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Chapter 5: The Germanic Vowels in Syllables of Lesser Stress

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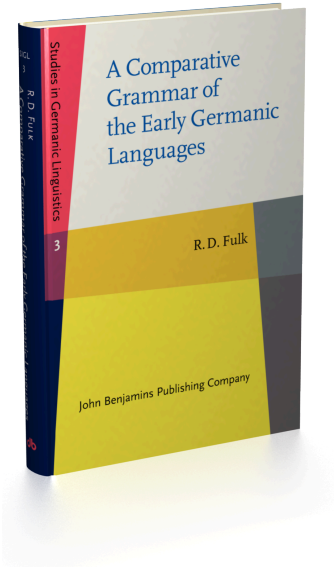

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CHAPTER 5

The Germanic Vowels in Syllables of Lesser Stress

5.1 General remarks

Many uncertainties about vowel development in syllables of lesser stress remain unresolved, even a number of basic issues, and especially matters pertaining to the differentiation of bimoric and trimoric vowels and diphthongs. The general trend in unstressed syllables is for vowels to weaken or disappear, with loss of *a* earlier than of *i* or *u*. Likewise, vowels are generally weakened and lost earlier after heavy syllables than light, as a consequence of Prokosch's law (§2.5). Prokosch himself provides a useful if self-admittedly overly schematic account of the trend, stating that in the first two or three centuries CE "final syllables lost one mora. About five hundred years later a second mora was lost; another five hundred years later, a third" (1939: §49a). Especially notable are changes in final syllables, for which *Auslaut(s)gesetze* 'laws of finals' have been formulated, generating a weighty body of scholarship.[1] Developments in final syllables are difficult to determine for a variety of reasons, including the rarity of attestation of some types of final syllables (especially in Runic), uncertainty as to their form in PIE, uncertainty in any given case as to whether analogy has interfered with phonological development, and notable points of disagreement among the Gmc. languages. In general, however, Prokosch's dictum appears to hold true: Proto-Germanic desinences lost one mora, either a final non-high vowel or a final consonant other than *s/z* or *r*, and otherwise vowels toward the end of the word should not be expected to have weakened in PGmc. itself. For convenience's sake, vowels in syllables of lesser stress will be referred to in this discussion as unstressed. It must be recognized, however, that not all syllables that did not bear primary accent were stressed to the same degree, as the following discussion will demonstrate, and as was shown in §2.2. On ablaut in unstressed syllables, see §3.6.

1. The more salient literature includes Walde 1900, Lane 1963, Hollifield 1980, d'Alquen 1988, Voyles 1988, Boutkan 1995b, Antonsen 2002: 237–60, and Schrijver 2004, with references to many others provided by these. The last five of these represent a trend in the renewed scholarly interest in the laws of finals to attempt to explain developments without recourse to trimoric vowels.

5.2 Short vowels of final syllables

On the standard view, all PIE short, unstressed non-high vowels (*e*, *a*, *o*) in absolute finality were lost in PGmc.[1] Examples: PIE 1 sg. perfect **u̯oi̯da* and 3 sg. **u̯oi̯de* > Go. *wáit* 'know' (cf. Gk. *οἶδα* and *οἶδε*); PIE **-eso* > Go. *-is* in gen. sg. *dagis* 'day' (cf. Gk. gen. sg. *θεοῦ* < **θεόσο* 'god'); 2 pl. imp. **bherete* > Go. *baíriþ* 'bear'. Final high vowels were more resistant to loss, but even they disappear in the post-PGmc. period

after heavy syllables, already in Go., later elsewhere, as in dat. sg. PGmc. **brōþri* 'brother' > Go. *brōþr*, OE *brēðer* (where the umlaut confirms retention of final **-i* relatively late), rare OIcel. *bræðr* beside usual, analogical *bróður*;[2] and PGmc. **tagru* 'tear' > Go. *tagr*, OE *teagor* (cf. Gk. *δάκρυ*).[3] Compare the retention after light syllables in OE *mere* 'sea' < **mari* < PIE **mori* and PGmc