might have influenced the evolution of reduplication into ablaut, and that does not necessarily imply a relationship of direct causality.

The ablauting mechanisms discussed in the present work involve the formation of the preterite, which derives from the stem of the present tense according to the vocalic quality and quantity. Classes I to VI of strong verbs tend to be relatively regular, whereas the issue with class VII is that there is no apparent regularity. In fact, there are five subclasses, named VIIa, VIIb, VIIc, VIId, VIIe⁹, which may seem very different from each other, but are deeply linked together because they all have their origin in the reduplication.

In investigating class VII, the first thing to note is the distinction between Gothic, belonging to the Eastern Germanic branch, and the Germanic languages from the Northwest branch, namely Old High German (OHG), Old English (OE), Old Saxon (OS), Old Norse (ON), Old Frisian (OF). Tables 2 and 3 below illustrate how various Gmc forms compare to their counterparts. The first one shows some verbs of Gothic, which present reduplication whereas the second shows some verbs of NWG, which present ablaut.

<i>Subclass</i>	<i>1 Sg Pres</i>	<i>3 Sg Pres</i>	<i>3 Pl Pret</i>
<i>VII a</i>	<i>haita</i> (call)	<i>haihait</i>	<i>haihaitun</i>
<i>VII b</i>	<i>slepa</i> (sleep)	<i>saislep</i>	<i>saislepun</i>
<i>VII c</i>	<i>floka</i> (fly)	<i>faiƿflok</i>	<i>faiƿflokun</i>
<i>VII d</i>	<i>leta</i> (let)	<i>lailot</i>	<i>lailotun</i>

Table 2: Class VII strong verbs of Gothic (Zukoff 2017:127) (reduplicative syllables are marked in bold)

<i>Subclass</i>	<i>Infinitive</i>	<i>ON</i>	<i>OHG</i>	<i>OS</i>	<i>OE</i>
<i>VII a</i>	* <i>haitan</i> (call)	<i>hét</i>	<i>hiaz</i>	<i>hēt</i>	<i>hēt</i>
	* <i>skaiƿan</i> (divide)	-	<i>sciad</i>	<i>skēđ</i>	<i>scēd/scēad</i>
<i>VII b</i>	* <i>hlaupan</i> (run)	<i>hljóp</i>	(<i>h</i>) <i>liof</i>	<i>hliop</i>	<i>hlēop</i>
	* <i>hauwan</i> (chop)	<i>hjó</i>	<i>hio</i>	<i>heu</i>	<i>hēow</i>
<i>VII c</i>	* <i>haldan</i> (hold)	<i>helt</i>	<i>hialt</i>	<i>held</i>	<i>hēold</i>
	* <i>fanhan</i> (take)	<i>fekk</i>	<i>ƿiang</i>	<i>feng</i>	<i>fēng</i>
<i>VII d</i>	* <i>rēdan</i> (advise)	<i>rēđ</i>	<i>riat</i>	<i>rēđ</i>	<i>rēđ</i>
	* <i>slēpan</i> (sleep)	-	<i>sliaf</i>	<i>slēp</i>	<i>slēp</i>
<i>VII e</i>	* <i>wōpjan</i> (cry)	-	<i>wioƿ</i>	<i>wioƿ</i>	<i>wēop</i>
	* <i>blōtan</i> (sacrifice)	<i>blét</i>	-	-	<i>blēot</i>

Table 3: Class VII strong verbs of NWG (Jasanoff 2007:247) (asterisks marks reconstructed forms)

These examples show how Gothic inherited the PGmc logic of reduplication to form preterites, then systematised said reduplication according to its own rules. This happened in three steps; Gothic:

1. reversed Verner's law changes almost completely
2. levelled the different singular and dual/plural stems
3. generalised *-ai-* (< PIE **-e-*, the default reduplicating vowel) analogically, thus making it regular and perfectly predictable through grammar rules¹⁰

NWG languages took another path, namely their speakers stopped considering reduplication productive and turned to ablaut. Reduplication in NWG was not completely abandoned though: there are in fact a few relics, for example in OE, found mostly in very archaic and/or sometimes poetic verbal forms such as *heht* (from *hātan* “be called”), which survived in Modern English as *hight*¹¹.

A topic that is usually strongly connected with reduplication and ablaut of strong verbs of class VII is that of **-ē₂-* (also written as *ē₂* or *ē²* for short), which is a reconstructed long closed vowel of PGmc, obtained through the comparative method (see Methodology, page 11 ff). In the Germanic languages we are studying, it evolved emerging in the following forms¹²:

Gothic	OE	ON	OS	OHG
<i>e</i>	<i>ē</i>	<i>é</i>	<i>ē</i>	<i>ê > ia > ie</i>

This *ē₂* appears in several word groups, for example: nouns and adjectives (e.g., OHG *skêri*, *skiaro* “clear”); pronominal forms (e.g., OE *hēr*, ON *hér*, OHG *hiar* “here”); some loan words (e.g., Go *Kreks*, OHG *Kriachi* “Greek” < Latin *Graecus*). Another important group is that in which *ē₂* appears as the result of **compensatory lengthening** (i.e., lengthening of a sound to compensate the loss of another sound) of *i* (e.g., OE *mēd*, OHG *miata*). The word group that interests us most is the strong verbs of class VII of NWG preterites (e.g., OE *hēt*, ON *hét* “be called”)¹³.

Compensatory lengthening is usually correlated to the **contraction theory**, popular among pre-Neogrammarians¹⁴, which states that a shift of the accent to the first syllable caused a loss of the reduplicated material and thus the contraction which led to the emergence of *ē₂*.

The origins of *ē₂* are much debated and there is hardly any consensus on the matter. Some scholars propose a possible derivation of *ē₂* from PIE (e.g., Lehmann), while others believe it to be a Gmc innovation (e.g., Coetsem). It was also proposed (by Connolly) that there may be two *ē₂* of different origins, one found in nouns and adjectives and the other in strong class VII of Gmc verbs. The origin of *ē₂*, however, only interests us as far as it is inherent to the problem of class VII.

Another topic associated to class VII and its behaviour is that of **r-preterites**, which form a very particular verbal class of OHG that, according to some authors (Osthoff, Schmidt, Loewe, Janko), was initially part of the reduplicating class¹⁵. Their connection to reduplication and class VII is what

makes them worthy of attention. This class contains very few verbal forms, namely OHG *stōzan* (push), *scrōtan* (cut), *bluozan* (offer), *būan* (dwell); and two participles, which are the present participle *spīwan* (spit) and the preterite participle *scrīan* (cry)¹⁶.

Our main goal is to review the literature on ablaut and reduplication of Germanic class VII of strong verbs in chronological order, putting together the most prominent theories formulated so far. In the first chapter we deal with the methodology and briefly recall the comparative method and historical linguistics. The difficulties this discipline encounters will be discussed, especially when dealing with topics that go back to a period when languages were not well documented, if at all. We will also briefly see how the lack of sources affects our ability to fully understand some linguistic developments. The second and central chapter will deal with the review of the literature and will illustrate the main theories. Last, we will try to draw a conclusion, even if it is quite hard to pinpoint a theory which could solve the problem of the development of reduplication and ablaut in PGmc class VII.

METHODOLOGY

HISTORICAL LINGUISTICS

Historical linguistics is the study of how languages change over time, also in comparison to other sister languages, and how they are related. The purpose of historical linguistics is to investigate language change and to understand not only the changes a given phenomenon undergoes over time within a single language, but also how it differs among languages belonging to the same family. This is well explained by Campbell in his book *Historical linguistics: an introduction* (2013), along with its importance both in the field of language studies and in other fields. His belief is that historical linguistics studies can help understand what can and cannot change within a language - that is, which processes are allowed, and which are not, in order to better define how a language works¹⁷. While studying language change, historical linguistics does not try, in Campbell's opinion, to reach a state of the language when it was "pure" and "uncontaminated". In fact, language evolution cannot be stopped and "this makes complaints against language change both futile and silly" (Campbell 2013:3). However, the social perception of language change impacts language change itself, and this sociolinguistic conditioning, as Campbell calls it, plays an important role in historical linguistics.

LANGUAGE RECONSTRUCTION AND COMPARATIVE METHOD

Language reconstruction and the comparative method are very closely tied, as the former is largely based, and thus dependent, on the latter. In the following section, we will briefly introduce them separately. The present work makes use prevalently of data coming from reconstructed languages, thus not applying the comparative method directly, but rather relying on its finished product¹⁸.

LANGUAGE RECONSTRUCTION

Language reconstruction is the key tool used by historical linguistics to get access to a language of which we have no sources or data. By comparing the daughter languages ("comparative method", see below), similarities become evident. Thus, the evolution of each language is traced backwards to retrieve the proto-forms. The language obtained through this process is artificially reconstructed (e.g., PGmc, PIE) and therefore cannot be considered "natural".

About language reconstruction, Campbell 2013 points out that it is impossible to "*recover things about the proto-language via comparative method if the daughters simply do not preserve evidence of them. In cases where the evidence is severely limited or unclear, we often make mistakes. [...] We do the best we can with what we have to work with.*" (Campbell 2013:144). In our case, some of the mysteries about reduplication and ablaut of strong class VII might not be solvable unless we can retrieve all the information needed to perfectly reconstruct the process behind the phenomenon.

For example, language reconstruction involves the study of phonology and morphology, two disciplines which have been in the main focus of the research literature we are going to review. Syntax, although in general a valid element for comparison, has not been involved as much in the research of the origin of class VII and its preterites. Sound changes are triggered by their phonetic environment, as for example the position of the stress in the word. However, morphological change is not dependent on the environment. A morphophonological¹⁹ change (e.g., ablaut) also depends on the environment.

THE COMPARATIVE METHOD

The comparative method studies languages in relation to one another, comparing specific features in order to reach a common stage of the languages and reconstruct their ancestor features. PIE and PGmc are both reconstructed languages due to their nature. In fact, they appear nowhere in sources.

Klein, Joseph, and Fritz in their “*Handbook of comparative and historical Indo-European linguistics*” (2017) focus on this topic describing how this method is particularly useful when studying historical linguistics, and how it allows a deeper grasp and insight on the processes that make languages evolve. The authors observe that linguistic comparison has been used before, but in an unorderly manner. The novelty in the comparative method is that the comparison process – and its results – must be systematic. Moreover, not all features have the same weight in the process – especially when the goal is to demonstrate languages interrelations. The authors specifically mention that “*the best evidence for linguistic relationship comes from shared features which have high transmission rates and low diffusion rates²⁰, such as basic vocabulary and morphological paradigms*” (Kleid, Joseph, Fritz 2017:3). This supplies a criterion for the acceptability of a given analysis – a feature with high transmission rate is bound to be frequently attested, and therefore scarcely attested forms are not likely to have had a high transmission rate. This can support criticisms based on the use of infrequent verbal forms as comparison models.

REVIEW OF THE LITERATURE

THE FIRST CONTRIBUTIONS

GRIMM, 1819

The first researcher to investigate on the anomalous behaviour of class VII of strong verbs was Jakob Grimm (1785 - 1863), German philologist, writer, and founder of Germanic linguistics. In his radically innovative *Deutsche Grammatik* (1819), Grimm maintains that Gothic followed a conservative path, keeping reduplication as a method to create preterites. On the contrary, NWG reduplicated forms were subjected to contraction. For example, Grimm derives those OHG forms with present in *ia* directly from Gothic forms. This happens through a process in several steps, from a reduplicated Gothic verb (e.g., Got. *háihald*, *máimáit*), through a disyllabic form (e.g., *hî-alt*, *mî-az*), then possibly evolved into *hei-alt*, *mei-az*, then *heialt*, *meimaz*, until it finally contracted into a monosyllabic form (*hialt*, *miaz*)²¹.

BRUGMANN AND WOOD, 1895

The matter was considered solved until 1895, when Brugmann and Wood independently proposed a new theory to explain the behaviour of class VII strong verbs of Germanic, now known as the Brugmann-Wood proposal. It states, in Connolly's words, that the NWG class VII preterites in \bar{e}_2 "reflected an Indo-European ablaut $\bar{e}i$ found in an old aorist²²" (Connolly 1979:3).

In his "*I. Verner's Law in Gothic. II. The reduplicating verbs in Germanic*" (1895), Wood claims that some verbs can't be placed in the verbal categorisations of his time, which was based on contraction and analogy. He also observes that some NWG preterite forms are tightly linked with their Gothic counterparts, and from this he infers that in PGmc those verbs had more than one past tense form (for example, a perfect, an imperfect, possibly an aorist, ...), that is, one reduplicated and the other(s) containing a different ablaut²³. Many of these verbs originally had their stress on the suffix. Due to this, the root-vowel was reduced (i.e., contracted), which sometimes caused an excessive similarity between present and perfect. The verbs in which this similarity created excessive ambiguity kept their reduplicated preterite form. On the contrary, in those verbs in which, even after contraction, the difference between present and past tense was clearly recognisable, the alternative ablauting past was preferred. Gothic as we know it retained reduplication, whereas NWG languages kept just a few reduplicated relicts, while essentially creating preterites from the non-reduplicating past tense, possibly an imperfect or an aorist²⁴.

The Brugmann-Wood theory was soon subject to criticism, in light of the new ideas formulated

in the Laryngeal theory²⁵ and the consequent revisions on the theories about the PIE ablaut. Despite its eventual fall, this theory initially gained much consensus and was especially favoured by Prokosch.

PROKOSCH, 1939

The “*Comparative Germanic Grammar*” (Prokosch, 1939) faced the problem of class VII strong verbs of Germanic languages, comparing Gothic and the other NWG languages. Prokosch claims that Gothic reduplicated preterites are “*obviously old perfects*” (Prokosch 1939:176), clearly contrasting with NWG preterites, which lack reduplication. He also disagrees with Grimm’s idea that NWG reduplicated forms of class VII underwent a contraction that obscured their reduplicated origin. In fact, he acknowledges that the *r*-preterites in OHG (see page 9) seem to be linked to reduplicated preterites (*būan* : *biruun*, *scrōtan* : *kiskrerot*, ...), but thinks that this contradicts the hypothesis that *hēt*-type verbs can be equated to *haihait*-type. His argument is that the natural development of **hehāt*, corresponding to Got. *haihait*, should be *heht*. It seems not likely at all that this form could undergo a completely irregular development to become *hēt*. It should, if anything, have remained in Anglic and West Saxon as *heht*, **heoht*. Besides, *lēt*, *rēd* show similar difficulties, and there is even no certainty in Prokosch’s opinion that they are indeed reduplicated forms²⁶. He in fact believes that the (scarce) allegedly reduplicated NWG forms are mostly relics, and therefore the evidence they provide is too ambiguous to prove that NWG preterite originated from reduplication. Even accepting them as reduced forms would only prove that in PGmc this class originally had two alternative past forms.

Prokosch essentially adheres to the Brugmann-Wood theory because other attempts to phonetic explanation are “*difficult to reconcile with the standard vision of phonetic laws*”, whereas the new Brugmann-Wood hypothesis “*agrees with them very well*” (Prokosch 1939:177). He also quite values the idea underlying this theory, of an evolution from verbal aspect (aorist) into verbal tense (preterite). His opinion would thus have the NWG preterite derive from a different process than that proposed by Grimm²⁷. In fact, he tries to explain class VII through the example of class VI, observing that for the latter class the “*leading verbs*” (verbs which serve as model for a given class) are aorist presents with “*monophthongal heavy base*”²⁸. As we saw above, aorist was abandoned in most IE languages and assumed a different meaning by merging into another (similar) tense. In this case, according to Prokosch, the durative aspect represented by those aorists was redundant and hence was transformed in a preterite meaning (Prokosch 1939:178). Therefore, the same should stand for NWG strong verbs of class VII, with the significant difference that part of them are based on a diphthongal heavy base (rather than monophthongal), and this makes them far less regular than class VI²⁹.

Prokosch concludes that strong class VII preterites do not derive from old PIE perfect as in Gothic, but rather from old aorists, through a development of PIE *ēi*³⁰.

THE EVOLUTION

LEHMANN, 1952

A completely different point of view is that of Lehmann, who in his book “*Proto-Indo-European phonology*” (1952) interprets some subclasses of class VII in the light of the Laryngeal theory³¹. He also discusses OHG *r*-preterites, which seem connected to reduplication and class VII³². In several instances (Lehmann 1952:59, 69, 72), Lehmann stresses the importance of laryngeals both in explaining the vowel system of PIE, and consequently that of PGmc; and in the study of the strong verbs of Gmc class VII.

With regard to *r*-preterites and their origin, Lehmann mentions that, in previous research, they had been interpreted either as a OHG development, or as a derivation from a verbal formation lost elsewhere in Germanic³³. Lehmann mentions the possibility that OHG *r*-preterites derive from reduplicated perfect forms³⁴ - however, he finds a fundamental weakness in this proposal, in that there are no reduplicated preterites at all in OHG. Another option is that *r*-preterites derive from a *s*-aorist tense³⁵ (i.e., an aorist tense with an *s* (σ) added at the end of the present stem, see note 22), but Lehmann again disagrees because he finds no evidence of *s*-aorist elsewhere in Germanic. Nor does he favour their derivation through analogy from verbs such as OIcel pattern **rōan* : *rerō* “row”, because the *r*-preterites that supposedly derive from such pattern are not found in OHG.

He concludes that a valid theory has yet to be suggested³⁶, and hence does not assume a definite position, although he accepts, quoting Prokosch, that some of the *r* in the *r*-preterites are a laryngeal evolution of some kind. For example, he mentions four *r*-preterite verbs of class VII (OHG *stōzan* “push”, *scrōtan* “cut”, *bluozan* “offer”, *būan* “dwell”) which show signs of laryngeal development³⁷; he also mentions that laryngeal evidence can be found in some *r*-preterites of the first class^{38,39}.

Lehmann rejects the theory that NWG class VII preterites are formed through reduplication as in Gothic, because he thinks that no evolutionary path is possible from Gothic forms to those known in NWG. Therefore, following Prokosch⁴⁰, he chooses the theory in which the preterites and the VII class present tenses “*developed from forms with ablaut grades different from those of the first five classes*” (Lehmann 1952:58). This means that the preterites of VII class, just as those of strong classes I to V, are formed through a determining vocalic contrast between present and preterite – but, differently from the other classes, their ablaut pattern was less widespread than the /e : o : ə/ on which the first five classes are based⁴¹.

Observing that ē (“*long open e*”) originated from PIE ē and evolved in a well understood way (ā in Nord Gmc, OS, OHG; ā in OE), Lehmann then proceeds to the much-debated origin of ē₂ (“*long*

close e”), which remained untouched in NWG – except OHG, where it evolved as *ea*, *ia*, *ie*. He observes that a consistent pattern of origin was not found, as some seem to develop from PIE *ei*, others from PIE \bar{e} , others yet from PIE [iz]. He therefore hypothesises that the central problem is not the origin, but the process by which those various combinations all merged in a same phoneme⁴². Lehmann therefore investigates three subgroups of PGmc verbs of class VII, namely those with present tense in *ai*, *al/an*, and $\bar{a}\bar{e}$ (e.g., OHG *heizan* “call”, OHG *haltan* “hold”, OHG *lāzan* “let”)⁴³.

For the *ai* subgroup, Lehmann claims morphological evidence of the PIE roots by means of a similarity to Greek – namely, he compares OIcel *meita* and OHG *meizan* “to cut”, as well as OIcel *smíð*, OHG *smīda* “knife, dagger”, with Greek $\sigma\mu\tilde{\iota}\lambda\eta$ “knife”, maintaining that they all developed from the same PIE root that he identifies as /meX-/⁴⁴.

Proceeding to the *al/an* subgroup, Lehmann identifies the root of OE, OHG *bannan* “ban” with that of Doric Greek $\varphi\bar{\alpha}\mu\acute{\iota}$ “say” and in the nouns Latin *fāma* “report” and OIcel *bón* “request”, for all of which he hypothesises the common root to be PIE /bheX-n/⁴⁵. Here, for some verbs with \bar{e}_2 in the preterite, Lehmann expects to find a pattern made of vowel, laryngeal, resonant; however, this pattern is not regularly found. He thus suggests that such behaviour could be a Germanic innovation⁴⁶.

The third subgroup Lehmann addresses is that with present tense in $\bar{a}\bar{e}$. This $\bar{a}\bar{e}$ subgroup offers an additional problem because Lehmann believes that the vocalism of the present tense (the sound /ae/) did not develop from a weak grade vowel (e.g., \bar{a} “schwa”). Hence, he must determine the origins of the vowel not only for the preterite tense (\bar{e}_2), but also for the present ($\bar{a}\bar{e}$). From the analysis of cognates, Lehmann finds that some of those verbs developed $\bar{e}i$ from a PIE root /eXy-/ (here, X is any laryngeal). As an example, he compares the present tense of “let” in several languages (Got *lētan*, OIcel *láta*, OE *lētan*, OS *lātan*, OHG *lāzan*, Lithuanian *lėidžiu*) and deduces PIE /leXyd-/ as their common root⁴⁷. He then invokes the Brugmann-Wood theory to explain the formation of preterite of those verbs from a normal grade of that PIE /eXy/ root evolving in $\bar{e}i$ (but he also mentions that, according to Prokosch, those verbs were instead the result of an analogical process from class I).

Lehmann actually finds that outcome to be most likely because the PIE /eXy/ root can develop either into \bar{e} or $\bar{e}i$, possibly depending on the syllable structure and environment⁴⁸. In fact, Lehmann suggests, following Brugmann, that the loss of /y/ occurs only when $\bar{e}i$ is found at the end of a syllable (e.g., PIE **lēi-dō* > **lēdō*). If, on the contrary, $\bar{e}i$ is followed by a consonant in the same syllable, the /y/ remains unaltered (e.g., PIE **lēid-mi* > **lēits*).

Now, in PGmc class VII verbs (except for *verba pura*) the stem always ends in one consonant. However, the ending of the present indicative begins with a vowel. Therefore, in accordance with the above rule, the present tense loses its /y/ and subsequently undergoes the natural development to Gmc

\bar{e} and then \bar{a} . On the contrary, preterite endings (except 3rd singular) begin with a consonant. Therefore, a cluster of two consonants is created and, because of the above rule, the /y/ in the preterite tense would have been conserved, then developing into $\bar{e}i$ and finally into \bar{e}_2 through loss of /y/ (the i in $\bar{e}i$) and compensatory lengthening of \bar{e} ⁴⁹.

There are therefore two fairly different evolutions, one for present tense, in which /eXy/ developed as \bar{a} , and the other for preterite tense, in which it developed as \bar{e}_2 . Because of all the above considerations, Lehmann claims that these three subclasses of class VII all present an \bar{e}_2 that is the product of development from e + laryngeal before resonants⁵⁰.

COETSEM, 1956, 1964

In his “*Das System der starken Verba und die Periodisierung im älteren Germanischen*”, first published in 1956 and then reprinted in 1964, Coetsem examines the reduplicating verbs, trying to shed some light on the interrelationship between Got. *haihait*, **haihlaup*, *haihald* and ON. *hēt*, *hljōp*, *helt*, OHG. *hiaz*, *leof*, *liof*, *hialt*, and so on⁵¹. Coetsem refuses the contraction theory⁵² because it requires, after the loss of a consonant, the monophthongisation of the remaining two adjacent vowels to \bar{e}_2 ($e + \bar{e}_1$, e.g., **lelēit*; $e + a$, e.g., **fefall*; $e + ai$, e.g., **hehait*), a process definitely unusual in Germanic.

With regards to the Brugmann-Wood’s derivation from PIE ablaut grades, Coetsem observes that Brugmann proposed the coexistence of both reduplicating and non-reduplicating forms in the “*Grundsprache*” (that is, PGmc), of which only the former survived in Gothic. Thus, Brugmann derives a ON and OE preterite *hēt* from **hēit*, corresponding to Got **haitan*, also invoking an old $ai/\bar{e}i$ ablaut of which the normal grade is $\bar{e}i$. Analogously, in *hlaupan*, **hlēup* (ON *hljōp*, OE *hlēop*) there is the $au/\bar{e}u$ ablaut⁵³. Coetsem refuses this theory, claiming that the ablaut hypothesised by Brugmann is not supported by any evidence – although he acknowledges Brugmann’s merit in first attracting the scholars’ attention on possible explanations different from the contraction theory⁵⁴.

Coetsem explores the origin of \bar{e}_2 , widely found in class VII preterites but sporadic elsewhere. He considers that \bar{e}_1 is surely IE and PGmc but \bar{e}_2 is certainly Common Germanic⁵⁵, because it is spread among all Germanic languages, but he finds no final evidence for its being PGmc. Coetsem states that the IE long diphthongs (e.g., $\bar{e}i$) have been completely incorporated in PGmc leaving no IE trace and, because of this, they did not produce their own phonemes. In fact, $\bar{e}_2 < \text{IE } \bar{e}i$ would be the only, unjustified, exception. He proposes that the very opposite seemingly happened, i.e., IE $\bar{e}i$ survived because of the presence of \bar{e}_2 . The natural evolution of IE $\bar{e}i$ should be $\bar{e}i > \bar{i}$, or \bar{e} , or \bar{e}_1 , not \bar{e}_2 . The conclusion he draws is that the transition IE $\bar{e}i > \text{Gmc } \bar{e}_2$ would be possible only by means of an indirect passage through a Gmc phase⁵⁶. Hence, Coetsem refuses *any* theory requiring the direct transition IE $\bar{e}i > \text{Gmc } \bar{e}_2$, including Lehmann’s⁵⁷. One more objection to Lehmann’s theory is that it

uses the same ablaut proposed by Brugmann and Prokosch, which Coetsem refuses, as we saw above⁵⁸. Coetsem's conclusion is that the required ablaut must be a Gmc innovation and must therefore be researched in Gmc and not in IE – even if he admits that there could be a reasonable explanation for it in IE. He also suggests that some of the alternative explanations seem to be so complex that they are not likely to have been normally used by the speakers and thus incorporated in the language evolution⁵⁹. Before proceeding with Coetsem's explanation for \bar{e}_2 , we will be dealing with the umlaut introduction in Gmc⁶⁰.

To analyse strong verbs (as photographed in an early PGmc phase), Coetsem proposes a table classifying them by ablaut in four subgroups, forming a complete system (see table 4)⁶¹:

- The *e*-group shows an *e/a* ablaut directly inherited from the IE ablaut *e/o*. Other than *e/a*, they can also have *ei/ai*, *eu/au* ablauts. Coetsem refers to them as the *PGmc e-group*. This group is divided in two subgroups (I and II) based on the syllable structure, as illustrated in table 4's left quadrants.
- The *a*-group, which is of Germanic origin and newer than the above group, has Gmc *a* originated from IE *o* as well as from \bar{o} and *a*. In this group there is PGmc systematisation based on the consonantism following the stem vowel. This group is divided into two subgroups: III contains reduplicating verbs, while IV contains verbs with ablaut *a/ō* (typical of strong verbs of class VI⁶²).

I. TABELLE ^{*)}

		A. <i>e</i> -Gruppe	B. <i>a</i> -Gruppe	
<i>e-a-</i> Abl.	I	<ol style="list-style-type: none"> 1. <i>e</i> + <i>i</i> + Kons. 2. <i>e</i> + <i>y</i> + Kons. 3. <i>e</i> + { Liq./Nas. + Kons. Kons. + Kons. 	<ol style="list-style-type: none"> 1. <i>a</i> + <i>i</i> + Kons. 2. <i>a</i> + <i>y</i> + Kons. 3. <i>a</i> + { Liq./Nas. + Kons. Kons. + Kons.(?) 	III Redupl. Verba
	II	<ol style="list-style-type: none"> 4. <i>e</i> + Liq./Nas. 5. <i>e</i> + Kons. 	<ol style="list-style-type: none"> 4. <i>a</i> + Liq./Nas. 5. <i>a</i> + Kons. 	IV <i>a-ō-</i> Abl.

Table 4: Classification of strong verbs according to Coetsem (from: Coetsem 1964:10)

The beginning of the umlaut from *i* to *e* and vice versa, and from *u* to *o*, can be located during the PGmc phase, as illustrated below (table 5).

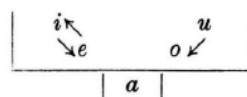


Table 5: Umlaut illustration (from Coetsem 1964:38)

According to Coetsem, because of the umlaut, only in some cases the *e* in *eu* changed to *i*, giving *iu*, when located before an *i* in the following syllable (i.e., under **i-umlaut**⁶³ conditions). When located before an *a* in the following syllable, the *e* in *eu* would remain the same, but the following *u* changes to *o* because of **a-umlaut**⁶⁴, thus becoming *eu*, pronounced [eo]. Coetsem calls this phenomenon *e-splitting* (*e-Spaltung*)⁶⁵ and locates it the Common Germanic phase, between PGmc and the Individual

Dialects phase. The PGmc vowel series of the preterite *ei/eu/e*, which contains an *e*, therefore subdivided in two separate series – that is, it became either *iu/ī/i*, or *eu[eo]/ē₂/e*, depending on the vowel of the following syllable. The single elements of this new system are not perceived as part of the previous one by the speakers⁶⁶. Coetsem uses this information to explain the origin of *ē₂*. Previous authors derived it from IE *ēi* ablaut series, but Coetsem refuses the direct derivation from IE *ēi*, stating that an intermediate Gmc stage is in order. The mechanism he proposes is the above a-umlaut, which produces the *eu[eo]/ē₂/e* series in the preterites of class VII with the following progression:

- /ei/ > /ii/ > /ī/ (through i-umlaut)
- /ei/ > /ee/ > /ē₂/ (through a-umlaut)⁶⁷

According to this new information, Coetsem reviews his table in a new structure as follows (table 6):

e-Gruppe	a-Gruppe	Gotisch
1. <i>ei / ai / i / i</i>	Nord-, West- germanisch 1. <i>ai / ei</i>	Reduplikation, ohne Ablaut
2. <i>eu / au / u / u</i>	2. <i>au / eu</i>	„
3. { <i>el / al / l(u)</i> → <i>ul</i> usw. <i>en</i> usw.	3. { <i>al / el</i> usw. <i>an</i> usw.	„

(u = Vokalrest unbestimmter Farbe)

Table 6:Reclassification of strong verbs based on root vocalism (from: Coetsem 1964:53)

- The *e*-Group, with *e/a* alternation, includes classes I to V of strong verbs, with several different ablaut grades, all of IE origin
- The *a*-Group, with *a/e* alternation (*ai/ei*, *au/eu*, *a/e*) typical of class VII of strong verbs, showing only remnants of reduplication. To this group also belongs verbs with ablaut *a/ō*⁶⁸
- Gothic, whose strong class VII has reduplication without ablaut⁶⁹.

With regards to the small *ē*-group and *ō*-group, Coetsem observes that *ē*-verbs belong to the same class as *ai* verbs, and *ō* verbs to the same as *au* verbs both in NWG and Gothic, and they should therefore be associated also in PGmc. For that reason, he puts them into the *a*-group, which thus contains verbs of the VI and VII strong classes⁷⁰. In his table, Coetsem finds a correspondence between the pre-existing ablaut of the *e*-group (*e/a*) and the **new ablaut** of the *a*-group (*a/e*), typical of NWG⁷¹. Henceforth, three ablaut forms arise, namely *ai/ei*; *au/eu*; and *a* followed by liquid/nasal (e.g., *al/el*). From table 6, excluding for the time being the *ē*- and *ō*-groups, Coetsem deduces the two alternative principles governing the *a*-Group:

1. reduplication, without ablaut, regularly occurring in Gothic; although it is only vestigial in NWG, Coetsem considers it to have had a general diffusion in Gmc languages
2. his *a/e* new ablaut, found in NWG languages, where it superseded reduplication

Coetsem observes that the older PIE preterite formation seemingly favoured reduplication over ablaut, using as evidence a comparison among a selection of Latin, Gothic and Old Indian verbs, which seem to show no signs of ablaut. This was because reduplication performed the same function of distinguishing preterites from presents as the ablaut did in the e-group (*e/a* ablaut) and in the a-group (*a/e* and occasionally *a/o* ablaut). They are, in other words, mutually exclusive⁷².

According to Coetsem, the reduplication inherited from IE could still have been productive in Germanic languages, had not the *a/e* ablaut become established in the PGmc period. In fact, he proposes an analogical change in which the pressure of the vast majority of strong verbs introduced the ablaut mechanism also in the *a*-Group, although in the reverse direction – i.e., *ai/ei*, *au/eu* and *a/e* can be seen as the counterparts of the *ei/ai*, *eu/au*, and *e/a* ablauts of the e-group⁷³. According to Coetsem, the *e/a* ablaut was very productive in the PGmc period as it was a very transparent tense marker. The novelty in Coetsem’s proposal is that the same alternation between *e* and *a* could also be used in a reversed direction: when the present tense shows an *a* instead of an *e*, by symmetrical analogy to the well-established *e/a* alternation, the preterite takes an *e* instead of the *a*^{74,75}.

BECH, 1969

Bech’s book “*Das Germanische reduplizierte Präteritum*” (1969) was a major turning point in the field, as his theories offered a completely new point of view and greatly promoted research and discussion. Bech’s theories were afterwards modernised by Vennemann⁷⁶, resulting in the Bech-Vennemann theory that, although subjected to criticism, still remains a pillar in Germanic linguistics. Bech’s view consists mainly of a reinterpretation of some opaque forms among verbs of class VII, along with an approach that involves a combination of syncope (loss of a sound, especially when unstressed) and compensatory lengthening of the surviving sounds – as opposed to the previous proposals, which explained the matter of reduplication and class VII with contraction. Bech classifies the PGmc strong preterites of class VII in six different categories⁷⁷:

1. Got. *haitan* : *haihait*, *laikan* : *lailaik*, *grētan* : *gaigrōt*, *flōkan* : *faiflōk*
2. *r*-type of verba pura⁷⁸, e.g., ON *sā* : *sera*, *snūa* : *snera*
3. *r*-type of verba impura, e.g., OHG *stōzan* : *sterōz*, *būwan* : *biruwun*
4. *r*-less syncopated type of OE, e.g., *hātan* : *heht*, *lācan* : *leolc*
5. OE syncopated *r*-type, e.g., *rēdan* : *reord*, *lētan* : *leort*
6. NWG verbs of normal- and *ē*-types, whose stem contains *ē*₂ and whose origin is “as obscure as that of the *ē*-type itself”, e.g., ON *heita* : *hēt*, *falla* : *fell* (sic), *hlaupa* : *hljōp*, OE *hātan* : *hēt*, *feallan* : *fēoll*, *hlēapan* : *hlēop*

Bech regroupes the verbs in the above categories into four sets, organising them as in a table 7 below. Bech considers three rules⁷⁹, which apply to the strong verb classes I to VI:

1. Both present and preterite stems show the same initial sound ('*anlaut*')
2. In both tenses the verbal stem has one syllable
3. In both tenses the initial sound of the stem is always at the beginning of the verb

Actually, those rules do not always apply to class VII. In fact, in verbs of this class, the initial sound of the present appears in the preterite in different positions, and possibly modified through the effect of Verner's Law. Bech summarises the possible combinations in the following table 7⁸⁰:

	I	II
A	<p><i>*laikan</i> : <i>*lelaik</i> <i>*rādan</i> : <i>*rerōd</i> <i>*bannan</i> : <i>*bebann</i> <i>*waldan</i> : <i>*wewald</i></p>	<p><i>*blandan</i> : <i>*bebland</i> <i>*blōtan</i> : <i>*beblōt</i> <i>*grātan</i> : <i>*gegrōt</i> <i>*groan</i> : <i>*gegrō</i></p>
B	<p><i>*saltan</i> : <i>*sezalt</i> <i>*fallan</i> : <i>*feball</i> <i>*haitan</i> : <i>*hegait</i> <i>*haldan</i> : <i>*hegald</i></p>	<p><i>*slāpan</i> : <i>*sezlāp</i> <i>*flōkan</i> : <i>*feblok</i> <i>*hlaupan</i> : <i>*heglaup</i> <i>*hrōpan</i> : <i>*hegrōp</i></p>

Table 7: Classification of strong verbs based on initial sounds and Verner's Law effects (from: Bech 1969:6)

Bech refers to absolute and thematic initial sounds, that is, the sound located at the very beginning of the word (**absolute**), and the sound located at the beginning of the stem (**thematic**). Table 7 contains four quadrants, according to where the initial consonant(s) of the present root is found:

- IA both as absolute initial sound and thematic initial sound (**laikan* : **lelaik*): in Bech's view, the preterite stem in the reduplicated verb is not necessarily in the initial position of the verb
- IB only as absolute initial sound, but not as thematic (**saltan* : **sezalt*): here we appreciate the effects of Verner's Law ($s > z$) making the stem initial sound different from the absolute initial sound. However, the present and the preterite begin with the same consonantal sound
- IIA only as thematic initial sound, but not as absolute (**blandan* : **bebland*): the absolute initial consonantal sounds of present and preterite differ. In our example the present has a consonantal cluster, whereas the preterite does not; however, there are no effects of Verner's law. The stem (thematic sound) is apparently displaced in the preterite, appearing as the second syllable
- IIB neither as absolute nor as thematic sound (**slāpan* : **sezlāp*): this is the most complex case, where not only the absolute initial sound is different from present to preterite (in our example, $sl- : s-$), but we also have the effects of Verner's Law on the thematic initial sound ($sl > zl$).

To summarise, the absolute initial sounds of present and preterite are the same in column I (**laikan* : **lelaik*) but not in column II (**grōan* : **gegrō*). In reduplicating verbs, the initial consonant sound of the preterite is identical to that of the present when the latter is either a simple consonant or a specific cluster (Gmc *sp*, *st*, *sk*, *hw*), whereas in other cases it keeps only the first consonant⁸¹. This

explains why the preterite of **flōkan* is **feflōk* and not a form such as the non-existent ***fleflōk*.

The rows show the absence (A) or presence (B) of Verner's law (see page 7). In A, the initial consonantal⁸² sound of the present tense is the same as in the stem of the preterite (**laikan* : **lelaik*). In B, Verner's Law makes the initial sound(s) of preterite stem and present differ (**flōkan* : **feblōk*, where the present stem shows the initial consonant cluster *fl-*, whereas the preterite stem has *-bl-*).

The novelty in this work is that Bech does not classify these forms as reduplicated: in fact, he hypothesises that “*due to Verner's transformation of consonantism into Germanic, the original reduplicating tempus formation has undergone a profound change, after which it is no longer clearly reduplicating*”⁸³ and proposes two different mechanisms of preterite formation, depending on whether the reduplicated material is either interpreted as a prefix or as an infix. Actually, Bech considers type IIA as containing prefixed material; type IB as containing only infixed material; type IA is ambivalent, in the sense that both interpretations as prefixation or infixation are possible; finally, in type IIB, neither interpretation is possible⁸⁴. Class VII must have been subject to a process of pattern regularisation; however, such process must be permitted in Gmc in general, and therefore cannot be specific to any Gmc language, but must find a common root in PGmc⁸⁵.

Bech uses his table to show how Gothic reversed Verner's law. Gothic class VII underwent a different evolution, in which reduplicating verbs preterites changed according to the pattern of type A – that is, they were formed with a prefix and with no apparent Verner's change in the thematic initial sound. On the contrary, verbs of type B kept the same consonantism of the present also in the initial sound of the stem of the preterite – with the exception of *slēpan* : *saizlēp*, which still shows the effects of Verner's law⁸⁶. If we accept that in class VII of Gothic the second syllable of the reduplicated preterite is the verbal stem, then the rule that a word stem has the same beginning in all cases, is still valid. Because of this rule, Gothic reconducted all the verbal forms to uniformity within the paradigm. The word stems post-Verner's law then could not fit in in this system anymore and reverted to their original state, giving the impression that “*Verner's law never played a role in the thematic initial sound of the reduplicated preterite. And research has indeed allowed itself to be led astray by this deceptive Gothic system*” (Bech 1969:14-16).

Analysing the verbs of the subclass I (both IA and IB), Bech deduces the systematic presence of *ez*-infixation, which he uses to explain the OHG *r*-preterites⁸⁷. He proposes that the *-r-* in those verbs is derived through rhotacism⁸⁸ from a Germanic infixed **-z-* (*z > R > r*), as shown in table 8 below.

PGmc			OHG			
present	:	preterite	>	present	:	preterite
<i>*stautan</i>	:	<i>*stezaut</i>	>	<i>stōzan</i>	:	<i>sterōz</i>
<i>*skraudan</i>	:	<i>*skrezaud</i>	>	<i>scrōtan</i>	:	<i>screrōt</i>
<i>*blōtan</i>	:	<i>*blezōt</i>	>	<i>bluozan</i>	:	<i>bleruz-</i>
<i>*būwan</i>	:	<i>*bezūw</i>	>	<i>būwan</i>	:	<i>biruw-</i>

Table 8: Systematic *ez*-infixation followed by rhotacism (edited from table in Bech 1969:16)

Bech reasons that the voiced *z* appearing in the PGmc preterites is the only consonant that cannot appear as initial. It should therefore be the effect of the transformation operated by Verner’s Law of an initial *s* into *z* in infixated position. This is apparent in **sēan* : **sezō* (verbum purum) and **saltan* : **sezalt* (verbum impurum), both belonging to group IB⁸⁹, in which he claims that the infixation is indisputable. From this, he synchronically deduces that the preterite is formed by infixation of *-ez-*⁹⁰, and assumes that this method should be subsequently considered the model and thus generalised to all similar verbs of class VII (both pura and impura) through analogical process⁹¹.

Bech then proceeds to the Anglian⁹² verbs, whose behaviour is difficult to explain. Examining some of them (**lelaikun* > **lelkun* > *leolcon*; **spespahtun* > **speftun* > *speofon*; ...), Bech concludes that they can only arise from the original PGmc reduplicated preterite through a process of syncope in which they lost the original vowel of the stem syllable (“*r*-less types”). Thus, the infixation of *-ez-* in such verbs never happened⁹³. Other Anglian verbs, on the contrary, show an inner *r* in their preterite, and Bech compares that to some ON and OHG preterites which also show an inner *r* (“*r*-types”). However, while in ON and OHG that *r* is intervocalic, here it precedes the final consonant of the stem. Bech explains this by considering these Anglian *r*-forms as the result of syncope of preterites with *ez*-infixation (**rezōedun* > **rezdun* > *reordon*)⁹⁴. Whether the syncope or the innovative *ez*-infixation happens first in Anglian verbs or not, is explained by Bech as dependant on the vocalism of the stem⁹⁵. Based on the cases of OHG and Anglian, Bech proceeds to hypothesise that all NWG verbs of class VII, and not only those of these two languages, build their preterites by means of *ez*-infixation, although this process is made partially obscure by syncope (which could occur either before or after infixation, yielding different results – again, possibly depending on the stem vocalism)⁹⁶.

Bech understands the whole process involved in the evolution of NWG class VII as morphological and occurring in **three steps**⁹⁷. First, the **ez-infixation** is carried out in the verbal stem, thus resulting in a disyllabic verbal stem. This is against the rule that the verbal stem must be monosyllabic⁹⁸ and makes **syncope** necessary to return to a monosyllabic stem. The last step is the **compensatory lengthening**⁹⁹ of the surviving vowel. This however results in a new stem, which is different from that of the paradigm. The irregularity thus created can be observed for example in Anglian *redan* : *reordon*¹⁰⁰.

It becomes then necessary to explain the development of *z*. In intervocalic position, the *z* follows the well-known rhotacism evolutionary path of $z > R > r$, as mentioned above. For those verbs where *z* precedes a voiced consonant, Bech uses as a model the WGmc noun **medō*, derived from Germanic **mizdō*¹⁰¹ through a process of syncope of *z* and consequent compensatory lengthening of the preceding *e*, thus becoming \bar{e}_2 (Gmc **mizdō* (> **mezdō*) > WestGmc **mē₂dō*). However, the same does not happen when *z* precedes a voiceless consonant, since it would result in a desonorisation of *ez* into *es*¹⁰². From this, Bech derives the following conclusions¹⁰³:

1. The *ez*-innovation is common to all NWG languages, happening to all reduplicating verbs but a few Anglian exceptions in which the infixation was pre-empted by syncope
2. That syncope, typical of the Anglian area, occurred in all *ez*-forms of NWG, except for some ON verba pura and some OHG preterites
3. The compensatory lengthening $ez > \bar{e}_2$ is also common to all NWG material, with some Anglian exceptions in which it appeared as $ez > eor$ before *d, t*

Bech also argues that the *r* in those preterital *r*-forms of ON, OHG and Anglian is not to be understood as a Gmc *r*, but rather as Gmc *z*, justifying this derivation with the \bar{e}_2 -preterites, whose \bar{e}_2 is the generalised *ez*-infix after contraction and compensatory lengthening¹⁰⁴, because Germanic *-er-* before a consonant never transforms in NWG \bar{e}_2 but always remains *r*, as for example in Gmc **bergan* > Got *bairgan*, ON *bjarga*, OE *beorzan*, OHG *bergan*¹⁰⁵.

Bech proves his *ez*-infixation by means of a detailed analysis of its behaviour in verba pura and impura. In the case of verba impura, he distinguishes three categories of verbs, based on stem vowels:

- The first category includes verbs with Gmc *ai*, *ǣ* in the present stem. Here the infixation of *ez* is quite visible, and the evolution he proposes follows the three steps seen above. Bech gives several examples of the type of **haitan* : **hezaitun* > **heztun* > *hē₂tun*, in which NWG \bar{e}_2 becomes *hē₂t* in ON, OE and OS but *hiaz* in OHG; and of the type **lǣtan* : **lezǣtun* > **leztun* > *lē₂tun*, which becomes ON, OE, OS *lē₂t*, OHG *liaz*. From these examples we see that, in OHG, the compensatory lengthening assumes the form of *ia* instead of typical \bar{e}_2
- The second category includes verbs with Gmc *a*, **blandan* : **blezandun* > **blezndun* > *blē₂ndun*, also clearly showing the *ez*-infixation. From these follows the final evolution in ON *blett*, *blendu*, OS *blend*. In the Nordic area, including ON and OS, the resulting \bar{e}_2 is shortened in a simple *e*, although it is also possible that this *e* results from the syncope of *ez* in complex clusters. In OE, the nature of the diphthong of the preterite is not clear. Bech deems it likely that the same shortening of $\bar{e} > e$ occurred in OE as in ON and OS, and that afterwards the resulting short *e* became a diphthong *eo*, because this allows the same interpretation of *eo* in OE *r*-less syncope and “normal” verbs¹⁰⁶

- Finally, the third category is that of verbs with Gmc *au*, *ō*, *ū*, where the rounded vowels *au*, *ō*, *ū* cannot be completely erased by syncopation, and leave a trace which Bech assumes to be a *w*, as in e.g., **hlaupan* : **hlezaupun* > **hlezwun* > **hlēwpun*. The *z* is possibly lost because it is followed by two consonants, so that it may fade into *ew*, which coincides with Gmc *eu*¹⁰⁷. Then, according to Bech, *ew* evolves as *jō* in ON (*hljōp*), *ēo* in OE (*hlēop*), *io* in OS and OHG (respectively *hliop* and *liof*)¹⁰⁸

The reduplicating Gmc **verba pura** became weak in OS and OHG. On the contrary, they were preserved as strong verbs in ON and OE, where, however, their preterite formation became uniform, depending only on the initial consonant instead of the present vocalism. In fact, Bech observes that in ON the preterite is built with the initial consonant(s) plus *-er-* plus the same ending as for weak preterite after its dental consonant, whereas in OE it is built with initial consonant plus *-eow-* plus normal strong endings (see table 9 below).

Ind. Sg. 1. <i>s-er-a</i>	Ind. Sg. 1. <i>s-ēow</i>
2. <i>s-er-ir</i>	2. <i>s-ēow-e</i>
3. <i>s-er-i</i>	3. <i>s-ēow</i>
Pl. 1. <i>s-er-um</i>	Pl. <i>s-ēow-on</i>
2. <i>s-er-up</i>	Opt. Sg. <i>s-ēow-e</i>
3. <i>s-er-u</i>	Pl. <i>s-ēow-en</i>
Opt. 3. <i>s-er-i</i>	

Table 9: ON *er*-infixation compared to OE *-eow*-infixation (Edited from Bech 1969:34. Left: ON; right: OE.)

Now Bech proceeds to show that the infixation of *-er-* or respectively *-eow-* is ultimately the evolution of the standard infix *-ez-*¹⁰⁹. First, he observes that, contrary to what happens to *verba impura*, the present and preterite of *verbum purum* **sēan* : **sezō* only have a common initial consonant but their vowels are different, and that this verb forms the preterite by adding *-ezō-* to the initial consonant of the stem. He moreover observes that all *verba pura*, either containing a stem vowel *ā*, or *ō*, or *ū*, have the same preterite inflection because they are all modelled on **sēan* : **sezō*, and therefore explaining this verb is enough to analogically explain all the above *verba pura*¹¹⁰. Bech reasons that, after the *ez*-infixation and the syncope, the stem vowel leaves a remnant *w* as mentioned above, and he therefore expects the evolution illustrated in the table 10¹¹¹:

Ind. Pl. 1. <i>*sezōum</i> > <i>*sezwum</i>
2. <i>*sezōud</i> > <i>*sezwud</i>
3. <i>*sezōun</i> > <i>*sezwun</i>
Opt. Sg. 3. <i>*sezōī</i> > <i>*sezwī</i>
Pl. 3. <i>*sezōīn</i> > <i>*sezwīn</i>

Table 10: Remnant *-w-* after *ez*-infixation and syncope (from Bech 1969:35)

Now, this *w* standing between consonant and vowel is analogous to the Gmc verbs whose stem ends in consonant plus *w*, which in NWG are known to lose their *w* (e.g., PIE **sezwun* : **sungwun* >

PGmc *sungwun* > ON *sungu*, OE *sunzon*, OS, OHG *sungun*). Bech then supposes that a similar loss happens to preterites of *verba pura*. At this point, there are two possibilities:

(1) *w* becomes syncopated, leaving behind the *z*, which will then evolve into *r* through rhotacism, as seemingly happens in ON (table 11):

Ind. Pl. 1.	<i>*sezwum</i>	>	<i>*sezum</i>	>	<i>serum</i>
2.	<i>*sezwud</i>	>	<i>*sezud</i>	>	<i>seruþ</i>
3.	<i>*sezwun</i>	>	<i>*sezun</i>	>	<i>seru</i>
Opt. Sg. 3.	<i>*sezwī</i>	>	<i>*sezī</i>	>	<i>serī</i>
Pl. 3.	<i>*sezwīn</i>	>	<i>*sezīn</i>	>	<i>serī</i>

Table 11: Rhotacism of *z* > *r* after syncopation of the remnant *-w-* (from Bech 1969:36)

(2) the development *ez* > \bar{e}_2 happens in a stage preceding that of the syncopation of *z*, so that *w* becomes intervocalic and thus remains as it is, as seemingly happens in OE (table 12):

Ind. Pl.	<i>*sezwun</i>	>	<i>*sēwun</i>	>	<i>sēowon</i>
Opt. Sg.	<i>*sezwī</i>	>	<i>*sēwī</i>	>	<i>sēowe</i>
Pl.	<i>*sezwīn</i>	>	<i>*sēwīn</i>	>	<i>sēowen</i>

Table 12: Development *ez* > \bar{e}_2 preceding *z*-syncopation (from Bech 1969:37)

Bech proposes that the *ez*-innovation takes place before the establishing of weak preterites¹¹², based on his previous work on weak preterites “*Die Entstehung des schwachen Präteritums*” (which discusses the possibility that some weak verbs such as Gmc **dān*, WestGmc **dōn*, originally formed their preterite through a process closely resembling reduplication, e.g., 1st plural pres. *doedum*, 1st plural pret. *dedoedum*).

CONNOLLY, 1979

In his “ *\bar{e}_2 and the laryngeal theory*” (1979), Connolly investigates the origin of \bar{e}_2 , with special reference to the 1952 work by Lehmann, with whom he also disagrees on the explanation of the strong verbs of class VII. In the part of his paper that interests us the most, Connolly observing that \bar{e}_2 is commonly found in preterites of class VII but not as much elsewhere in the languages and proposes that its origin might not be the same as that of the \bar{e}_2 found for example in nouns and adjectives, but rather something else specific to class VII¹¹³.

Connolly rejects the idea that \bar{e}_2 can be a product of contraction¹¹⁴ because, in his words, “*it violates all known Germanic sound laws governing the loss of medial vowels and the simplification of consonant clusters*” (Connolly 1979:2). As an example, Connolly considers the OHG verbs with *ia* in the preterite, which Grimm derives directly from Gothic reduplicated forms through contraction (e.g., *hialt*, *miaz*). In Connolly’s opinion, those verbs cannot follow this evolution. Connolly thinks, with Scherer (1873:296 ff.), that the reduplicated vowel in Gothic (e.g., *ai* in *haihald*) was *aí* [e] < PIE *e* rather than the diphthong *ái* posited by Grimm, and the product of contraction of *aí* [e] could

not have been *ia*, which besides is found only in OHG and (sparsely) in OS. The contraction of *ai* yielded in fact \bar{e}_2 , which is attested as \hat{e} in the most remote instances of OHG. Therefore, the *ia* found in those verbs must have followed a different evolutionary process. In fact, he accepts Scherer's development¹¹⁵ **seslēip* > **seslaf* > **slēlaf* > **slēlf* (**slerf*) > **slēf* > OHG *sliaf* "slept"¹¹⁶. Therefore, OHG *ia* verbs cannot descend directly from Gothic through contraction¹¹⁷.

Connolly then scrutinises the possible derivation of \bar{e}_2 from IE $\bar{e}i$ proposed by Jellinek 1891, Wood 1895, and Brugmann 1896. The central idea, when applied to class VII of NWG preterites, is that \bar{e}_2 is a reflex from an IE ablaut $\bar{e}i$ which could be found in an old aorist or imperfect¹¹⁸. Although this theory used to seem almost indisputable, the laryngeal theory disproved it¹¹⁹, because suitable (i.e., *e*-grade) aorists with PGmc /eXi/¹²⁰ < IE /eEi/, although not impossible, should have created reflexes in Gothic too (e.g., yielding the non-existent **het* instead of the attested *haiháit*). Besides, *e*-grade aorists from non-laryngeal verbs (i.e., not containing /eXi/) cannot be demonstrated¹²¹.

Connolly praises Coetsem's theory for being the first to establish a link between \bar{e}_2 and the lowering of *i* to *e*¹²², which is necessary to explain \bar{e}_2 itself. Coetsem proposes a possible Gmc innovation for the origin of \bar{e}_2 , and therefore for the behaviour of class VII¹²³, explaining class VII preterites with *e*-grade by means of analogical development, to contrast the *a*-grade of the present. As an example of Coetsem's process, Connolly offers PGmc **haitan* : **hehaita* "call", whose preterite analogically evolved in **heita*. The problem is that Coetsem requires that both the inherited and the new analogical *ei* developed to \bar{i} before high vowels, whereas before low vowels they developed to \bar{e}_2 – i.e., the development of this *ei* underwent an *a*-umlaut (*ei* > \bar{e}_2). Connolly cannot accept this explanation because it had been shown that *a*-umlaut of *i* to *e* is not allowed in PGmc¹²⁴, and attributes this lowering to a laryngeal in the PIE parent instead¹²⁵, in the form of IE *Xi* > OHG *e*¹²⁶.

Connolly focuses on Lehmann's laryngeal explanation of \bar{e}_2 as an IE development from *eXi* > *ei* and *eXu* (notably *eAu*¹²⁷) > *eu*¹²⁸. He disagrees with Lehmann's interpretation of the OHG preterites subclass of class VII verbs which contain *al/an* in the present. Those preterites contain \bar{e}_2 , which Lehmann considers as a natural development – but Connolly objects that then we should not find \bar{e}_2 almost only in OHG, as in fact happens. In other words, if the \bar{e}_2 of e.g., OHG *hialt*, *spian* were a natural development, we should explain how and why it was almost completely deleted in *al/an* verbs of all other Gmc languages, contrary to what happened to the *ai*- and \bar{e}_1 -verbs where it was retained – and Connolly finds this deletion "highly unlikely"¹²⁹. In fact, other NWG languages preferred different forms (such as OE *heold*, ON *helt*, and so on), which do not show \bar{e}_2 ¹³⁰.

Connolly also criticises the similar treatment of *au* verbs, based on the fact that Lehmann, in agreement with Prokosch, posits that the verbal roots of the present of class VII must contain a

reduced grade vowel (that is, ə)¹³¹, while the preterite in NWG contains a normal long e-grade. For example, OHG *stōzan* < PGmc **staut-* < PIE **staud-*, whereas the preterite is OHG *sterōz* < PGmc **stēut-* < PIE *stēud-*) – which, in laryngeal terms, is an alternation between /st_eXwd-/ and /steXwd-/. Connolly finds no evidence for a reduced grade in the present root of *ai* and *au* verbs, and thus assumes for them the normal grade *e* (*e*-grade), typical of most Gmc presents¹³².

Connolly observes that the \bar{e}_2 occurrences examined by Lehmann happen in words whose equivalents in non-Gmc languages probably contained an IE laryngeal. The problem is, according to Connolly, that Lehmann’s use of /eXy/ and /eXu/ without specifying the laryngeal obfuscates the fact that IE /e/ was possibly subject to *a*-colouring when the following laryngeal was /x, h/ (which Lehmann denotes both with A, while Connolly prefers A₁ and A₂)¹³³.

Lehmann explains the presence of *-r-* in *steroz* by assuming that its origin is a PIE /eXw/ [eXu]. He however accepts that OHG *stōzan* (also written as *stōzan*, “push”) reflects PIE **-/steA-/* plus /w/ and /d/ determinatives¹³⁴. Here, the laryngeal A did not colour the preceding *e*, which in fact evolved in OHG \bar{o} . On the other hand, Lehmann clearly states¹³⁵ that A has the effect of changing the adjacent vowel towards an [a] sound – but this did not happen in this case. Connolly therefore considers Lehmann’s argument self-contradictory.

Connolly then deals with the problem of the origin of OHG *stioz* (pret. of *stōzan*) and *-steroz* (past participle of *stōzan*) and its equivalent OS *stōtan* : *steot*¹³⁶, both of which show a PGmc *eu* or *eXu* that cannot derive from IE *eAu*¹³⁷ because the attested forms show no sign of *a*-colouring. Connolly refuses Lehmann’s reconstructed forms as IE **[steAud-]* because, if the laryngeal was preserved in PGmc as posited by Lehmann, we should see the development as pre-PIE **/steAwd-/* > PIE **/staAwd-/*, both realised as [staAud-]. Hence, [staAud-] should yield PG **staXut-* > **staut-* > OHG **stōz-*, which is different from the attested form, *stioz*. In Connolly’s opinion, Lehmann’s derivation cannot justify the existence of IE **[steXud-]*, and thus its PGmc derivation **steXut-* > *-steroz*, *stioz*¹³⁸.

Connolly also observes that most Gmc class VII verbs with present tenses in *al/an* (along with others in *ai*¹³⁹, *au*, *ar*) show traces of PIE roots with a laryngeal A₁ or A₂. For these verbs, Connolly criticises Lehmann’s assumption (in accordance with the Brugmann-Wood theory) of a derivation from IE aorists with [e] – in fact, those aorists are impossible¹⁴⁰ because the laryngeal should have coloured the preceding vowel towards [a] (in compliance with Lehmann 1952:98). However, some *al/an* verbs seem to show an IE *o*-grade vocalism and no laryngeal *a*-coloration (e.g., OHG *gangan* < **ghongh-*). Connolly writes that an *e*-grade aorist containing a laryngeal is possible, but he cannot see why this should not have spread also to Gothic (e.g., > **het*, **lek*) instead of the attested reduplicated forms (*haiháit*, *laíláik*). In verbs that did not contain laryngeals, *e*-grade aorists are not

impossible, but are not attested in Gmc¹⁴¹. In conclusion, for the class VII verbs with Gmc *a*-vocalism in the present, Connolly rejects Lehmann's claim that their preterites may contain an inherited IE *e*¹⁴².

Having ruled out the derivation of PGmc **steXut-* from PIE **[steXud-]*, as seen above, Connolly nonetheless acknowledges that a Gmc **steXut-* must be assumed to be able to derive OHG *stioz* and *-steroz*. Because of the *a*-colouring, Connolly believes that both the IE *o*-grade (**stoA₁ud-*) and *e*-grade (**steA₁ud-*) should evolve in PGmc **staXut-*. Moreover, the *zero*-grade *A₁u* should evolve in PGmc (*a*)*Xu* > *u*, *o*¹⁴³ (e.g., it became *o* in PGmc **staXut* > PGmc **stautanq* 'knock' > OHG *stōzan* > OHG *erstuzzen* 'shy away'¹⁴⁴)¹⁴⁵. Now, we need an ablaut grade that could yield OHG *stioz*, OS *steot*, OE *hleop*, ON *hljóp*, and Connolly observes the only possible one is an *e*-grade¹⁴⁶, that is a PGmc *eu* or *eXu* – and, to justify Lehmann's proof for *-r-* in *steroz* (and other *r*-preterites) as a laryngeal development¹⁴⁷, we should accept the latter, i.e., *eXu*¹⁴⁸.

For the above reasons, this PGmc *eXu*, according to Connolly, cannot reflect IE [eXu]. However, it "merged with some reflex of IE *eu*" (Connolly 1979:13). In fact, the evolution of this vocalism seems to privilege only some of the possible outcomes of IE *eu*. For example, in OHG it results in *iu* or *io*, depending on the following vowel – but class VII preterite of *au*-verbs always have *io* (e.g., OHG *stiozum*, not **stiuzum*). In ON, IE *eu* gives *jó* before dental or *jú* before all other consonants (e.g., *bjóða* "offer" vs *fljúga* "fly"), while the preterites of *au*-verbs always have *jó* before any consonant (e.g., ON *hljóp* and not **hljúp*). Connolly reports that, although the attested evidence is quite scarce, the merging of PGmc *eu* and IE *ēu* (*eEu*) is generally accepted; and the conclusion is that such merging happened only after IE *eu* had split into PGmc *iu* and *eo/io*¹⁴⁹.

Having refused for PGmc *eXu* a reflection of IE *eAu*, Connolly accepts Coetsem's theory that this *eXu* is a Gmc innovation replacing the inherited reduplicating preterites. In his opinion, those preterites were modelled on the ablauting strong classes I-VI, of which I-V had an ablaut from *e*-grade to *a*-grade (< IE *o*-grade) in the preterite singular. Due to the predominance of *a* (i.e., *ai*, *au*, *al*, *an*, *ar*) in the present of class VII strong verbs, the preterite had to adopt *e* to maintain the symmetry of the "normal" Gmc ablaut *e* : *a* (< IE *e* : *o*), which thus became *a* : *e* by analogy¹⁵⁰.

With Coetsem, Connolly accepts also that we should not expect an *ē₂* in the preterites of class VII verbs containing *al/an* in the present tense (in fact, *ē₂* is systematically found only in OHG). However, he finds two exceptions, the first in the verbs *hialt* and *giang*, which he explains as analogical replacements for the older forms **helt* and *geng* (only the latter being attested). The second exception is formed by the class VII preterites for OHG *au*-verbs, which showed instead an *eu* that, despite being of analogical origin, evolved as if it was an inherited *eu*, becoming OHG *eo* in the singular (**steuda* > *steoda*, through *a*-umlaut of *u*) and *io* in the plural (**steudum* > **stiudum*). The

form in *io* was later generalised in the paradigm through analogical levelling¹⁵¹.

On the contrary, Connolly does not consider the explanation of analogical generalisation of \bar{e}_2 in *ai*-verbs satisfactory, because this explanation relies on the theory of *a*-umlaut of *i* to derive $ei > \bar{e}_2$, which Connolly claims to have discredited¹⁵²; and because it does not agree with the actual distribution of \bar{e}_2 – meaning that we should find it at least in sporadic cases in the other classes, at least in some NWG dialects¹⁵³, but this is not the case.

Connolly therefore amends Coetsem's theory by substituting the *a*-umlaut with an analogical replacement by means of laryngeal groups *eXi/eXu*. For this theory to be consistent, he assumes that those two groups must be both reconstructed. As an example of this analogical replacement, he proposes **he-haXit-*, **ske-skaXid-* > **heXit-*, **skeXid-* (**aXi > *eXi*). Later, *eXi* developed naturally into \bar{e}_2 ($eXi > ei$ or $eXe > ee > \bar{e}_2$), while IE *ei* evolved to Gmc \bar{i} ; similarly, analogical *eXu* became $i\bar{o}$, whereas inherited *eu* developed in OWF into $i\bar{a}$ or $i\bar{e}$ ^{154,155}. Thus, Connolly avoids any recourse to *a*-umlaut, because the laryngeal transformed the nearby *i* into \bar{i} and then usually into *e*.

From the absence of \bar{e}_2 in the present forms of class I verbs (which have no laryngeals, and whose \bar{i} reflects IE *ei*), Connolly deduces that IE *eEi* naturally evolved into \bar{i} in Gmc languages, and this allows him to locate this development in a temporal window. In fact, since the analogical *eXi* did not merge with the reflexes of IE *eEi* and *ei*, the development seems to be a late one, coming forth only after the developments of IE *eEi* and *ei*¹⁵⁶. On the other hand, the complete absence of \bar{e} -preterites in Gothic, together with “divergent development” of *eXu* (both inherited and analogical) in OWF, ON, and OHG, show that the above analogical forms appeared only in a post-PGmc phase, when the splitting into individual dialects had already begun. Nonetheless, these analogical forms must have appeared before the complete loss of intervocalic laryngeals – whose presence is necessary to Lehmann¹⁵⁷ to explain some *r*-preterites (e.g., OHG *-steroz*) by means of the laryngeal theory¹⁵⁸.

VOYLES, 1980

In his paper “Reduplicating verbs in North-West Germanic” (1980), Voyles proposes a point of view based on the shift of the stress as the main motive for the different developments of NWG and Gothic class VII. In broad terms, he demonstrates how in Gothic the stress always falls on the root rather than on the reduplicative prefix, as was generally accepted in earlier theories, and thus deduces that this must have been true for PGmc too. From this he derives his Gothic reduplication rule, and thence a first ‘*grammar fragment*’ (GF1), which should be valid for the preterite formation of PGmc and early NWG. Voyles posits for this stage of PGmc an accent shift that triggered the changes leading to the individual NWG languages. Based on data taken from OE, OHG, ON, OS, and OF, the rule GF1 then is modified step by step to match the actual evidence, until a general rule (GF6) is found

for NWG class VII. Hereafter we will follow this roadmap to illustrate the key points of Voyles' paper.

Voyles' starting point is Gothic, because of its peculiar behaviour among the Gmc languages. Here, in fact, the reduplication in class VII is completely regularised, allowing Voyles to formulate a rule whereby the creation of the past forms (except the participle) occurs through the prefixation of an /e/, preceded by the initial consonant (if there is a simple consonant) or initial consonant cluster (in which case sonorant consonants get elided)¹⁵⁹, for example, /grōan/ : /gegrō/¹⁶⁰.

A general Gothic rule, called the “**long-vowel lowering rule**”, states that long vowels that are not low (and possibly not high) become lowered when preceding any other vowel¹⁶¹ (semivowels such as /j/ are therefore excluded), e.g., /sē-þ/ [sēþ] *sēþ* “to seed” vs /sē-an/ [sēan] *saiān* “to sow”; /stō-jan/ [stōjan] “to judge” but /stō-ida/ [stōida], written as *stauida* in the preterite. Voyles observes that this long-vowel lowering rule was the only reason for Vennemann to posit that the stress falls on the reduplicated syllable, but this rule is not generally valid for reduplicated past forms. In particular *saisōum* [sesōum] “we sowed” is found instead of **saisauum* for [*sesōum]¹⁶², giving Voyles a reason to argue that the rule requires at least one additional condition, namely that it is specifically not valid for past forms of class VII strong verbs – as in verbs such as *lailōum* “we ridiculed” instead of **lailauum*; and *waiwōum* “they blew” instead of **waiwauum*; as well as in the above mentioned *saisōum*¹⁶³. Therefore, contrary to what Vennemann stated in 1971, such lowering cannot be purely phonological (i.e., only based on the phonological environment surrounding the long vowels in question). Moreover, Voyles accepts Schmierer's (1977:60) observation that if the reduplicated syllable were stressed and the root vowel were unstressed, this would lead to a single exception to a general **Gothic deletion rule** requiring that “*one or more sequential unstressed vowels delete when preceded by a morphemically independent unstressed vowel.*”¹⁶⁴. According to this rule, if for example the root vowel *ō* in *saisōum* were not stressed (which is the condition posited by Vennemann 1971, see also note 162), this would cause the deletion of *u*, yielding a form such as **saisōm*, which in fact does not occur. Thus, Voyles claims that Vennemann's conclusion about the stress position is not sufficiently justified¹⁶⁵. Voyles therefore concludes that the reduplicated forms in Gothic had their stress on the root and not on the reduplicating syllable and henceforth proposes that, even though immediately after Verner's law the Gmc stress pattern would still be that of IE, there is evidence that in pre-Gothic and PGmc the stress was on the root vowel of the reduplicating verbs. In fact, there are remnants of the application of Verner's Law in Gothic (e.g., *saizlēp*) where the stress pattern shows that reduplicating prefix was stressed neither in Gothic nor in an immediately Pre-Gmc period. Thus Voyles infers that the reduplicating prefix was not stressed in PGmc in general¹⁶⁶.

Based on this evidence, Voyles proposes his Grammar Fragment 1” (**GF1**), a first set of rules to

construct past forms (except participles) of strong class VII in PGmc and early NWG¹⁶⁷. Voyles cautions that his order is hypothetical, and that these rules could also be applied in a different order (e.g., rule 3, then rule 1, etc). We can explain them as follows:

1. The first rule (the same as for Gothic) describes the reduplicated preterite formation as the prefixation of an /e/ preceded by the initial consonant (in case of a simple consonant) or initial consonant cluster (from which any sonorant consonants get elided) of the root.
2. The second rule applies only in some cases, and implies that the voiceless consonants /f, þ, h, s/ become /b, d, g, z/ as a synchronic reflex of Verner's law. The only early attested occurrences come from the Gothic example *saizlēp*. Voyles thinks that by early NWG period (which is the period the GF1 refers to), Verner's law did not apply anymore to the initial consonants of the verbal roots¹⁶⁸, save for a few verbs beginning with *s* plus vowel or voiced consonant.
3. The third rule states that the stress cannot fall on vowels of a possible prefix (/bi/, /ga/, and so on) or of the reduplicative prefix; and, therefore, it falls on the first vowel of the verbal root.
4. The fourth rule is the ablaut rule of the root vowel from present to preterite tense. Voyles observes that this is mostly /ē/ to /ō/ and sometimes /ō/ to /ē/, and that this rule only applies to some of the verbs with root vowel /ē, ō/.

The above rules allow Voyles to derive some verbal preterites in Gmc or early NWG, e.g.:

1. /aikan/ “assert” : /eáik/
2. /haitan/ “command” : /heháit/
3. /haldan/ “hold” : /heháld/
4. /sēan/ “sow” : /sesǫ́/ (with ablaut); /sezǫ́/, /sesǣ/, /sezǣ/ (without ablaut)¹⁶⁹

Voyles then analyses those forms in detail for several NWG languages (OE, OHG, OS, ON, OF) in order to determine the relation between them and their later reflexes, with the aim to find the transformation rules¹⁷⁰. The first innovation is on the stress rule (rule 3 of GF1): the **stress moved** from the root vowel to the reduplicative syllable (stress shift, e.g., /éaik/, /héhait/, /héhlaup/, /sesō/, /sezō/). Voyles explains that such evolution was completely natural because, already in Gothic, the reduplicative prefixes were interpreted as an integral part of the verbal root and hence a shift of the stress on the first syllable was “only a matter of time”¹⁷¹. The rule 3 of GF1 is therefore modified by deleting the exception for reduplicating prefixes, giving **GF2**.

The stress shift had the immediate consequence that the speaker **reinterpreted the reduplicating prefix** as part of the verbal root, and the rest of the word as modifications of the root, giving **GF3**. The key point in this innovation is that, although the resulting verbal forms were still the same, the original reduplicative vowel was now reinterpreted as a root vowel. Voyles observes that Bech's 1969

infixation theory (according to which the preterite was built by infixing /-ez-/ or its evolution /-er-/ because of an early reinterpretation of the word material¹⁷²) posits precisely a case of early restructuring in this phase of the language evolution¹⁷³. The grammar fragment GF3¹⁷⁴ becomes:

1. The first rule specifies how reduplication is obtained when the root begins by a vowel plus a consonant or consonant cluster, and requires a simple prefixation of /e/
2. The second consists of three sub-rules applying when the root begins with at least one consonant:
 - 2a. Change the root vowel to /e/
 - 2b. Insert the root initial consonant(s) immediately after the root vowel
 - 2c. Insert the original root vowel of the present immediately after the consonant(s) infixed with 2b
3. If the preterite begins with a consonant cluster containing sonorant consonant(s) (i.e., m, n, l, r) immediately after obstruents (any non-sonorant consonant), delete the sonorant consonant(s)
4. If the consonant(s) inserted through rule 2b is /s/, potentially followed by /m, n, l, r/, then /s/ becomes /z/. This rule might be optional
5. The stress cannot fall on vowels of the (possible) prefix (/bi/, /ga/, and so on) and, therefore, it falls on the first vowel of the verbal root (this is the same rule of the stress shift, as seen in rule 3 of GF1, but without the exception of the reduplicative prefix)
6. If the present tense vowel (inserted with rule 2c) is /ē/, in some verbs it may be changed into /ō/

The following examples (table 13) illustrate the derivation of some verbs as obtained step by step by applying the rules of GF3. The transformed part is highlighted in bold; an underscore is used to mark the deletion; empty cells indicate that the rule does not apply to that verb and is skipped.

rule	/aik/ “to assert”	/slēp/ “to sleep”	/sē/ “to sow”
(1)	/eaik/	-	-
(2a)	-	/sl e p/	/s e /
(2b)	-	/sl e sl p /	/s e s/
(2c)	-	/sl e sl ē p/	/s e s ē /
(3)	-	/s_ e sl ē p/	-
(4)	-	/s e z l ē p /	/s e z ē /
(5)	/éaik/	/sézlēp/	/sézē /
(6)	-	-	/sé z ō/

Table 13: Derivation examples for GF3 (excerpted from Voyles 1980:106, see text).

The next step is the more or less gradual loss of the most obscure or unfamiliar rules, thus simplifying the grammar. For example, rule 2c in GF3 required the present tense root vowel to be reinserted after the past tense root vowel¹⁷⁵ and after the following consonant infixed by rule 2b, and therefore in unstressed position (e.g., in the above table, *sleslp* → *sleslēp*). This rule 2c was alien to NWG speakers and was therefore gradually dropped. Analogously, rule 3 was dropped, as it had no parallel in NWG. Rule 6 was also dropped, because it applied to the vowel inserted by the abandoned

rule 2c. With the drop of 2c, Voyles' derivation of *sezlēp*, *sezō* shown in the above table is not possible anymore (the other rules cannot account for the additional vowel), so Voyles also needs to change rule 4 accordingly. For the new version 4' of this rule, Voyles chooses to follow Bech 1969 in reinterpreting *-ez-* as an infix. The new rule therefore instructs to insert */-ez-/* after the initial consonant in verbs whose thematic initial sound is */s/* + optional */m, n, l, r/* + vowel + possibly other consonant(s)¹⁷⁶. With this new rule, the derivation becomes:

- */sē/* → (4') → */sezē/* → (5) → */séze/* → (6) → */sézō/*
- */slēp/* → (4') → */sezlēp/* → (5) → */sézlēp/*

With this last modification, Voyles obtains his new grammar fragment version **GF4**¹⁷⁷.

Now, in order to obtain his next grammar fragment (**GF5**), Voyles extends his analysis considering that each language has its own set of phonological rules, which determine whether a given association of sounds is acceptable to the speaker¹⁷⁸. The rules that produce 'unacceptable words' (i.e., words that do not comply with the above set of phonological rules) are either modified to become compatible with the NWG system, or eliminated (i.e., they gradually stop being applied)¹⁷⁹. Voyles therefore proceeds to revisit the rules of GF4 in order to check their compatibility with the early-NWG phonological rules (at that stage, early NWG could still be considered a single language as the individual NWG languages had not yet started differentiating). To illustrate this new development, Voyles considers the previous gradual drop of rule 2c from GF3 seen above, and proceeds to illustrate how this drop had as a consequence the deletion of rule 2b from GF4¹⁸⁰. Rule 2b required the morpheme-initial consonant(s) of the root to be inserted into the verbal root immediately after the root vowel, e.g., */slep/* → */sleslp/*¹⁸¹. However, after applying rule 2b, rule 2c would have inserted a vowel that made the preterite phonologically acceptable (*/sleslēp/*) – but since rule 2c does not apply anymore (it was dropped in the transition from GF3 to GF4), the form thus obtained shows an unacceptable sound cluster (**/sleslp/*). Rule 2b thus creates forms not complying with the phonological rules of NWG and is thus bound to be either modified or deleted.

An example¹⁸² can shed some light on this: the formation of the preterite of OE */spātan/* "spit", according to the rules of GF3, should consist of the following steps: starting from present tense */spāt/* → (2a) → */spet/* → (2b) → */spespt/* → (2c) → */spespēt/*¹⁸³. However, the step (2c) did not happen because the rule 2c had already been dropped and therefore, after rule 2b, the output of the process was */spespt/*. Now, in OE there was no morpheme structure containing a sequence of the */spespt/* type (i.e., */CVspt/*), and therefore this form would have been refused by the speakers. Nor existed the structure */CVpt/*, so the type */CVspt/* had to be reconducted to the nearest acceptable structure, which is */CVft/* (as in e.g., OE *loft* "air"). The consequence of this incompatibility is thus that the

unacceptable sequence is either modified or deleted, to the effect that rule 2b was gradually abandoned for unproductiveness. In the case of OE /spātan/, the unacceptable cluster in /spespt/ was not dropped, but rather reformulated in analogy to the structure /CVft/, becoming OE *speoft*¹⁸⁴.

At this point, GF4 had to be completely reworked since its rule system did not work anymore. Voyles hence reformulates its rules in the new grammar fragment **GF5**, which is now comprised of only three rules¹⁸⁵, each of them codifying the preterite formation for a specific type of verbs, based on the phonological structure of their root morpheme:

1. Rule 1 is the prefixation of /e/ before root vowel, and applies to verbs whose root starts with a vowel followed by consonant(s) except *s, sn, sm, sl, sr* (e.g., /aikan/ > /éaik/¹⁸⁶)
2. Rule 2 is the substitution of the root vowel with /e/ in case the verbal root structure is formed by consonant(s) (again, not *s, sn, sm, sl, sr*) + root vowel + any other consonant(s) (e.g., /haitan/ > /héait/¹⁸⁷)
3. Rule 3 is the infixation of /er/ (< /ez/) between the first consonant cluster and the root vowel in verbs with root structure *s, sn, sm, sl, sr* + root vowel + any other consonant(s)¹⁸⁸

These three rules coexisted and competed with one another, each of them being used for verbs for which it was not originally intended – with the consequence that each rule had to extend its domain of application to accommodate for the verbs to which it began to apply. For example, rule 1, which originally applied only to verbs starting with a vowel, extended its range to verbs whose root started with a consonant sequence, becoming **1'**¹⁸⁹. To show this transformation in the rules, Voyles uses the example of /ga-alþan/ “become old”¹⁹⁰, which is formed by prefixing /ga-/ to the verb /-alþan/. Now, this verb normally starts with a vowel, and therefore its preterite is constructed by means of the first rule – that is to say, /éalþ/. Therefore, /ga-alþan/ should give the present /ga-álþan/ > /gálþan/ and, by the first rule, the preterite /ga-éalþ/ > /géalþ/. Eventually, the /g/ of the prefix in /géalþ/ could be reinterpreted as part of the verbal root, so that the speaker could rethink the rule as applying also to verbs starting with a consonant¹⁹¹.

After this extension, the new rule yielded some past forms containing diphthongs /ea, eē, eō, eū/, which are not present in NWG phonology. For example, the rule produced (table 14)¹⁹²:

Inf.		Pret. (GF5, 1')
/aikan/	“assert”	pret. /éaik/
/blōtan/	“honour”	pret. /bléōt/
/būan/	“live”	pret. /béū/
/haitan/	“command”	pret. /héait/
/lāetan/	“let”	pret. /léēt/
/skraudan/	“cut”	pret. /skréaud/

Table 14: Products of rule 1' of GF5 (see text). Excerpted from list D3 in Voyles 1980:113-114. The *ā* in /lāetan/ is $\bar{e}_1 < IE /\bar{e}/$; and / \bar{e} / in /léēt/ is $\bar{e}_2 < IE \bar{e}i$ in stressed syllables (Voyles 1980:115).

It was therefore necessary to reformulate such diphthongs into acceptable ones, and Voyles observes that they should change as little as possible, to transform into the phonologically nearest forms already existing in the language¹⁹³. Thus /eō, eū/ are both reinterpreted as /eu/, which would be realised in different ways by the different NWG languages as /eo, eu, iu/. The diphthongs /eē, eā/ are both reinterpreted as /ē/ (i.e., \bar{e}_2) in some preterite forms; Voyles suggests that this may have been influenced by the fact that in /eā/, the *e* was stressed¹⁹⁴. This modifies the rules 1 and 2 to comply with phonological constraints. In particular, **rule 1'** now states that the original root vowel is replaced either with /ē/ (\bar{e}_2) when it is /a, ai, æ, ā/, or with /eu/ when it is /au, ō, ū/ (this will become rule 1 of GF6). After this change, the forms of the above examples became (table 15):

Inf.		Pret. (GF5, 1')	Pret. (GF5, 1'')
/aikan/	“assert”	pret. /éaik/	> /ēk/
/blōtan/	“honour”	pret. /bléōt/	> /bleut/
/būan/	“live”	pret. /béū/	> /beu/
/haitan/	“command”	pret. /héait/	> /hēt/
/lāetan/	“let”	pret. /léēt/	> /lēt/
/skraudan/	“cut”	pret. /skréaud/	> /skreud/

Table 15: Transformation of preterite derivation from rule 1' to 1'' of GF5 (see text). Excerpted from list D3 and D4 in Voyles 1980:113-117. The \bar{a} in /lāetan/ is $\bar{e}_1 < IE /ē/$; and /ē/ in /léēt/ is $\bar{e}_2 < IE \bar{e}_i$ in stressed syllables (Voyles 1980:115).

Now, there are verbs to which either the first or the second rule could apply – for example, applying respectively rules 1' and 2 to /haldan/, the result would be /héald/ > /hēld/ after rule 1', or /held/ after rule 2. Analogously, the result for /lāetan/ could be respectively /léēt/ > /lēt/ or /let/. As we can see, rule 1' could yield verbal roots containing a long vowel or diphthong followed by a consonant cluster. This structure was very unusual in NWG and in fact impossible in strong verbs¹⁹⁵. Therefore, the first rule tended to be used for verbs with a single consonant after the vowel (e.g., /lāetan/ : /léēt/ > /lēt/), whereas the second rule was preferred for verbs whose root ended with a consonant cluster (e.g., /haldan/ : /held/)¹⁹⁶. However, Voyles observes that the application of either rule 1' or 2 is not strictly conditioned by the root structure, but is, as said, a tendency. For example, the verb /staldan/, which contains a root consonant cluster, nonetheless followed rule 1', becoming in the preterite /stéald/ > /stēld/¹⁹⁷, even though we would expect it to follow rule 2 and become /steld/. With these new adjustments, Voyles obtains his final grammar fragment¹⁹⁸ (**GF6**):

- I. if the verbal root structure is formed by consonant(s) (except *s, sn, sm, sl, sr*) + root vowel + any other single consonant: if the present root vowel is /a, ai, æ/, it becomes /ē/ (i.e., \bar{e}_2) in the preterite; if the present root vowel is /au, ō, ū/, it becomes /eu/
- II. if the verbal root structure is formed by consonant(s) (again, not *s, sn, sm, sl, sr*) + root vowel +

any consonant cluster, then the root vowel becomes /e/. According to the specific phonological rules of each NWG language, the initial consonant(s) can be repeated after the (new) root vowel

III. if the verbal root structure is formed by *s, sn, sm, sl, sr* + root vowel + any other consonant(s), the preterite is formed by infixation of /er/ between the first consonant cluster and the root vowel (this rule remained the same as before)

Now these rules justify the preterite formation in OE, OHG, ON, OS, OF, at least in most cases. Voyles, however, suggests that some among these verbs were possibly still subject to ablaut, and in any case this situation is not completely stable yet¹⁹⁹.

Voyles conclusion is that verbs of class VII lost reduplication in NWG, while they retained it in Gothic, because of the stress shift: after the stress fell onto the prefix in NWG, the speakers started perceiving it as the verbal root. On the other hand, Gothic was not subjected to the same stress shift as NWG, and thus the reduplicating prefix never stopped being perceived as such. This phenomenon triggered a key transformation in NWG, which led to the subsequent grammar developments. It should be mentioned that Voyles's reconstruction is admittedly not intended as an exact chronological sequence – in fact, it only aims at illustrating the change processes towards the individual languages, while the real development could well have followed a different order of evolutionary steps²⁰⁰.

FULK, 1987

In his paper “*Reduplicating verbs and their development in Northwest Germanic*” (1987), Fulk proposes a theory for the development of class VII NWG preterites based on the present root vocalism rather than on an evolution of pre-existing reduplicated preterites²⁰¹. Hence, the preterite root for those verbs is the same as that of the present, but with the insertion of an *-e-* before the root vowel. Fulk's proposal is, in his words, “exceedingly simple” when compared with previous theories, but still can explain nearly all NWG preterites, the *r*-preterites of OHG, and the vocalism found in some OWF preterites of class VII (namely the presence of preterites containing *iō* instead of *iā* or *iē* as expected from PGmc **eu*). Moreover, it does not need to resort to analogical explanations²⁰², which require a specific grammatical structure or morphological rule to be used as a model²⁰³. Fulk believes that previous analogical explanations were modelled on inadequate morphological structures and ended up complicating the grammar instead of simplifying it, even though the simplification is the reason for the change in the first place²⁰⁴. Fulk accepts that the typical vocalism of the VII class of NWG is an NWG innovation, observing that the action of Verner's law on the older reduplicated forms surely resulted in difficult alternations, and therefore NWG languages, which regularly presented ablaut patterns in classes I to VI, renounced reduplication in the VII, whereas Gothic, which used reduplication, renounced Verner's law effects²⁰⁵. However, those NWG verbs in which Verner's Law

led to such difficult alternations needed simplification.

The path Fulk chooses is a process of morphological restructuring that can explain, besides class VII in general, also why in OE some preterites have two possible forms – for example, *heht* and *hēt*, *reord* and *rēd*, where the first of each pair is a relic reduplicated form, and the second originates from the restructuring process. He also assumes that the new structure should be built on a pre-existing model, and that such model would most probably be a simple reduplication, without consonantal alternations. This condition is satisfied in those reduplicating verbs starting with a vowel - for example, PGmc **aukan* (Got. *áukan*, ON *auka* “increase”), PGmc **auðan* (OE *eaden*, OS *ōdan* “granted”), PGmc **arjan* (OHG *erien* “plough”)²⁰⁶. To obtain the preterite in those verbs, an /e/ is added to the beginning of the word (e.g., **e-auk*, Got. *áukan* : *aiáuk* /eáuk/)²⁰⁷. Fulk believes that reduplicating verbs with vocalic initial are ideal models because, like the forms to be restructured, they prefix a syllable in the preterite and nonetheless they offer no phonological problems²⁰⁸.

After the accent shift and Verner’s law alternations, some preterite forms not beginning with vowel (e.g., **hezait*, **sezlǣp*, ...) had become too obscure to be easily predicted by the speakers. Therefore, they were not obtained through a rule anymore, but rather added into the vocabulary just as they were (i.e., they were ‘lexicalised’)²⁰⁹. Thus, in the VII class, only the preterites of verbs beginning with vowel, such as **aukan*, continued to be built through the *e*-prefixation rule, on the model of **e-auk*. As a consequence, in order to adapt to language change, the **preterite rule** could be reinterpreted to the simpler form “insert *e*- before the root vowel of the present stem” (Fulk 1987:164). In time, the previously lexicalised forms were gradually abandoned (or only scarce trace of them remained, e.g., OE *heht*, ON *sera*) in favour of preterite forms derived through the extension of the new rule (e.g., **h-e-ait*, **sl-e-ǣp*), thus making the preterites of class VII predictable²¹⁰. Fulk believes that this explanation works well with the vocalism of class VII preterites because that vocalism would be based on the present stem rather than on the modification of an older reduplicated form as proposed in previous theories.

Following Prokosch²¹¹, Fulk divides the verbs of class VII in five groups, based on the root structure (see table 16). The fifth group, which includes verbs whose root contains ‘*l*- and *n*-diphthongs’ (i.e., consonant clusters in *l*- and *r*-), is again subdivided in five subgroups (5a to 5e). The table shows examples from those groups with the respective preterites (where available). Fulk warns that some spellings in his tables might differ from the attested forms, because of the ample variety of preterite forms found in manuscripts²¹².

	Root type	OHG	OS	OE	ON	alternation	derivation
1	<i>ā</i> -monophth.	<i>rātan</i> : <i>riat</i> <i>lāzan</i> : <i>liaz</i>	<i>rādan</i> : <i>rēd</i> <i>lātan</i> : <i>lēt</i>	<i>rādan</i> : <i>rēd</i> <i>lātan</i> : <i>lēt</i>	<i>rāða</i> : <i>rēð</i> <i>lāta</i> : <i>lēt</i>	<i>ā</i> : <i>ē</i> ₂	<i>ē</i> ₂ < <i>e</i> + <i>ā</i>
2	<i>ō</i> -monophth.	<i>wuofan</i> : <i>wiof</i> <i>bluozan</i> : <i>blioz</i>	<i>wōpian</i> : <i>wiop</i> ---	<i>wēpan</i> : <i>wēop</i> <i>blōtan</i> : <i>blēot</i>	--- <i>blōta</i> : <i>blēt</i>	<i>ō</i> : <i>eu</i>	<i>eu</i> < <i>e</i> + <i>ō</i>
3	<i>i</i> -diphth.	<i>heizan</i> : <i>hiaz</i>	<i>hētan</i> : <i>hēt</i>	<i>hātan</i> : <i>hēt</i>	<i>heita</i> : <i>hét</i>	<i>ai</i> : <i>ē</i> ₂	<i>ē</i> ₂ < <i>e</i> + <i>ai</i>
4	<i>u</i> -diphth.	<i>hloufan</i> : <i>hliof</i> <i>houwan</i> : <i>hiow</i>	<i>hlōpan</i> : <i>hliop</i> <i>hauwan</i> : <i>heu</i>	<i>hlēapan</i> : <i>hlēop</i> <i>hēawan</i> : <i>hēow</i>	<i>hlaupa</i> : <i>hljóp</i> <i>hoggva</i> : <i>hjó</i>	<i>au</i> : <i>eu</i>	<i>eu</i> < <i>e</i> + <i>au</i>
5a		<i>haltan</i> : <i>hialt</i>	<i>haldan</i> : <i>held</i>	<i>healdan</i> : ^{held} _{heold}	<i>halda</i> : <i>helt</i>		
5b		<i>fallan</i>	<i>fallan</i>	<i>feallan</i> : <i>feoll</i>	<i>falla</i> : <i>féll</i>		
5c	<i>l, n</i> -diphth.	<i>gangan</i> : <i>giang</i>	<i>gangan</i> : <i>geng</i>	<i>gangan</i> : <i>gēong</i>	<i>ganga</i> : <i>gekk</i>		
5d		<i>spannan</i>	<i>spannan</i>	<i>spannan</i>	---		
5e		<i>fāhan</i> : ^{fīang} _{feng}	<i>fāhan</i> : <i>feng</i>	<i>fōn</i> : <i>feng</i>	<i>fá</i> : <i>fekk</i>		

Table 16: Subdivision of class VII verbs into categories according to root vocalism. (Preterites of group 5 verbs are from Prokosch 1939:180; except for *fallan* preterites, which are from Connolly 1979:3. Excerpted from tables 1, 2, 3 and text in: Fulk 1987:163-168.)

The first four groups show a remarkable consistency in the preterite vocalism, namely *ā* and *ai* both become *ē*₂ (group 1 and 3), whereas *ō* and *au* become *eu* (group 2 and 4). From this, Fulk deduces a generalised rule where *e* plus a front vowel (*ā*) or front diphthong (*ai*) gives *ē*₂; *e* plus back vowel (*ō*) or back diphthong (*au*) gives *eu*²¹³ (this *e* is that inserted by the reduplication rule). Fulk explains the exception of ON *blōta* : *blēt* with the fact that this verb is the only one in group 2 in ON and therefore is “undoubtedly analogical”²¹⁴. Fulk however warns that the derived NWG **eu* in groups 2 and 4 is probably an excessive simplification, because the diphthongs in these types, although usually assimilated with the reflexes of PGmc **eu*, in some cases must be explained in a different way. Fulk observes, citing van Helten²¹⁵, that PGmc **eu* normally develops in *iā* or *iē* in OWF, but some preterites of those groups show *iō* instead²¹⁶. He also adds, citing Connolly²¹⁷, that IE **eu* in ON can yield either *jó* (before dentals) or *jú*, as in the case of *bjóða*, *fljúga*²¹⁸. Fulk explains these anomalies claiming that the *e*-insertion yields not a diphthong but a sequence of two vowels that could naturally show a degree of separation (‘hiatus’), thus justifying a different development from PGmc **eu*²¹⁹.

Fulk observes that verbs of group 2 are difficult to understand if analysed in the light of Brugmann-Wood’s theory, because their present stem is apparently a monophthongal heavy base²²⁰, but their preterite shows diphthongs which in that theory should be explained either as analogical development or as outcome of an original long diphthong. Fulk finds the analogical view unconvincing because such a large development seems unjustified, and moreover this seems to bend the ablaut patterns just to satisfy the theory, which is unacceptable. As for the development from an original long diphthong (according to Lehmann’s explanation²²¹), Fulk observes that in this group there is no etymological evidence for diphthongal roots, and at least in one case there is definite evidence of monophthongal origin (namely OE *flōcan* : *flēoc*, OHG *fluochan* : *flioch* “clap, strike”, cognate to Greek *πλήγνυμι*, Latin *plangō*, suggesting IE **plāg-*)²²².

In Fulk's view, a table of preterites for NWG group 5 could hardly be built, because some preterite vocalisms are still debated or analogically explained. Therefore, he analyses separately each NWG language, focusing on the regular presence of \bar{e}_2 (found in OHG sources as *e*, *ea*, *ia*, *ie*)²²³. Fulk refuses the commonly accepted theory of NWG $\bar{e}_2 >$ **diphthongal** *ea* ($>$ *ia* in OHG), because he finds that the manuscript evidence does not grant the conclusion that *ea* is younger than \bar{e}_2 ²²⁴. From his analysis, he deduces that those preterites had a NWG **dissyllabic** **ea* derived from **e + a* (where the *e* is the result of *e*-insertion to build the preterite) without diphthongisation; and subsequently was reflected as $\bar{e}o$ in OE, while it merged with reflexes of ** \bar{e}_2* in other languages²²⁵.

The assumption of a dissyllabic **ea* helps Fulk explain the presence of the “intrusive *r*” in OHG *r*-preterites²²⁶, because in dissyllabic **ea* there must be some degree of hiatus in which it could be inserted, whereas this insertion would be impossible inside a diphthong, where there is no hiatus²²⁷. He rejects a possible origin of this *-r-* from reduplication and dissimilation (i.e., a sound becomes different from a neighbouring sound, e.g., *-screrot* from **skeraud* or **skezaud* $<$ **skeskrauda*²²⁸), because it is unprecedented in Gmc, nor can it result from analogical restructuring on the model of *kiscrerot*, since these verbal forms are too rare to be generalised as a model. Moreover, Fulk refuses Lehmann's 1952 view of a laryngeal origin because of insufficient sources – and anyway we should find such laryngeal reflexes also outside class VII. Besides, a laryngeal can never develop into a hiatus. A possible *r < w* would not be implausible in general in Gmc, but there is not enough data of *w* in class VII. Finally, there is also no analogical or etymological similarity to ON *sera*, *grera* to assume a connection. Observing that spellings like *eru*, *ero*, *iru* cannot have monosyllabic origins, Fulk deduces that their origin must have been dissyllabic since the very beginning²²⁹.

In conclusion, the theory of a hiatus in dissyllabic **ea* can explain the presence of an intrusive *-r-* as a hiatus-breaker in *r*-preterites of OHG. It can as well explain its inconsistency in the sources, since this *-r-* can only be found in the presence of the hiatus in a dissyllabic **ea*. On the contrary, if that *-r-* reflected PIE **s*, **r*, **H* (*H* is a PIE laryngeal), it should appear more consistently and regularly as a PIE reflex and not only in rare verbs of class VII²³⁰.

COETSEM, 1990

Coetsem's book “*Ablaut and Reduplication in the Germanic verb*” (1990) puts together two of his more recent publications. The first part of his book is based on “*Germanic Ablaut and its Development: A Contribution to the theory of Internal Inflection*” (1980)²³¹ and the second on “*The Development of the Germanic Reduplicating Class: Reanalysis and Competition in Morphological Change*” (1983)²³². We are especially interested in the second part, which treats the emergence of Coetsem's ‘*new a/e ablaut*’²³³, expanding and revisiting his previous theory of 1956.

Coetsem moves from Bech's²³⁴ theory, in which the development from reduplication to ablaut in class VII was greatly influenced by the speakers' reanalysis of the morphological material. However, despite agreeing with the reanalysis as the main mechanism, he takes distance from Bech's idea that the different formations happened in several subsequent stages. On the contrary, Coetsem believes that those formations were parallel and competing among themselves – and that only the “structurally more adequate” would survive²³⁵. Coetsem gives great importance to the accent transformation as one of the reasons for class VII development. He identifies two changes in the accent. The first is the transformation from a **non-dominating** to a **dominating prominence** – “*which is traditionally but improperly called a change from a pitch accent to a stress accent*”²³⁶. (Pitch accent is typical of PIE, whereas stress accent is typical of several modern European languages, among which German.) The second change was in the **location of the accent**, which was presumably free in PIE, whereas in PGmc it became fixed and located either on the initial or on the root syllable²³⁷.

Coetsem identifies three main building mechanisms for the NWG VII class preterites, namely the *r*-preterite formation; the OE contraction; and the new ablaut pattern. The last one, which Bech calls “normal type”, prevailed in the NWG area, while both the *r*-preterites and the OE contracted forms were too unusual and only left remnants. In some sporadic verbs, the present stem was the same as the preterite (ON *heita* : *heit*, *sveipa* : *sveip*, OE *gangan* : *gang*). The following table 17 shows the original basic form of Coetsem's new ablaut pattern, along with a few examples of its reflexes (Coetsem calls this pattern ‘*original*’ and ‘*basic*’ because it may have undergone subsequent developments, and anyway it may have presented possible exceptions)²³⁸.

Ablaut pattern	OHG	ON	OE
ai/ē ₁ : ē ₂	<i>heīzan</i> : <i>hieȝ</i>	<i>heita</i> : <i>hēt</i>	<i>hātan</i> : <i>hēt</i>
	<i>lāzan</i> : <i>lieȝ</i>	<i>lāta</i> : <i>hēt</i>	<i>lātan</i> (<i>lētan</i>) : <i>lēt</i>
au/ō : eo (eu)	(<i>h</i>) <i>loufan</i> : <i>liof</i>	<i>hlaupa</i> : <i>hliōp</i>	<i>hlēapan</i> : <i>hlēop</i>
	<i>wuofan</i> : <i>wiof</i>	---	<i>hwōpan</i> : <i>hwēop</i>
a : e (ē ₂)	<i>haltan</i> : <i>hielt</i>	<i>halda</i> : <i>helt</i>	<i>healdan</i> : <i>hēold</i>
	<i>fallan</i> : <i>fīel</i>	<i>falla</i> : <i>fell</i>	<i>fēallan</i> : <i>fēoll</i>

Table 17: Original basic form of the new ablaut pattern and examples of reflexes (data excerpted from: Coetsem 1990:74)

Coetsem posits that the fundamental accent modification concurred in obscuring the reduplication mechanism, causing the reduplicating verbs in NWG languages to be reanalysed. The reduplicated part of the verb, located at the initial part of the word, was reinterpreted as the new root of the verb, to which the remaining part of the original root, which could neither be perceived as root anymore nor as an affix or a morpheme in itself, was reinterpreted as “*specific non-root material*”²³⁹.

The new morphology therefore was composed by a dissyllabic root plus specific non-root

material. This was on the whole inadequate, both because strong verbs' roots are mostly monosyllabic; and because the non-root material was odd to the speaker. In Coetsem's view, this brought to a structural generalisation according to the language's principles of preserving only what is structurally relevant (i.e., strictly related to the matter at hand) and motivated (i.e., essential, and not superfluous). Thus, dissyllabic structure and specific non-root material were susceptible to loss. Since languages resist sudden changes, the process was likely gradual²⁴⁰. In this phase, there were therefore three parallel and competing preterite formations²⁴¹:

- *r*-preterites, found especially in OHG, analogically generalised only one form of specific non-root material, namely *-r-*
- OE contraction, which preserved a certain variety in the specific non-root material, at the same time reducing it to monosyllabic
- the new *a/e* ablaut, which applied a consistent structural reformation based on the model of the present tense. Its result was monosyllabic, and therefore well compatible with the language's principles, and did not contain odd specific non-root material. For these reasons, it became dominant over the other two methods as a preterite marker

In Coetsem's opinion, the reduplication mechanism was weakened by three factors: the $\tilde{a} - \tilde{o}$ merger; the accent modification; and, finally, Verner's law, which in this case Coetsem considers a reflex of an accent modification involving a specific segment of the word²⁴².

The $\tilde{a} - \tilde{o}$ merger, in Coetsem's view, precedes accent modification and is the basis for the rearrangement of verbs in his *a*-group²⁴³, which contains reduplicative verbs plus strong class VI (e.g., OHG *faran*, *graban*). This *a*-group is of Gmc origin (i.e., post-PIE) and is organised similarly (but with different structural properties) to the older *e*-group, which contains the strong classes I-VI²⁴⁴. In the *a*-group, Coetsem also includes the \bar{e} and \bar{a}/\bar{o} groups²⁴⁵ – of which the \bar{e} -group is peculiar in that it contains sporadic verbs showing both reduplication and ablaut (e.g., Gothic *letan* : *lailot*), while the \bar{a}/\bar{o} group contains verbs of the VI class. Reduplicating verbs were a minority and in time succumbed to the pressure of new ablaut in NWG²⁴⁶.

Coetsem also believes that the change in the nature of the accent (see page 41), as well as the PIE accent placement, made the action of Verner's law possible. Only after that did the accent in Gmc become fixed, which is a modification of the accent placement. The accent modification, both in nature and place, had a strong effect in the language, causing the reinterpretation of the root material²⁴⁷. The effects of Verner's law create distance between the **thematic** initial sound and the **absolute** initial sound of the preterite (e.g., **Xait-* : **Xegait*, **fall-* : **feball-*)²⁴⁸. Coetsem believes that at this stage Verner's alternation was automatic because it was conditioned only by phonological

(prosodic) rules. During the period of productiveness of Verner's law, the accent was still on the thematic initial sound, however the signs of Vernerisation in reduplicating verbs show that the thematic initial sound was not perceived as an absolute initial sound, since Verner's law does not apply to absolute initial sounds²⁴⁹.

When the accent shifted from the stem to the reduplicated element (thus getting positioned at the very beginning of the word²⁵⁰), the requirements for the automatic alternation (i.e., prosody) were no longer complied with. The product of Verner's law was therefore reanalysed as an ordinary part of the verb because the speaker did not recognise it as a Vernerised sound anymore. Verbs that were subjected to Verner's law and verbs that were not, were therefore reconducted together and, when the blending of reduplicative element and verbal root took place, both were treated the same way²⁵¹. The nature of the thematic initial sound now becomes obfuscated, with the result that the thematic initial sound itself is, in time, regularised by reanalysis. Coetsem concludes that the accent placement change is crucial in the blending of reduplicated element with preterite verbal root²⁵².

After the reanalysis described above, which was dominant in NWG languages, the preterite root had become dissyllabic and was then reinterpreted as distinct units²⁵³, namely:

- the “**accentually prominent part**”, which is the reduplicated element, now stressed, containing the /e/ of the reduplication²⁵⁴. The vocalism of the preterite initial sound is different from that of the present, and this allows the speaker to identify the verbal tense. Therefore, now the initial sound of the preterite is reinterpreted as verbal root and paralleled with the initial sound of the present (e.g., respectively *Xe-, *Xa-, as in *Xait- : *Xegait). This means that the initial sound of the preterite can be interpreted as obtained by the new a/e ablaut, in analogy to what happens in classes I-V with e/a ablaut.
- the “**accentually non-prominent part**” of the root, containing
 - the **specific non-root material**, which is the second syllable and is now different from the original root of the present
 - the **root-final part**, which is common to the root of the present

The reanalysis process is exemplified as follows (table 18)²⁵⁵:

Original reduplicated preterite				⇒	Coetsem's reinterpretation				
*laik	:	*le	+ laik-	Reanalysis	*laik	:	*le	+ la	+ ik-
*fall	:	*fe	+ ball		*fall	:	*fe	+ ba	+ ll-
*slēp	:	*se	+ zlēp		*slēp	:	*se	+ zle	+ ep
*blōt	:	*be	+ blōt		*blōt	:	*be	+ blo	+ ot
present root	:	reduplicative part with constant /e/	verb stem (possibly Vernerised)	⇒	present root	:	root initial part, with ablaut alternant /e/	specific non-root material	root final part, same as present

Table 18: Reanalysis examples (table excerpted from data in Coetsem 1990:87-88)

Coetsem now notes that the dissyllabic root structure and the specific non-root material are not acceptable markers for the preterite, and therefore they create a situation of instability, which leads to ‘primary readjustments’ in the NWG area, in order to deal with three factors:

- The rules distinguishing present from preterite: the *a/e* ablaut as a tense marker is, as a structural principle, both *relevant* and *motivated*²⁵⁶. On the contrary, the specific non-root material was found only in a minority of verbs. Therefore, it could not be a necessary element. Moreover, it was involved in the dissyllabic structure, and it could assume several different forms (e.g., *-ga-*, *-la-*, *-gla-*, *-sta-*, ...), which had no structural relevance. For these reasons, specific non-root material was susceptible to loss²⁵⁷.
- The relations between thematic and absolute initial sounds: the thematic initial sound was in origin bound to the absolute initial sound. After the reanalysis, however, the specific non-root material lost its status as part of the root, and the constraints which bound it to the absolute initial sound fell. It could therefore change or develop independently, while the absolute initial sound of the preterite remained dependent on the thematic initial sound of the present²⁵⁸.
- The dissyllabic root structure: this structure was highly unusual in Gmc and had no structural relevance. It was therefore naturally subjected to reduction. Since the prevailing accent was on the first syllable, the natural reduction would affect the second, unaccented syllable. The reduction mechanism is however unclear for diphthongs, which could undergo *assimilative contraction* (i.e., *ai > e*; *au > o*) or *total reduction* (e.g., *ai > i*, *au > u*)²⁵⁹.

In the primary readjustment, the *r*-preterites of OHG underwent only a partial reduction of the specific non-root material, whereas in OE the contraction implied a total reduction. OHG maintained dissyllabic forms (e.g., *bluozan* : *pleruzzun*, *stōzan* : *steroz*, *būan* : *biruuuis*). Coetsem observes that the reduced syllable was perceived as part of the root instead of the specific non-root material, and therefore the reduced vocalism could depend on the change in the root vocalism. Coetsem also notes that the total vocalism can be *e-u* (*pleruzzun*), *e-o* (*steroz*), *i-u* (*biruuuis*)²⁶⁰. On the contrary, the total

reduction of OE contracted forms turned them into monosyllabic, although they still included specific non-root material (e.g., *hātan* : *hēht*, *lācan* : *leolc*, *bēatan* : *beoftun*). Coetsem concludes that there are two primary readjustments, both fundamental evolutionary steps, which are the *change in the thematic initial sound*²⁶¹, and the *reduction of the second syllable*²⁶².

In conclusion, in response to the morphological reinterpretation in NWG, Coetsem finds three main strategies of readjustment as illustrated below²⁶³.

Generalisation of one of the preterite forms. This analogical spread can be found in ON verba pura, as *rōa* : *vera*, *sā* : *sera*, *grōa* : *grera*, *snūa* : *snera*, and so on. In OHG, the same mechanism created *r*-preterites by analogical generalisation of the infixed *r*, which kept the dissyllabic root structure as in *stōzan* : *sterōz*. Coetsem observes that there are at least two possible origins for this *r*, the first being an analogical spread from originally reduplicating verbs starting with *r* (e.g., *rōa* : *vera*), so that the thematic initial sound in the reduplicated preterite also started with *r*. A second possibility, which Coetsem deems better founded, is that *r* might develop from verbs starting with *s* through a process involving first a Vernerisation of *s* (*s* > *z*) and then rhotacism of this *z* (*z* > *R* > *r*)²⁶⁴. For this process, Coetsem gives the example of ON *sā* : *sera*, which also has a reconstructed form **sezō*, analogous to Got *saiān* : *saiso*. In fact, Coetsem thinks this analogical spread to be more likely (as it is better motivated) if the initial sound of the verb is different from the specific non-root material²⁶⁵. Coetsem also observes that he can offer only speculations about the reasons for the choice of *r* rather than another consonant (or consonant cluster). In this, he follows Bech (1969:20) in considering that a consonant which appears both in verba pura and impura is the most probable candidate, and therefore the model is likely to be a verb with initial *s* or possibly with initial *r* – however, for the reason seen above, *s* is more likely than *r* as a model²⁶⁶.

Preservation of the specific non-root material (the thematic initial sound in case of reduplicating verbs), which then leads to monosyllabic reduction. This mechanism accounts for OE (and Anglian) contracted forms, e.g., *hātan* : *heht*, *lācan* : *leolc*, which show evidence of contraction. In this structural readjusting process, the second (non-prominent) syllable of the preterite consistently disappears leaving a monosyllabic root, which however preserves part of the specific non-root material, thus showing an unmotivated deviation from the ideal structure. Contrary to the OHG *r*-preterites, which showed only partial reduction, the OE readjustment showed complete deletion of the second syllable. Coetsem observes that this could also be assumed as a diachronic second step rather than a primary readjustment²⁶⁷. Moreover, he observes that the distinction is possibly based on geographical factors. Finally, Coetsem suggests that the evidence of *r*-preterites in OE is so scarce that they may rather be considered contracted forms, so perhaps there were no OE *r*-preterites at all²⁶⁸.

Reformation of the preterite based on the form of the present. This gives a preterite form which is monosyllabic, does not contain specific non-root material, and complies with new ablaut patterns (*a/e*), with clear competitive advantage over the two previous strategies. Such new ablaut pattern contains $\bar{e}_2/oe/e$ in the preterite, as noted by Hirt 1932. The reason the new ablaut became dominant lies in the fact that its pattern preserves a “*primarily relevant difference (ablaut)*” (Coetsem 1990:107) which is very structurally compatible with the language. Therefore, once established, this new ablaut must have been productive and expanding, gradually supplanting other formations²⁶⁹.

Although it is not possible to know for certain the actual diffusion (e.g., regional, stylistic, possibly even social distribution) of each preterite formation in the pre-literary period, at the time of documentation both *r*-preterites and contraction are already declining in favour of the new ablaut²⁷⁰.

VENNEMANN, 1997

Vennemann’s paper “*The development of reduplicating verbs in Germanic*” (1997) is mostly based on his previous “*Zur Entwicklung der reduplizierenden Verben im Germanischen*” (1994), revisited in terms of paper structure and theories. Here we present the newer 1997 version (with only some references to Vennemann 1994). This important contribution to the field treats the problem of strong class VII from a phonological point of view, modernising and completing Bech’s *ez*-infixation theory (Bech 1969). The theory thus obtained is currently known as the Bech-Vennemann theory.

Vennemann observes that most attempts to solve the class VII problem involved morphological innovations, instead of resorting to the “*established methods of linguistic reconstructions*” (Vennemann 1997:298). His aim is to justify the NWG development of class VII in terms of natural sound change and analogy, with no recourse to strictly morphological explanations. In order to do that, he proposes a close examination of the phonological consequences of the accent shift, especially regarding its prosodic implications, which caused several sound changes that will make Bech’s generalisation possible²⁷¹. Vennemann proposes to explain the changes in the reduplicative verbal root in such a natural way that the real problem is why the same did not happen also in Gothic. Moreover, he proposes to prove that Gmc \bar{e}_2 only develops from ${}^+eR$ ²⁷² > \bar{e} before a consonant – a development that is common to all Gmc languages with the exception of OE and Gothic.

To posit his theory, Vennemann deals with a number of specific problems, the most important of which is, in Vennemann’s opinion, the one posed by “*muta cum liquida*”, by which Vennemann indicates a consonant cluster formed by an obstruent followed by a sonorant²⁷³.

The *muta cum liquida* problem. Gothic reduplicated preterites are simplified by a rule stating that a weak consonant (i.e., a consonant pronounced with less energy, in this case a **sonorant**) is deleted²⁷⁴

after a stronger consonant (i.e., one pronounced with more energy, here an **obstruent**). For example, the reduplicated preterites of *fraisan*, *grētan*, *slēpan*, are respectively *faifrais*, *gaiggrōt*, *saisslēp* (not: **fraisfrais*, **graiggrōt*, **slaisslēp*) because the *r* after *f* in the preterite of *fraisan*, as well as the *r* after *g* in the preterite of *grētan* and *l* after *s* in the preterite of *slēpan* are deleted. Vennemann attributes this constant deletion to PGmc, because a similar reduction also occurs in other early IE languages²⁷⁵.

Vennemann derives NWG reduplicated verbs from PGmc forms as shown in table 19, where the sonorant, originally in the root syllable, moves to the head slope²⁷⁶ of the reduplicative element.

	NWG pret.	PGmc pret.	Inf.	PGmc Inf.
ON	grét	< +ge-'grōt-	“wept”	(<i>grátan</i> < +grēitan-)
OE	slē2p	< +se-'zlē1p-	“slept”	(<i>slāpan</i> < +slē1pan-)
OE	flēoc	< +fe-'blōk-	“applauded”	(<i>flōcan</i> < +flōkan-)
OE	blēot	< +be-'blōt-	“sacrificed”	(<i>blōtan</i> < +blōtan-)
OE	hrēop	< +he-'grōp-	“shouted”	(<i>hrōpan</i> < +hrōpan-)
OE	hlēop	< +he-'glaup-	“ran”	(<i>hlāpan</i> < +hlaupan-)
ON	snera	< +se-'znōw-	“turned”	(<i>snúa</i> < +snōwan-)
ON	+bnera	< +be-'bnōw-	“rubbed”	(<i>gnúa</i> < +bnúa < +bnōwan-)
OHG	scriot, -screrot	< +ske-'skraud-	“cut”	(<i>scrōtan</i> < +skraudan-)

Table 19: Examples of sonorant (*m*, *n*, *l*, *r*) shift from the “obstruent + sonorant” structure of the reduplicated preterite verbal root into the reduplicative element. Involved obstruents and sonorants are highlighted in bold. PGmc reconstructed preterites explicitly show the accent on the verbal root (i.e., not on the first syllable) (Adapted from Vennemann 1997:301).

Vennemann’s innovative solution is **slope displacement**, a sound change in which a sonorant advances (i.e., it appears earlier in the word), moving from a disfavoured to a preferred position – Vennemann calls this process a “*liquid advancement*”. For example, the sonorant *r* after the obstruent *g* in **+ge-'grōt-** moves to the head slope of the first syllable, **+ge-'grōt-** > **+*g*regōt-**. Vennemann’s goal is to demonstrate that this liquid advancement is based on sound change (i.e., it is of phonological nature)²⁷⁷. In fact, liquid advancement has not previously been demonstrated as a possible sound change in other studies on reduplication. Vennemann goes back to his previous work (Vennemann 1988) in which he demonstrated this slope displacement in a set of Italian words as a movement of a sonorant to a “preferred position” in several Italian dialects. From that he concludes that slope displacement is, without doubt, a possible sound change, and thus such sound change may have happened in class VII of Germanic verbs too²⁷⁸. Vennemann proposes that the triggering reason for this phenomenon must be a “language improvement” towards a better compliance with phonological rules.

In all Italian examples, the slope displacement he finds is always an *advancement*. Similarly, in Gmc the slope displacement moves the sonorant from the root syllable to the reduplicated syllable (i.e., the first one), now stressed after the accent shift. Vennemann thinks that the reason for this language change lies in two Gmc prosodic rules²⁷⁹:

1. Minimal *foot*²⁸⁰ construction rule: a minimal foot contains either one heavy syllable or two syllables, of which the first is light. This rule has two corollaries:
 - a. Resolution rule: a light syllable can form a foot only together with the following syllable – this is called “resolution”
 - b. Accent rule: construct a word-initial stressed minimal foot
2. Heterosyllabication rule: a consonant cluster following a short, stressed vowel is divided so that the length of the stressed syllable is two *moras*²⁸¹

When the accent shifts, the reduplication syllable is light^{282,283} - it cannot form a foot by itself because of rule 1.a. To be able to receive the accent, it must form a foot together with the next (i.e., second) syllable – consequently, the syllable becomes light as the root gets reduced. The figure below (Vennemann 1997:319) illustrates an example of this process: the left side shows the original situation which, after the accent shift, becomes that on the right side²⁸⁴ (here, W is a word, F is a foot, \acute{S} is an accented foot, \check{S} is light syllable, \bar{S} is a heavy syllable²⁸⁵).

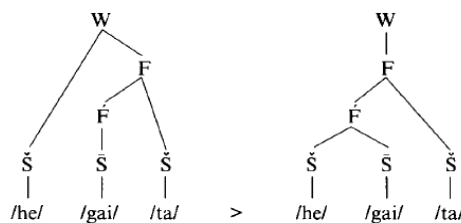


Figure 1: Foot analysis before and after the accent shift in hegaita (from: Vennemann 1997:319)

Now, to analyse the specific case of roots containing *muta cum liquida*, Vennemann uses the example of ⁺hlaupan : ⁺heglaupa. The starting point is the structure in the figure 2 on the right. Here, Vennemann highlights the stress on the central (root) syllable (/glau/), which forms a stressed foot with the following syllable (/pa/). With the accent shift, the first foot cannot be formed by the light syllable /he/ alone because of the “*minimal foot construction rule*”, and hence should be formed by /he+/glau/. However, this form violates the “*heterosyllabication rule*” (because the stressed syllable is

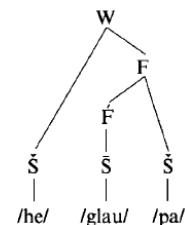


Figure 2: Foot analysis before the accent shift in heglaupa (from: Vennemann 1997:320)

only one *mora*), and therefore needs restructuring. The only alternative would be a foot /heg+/lau/, but the first syllable is not light anymore and cannot form a minimal foot with the following syllable because of the “*minimal foot construction rule*”²⁸⁶. On the other hand, in this case a foot made only by /heg/ is not acceptable, because this would change the prosody of the word, which would violate the principle of ‘*prosodic stability*’ stating that in a prosodic structure, the inner segments are more likely to change than the prosodic structure itself²⁸⁷ (in other words, a readjustment would sooner modify the syllables in a foot, for example adding or deleting a sound, than change the foot structure itself).

Vennemann therefore proposes a resegmentation, which leaves the prosody intact, modifying the segments as necessary. Vennemann considers several possible strategies. The first is *deletion and assimilation*, which reaches the goal but changes the word that may become unrecognisable. The second is *insertion of foreign material*²⁸⁸, and especially of a vowel between two consonants²⁸⁹. The third is *transposition of a sound*²⁹⁰ (often a consonant) *and sound substitution*, which can leave the material intact while also altering prosody, or change material leaving the prosody intact. In both cases, the word can remain easily recognisable²⁹¹. Vennemann observes that all these processes might concur, but in fact in Gmc preterites only the third strategy is found in the form of slope displacement, which alters neither the material nor the prosody²⁹². This strategy yields the final restructuring, illustrated in figure 3 below:

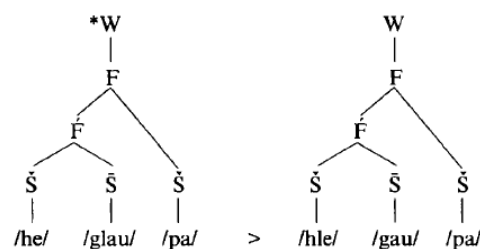


Figure 3: Foot analysis before and after the accent shift, with slope displacement, in *heglauþa*, see text (from: Vennemann 1997:323)

Now present and preterite have the same initial sequence (⁺*hlaupan* : ⁺*hlegaupa*) but reaching this uniformity in the paradigm is not the reason for the introduction of the sonorant into the first syllable (after the obscuring of reduplication) – it is rather just a side effect of slope displacement. The reason is that slopes are generally favoured in the first stressed position (Vennemann calls it ‘*universal pull*’) and that the sonorant was “pushed away” from the central position after the accent shift²⁹³. In Vennemann’s view, this side effect (the new uniformity) might have helped the expansion and productivity of slope displacement but is not sufficient to justify it as a morphological change (e.g., paradigmatic levelling), since none of Vennemann’s Italian examples are verbal forms (i.e., they have no paradigm), and this shows that the cause of slope displacement must be phonological and unconditioned from paradigmatic requirements²⁹⁴.

The sibilant-plus-plosive problem. This problem is connected to the next, i.e., the middle consonant problem. Vennemann’s theory requires that in preterites there must be a single middle consonant, which can evolve and eventually be deleted. This requirement is automatically satisfied when the verbal root begins with single consonant²⁹⁵, e.g., OE *hēȝt* < ⁺*he-* ‘*gait*, and is also satisfied in the case of *muta cum liquida* after the sonorant is moved to the first syllable of the preterite, as seen above. In the last example presented in table 19 at page 47 (*scriot*, *screrot*), the root shows a cluster containing a sibilant (*s*, *z*) and a plosive (*t*, *d*, *k*, *g*, *p*, *b*) consonants before the sonorant. Other

examples are OE *speoft* < ⁺*spe-* '*spait* "spat" and OHG *skiad* < ⁺*ske-* '*skaip* "divided" (not ***spes-pait*, ***skes-kaiþ*, because the PGmc reduplicative element is a light syllable, cf note 283, page 48). Assuming the *liquid advancement* is realised, the loss of the medial group of *sibilant* + *plosive* in the preterite must be explained. Vennemann's reconstruction is the following²⁹⁶:

OE *speoft* < ⁺*spepait* < ⁺*spespait* "spat"
 OHG *skiad* < ⁺*skekaip* < ⁺*skeskaip* "divided"
 OHG *scriot,-screrot* < ⁺*skrekaud-* < ⁺*skeskraud-* "cut"

Vennemann, with Osthoff (1882:540), bases these reconstructions on the analogous evolution of ⁺*spe-spond-ai* > Old Latin ⁺*spe-spond-ī* > Latin *spo-pond-ī*, claiming that his assumptions are justified because both Old Latin and Old Germanic had word initial accent²⁹⁷. In the case of sibilant plus plosive, a slope displacement cannot apply because neither sibilant nor plosive have a possible destination, and the sibilant must therefore be deleted. However, in some cases deletion and slope displacement can concur²⁹⁸, e.g.: /ske-/ /skrau-/ /da/ > /ske-/ /krau-/ /da/ > /skre-/ /kau-/ /da/.

The problem of the middle consonant. Assuming the liquid advancement (see page 47), there still is the question of how root head material is either lost or changed, for example into *r* as in the *r*-preterites²⁹⁹. Vennemann refers to the examples given in table 20, illustrating the development steps.

	1	2	3	4	5					
OE	⁺ <i>se-</i> ' <i>zlēip-</i>	>	⁺ <i>slezēip-</i>	=	⁺ <i>slezēip-</i>	>	⁺ <i>slezep-</i>	>	<i>slēzēp</i>	"slept"
ON	⁺ <i>ge-</i> ' <i>grōt-</i>	>	⁺ <i>gregōt-</i>	=	⁺ <i>gregōt-</i>	>	⁺ <i>greget-</i>	>	<i>grét</i>	"wept"
OE	⁺ <i>fe-</i> ' <i>blōk-</i>	>	⁺ <i>flebōk-</i>	=	⁺ <i>flebōk-</i>	>	⁺ <i>flebok-</i>	>	<i>flēoc</i>	"applauded"
OE	⁺ <i>be-</i> ' <i>blōt-</i>	>	⁺ <i>blebōt-</i>	=	⁺ <i>blebōt-</i>	>	⁺ <i>blebot-</i>	>	<i>blēot</i>	"sacrificed"
OE	⁺ <i>he-</i> ' <i>grōp-</i>	>	⁺ <i>hregōp-</i>	=	⁺ <i>hregōp-</i>	>	⁺ <i>hregop-</i>	>	<i>hrēop</i>	"shouted"
OE	⁺ <i>he-</i> ' <i>gait-</i>	>	⁺ <i>hegait-</i>	=	⁺ <i>hegait-</i>	>	⁺ <i>hegit-</i>	>	<i>hēt (hēzt)</i>	"was named"
OE	⁺ <i>spe-</i> ' <i>spait</i>	>	⁺ <i>spespait</i>	>	⁺ <i>spepait</i>	>	⁺ <i>sepit</i>	>	<i>speoft</i>	"spat"
OHG	⁺ <i>ske-</i> ' <i>skaip</i>	>	⁺ <i>skeskaip</i>	>	⁺ <i>skekaip</i>	>	⁺ <i>skekiþ</i>	>	<i>skiad</i>	"divided"
OE	⁺ <i>he-</i> ' <i>glaup-</i>	>	⁺ <i>hlegaup-</i>	=	⁺ <i>hlegaup-</i>	>	⁺ <i>hlegup-</i>	>	<i>hlēop</i>	"ran"
OHG	⁺ <i>ske-</i> ' <i>skraud-</i>	>	⁺ <i>skreskaud-</i>	>	⁺ <i>skrekaud-</i>	>	⁺ <i>skrekud-</i>	>	<i>scriot,-screrot</i>	"cut"
ON	⁺ <i>se-</i> ' <i>zō</i>	=	⁺ <i>sezō</i>	=	⁺ <i>sezō</i>	>	⁺ <i>sezo</i>	>	<i>sera</i>	"sowed"
ON	⁺ <i>se-</i> ' <i>znōw-</i>	>	⁺ <i>snezōw-</i>	=	⁺ <i>snezōw-</i>	>	⁺ <i>snezo-</i>	>	<i>snera</i>	"turned"
ON	⁺ <i>be-</i> ' <i>bnōw-</i>	>	⁺ <i>bnebōw-</i>	=	⁺ <i>bnebōw-</i>	>	⁺ <i>bnebo-</i>	>	<i>bnera</i>	"rubbed"

Table 20: Development stages for the middle consonant (see text). (1) PGmc reduplicated form (root sonorants highlighted). (2) After sonorant displacement and accent shift: part of the root material is moved to the head slope of absolute initial syllable (middle consonants highlighted). (3) After loss of sibilant in sibilant+plosive clusters (kernel 2nd vowel highlighted). (4) After kernel vowel shortening. (5) Final form (Adapted from Vennemann 1997:303-307).

Some authors hypothesised that those consonants were deleted leaving hiatuses³⁰⁰, but Vennemann cannot accept this assumption because there are no other cases of analogous loss in NWG languages³⁰¹. He therefore assumes with Lütke 1957 that, from the original form (step 1 in table above), after the accent shift (step 2) and the loss of a sibilant in sibilant+plosive clusters (step 3, which only affects verbs actually containing a sibilant+plosive cluster, e.g., ⁺*spespait* > ⁺*spepait*;

else it has no effect, marked with ‘=’. Preterites are nonetheless always indicated, in order to highlight the vowel(s) involved in the next step), the old root vocalism of the preterite was not only shortened, but also linked to the vocalism of the present tense root (step 4; e.g., ${}^+fleb\bar{o}k > {}^+flebok$; ${}^+spepait > {}^+spepit$; notably, ${}^+greg\bar{o}t- > {}^+greget-$ shows the change of the second vowel to e because it is linked to the root vowel of the present ${}^+gr\bar{e}it-$), so that the preterite now presents an eCV structure reminiscent of an ablaut (e.g., ${}^+flebok$, ${}^+spepit$), which Vennemann calls ‘kernel’. Vennemann calls such *kernel* an “apophthong”, i.e., an infix that substitutes an existing letter, and compares it to the ablaut vowels in the strong classes I-VI – but here the middle consonant C is not easily predictable by the speaker and could be any consonant except ${}^+f, p, h, h^w, s/$ (i.e., the consonants eligible for Verner’s law), while the following vowel is linked to that of the present tense root (e.g., ${}^+fallan \rightarrow {}^+feball$, ${}^+gr\bar{e}itan \rightarrow {}^+greget$, ${}^+spaitan \rightarrow {}^+spepit$, ${}^+haitan \rightarrow {}^+hegit$, ${}^+bl\bar{o}tan \rightarrow {}^+blebot$, ${}^+skraudan \rightarrow {}^+skrekud$; bold highlights the vowels giving origin to the first vowel in the preterite, together with the unpredictable middle consonant)³⁰². Vennemann calls this state of things “*inherently unstable*”³⁰³. Based on parallels with Polynesian languages, he proposes that the middle consonant must have been regularised for convenience of the speakers, the remaining question being which is the chosen consonant. Referring to Bech 1969³⁰⁴ he analyses the possible middle consonants and chooses ${}^+z$ as the only one that is: (a) never preserved as such in the middle of the word, (b) sometimes reflected as r , (c) linked with the origin of \bar{e}_2 , (d) prone to cause breaking of a preceding short e . The list of apophthongs that Vennemann proposes is thus³⁰⁵:

$${}^+a \rightarrow {}^+eza \quad {}^+\bar{e}_1 \rightarrow {}^+eze \quad {}^+ai \rightarrow {}^+ezi \quad {}^+\bar{o} \rightarrow {}^+ezo \quad {}^+au \rightarrow {}^+ezu$$

Vennemann observes that, among the reasons in favour of this generalisation, there is the fact that several verbs containing this consonant were very frequent, and in particular the verb “sleep” (slāp-a-: Got. *slēpan*, *saizlēp/saislēp*, *saizlēpun/saislēpun*; OHG *slāfan*, *sliaf*, *sliafun*, *slāfan*) which is both very common and also early acquired by children³⁰⁶.

The \bar{e}_2 problem. In all NWG languages but Anglian, some reduplicated preterites show the new vowel \bar{e}_2 (different from the IE inherited \bar{e}_1). This new vowel remained in Gothic, Frisian, and Anglian³⁰⁷, while it developed in \bar{a} in OE and in \bar{a} in Old Franconian, OS, OHG, and North Gmc languages. The only WGmc word (except in Anglian) in which this new \bar{e}_2 can be unequivocally derived is the Gothic noun *mizdō*³⁰⁸ (cf. OE *mēd*, Anglian *meord*, OS *mēda*, OHG *mēta*, *meata*, *miata* “pay, reward”). Vennemann’s starting point for the derivation of \bar{e}_2 is the known series of changes which interest ${}^+z$ in Runic ON: since the rhotacism ${}^+z > {}^+R$ is independent of its context, then also ${}^+iz > {}^+iR$ must be true. After the lowering ${}^+i > {}^+e$, this ${}^+iR$ must have figured as ${}^+eR$, which then, in this context, should have developed into \bar{e}_2 after the loss of the R when followed by consonant

(${}^+eRC > \bar{e}_2C$ – see below the reconstruction step by step of the preterite of ${}^+haitan$). The main drawback of this reconstruction is that it uses a mechanism demonstrated for Runic ON for a derivation through a word (Got. *mizdō*) that is not attested in ON³⁰⁹.

Vennemann thus posits that \bar{e}_2 is derived, after the generalisation of the middle consonant in ${}^+z$, by rhotacism followed by weakening of second syllable and eventual syncope of the weakened vowel. According to this process, the preterite of ${}^+haitan$ should undergo the following steps³¹⁰:

$${}^+{}'hegit \rightarrow {}^+{}'hezit \rightarrow {}^+{}'heRit \rightarrow {}^+{}'heRt \rightarrow {}^+{}'h\bar{e}_2t.$$

In the NWG languages where \bar{e}_2 is originated (hence, except in Anglian), this new phoneme took the place of the inherited \bar{e} in the vowel system; the \bar{e} , in turn, took the place of \bar{a} ³¹¹.

The *eo* problem. In NWG preterites of some reduplicating verbs a new diphthong *eo* is found, which is different from the inherited *eu*, as proved by the fact that it remains unaltered, whereas the inherited diphthong undergoes alternations *eu/eo*³¹². Vennemann explains this new *eo* as the result of breaking of short ${}^+e$ into short ${}^+ěo$ before a rhotacised ${}^+z > {}^+R$. This short ${}^+e$ develops differently in the single NWG languages, as it also depends on the phonetic properties of the second vowel of the infixed *kernel* (see page 51 ff.). Table 21 shows some examples of this process:

	OE	OHG	ON
1	${}^+haldan \rightarrow {}^+{}'hezald-$	${}^+hr\bar{o}p'an \rightarrow {}^+{}'hrezopf-$	${}^+hlaupan \rightarrow {}^+hlezup-$
2 >	${}^+haldan \rightarrow {}^+{}'heRald-$	${}^+hr\bar{o}p'an \rightarrow {}^+{}'hreRopf-$	${}^+hlaupan \rightarrow {}^+hleRup-$
3 >	${}^+h\bar{e}aldan \rightarrow {}^+{}'h\bar{e}oRald-$	${}^+hr\bar{o}p'an \rightarrow {}^+{}'hr\bar{e}oRopf-$	${}^+hlaupan \rightarrow {}^+hl\bar{e}oRup-$
4 >	${}^+h\bar{e}aldan \rightarrow {}^+{}'h\bar{e}oRld-$	${}^+hr\bar{o}p'an \rightarrow {}^+{}'hr\bar{e}oRp f-$	${}^+hlaupan \rightarrow {}^+hl\bar{e}oRp-$
5 >	$h\bar{e}aldan \rightarrow {}'h\bar{e}old-$	${}^+hr\bar{o}ffan \rightarrow {}^+{}'hr\bar{e}off-$	${}^+hlaupan \rightarrow {}^+hl\bar{e}op-$
6 >	$h\bar{e}aldan \rightarrow h\bar{e}old-$	$hruofan \rightarrow hriof-$	$hlaupa \rightarrow hlj\bar{o}p-$

Table 21: Examples of development of the Gmc *eo*. (1) Apophthong insertion ('infixation'). (2) Rhotacism (3) Breaking. (4) Deletion of the 2nd apophthongal vowel. (5) Loss of R. (6) Attested form. (Adapted from Vennemann 1997:311-312)

The \bar{e}_2/eo problem. In the various NWG languages, some reduplicating preterites may contain either *eo* or \bar{e}_2 . However, when the preterite of a verb contains *eo* in one NWG language, the equivalent verb in other NWG languages does not necessarily contain *eo* as well³¹³. Vennemann finds the reason for this in a different tendency to breaking in different languages. Moreover, in North Gmc unstressed *o* may merge with *a*, whereas in West Gmc it merges with *u*³¹⁴. This last claim may, in Vennemann's opinion, explain the breaking of ${}^+\bar{o}$ -verbs in OE, OHG, but not ON, e.g.³¹⁵:

$$\begin{array}{l} \text{OE} \quad {}^+bl\bar{o}tan- \rightarrow {}^+{}'blezot- \rightarrow {}^+{}'bleRut- \rightarrow {}^+{}'bl\bar{e}oRut- \rightarrow {}^+{}'bl\bar{e}ort- \rightarrow {}^+{}'bl\bar{e}ot- \\ \text{ON} \quad {}^+bl\bar{o}tan- \rightarrow {}^+{}'blezot- \rightarrow {}^+{}'blezat- \rightarrow {}^+{}'bleRat- \rightarrow {}^+{}'bleRt- \rightarrow {}^+{}'bl\bar{e}_2t- \rightarrow bl\bar{e}t- \end{array}$$

The problem of *r*-preterites. Both ON and OHG contain sets of verbs which show *r*-preterites (ON *sá* : *sera*, *gnúa* : *gnera*; OHG *bluozan* : *pleruzzun*, *scrōtan* : *screrot*). This is because when ${}^+z$

is rhotacised, and the resulting ${}^+R$ does not disappear, it is further changed into r (e.g., Got. *huzd*, modern English *hoard*)³¹⁶. Vennemann explains that in ON the situation is very simple, since whenever the derivation of \bar{e}_2 (as seen in the case of *mizdō*, see page 51) could not apply because there was no consonant following ${}^+R$, the rhotacised ${}^+z$ could not disappear and hence was preserved. This happened for example in *verba pura*, except in OE, where they had a word-final w that prevented the formation of the r -preterite³¹⁷, e.g.:

ON ${}^+s\bar{e}an \rightarrow {}^+'sezo > {}^+s\bar{a}an \rightarrow {}^+'seza > s\acute{a} \rightarrow sera$

OE ${}^+s\bar{e}an \rightarrow {}^+'sezo- > {}^+s\bar{a}wan \rightarrow {}^+'sezow- \rightarrow {}^+'seRow- \rightarrow {}^+'s\bar{e}oRow- \rightarrow {}^+'s\bar{e}oRw- > s\bar{a}wan \rightarrow s\bar{e}ow-$

In OHG, *verba pura* mostly became weak, so they developed no r -preterites. Only in a few cases the second *kernel* vowel was not syncopated as expected, giving origin to the so called OHG r -preterites (*pleruzzun*, *steroz*, *biruuis*, ...), whose r is therefore the natural evolution of ${}^+R$ ³¹⁸.

The Anglian problem. Among all NWG languages, only Anglian preserves remnants of reduplication (e.g., *hātan* : *heht*, *lācan* : *leolc*). The question here is why those verbs did not develop \bar{e}_2 . The Anglian problem is represented by a small number of anomalous/abnormal forms which exist in West Saxon together with their regular forms (table 22).

Infinitive	West Saxon	Anglian	Translation
<i>hait-a-</i>	<i>hēt</i>	<i>heht</i>	“be named”
<i>rād-a-</i>	<i>rēd</i>	<i>reord</i>	“advise”
<i>laik-a-</i>	<i>lēk</i>	<i>leolc</i>	“play”
<i>-drād-a-</i>	<i>ondrēd</i>	<i>ondreord, ondread</i>	“dread”
<i>lāt-a-</i>	<i>lēt</i>	<i>leort</i>	“let”
<i>baut-a-</i>	<i>bēot</i>	<i>beoftun, -beafton</i>	“beat”
<i>spait-a-</i>	-	<i>speoft, speaft</i>	“spit”

Table 22: Anglian verbs (Adapted from Vennemann 1997:324-325)

For those preterites, Vennemann considers two different evolutions:

- *heht*, *leolc*, *beoft*, *speoft* would derive from a syncopation of the root vowel that took place before the generalisation of ${}^+z$ (see page 50 ff) e.g., ${}^+'hegit- > {}^+'hegt- > heht$. This Anglian syncope is plausible because it did not change the prosodic properties of the preterite (e.g., $/{}^+'hegit/ > /{}^+'hext/$)³¹⁹
- *meord*, *-dreord*, *leort* can be explained with Vennemann’s proposed process (e.g., ${}^+'lelit > {}^+'lezit > {}^+'leRit > {}^+'leRt > +lert > leort$)
- *reord* can be explained in both ways³²⁰

Vennemann’s phonological approach explains why only Anglian preserved some reduplicated preterites, although ‘degenerated’. With Lutz 1991, Vennemann believes that Anglian underwent its own phonological developments before the generalisation of ${}^+z$, i.e., Anglian started changing before

all other NWG languages, including West Saxon. Therefore, the Anglian syncope operated before or possibly during ⁺z generalisation, and thus also on not yet generalised forms containing ⁺z. This is proved by the difference between:

Anglian: ⁺'*hegit-* > ⁺*hegt-* > *heht*

West Saxon: ⁺'*hegit-* > ⁺'*hezit-* > ⁺'*heRit-* > *heRt-* > *hē2t*

Vennemann observes that, on the contrary, an analogical formation of *heht* (posited by Fulk 1989:455) does not explain why only Anglian would show this phenomenon³²¹.

The Gothic problem. The problem is why Gothic, contrary to NWG languages, preserves reduplication reversing the effects of Verner's law. Since Vennemann assumes a word initial PGmc accent³²², in his view Gothic reduplicative element must have always been understood as a prefix (thus, never accented), so the accent shift could not affect it – and, in fact, Vennemann finds no evidence that the reduplicative prefix was ever accented in Gothic, nor are there signs of root reduction (otherwise evident in NWG). Moreover, the absence of shortening or weakening on the second syllable indicates that it was stressed³²³ (contrary to the NWG reduplicative element, not understood as a prefix and hence easily reanalysed as part of the verbal root³²⁴). He therefore proposes a PGmc diachronic evolution, as follows³²⁵:

1. When Verner's law became productive, ablaut superseded reduplication in strong classes I-VI. Differences in the preterite initial part were analogically levelled, based on their present tense form. Reduplication and Verner's law alternation only survived in the class VII, where however the alternation effects were not strong enough to impair transparency and reduplication system.
2. Then came the accent shift, but a new reduplicative element interpretation as verbal prefix obstructed the word initial accent rule. The root initial alternation was not phonological anymore but became morphophonemic – yet it remained transparent because the differences were small and systematic, so reduplication survived, and the accent remained on the root syllable³²⁶
3. Only at this point³²⁷, Vennemann posits the action of the PGmc consonant shift (Grimm's Law), which obfuscated the above alternation that became purely morphological (almost to the point of lexicalisation), threatening the reduplication mechanism

At this time, Gothic became isolated from the NWG languages and regularised and levelled class VII by reversing Verner's law effects and generalising reduplication. For this stage, Vennemann proposes a paradigmatic levelling of the beginning of verbal roots based on present tense in class VII where signs of Verner's alternation still persisted³²⁸.

In his paper “*From Reduplication to Ablaut: The Class VII Strong Verbs of Northwest Germanic*” (2007), Jasanoff proposes a theory explaining the ablauting verbs in NWG class VII by means of a ‘*new cluster rule*’ that simplifies consonant clusters based on phonotactical constraints from an *Optimality theory*³²⁹ point of view³³⁰. In Jasanoff’s view, all necessary methods (syncope, contraction, ablaut(s), compensatory lengthening, analogical generalisation, slope displacement, accent shift, ...) to solve the problem of NWG class VII are already available, and only need to be assembled in a working theory³³¹. His starting point is that PGmc reduplication was replaced in NWG by strong ablauting preterites because of partial opacity due to incomplete reduplication, Verner’s alternation, unfamiliar ablaut(s), and the difference between singular and plural forms in the preterite. Jasanoff accepts the common opinion that NWG reduplicated forms in time were not considered as such anymore and were therefore reanalysed as ‘*something else*’³³². For example, ON *sera*, *snera* were interpreted as ‘*anomalous dental preterites*’ in which *r* substituted for *ð*, whereas other verbs were reinterpreted as ablauting forms, and the rest of the VII class took them as model³³³. Jasanoff thinks that much attention has been given to the nature of \bar{e}_2 , however also **eu* in preterites needs to be explained, and in general an *e*-colouring process would be needed³³⁴. Jasanoff’s proposal contains some common NWG developments, including the mentioned new cluster rule, followed by a ‘*compression*’ process leading to material loss, and finally the creation and extension of an **a : *e* ablaut, possibly followed by evolutions specific to the individual subclasses of class VII, thus explaining the variety of forms.

To deduce his earliest improvement, Jasanoff observes the Gothic reduplication, in which a single rule (which is still the same as for PIE and PGmc) is used for all class VII, namely **CR- → *C...CR-* (e.g., *flokān : faiflok*)³³⁵. Comparing the behaviour of NWG to this Gothic rule, Jasanoff posits for NWG his “**new cluster rule**” as a set of three rules applying to different structures³³⁶:

- *CR- → *CR...R-* (ON *gróa : grera*, OE *on-drædan : on-dreord*, OHG *pluozzan : pleruzzun*)
- *sC- → *sC...z-* (OHG *stozan : steroz*)
- *sR- → *sR...z-* (ON *snúa : snera*)

From these three NWG construction rules, Jasanoff deduces a tendency of NWG not to alter the first part of the cluster, which he generalises in his key rule, stating that the preservation of the initial sound (‘**onset preservation**’) in the NWG preterite is the highest priority violable constraint in the preterite formation, from an Optimality theory point of view³³⁷.

Vennemann and Coetsem justified the loss of reduplication with the accent shift. To this, Jasanoff objects that accent shift was PGmc, hence Gothic *gaigrot*, **staistaut* had accent on the first syllable

just as ON *grera*, OHG *steroz*, but Gothic nonetheless preserved reduplication. Moreover, Old and Middle Irish, which had fixed initial accent, kept reduplication as well. Jasanoff concludes that the accent shift could not have been a deciding factor in the loss of reduplication³³⁸.

Jasanoff also believes that the existence of *r*-preterites both in ON and OHG is not due to a common origin (there are not enough common examples³³⁹), but rather to a good example of parallel evolution of two strictly related languages. Of the seven reduplicated preterites in Anglian dialects of OE³⁴⁰, three (*leort*, *dreord*, *reord*) had *-r-*, but with different origins (*leort* by dissimilation, *dreord* by new cluster rule, *reord* because of its initial *r-*) and therefore those *r* have no special meaning³⁴¹.

The ostensible syncope in OE reduplicates *heht*, *beoft* should attract attention because all seven OE reduplicates are monosyllabic. This cannot be due to phonological syncope because there was no pre-OE syncope rule to yield *le(o)lc(on)*, *be(o)ft(on)* < **lelaik/*lelikun*, **bebaut/*bebutun*, so this phenomenon must be analogical³⁴². Vennemann's process³⁴³ OE **heRit* > **heRt* > **hēt* is disproved by the NWG example **nazip* > **naRip*, which evolved in OHG *nerit*, OS *nerid*, OE *nereþ*, retaining the *i*³⁴⁴. Jasanoff posits an intermediate development stage between PGmc and OE in which³⁴⁵:

- monosyllabic plural stems of forms such as **rerd(un)*, **lelt(un)* were extended from plural to singular, e.g., the forms **rerd-*, **lelt-*, (based on the plural stem) replaced the original singular stems **rerōd*, **lelōt* (which had become dissyllabic through reduplication, see table 23 below)
- the pattern **rēdan* : **rerd(un)*³⁴⁶, **lētan* : **lelt(un)* was generalised to **haitan*, **bautan*, ... giving preterites **heht(un)*, **beft(un)*, ... instead of **heg(a)it*, **beb(a)ut* (with uncertain vocalism grade)

In this stage, the speakers reinterpreted the inherited plural preterites **rerd*, **lelt* (which are monosyllabic, and whose singular forms are **rerōd*, **lelōt*) as if showing an 'ejection' of the vowel of the second syllable (in our example, the ejection of *-ō-* gives sg. **rerōd* → sg. **rerd* on the model of the plural **rerd-*). This ejection of the vowel from the plural was then understood as a new general rule, which could subsequently be generalised to different verbs (e.g., **heg(a)it-*, **beb(a)ut-*, which are dissyllabic), thus creating new forms for the plural (respectively, **heht-*, **beft-*) to match the inherited **rerd-*, **lelt-*³⁴⁷. All those monosyllabic plural forms were then extended to the singular. Jasanoff names this process of monosyllabication '**compression**' and believes it to have preceded the pre-OE loss of contrast between singular and plural stems – but its temporal location, possibly to be found in the NWG period, is otherwise uncertain³⁴⁸ because of insufficient data³⁴⁹.

Positing his new cluster rule plus compression, and assuming PGmc **ē* > NWG **ā* for PGmc **lētan*, **redan* > NWG **lātan*, *rādan*, Jasanoff obtains a number of reconstructed forms, of which the following table 23 gives only some examples:

PGmc				NWG		
inf.	pret. sg	pret. pl		inf.	pret. sg	pret. pl
*lētan	*lelōt	*leltun	→	*lātan	*lelōt	*leltun
*rēdan	*rerōd	*rertun	→	*rādan	*rerōd	*rerdun
*haitan	*hegait	*heg(a)itun	→	*haitan	*hegait	*hehtun
*bautan	*bebaut	*beb(a)utun	→	*bautan	*bebaut	*beftun

Table 23: Jasanoff’s reconstruction based on new cluster rule + compression. The effects of compression are visible in the preterite plurals *hehtun, *beftun, where the loss of the second syllable vowel is caused by the analogical generalisation based on inherited *leltun, *rerdun. (Excerpted from table in Jasanoff 2007:266-267).

Jasanoff observes that most of his NWG forms are “as good as attested”, and that such forms as sg. *lelōt, pl. *leltun etc would not have been an insuperable obstacle for NWG speakers, because ablaut and Verner’s law were still in operation. Therefore, he needs to show why his process of new cluster rule plus compression nevertheless led to the rapid abandonment of reduplication³⁵⁰.

In total, there are 5 reduplication remnants in ON, 7 in OE, and 4 in OHG. Out of these 16, none contains *-a- + liquid/nasal in the present root. This cannot be a coincidence, because roots in *-aR- are the commonest phonological type in class VII³⁵¹. The reason lies in the “phonotactically impossible” consonant cluster that would result from compression in such verbs. Jasanoff reasons that verbs like *haldan, *fanhan in PGmc would have reduplicated preterites such as *hegald (sg.), *hegaldun or *hegldun > *heguldun (pl.) (according to uncertain ablaut). The compression of the plural, removing the second syllable vowel, would thus yield the impossible **hegldun, which would be simplified in favour of root transparency in *heldun in order to preserve the onset as seen above³⁵². Thus, the preterite became sg. *hegald, pl.*heldun, where only the singular clearly shows reduplication, which is on the contrary obfuscated in the plural, which now rather resembles an ablaut form (hald- : held-). In this unstable situation, speakers reinterpreted the preterite as an ablaut rather than as an exception, on the model of class VI, which showed identical stems for singular and plural. The originally reduplicated singular *hegald was in time replaced with *held, eliminating alternation between singular and plural, giving sg. *held, pl. *heldun. This phenomenon marks the beginning of a new preterite type constructed on an *a : *e ablaut, replacing reduplication. Jasanoff concludes that in OE, ON, and OHG, there were no reduplicated preterites of *hegald, *febanh, because reduplication had already been replaced with a:e ablauting forms (e-vocalism) in NWG itself³⁵³.

Then, Jasanoff deals with the question whether the preterite plural for *haldan is in fact the above posited *hēld(un), or rather the possible alternative *hē₂ld(un). He observes that generally OHG has *ē₂ (e.g., hialt) whereas OS, ON show *-ě- (OS held, ON helt). OE often shows *-eu- (e.g., hēold), but fōn “take”, hōn “hang” late forms are fēng, hēng. Fulk³⁵⁴ argues that short vowels, where found, can often be explained with (late) shortening, which is clearly possible in ON but not so clear for OHG. But long vowels too can be borrowed from types that allowed *-ē₂- right from the beginning³⁵⁵.

And however, even OE *heht*, whose *-e-* was etymologically short, in late OE had *-ē-*. Based on OHG *kenc*, *infenc*, *arhenc* (preterites of respectively OHG *gangan*, *fāhan*, *hāhan*³⁵⁶), whose *-e-* was etymologically short³⁵⁷, Jasanoff believes that it “*makes more sense*” to assume short *-e-* for class VII even though both long and short *e* are etymologically possible³⁵⁸.

So far, Jasanoff’s process produced an intermediate stage of development, in which some forms are fairly similar to the attested evidence. However, other forms still disagree with actual data and need further development. In fact, the “ablauting” reinterpretation of **haldan* : **hegald* and so on, left the verbs with different root vowels (PGmc **-au-*, **-ai-*, **-ē-*, **-ō-*) isolated. Jasanoff then proceeds to examine them in order to propose a specific solution for several class VII subclasses³⁵⁹.

In **verbs with **-au-*** (**hlaupan* : **hleup(un)*, **stautan* : **steut(un)*), Jasanoff posits a direct extension of the **a* : **e* ablaut, as **au* : **eu*³⁶⁰, because the diphthongs **au*, **eu* were analysed as **a+u* and **e+u*, but he also observes that OE *beoft* (< **batan*) and OHG *steroz*, *-skrerot* (< **stautan*, **skraudan*) show the possibility of remnants from intermediate stages of development. Therefore, this ablaut was possibly a NWG innovation, gradually extending from an initial subset of verbs, in times when dialects were beginning to diverge.

Jasanoff finds an analogy between his **a* : **e* ablaut pattern and Coetsem’s³⁶¹. However, Coetsem failed to explain the *a:e* ablaut origin; and the reason for his development **ei* > **ē₂* (parallel to the well-known **ei* > **ī*). Now, in plural forms, compression³⁶² generates **-e-*, subsequently generalised. Jasanoff observes that both the traditional explanation positing (long) **ē₁* > **ē₂*, and Coetsem’s lowering of **ei* to **ee* (= **ē₂*) before low vowels³⁶³ are, in his opinion, not sufficiently supported³⁶⁴. Jasanoff considers the previously ignored possibility of a ‘*second generation*’ **ei*, later than PIE **ei* > NWG **ī*, but early enough to give an *ē₂* reflex in NWG³⁶⁵. The process proposed by Jasanoff is then that, parallel to **hlaupan* : **hleup*, also **haitan* : **heit* was formed – but such parallelism was not apparent anymore after the diphthong **ei* became a monophthong (**heit* > **hē₂t*). In Jasanoff’s view, the introduction of the new diphthong **ei* is legitimate because, in fact, common. However, there is no way of knowing if this **ei* was actually new at the time when **heit* was introduced, nor to know the evolution of **ei*, be it the result of contraction or PIE inherited. Moreover, etymological long **ē₁* may have entered NWG in other ways (e.g., via shortening of long vowels in structures like *-ē₁C-*, in analogy to the shortening of long vowels before a resonant plus consonant cluster (Osthoff’s law)), producing **ei* (/ei/), after **ei* > **ī*, but before the creation of **heit*³⁶⁶.

For **verbs with **-ē-***, having previously obtained **lātan* : **lēt-*, now Jasanoff needs to explain its development into the NWG form **lātan* : **lē₁t(un)* (along with the similar NWG **slāpan* : **slē₁p(un)*, etc), for which he assumes PGmc **ē* = **ē₁* > NWG **ā* in the present root and **ē₂* in the preterite³⁶⁷. Those

forms show an ablaut pattern $*\bar{a} : *\bar{e}$ which is the long-vowel version of $*a : *e$ (**haldan : *held(un)*). Jasanoff assumes that $*\bar{e}_2$ already belonged to PGmc or early NWG system, and posits a proportion³⁶⁸:

(pres. stem) **haldan* : (pret.) **held(un)* = (pres. stem) **lātan* : (pret.) *X*

whose solution is $X = *lēt(un)$, i.e., $*lē_2t(un)$.

In ***-ō-** verbs, there is disagreement among the evidence available in different languages. In ON, the only \bar{o} -verb is *blóta : blét*, which diverges from the (more numerous) WGmc examples, e.g., **blotan : *bleut* > OE *blēot*. They show a pattern $*\bar{o} : *eu$ for which no easy proportion is available. Jasanoff suggests that the innovation was started in four verbs, namely **wōpjan* “weep”, **hwōpan* “boast”, **hwōsan* “cough”, **swōgan* “sound”, in each of which $*-\bar{o}-$ followed $*-w-$, and where new cluster rule plus compression would create $*eu$. Jasanoff accepts Sacks’ (1977:244) reconstruction for **wōpjan*, then applies the same process to the other three verbs, obtaining:

<i>*wōpjan</i>	→ <i>*wewōp-</i>	→ <i>*we-wp-</i>	→ <i>*weup</i>	(cf. OHG <i>wiof</i> , OS <i>wiop</i> , OE <i>wēop</i>)
<i>*hwōpan</i>	→ <i>h^weg^wōp-</i>	→ <i>*hwewōp</i>	→ <i>*hwe-wp</i>	→ <i>*hweup</i> → OE <i>hwēop</i>
<i>*hwōsan</i>	→ <i>h^weg^wōs-</i>	→ <i>*hwewōs</i>	→ <i>*hwe-ws</i>	→ <i>*hweus</i> → OE <i>hwēos</i>
<i>*swōgan</i>		→ <i>*swewōg-</i>	→ <i>*swe-wg-</i>	→ <i>*sweug</i> → OE <i>swēog</i>

This pattern would then get generalised in WGmc, first affecting the few verbs with root structure $*C(R)\bar{o}C$ and then also verba pura in $*-\bar{o}-$ (see below). In ON, however, **wōpjan* etc were not generalised, so this ablaut pattern was abandoned and *blóta : blét* was analogically formed on the model of *láta : lét*, *ráða : réð*, and so on³⁶⁹. A confirm also comes from **swaipan* “sweep”, ON *svéipa*, OS *swēpan*, OE *swāpan*. We should expect its $-ai-$ root vocalism to yield NWG $*-\bar{e}_2-$ (in fact, attested in OS *for-svēp*), but instead we find ON *sveip* (sg) / *svipu* (pl) and OE *swēop(on)*, contrasting with respectively ON *heita : hét(u)*, and OE *hātan : hēt(on)*. Jasanoff observes that OE *swēop* is almost identical to *swēog*, coming from NWG reduplicated preterite $*swēw(a)ip-$ → $*swe-wp$ → $*sweup$ by the same compression process. However, $*sweup$ contains three successive labials (the first *w*; the second glide *w* (> *u*); and *p*), which caused dissimilation as in ON *sveip*³⁷⁰.

The $*-\bar{o}-$ group also contains several **verba pura**, but with a few exceptions (e.g., OHG *būan : biruun*), only in OE they remained in strong class VII, whereas many of them became weak. In OE, there are six verbs (*blōwan : blēow*, *grōwan : grēow*, *hlōwan : hlēow*, *rōwan : rēow*, *snōwan : snēow*, *spōwan : spēow*) in which the $*\bar{o} : *eu$ appears with a root-final *w*³⁷¹. Jasanoff posits that when the $*\bar{o} : *eu$ ablaut spread to verba pura in $*-\bar{o}-$ in WGmc, the preterite of a verb like **blōan* would become **bleu* by analogy, with underlying form /bleu-un/ in the plural. In his view, this was reanalysed as **bleu.wun*, which conserved the diphthong in the first syllable and developed a glide (*w*) after the diphthong. The $-w-$ was then reinterpreted as part of the root, thus extending to the preterite singular and to the present, e.g., **bleuwun* > OE *blēowon* → *blēow* → *blōwan*³⁷².

OE **verba pura with *-ā-** in the root would be expected to follow the *ā : *ē alternation, e.g., OE *blāwan* would be expected to yield preterite ****blē-** (pl ****/blē-un/**), but this is not the case. In fact, OE *blēow(on)* is found, just as in the case of *blōwan*. Jasanoff gives three possible scenarios for this merging:

- */ble-un/* (from *blāwan*), realised as **blewun* (with *-w-* as a hiatus breaker, which could be phonetic or come from *blōwan*), then spread to sg and present as above. Later, generalisation replaced original **blew(un)* with **bleuw-un > blēow-on*
- Replacement **-eu-* → **-e-* was in fact the first step, so the preterite **blē* (sg), */blē-un/* (pl) became **bleu* (sg), **bleuwun* (pl), with no intermediate **blew(un)*. Then again, **-w-* spread as above
- */ble-un/* was contracted to **bleun*, which subsequently evolved in **bleuwun* because of the speakers' misinterpretation of its similarity with the preterite of *blōwan*.

Jasanoff however remarks that there is not enough data to choose one of these scenarios³⁷³.

Finally, Jasanoff comments that OE *hēold*, *fēoll*, etc, show *ēo* for NWG **-ě-*. To explain this, Jasanoff divides the OE verbs with root structure of **CaRC-* type in two groups: those ending in *-nn* or nasal cluster; and those ending in *-ll* or liquid cluster. In the first group, some verbs show *-eo-* and some do not, e.g., *fōn* (< **fanhan*) : *feng*. Three verbs contain *-eo-* (*gangan* : *gēong*, *bannan* : *bēonn*, *spannan* : *spēonn*), however the first two have variant forms in *-a-* (*gang*, *geban*). The *-ēo-* diphthong is more systematic in the *l*-group, but Jasanoff observes that three out of the seven such verbs begin with *w-*, reminding of the **wōpjan* group³⁷⁴, where reduplication and compression originated *-eu-*³⁷⁵.

Jasanoff concludes with a schematic summary³⁷⁶ illustrating how all the different types of class VII preterites can be explained with the above processes, using one or the other as needed.

CONCLUSIONS

Several different attempts to solve the problem of the origins and development of Gmc strong class VII have been illustrated, trying to highlight the nature of the transformation according to the authors' points of view. As announced, no agreement has been reached and the matter is still open.

A fundamental distinction can be traced between authors who think that class VII forms are the result of IE inherited forms through different kinds of transformations. So, Grimm proposed the contraction of inherited reduplicated forms, whereas Brugmann and Wood posited the combined effects of contraction and evolution from two different and concurrent preterital forms, one of which originated from old aorists; Prokosch too hypothesised an origin deriving from old aorists, while Lehmann proposes an origin based on inherited laryngeals.

In broad lines, the research has followed both phonological and morphological paths, sometimes jointly, sometimes not. Some authors, among whom Lehmann, Connolly, Voyles, and Vennemann, privileged the phonological point of view, which is often based on the Indo-European to Gmc accent shift. Others (e.g., Bech, Fulk), privileged a morphological point of view, examining the possibility of a reinterpretation of the preterital structure itself. However, no author seems to have been using either morphology or phonology alone. An interesting contribution is that of Voyles, who addresses the question from the point of view of the grammar development, describing the change of the language material in terms of the change in grammatical rules.

One important aspect that has been considered is the role of the Gmc accent shift in the language evolution. Both Voyles and Vennemann suggested that the transformation of the inherited IE reduplication was caused by this accent shift, although through very different approaches. The idea that the accent shift was the actual trigger for the changes in Gmc class VII, leading to the NWG languages, is also supported by other scholars. Among them there are Bech and Coetsem, who accept the accent shift as main reason for change, but then propose that the evolution itself should rather be considered a Gmc innovation. Coetsem proposed an innovative *a:e* ablaut, whereas Bech posited the preterite construction by means of his *ez*-infixation. The opinion that class VII was an innovative development is also shared by Connolly, who proposed an evolution based on analogical Gmc laryngeals, while Fulk's hypothesis relies on the hiatus created by NWG dissyllabic structures. Most interesting is Jasanoff's multifactorial approach, in which several of the previously proposed mechanisms concur in the explanation of the different subclasses of class VII.

For space reasons, some interesting aspects have not been followed. First of all, a deeper insight around \bar{e}_2 , present in the preterites of class VII and otherwise sporadic elsewhere, and also about its origins, still uncertain. Also very interesting is the application of optimality theory to the linguistic

analysis. Again, for space reasons, some papers could not be included, although in our opinion they would have fit well in the present work. Among them, we would like to mention Adamczyc, Elzbieta 2002 - *Reduplication and the Old English strong verbs class VII*; Masatoshi Shimozaki 2012 - *Die Ablaute der 7. Reihe starker Verben*; and Zukoff, Sam 2017 - *Indo-European Reduplication - Synchrony, Diachrony, and Theory* (MIT PHD Dissertation).

NOTES

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- ¹ Abridged from Ablaut, in Lyle Campbell, Mauricio J. Mixco (2007): *A Glossary of Historical Linguistics*, Edinburgh University Press.
- ² Prokosch 1939:124-126
- ³ Jasanoff 2007:242
- ⁴ Onesti 2015:53-55
- ⁵ Onesti 2015:55-58
- ⁶ Unlike the PIE accent which is generally considered mobile. Onesti 2015:53
- ⁷ Saibene, Buzzoni 2006:94-95.
- ⁸ Jasanoff 2007:241
- ⁹ Jasanoff 2007:274
- ¹⁰ See e.g., Jasanoff 2007:244
- ¹¹ Jasanoff 2007:245
- ¹² Connolly 1979:1
- ¹³ Ibid.
- ¹⁴ Jasanoff 2007:249
- ¹⁵ Lehmann 1952:57
- ¹⁶ Lehmann 1952:56
- ¹⁷ Campbell 2013:2
- ¹⁸ In the present work, reconstructed forms are usually marked with an asterisk, e.g., PGmc **haitan* (call). However, some authors use different symbols (e.g., Vennemann). In those cases, to help reference to the original text, we will generally maintain the author's notation.
- ¹⁹ "Branch of linguistics concerned with rules or alternations intermediate between morphology and phonology. Called 'morphophonemics' by most linguists in the USA, and defined by C. F. Hockett in the 1950s in a sense that covered the entire relation between representations of sentences in terms of morphemes and their representations in terms of phonemes. ..." (Abridged from : Matthews, P. (2007). Morphophonology. In : The Concise Oxford Dictionary of Linguistics. : Oxford University Press.)
- ²⁰ We speak of transmission when in a speech community a given pattern is circulated without changes, whereas we speak of diffusion when the pattern is reproduced in an imprecise fashion, thus introducing changes. See e.g., *Transmission and Diffusion* (2007), Labov W., University of Pennsylvania (to appear in Language 83). Retrieved from : <https://www.ling.upenn.edu/~wlabov/Papers/TD.pdf>
- ²¹ Grimm 1822:103 cited by Connolly 1979:1
- ²² The aorist tense ("indefinite") is a verbal form typical to Indo-European languages. It expresses a simple action temporally undefined (e.g., narrative present), in contrast to defined tenses (e.g., perfect) which describe the course of the action (beginning or end, e.g., present and perfect). For example, the aorist γνῶθι σεαυτὸν "know thyself" does not imply the simple knowledge but rather the process of knowing oneself. Through the narrative aspect, aorist and perfect converged to the point of choosing one or the other. Two forms of aorist existed (one of them called the σ-aorist, because it contained an s), which in time differentiated into transitive and intransitive meaning (abridged from G. Devoto : "Aoristo" in "Enciclopedia Italiana (Treccani)").
- ²³ Wood 1895:28
- ²⁴ Wood 1895:28-29
- ²⁵ The Laryngeal theory, first formulated in 1879 by Ferdinand de Saussure, proposes that the earliest IE system of phonemes included some more elements than previously believed, namely the "laryngeals", a group of sounds which disappeared in every IE language except Anatolian languages, in particular Hittite.
- ²⁶ Prokosch 1939:176-177
- ²⁷ Ibid.
- ²⁸ Prokosch defines heavy bases as "syllables whose normal grade shows a long vowel" (Prokosch 1939:126). See page 6.
- ²⁹ Prokosch 1939:178
- ³⁰ See page 13
- ³¹ See note 25.
- ³² See page 9.
- ³³ Lehmann 1952:56
- ³⁴ Lehmann (1952:57) citing Osthoff, Schmidt, Loewe, Janko.
- ³⁵ Lehmann (1952:57) reports that this was suggested by Knoblauch and adopted by Schmidt, Streitberg, and Brugmann.
- ³⁶ Lehmann 1952:58
- ³⁷ Lehmann 1952:59
- ³⁸ Lehmann 1952:60
- ³⁹ Although this discussion regarding the origin of r-preterites might seem to lead to a dead end, Lehmann's comments on other scholars' work and the discussions that followed gave an important contribution to the research field. For

example, in his paper “ \bar{e}_2 and the laryngeal theory” (1979), Connolly comments on Lehmann’s work meticulously, and later Fulk cites Lehmann in his “*Reduplicating verbs and their development in NWG*” (1987).

⁴⁰ Lehmann 1952:58

⁴¹ Ibid.

⁴² Lehmann 1952:66

⁴³ Ibid.

⁴⁴ Lehmann 1952:69

⁴⁵ Lehmann 1952:69-70

⁴⁶ Lehmann 1952:70

⁴⁷ Lehmann 1952:70-71

⁴⁸ Ibid.

⁴⁹ Lehmann 1952:71

⁵⁰ Ibid.

⁵¹ Coetsem 1964:47

⁵² E.g., *hēt* < *heht* < *haitan*. See page 9.

⁵³ Coetsem 1964:48-49

⁵⁴ Coetsem 1964:49-50

⁵⁵ Coetsem uses three temporal layers, namely **PGmc** (*Urgermanisch*), **Common Germanic** (*Gemeingermanisch*), and **Individual Dialects** (*Einzeldialektisch*), but without dating them specifically. Common Germanic in Coetsem’s definition refers to a “*more or less uniform language or a community of dialects, a transitional stage from Proto Germanic to individual dialects*”, located in a period subsequent to PGmc but early enough that its phenomena achieve general diffusion (Coetsem 1964:6-7).

⁵⁶ Coetsem 1964:25

⁵⁷ See page 16

⁵⁸ Coetsem 1964:26-27, 50-52

⁵⁹ Coetsem 1964:52

⁶⁰ See page 18

⁶¹ Coetsem 1964:8-10

⁶² See Coetsem 1964:9

⁶³ Cf. Coetsem 1964: §19, §21, §50

⁶⁴ Cf. Coetsem 1964: §22, §23

⁶⁵ Coetsem 1964:53, 56, 77

⁶⁶ See note 55. Coetsem 1964:38-40.

⁶⁷ Coetsem 1964:39. It is worth mentioning that Jasanoff strongly disagrees with this proposal, because the derivation of both \bar{e}_2 and \bar{i} in Germanic from PIE $*ei$ is irreconcilable with the “overwhelming evidence that the change of $*ei$ to \bar{i} was unconditioned.” (Jasanoff 2007:249). Moreover, Voyles points out that Coetsem’s derivation of both \bar{i} and \bar{e}_2 from ei seems not to be substantiated by the attested evidence (Voyles 1980:90-91).

⁶⁸ Coetsem 1964:54

⁶⁹ With the exception of a few verbs containing both reduplication and ablaut (e.g., Got. *laitan*, *lelōt*), as mentioned by Voyles 1980:1. See also : Miller, D. G. (2019). *The Oxford Gothic grammar*. Oxford : Oxford University Press, page 177. Coetsem suggests that reduplication was so much well rooted in Gothic that the new preterite formation could not replace it. Because no traces of the younger a/e ablaut can be found in Gothic, it is reasonable that it was immediately discarded in order to maintain a completely regular pattern (Coetsem 1964:55).

⁷⁰ Coetsem 1964:55

⁷¹ Here Coetsem finds a form of symmetry which, in his later work “*Ablaut and Reduplication in the Germanic verb*” (1990), he will call Mirror Image theory, in which Coetsem posits the idea of an *inverted analogy* as the origin of the new ablaut pattern: where the *e*-Group had present in *e* and preterite in *a*, by inverted analogy the *a*-Group shows *a* in the present and *e* in the preterite, thus showing a mirrored pattern, which gives the name to this theory. However, in his study of 1990, Coetsem justifies the *a/e* ablaut independently from this theory (Coetsem 1990:111-115).

⁷² Coetsem 1964:54

⁷³ Ibid.

⁷⁴ Coetsem 1964:55

⁷⁵ In his favourable review of Coetsem’s paper, Koekkoek praises the application of structural methods, which makes his results “not to be neglected” (Koekkoek 1957:449), while Connolly considers Coetsem’s results a solid contribution to the research of the developments of class VII, especially because of his findings about the strong connection linking \bar{e}_2 and the lowering of IE *i* to Germanic *e* (Coetsem 1964:29).

⁷⁶ Vennemann 1994 and 1997. See page 46 ff

⁷⁷ Bech 1969:3

⁷⁸ Verba pura are verbs whose stem ends with a vowel.

⁷⁹ Bech 1969:7

⁸⁰ Bech 1969:6

⁸¹ Bech 1969:4

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- ⁸² Bech postpones for the moment the analysis of the few reduplicating verbs whose stem begins with vowel.
- ⁸³ Excerpted from Bech 1969:8, our translation.
- ⁸⁴ Bech 1969:11
- ⁸⁵ Bech 1969:13
- ⁸⁶ Bech 1969:13-15
- ⁸⁷ Bech 1969, §24-30
- ⁸⁸ See e.g., Prokosch Op. Cit. §28
- ⁸⁹ The reason Bech chooses the verbs that start with an *s*, and consequently contain the infix *-ez-* (group IB), is that they are the only class in which both a verbum purum (**sæan* : **sezō*) and a verbum impurum (**saltan* : **sezalt*) can be found, and therefore the only class that could serve as a model for analogical generalisation.
- ⁹⁰ Bech 1969, §31-36
- ⁹¹ Bech 1969:20-21
- ⁹² “*The preserved dialects of Old English are West Saxon, Kentish, Mercian, and Northumbrian, the last two of which are particularly closely related and are referred to collectively as Anglian.*” From : Fulk, R.D. (2018) *A Comparative Grammar of the Early Germanic Languages*, Amsterdam/Philadelphia, John Benjamins Publishing Company.
- ⁹³ Bech 1969:23
- ⁹⁴ Bech 1969:23-24
- ⁹⁵ Bech 1969:24
- ⁹⁶ Ibid.
- ⁹⁷ Bech 1969:26-27
- ⁹⁸ See rule 2, page 20
- ⁹⁹ See page 9
- ¹⁰⁰ Bech 1969:25
- ¹⁰¹ Bech uses **mizdō*’ because in fact this is the only Gmc word in which the derivation of \bar{e}_2 is transparent.
- ¹⁰² Bech 1969:26
- ¹⁰³ Bech 1969:27
- ¹⁰⁴ Bech 1969:28
- ¹⁰⁵ Ibid.
- ¹⁰⁶ Bech 1969:30
- ¹⁰⁷ Bech 1969:33
- ¹⁰⁸ Bech 1969:32
- ¹⁰⁹ Bech 1969, chapter 9, sections §59-69
- ¹¹⁰ Bech 1969:22, 35
- ¹¹¹ Bech 1969:35
- ¹¹² Bech 1969:47-49
- ¹¹³ Connolly 1979:24
- ¹¹⁴ See page 9
- ¹¹⁵ Scherer actually wrote **seslāf*, which Connolly corrects in **seslēip*. Connolly 1979:2
- ¹¹⁶ Connolly 1979:2
- ¹¹⁷ Connolly 1979:1-2
- ¹¹⁸ See page 13 ff
- ¹¹⁹ Connolly 1979:4 and §7.
- ¹²⁰ Connolly uses X to indicate an unspecified laryngeal. Connolly states that there were at least four laryngeals : non-colouring **E**, a-colouring **A₁** and **A₂** (**A₂** specifically causes adjacent PIE /e/ to be realised as [a]), and o-colouring **A^w** (this caused adjacent /e/ to be realised as [o]). See note 1 in : Connolly 1979:5. Pulleyblank describes **A₁** and **A₂** (also written as **a₁** and **a₂**) as the PIE precursors of respectively European *e* and *o*. See E. G. Pulleyblank (1965) *The Indo-European Vowel System and the Qualitative Ablaut*, Word, 21:1, 86-101, DOI :10.1080/00437956.1965.11435420. See also Lehmann 1952, §12.8 which proposes a different notation.
- ¹²¹ Connolly 1979:10
- ¹²² Connolly 1979:5-6
- ¹²³ Connolly 1979:12-14. We will go back to this topic again when discussing Lehmann’s laryngeal groups *eXi* and *eXu*, see page 28.
- ¹²⁴ Connolly bases this claim on Connolly 1977 §3, Lloyd 1966, Benediktsson 1967:184ff (Connolly 1979:5). See also note 152.
- ¹²⁵ The lowering of PIE *i* > NWG *e*, was first classified by Grimm as *Brechung* (now a-umlaut), and occurs when the following vowel is not *i*, \bar{i} , *j*, and the PIE *i* is not followed by nasal + consonant(s). Connolly observes that this lowering only occurs with a laryngeal, mostly immediately before *i*, and proposes that the extremely back articulation of the laryngeal influences the front articulation of *i* (assimilation), thus lowering it to *e*, analogously to the lowering of IE *e* > PGmc *a/o*. The evolution Connolly hypothesises is hence IE *eXi* > *eXi* > *ei* > *ee* > \bar{e}_2 . (Connolly, Leo A. (1977). *Indo-European i - Germanic e : An Explanation by the Laryngeal theory*. Beiträge Zur Geschichte Der Deutschen Sprache Und Literatur (Tübingen), 99, 173 and 99(3), 333). Lloyd 1966 proposes a completely different view, positing that a-umlaut does not exist in Gmc, and that the lowering is in fact an “occasional development of an *e*-allophone of

- /i/ by a type of systemic analogy” (Lloyd, A. (1966). Is There an a-Umlaut of i in Germanic? *Language*, 42(4), 738-745. doi :10.2307/411829).
- 126 Connolly 1979:5
- 127 A here indicates any a-colouring laryngeal. See note 120.
- 128 See also page 16
- 129 Connolly 1979:7
- 130 Connolly 1979:6
- 131 Lehmann 1952:58
- 132 Connolly 1979:8-10
- 133 See note 120.
- 134 Lehmann 1952:58
- 135 Lehmann 1952:98
- 136 See Prokosch 1939:180
- 137 Connolly 1979:7-8, 11-12
- 138 Connolly 1979:7-8
- 139 Connolly specifically observes that some class VII *ai*-verbs with reliable etymology show the laryngeals A₁ and A₂ mentioned above. Connolly 1979:9
- 140 Connolly 1979:10
- 141 Ibid.
- 142 Connolly 1979:11
- 143 The zero-grade A₁u should probably evolve also in PGmc (a)Xu > ū in most Gmc languages when the previous vowel is reduced (̄A₁u). Connolly also observes that ū < ̄Xu is common in other non-Gmc languages.
- 144 Ringe 2006:232
- 145 Connolly 1979:12-13
- 146 Connolly 1979:13
- 147 Lehmann 1952:59
- 148 Connolly 1979:13
- 149 Connolly 1979:12-14
- 150 Connolly 1979:14
- 151 Connolly 1979:14-15
- 152 Connolly 1979:5, §5. In fact, Connolly devoted a specific study to this matter, proposing to use the laryngeal theory to substitute for the a-umlaut of i, namely “Connolly, Leo A. 1977: *Indo-European i > Germanic e - An Explanation by the Laryngeal theory*”. However, this matter goes far beyond the purpose of the present work.
- 153 Connolly 1979:15
- 154 Connolly 1979:16
- 155 See page 28 ff. An important implication of Connolly’s proposal is that the ē₂ shown in class VII verbs is not the same ē₂ of nouns and adjectives, that is, they have different origins (Connolly 1979:26).
- 156 Connolly 1979:17. Specifically, Connolly thinks that this development happened after IE *eEi* and *ei* had become in Gmc “respectively [iX̄i] and [i :] or at least [̄eXi] and [̄ei]”. Ibid.
- 157 See Lehmann, page 15
- 158 Connolly 1979:17
- 159 Voyles 1980:92
- 160 Voyles 1980:98
- 161 Voyles 1980:93 citing Vennemann 1971:118
- 162 In Vennemann’s view, the *ō* in *saisōum* must have been unstressed and, since it did not get lowered, *the lowering of long vowels can only happen in stressed position* (Vennemann 1971:118 as cited in Voyles 1980:93).
- 163 Voyles 1980:93-4
- 164 Schmierer 1977:60-63 as cited in Voyles 1980:94
- 165 Voyles 1980:93
- 166 Voyles 1980:95-96
- 167 Voyles 1980:97
- 168 But it continued to apply in other instances. Voyles 1980:98
- 169 Voyles 1980:98
- 170 Voyles 1980:99-103. It is worth mentioning that in this analysis Voyles accepts the infixation of /-ez-/ and /-er-/ (< /-ez-/), which he considers as derivation from Gmc forms like OHG /sezō/ or as reduplication remnants in ON.
- 171 Voyles 1980:104
- 172 See page 22
- 173 Voyles 1980:105-107
- 174 Ibid.
- 175 This root vowel is always that remnant of reduplication /e/, derived from rule 1 of GF1.
- 176 Voyles 1980:106-107
- 177 Voyles 1980:108-109

- 178 Voyles refers to the ‘Surface Phonetic Constraints’ (SPC) in Shibatani, M. (1973). *The Role of Surface Phonetic Constraints in Generative Phonology*. Language, 49(1), 87-106. doi :10.2307/412104
- 179 Voyles 1980:110-112
- 180 See page 33
- 181 See derivation table at page 33
- 182 Voyles 1980:111-112
- 183 The example of OE /spēt/ follows the same steps illustrated in the table of GF3 derivation, see page 33.
- 184 Voyles 1980:110-112
- 185 Voyles 1980:112
- 186 Voyles 1980:113
- 187 Voyles 1980:114
- 188 The only example Voyles offers for this rule is actually a class VI strong verb, namely ON /slá/ > /slera/. Voyles claims that the rule in ON extended its domain to include at least this one verb, and that also OHG contains relics that indicate an expansion of this rule (Voyles 1980:113). Voyles also mentions that class III in OE, OHG, and ON, show extensions or remnants of this rule, whereas OS and OF lost it completely (Voyles 1980:118-119). We may also observe that the preterite of verbs of the /snūa/ type, according to this rule, should be a form such as */snerūa/, but in fact the attested form is *snūa* : *snera* (< *snez[n]a or analogical) (Prokosch 1939:176).
- 189 Voyles 1980:112-113
- 190 According to other sources, PGmc *alþan is confined to Gothic as *us-alþan* and has no attested preterite (Jasanoff 2007:250 and Fulk 1987:162).
- 191 Voyles 1980:113
- 192 Voyles 1980:113-114
- 193 Voyles 1980:114-115
- 194 Voyles 1980:115-116
- 195 Voyles 1980:117
- 196 Ibid.
- 197 Voyles 1980:114 and 117
- 198 Voyles 1980:117
- 199 Voyles 1980:118-119
- 200 Voyles 1980:119
- 201 Fulk proposed an earlier version of his theory in Fulk 1982.
- 202 Fulk 1987:160-161
- 203 Fulk 1987:162
- 204 Ibid.
- 205 Fulk 1987:161
- 206 Examples taken from Fulk 1987:162
- 207 Miller 2019:177, Prokosch 1939:180, Fulk 1987:163
- 208 Fulk 1987:162
- 209 Fulk 1987:163
- 210 Fulk 1987:164-165
- 211 Prokosch 1939:178-182
- 212 Fulk 1987:165
- 213 Fulk 1987:166
- 214 Fulk 1987:165
- 215 van Helten 1896:446
- 216 Fulk 1987:166
- 217 Connolly 1979:13
- 218 For more details, see Connolly, page 29.
- 219 Fulk 1987:166
- 220 See page 6
- 221 Lehmann 1952:66-73, see also page 15
- 222 Fulk 1987:167
- 223 Ibid.
- 224 Fulk 1987:167-169
- 225 Fulk 1987:169-173
- 226 Fulk 1987:173
- 227 Fulk 1987:166, 173 ff.
- 228 Fulk 1987:174
- 229 Fulk 1987:174-175
- 230 Fulk 1987:174-176
- 231 In: Van Coetsem, Waugh (1980) Contributions to Historical Linguistics. Issues and Materials. Leiden: Brill 281-339
- 232 In: Rauch, Carr (1983) Language Change. Bloomington: Indiana University press- 39-88

- 233 This *new ablaut* has been proposed by Coetsem 1956, 1964. See pages 18, 19.
- 234 Bech 1969, see page 20
- 235 Coetsem 1990:71
- 236 Coetsem 1990:80-81
- 237 Ibid.
- 238 Coetsem 1990:73-74
- 239 Coetsem 1990:75-76
- 240 Coetsem 1990: 76-77
- 241 Coetsem 1990:76
- 242 Coetsem 1990:79
- 243 The group of Gmc verbs containing an *a* originated from IE *o*, *ə*, *a*. See page 18.
- 244 Coetsem 1990 refers to strong classes as “ablaut series” throughout his work. For consistency with the rest of the present work, we maintained the traditional nomenclature.
- 245 See ‘*a*-group’, page 18 ff.
- 246 Coetsem 1990:79-80
- 247 Coetsem 1990:81
- 248 Coetsem 1990:82
- 249 Coetsem 1990:82-83. Coetsem here observes that in Gothic, prefixed verbs may be reduplicated, but in those prefixed reduplicated preterites, the prefix never separates the reduplicated element from the verbal root (e.g., *gastaldan* : *gastaistald*). Coetsem uses this evidence to posit that that the bond linking the reduplicated element to the verbal root is stronger than that linking the prefix to the verb (ibid.).
- 250 Coetsem 1990:83, as examples of change in accent placement, gives OE *hātan*:*heht* OE *lācan*:*leolc*, ON *sā*:*sera*
- 251 Coetsem 1990:83-84
- 252 Coetsem 1990:84
- 253 Coetsem 1990:85-86
- 254 The rule for reduplication, according to Coetsem, is the following: 1. If the thematic initial sound is a vowel, the reduplicative element is the vowel *e* (<ai> for Gothic), e.g., *āuk* : *eāuk*; 2. If the thematic initial sound consists of one or more consonants, except *st*, *sk*, the reduplicative element consists of the first consonant + *e*, e.g., **frāis* : **fefrāis*; 3. If the thematic initial sound is *st*, *sk*, the reduplicative element is the same cluster + *e*, e.g., **stāut* : **stestāut*. The *e* “is the only constant in the reduplicative element” (Coetsem 1990:81-82).
- 255 Coetsem observes that Bech’s view (Bech 1969:9 ff) would reinterpret e.g., **Xegait* as **X* (reduplicated element) + *eg* (infix) + *ait-* (ending), ignoring the differentiation in accent patterns, and focusing instead on the change from prefixation to infixation. Coetsem claims that his analysis also accounts for the constant reduplicative /*e*/ in the verbal root. He attributes the difference between his theory and Bech’s mainly to this different reanalysis (Coetsem 1990:88).
- 256 See page 42
- 257 Coetsem 1990:89-90
- 258 Coetsem 1990:91-92
- 259 Coetsem 1990:92-93
- 260 Coetsem 1990:93-94
- 261 Coetsem 1990:95 calls it “lexical anlaut readjustment”
- 262 Coetsem 1990:95
- 263 Coetsem 1990:96-97
- 264 Coetsem refers to Bech 1969, who states that verbs with initial *s* and *ez*-infix were the model for the analogical spread of *-ez-* in class VII (Coetsem 1990:98), see also page 22 ff.
- 265 Coetsem 1990:98
- 266 See note 89.
- 267 See page 44
- 268 Coetsem 1990:99-101
- 269 Coetsem 1990:109
- 270 Coetsem 1990:110
- 271 Vennemann 1997:298. For Bech’s *ez*-infixation theory see page 22. In fact, Vennemann also mentions that Bech’s theory was only tepidly accepted at its time because it could not explain how the language at that stage allowed analogical generalisation, as highlighted by Rauch. Rauch’s “*Review article: Das germanische reduplizierte Präteritum: Gunnar Bech*” (1971) addresses several weaknesses in Bech 1969. First, Bech’s classification of reduplicating verbs and the three rules governing it create ambiguity between prefixation and infixation. Rauch points out some contradiction between prefixation and some observed effects of Verner’s law in Gothic reduplication (e.g., **salt-* : **-zalt-*, **slāp-* : **-zlāp-*), giving origin to two preterite variants (“allomorphs”), one of which showing Grimm’s law effects (voiceless *s*, *f*, *þ*, *h*) while the other shows Verner’s law effects (voiced *z*, *b*, *d*, *g*) – but, while the first forms are also found among other verbal and nominal forms, the latter’s only function is justifying reduplicated preterites. Rauch rejects Bech’s *-ez-* infixation also because, from a diachronic point of view, it was unfamiliar to IE and Gmc word formation process, and it is based on the anomalous *r*-preterites of ON and OHG and on the also anomalous *r-* and *r*-less types of Anglian; and however, Bech’s reconstructions use imprecise verbal paradigms. Rauch

- also considers Bech's compensatory lengthening theory controversial, because it was based on too rare Anglian examples (*meord*, *reord*).
- ²⁷² Vennemann marks reconstructed forms with + and incorrect forms with *. Here we keep his notation for easier reference to the original paper.
- ²⁷³ Vennemann 1997:331, note 4. For the definition of sonorant, see e.g., page 33.
- ²⁷⁴ Vennemann 1997:301. Cf. the Gothic deletion rule at page 31.
- ²⁷⁵ Vennemann 1997:301
- ²⁷⁶ “*The head of a syllable is that part of its base which precedes the nucleus; the slope of the head is the portion between the onset of the head and the nucleus*” (Vennemann 1997:331 note 8).
- ²⁷⁷ Vennemann 1997:315-316
- ²⁷⁸ Vennemann 1997:315-318
- ²⁷⁹ Vennemann 1997:319
- ²⁸⁰ Foot, in verse, is the smallest metrical unit of measurement. In Germanic languages, a foot is usually defined as a group of one stressed and one or two unstressed syllables. (Adapted from Encyclopaedia Britannica Online, <https://www.britannica.com/art/foot-prosody>)
- ²⁸¹ “*A mora is the minimal unit of measure in quantitative verse equivalent to the time of an average short syllable.*” (From: Merriam Webster dictionary online, <https://www.merriam-webster.com/dictionary/mora>)
- ²⁸² Vennemann 1997:319. See also Vennemann 1994:184.
- ²⁸³ A light syllable is an open (i.e., ending in vowel) syllable with a short nucleus (the nucleus is the central part of the syllable, pronounced with most energy. It is usually a vowel or a sonorant). Vennemann observes that PGmc reduplication syllables were light because they were open (they always ended with /e/, since the following consonant belonged to the verbal root) and had a short nucleus (/e/). (Vennemann 1994:184, note 30).
- ²⁸⁴ Vennemann 1997:319
- ²⁸⁵ Vennemann 1994:185
- ²⁸⁶ Vennemann 1997:320-321
- ²⁸⁷ Vennemann 1997:321
- ²⁸⁸ This is called ‘*epenthesis*’, e.g., Latin **emtus* > *emptus* (cf. *epentesi* from *Enciclopedia Treccani*)
- ²⁸⁹ This is called ‘*anaptyxis*’, e.g., Latin **poclom* > *poculum* (cf. *anaptyssi* from *Enciclopedia Treccani*)
- ²⁹⁰ This is called ‘*metathesis*’, e.g., Tuscan dialects *dentro* > *drento* (Vennemann 1997:316).
- ²⁹¹ Vennemann 1997:321-322
- ²⁹² Vennemann 1997:322
- ²⁹³ Vennemann 1997:322-323
- ²⁹⁴ Vennemann 1997:323
- ²⁹⁵ Vennemann 1997:302
- ²⁹⁶ *Ibid.*
- ²⁹⁷ Vennemann 1997:306-307
- ²⁹⁸ Vennemann 1997:323-324
- ²⁹⁹ Vennemann 1997:303
- ³⁰⁰ See also Fulk, page 39 ff.
- ³⁰¹ Vennemann 1997:303
- ³⁰² Vennemann 1997:307-308
- ³⁰³ Vennemann 1997:308
- ³⁰⁴ See also page 23
- ³⁰⁵ Vennemann 1997:309-310
- ³⁰⁶ Vennemann 1997:310
- ³⁰⁷ Vennemann distinguishes between (Northern) OE and Anglian. Here we maintain this distinction and refer to the former simply as OE, and the latter as Anglian.
- ³⁰⁸ See also Bech, page 24
- ³⁰⁹ Vennemann 1997:303-304
- ³¹⁰ Vennemann 1997:310
- ³¹¹ This is called a “push chain”. Vennemann 1997:311
- ³¹² Vennemann 1997:304
- ³¹³ Vennemann 1997:312
- ³¹⁴ *Ibid.*
- ³¹⁵ *Ibid.*
- ³¹⁶ Vennemann 1997:313
- ³¹⁷ *Ibid.*
- ³¹⁸ *Ibid.*
- ³¹⁹ Vennemann 1997:325-326
- ³²⁰ Vennemann 1997:325
- ³²¹ Vennemann 1997:327
- ³²² Vennemann 1997:319, see page 48.

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- 323 Vennemann 1997:327-328
- 324 Vennemann 1997:327
- 325 Vennemann 1997:329-330
- 326 i.e., the second syllable of the preterite
- 327 It is worth noting that this view is rather peculiar in that most authors locate the effects of Grimm's Law before those of Verner's law and before the PGmc accent shift. Cf. e.g., Ringe 2006:93-94, Saibene, Buzzoni 2006:90-91
- 328 Vennemann 1997:330-331
- 329 The Optimality Theory (OT) was first introduced in 1991 by Alan Prince and Paul Smolensky and initially circulated as a manuscript: "*Constraint Interaction in Generative Grammar*" (2004). It has been called one "of the top five developments in the history of generative grammar" (McCarthy 2007) and strives to answer the question on the degree of compliance of the output of a grammar to its constraints, by means of a "measure of the distance" of the grammar output from the boundaries of the constraints, which have to be considered within a definite hierarchy of the constraints themselves. See: McCarthy, John J. (2007): *What is Optimality Theory?* Linguistics Department Faculty Publication Series Linguistics, University of Massachusetts Amherst. See also: Archangeli, D. (1999): *Introducing Optimality Theory*. Annual Review of Anthropology, 28, 531-552.
- 330 Jasanoff 2007:262
- 331 Jasanoff 2007:260
- 332 Jasanoff 2007:261
- 333 Ibid.
- 334 Jasanoff 2007:260-262
- 335 C = obstruent, R = any liquid or nasal (m, n, l, r)
- 336 Jasanoff 2007:262
- 337 Ibid.
- 338 Jasanoff 2007:262-263
- 339 In ON, only *rera*, *grera* had *-r- in the NWG period; and in OHG the only verb with certain etymological *-z- is *steroz*. Jasanoff 2007:263
- 340 See Anglian verbs table at page 53
- 341 Jasanoff 2007:263-264
- 342 Jasanoff 2007:245
- 343 See page 52 ff
- 344 Jasanoff 2007:258
- 345 Jasanoff credits this interpretation to Fulk 1994:455, Bammesberger 1986:63, but claims that the idea was current in the 1970's at Harvard and "*taken for granted*" in 1977 by Sacks (Jasanoff 2007:264, note 50).
- 346 This abbreviated notation indicates a preterite of the form **rerd* (singular) / **rerdun* (plural).
- 347 Jasanoff 2007:265
- 348 Jasanoff 2007:264-266
- 349 Jasanoff 2007:266
- 350 Jasanoff 2007:266-268
- 351 Jasanoff 2007:268
- 352 See page 55
- 353 Jasanoff 2007:269-270
- 354 Fulk 1987:169-172
- 355 Jasanoff 2007:270-271
- 356 Jasanoff 2007:251
- 357 If the -e- in OHG *kenc* etc were long, it would not have been shortened, because OHG allowed a sequence composed of *long vowel or diphthong + nasal + obstruent*, as e.g., *stuont* (pret. of *stantan* 'stand'). Jasanoff 2007:251
- 358 Jasanoff 2007:271, Jasanoff 2007:250-251 (§10)
- 359 See page 8
- 360 Fulk proposed that this **eu* was different from inherited **eu* (**eo*) (see page 39). On the contrary, Jasanoff thinks that there are no two different **eu*, but rather that the evolution of **eu* in OHG and ON does not follow the expected path (i.e., does not yield the 'normal reflex') in case it occurs at the same time as a morphological change, due to the need for '*surface transparency and uniformity*' (Jasanoff 2007:272).
- 361 See page 19 ff.
- 362 See page 56
- 363 See page 19
- 364 Jasanoff 2007:273
- 365 Jasanoff 2007:274
- 366 Jasanoff 2007:273-274
- 367 Jasanoff 2007:275, note 68
- 368 Jasanoff 2007:275
- 369 Jasanoff 2007:276-277
- 370 Jasanoff 2007:277

³⁷¹ Jasanoff observes that it is probably an Anglo-Frisian innovation. Jasanoff 2007:278

³⁷² Jasanoff 2007:278

³⁷³ Jasanoff 2007:278-279

³⁷⁴ See above, page 59

³⁷⁵ Jasanoff 2007:280

³⁷⁶ Jasanoff 2007:281-282

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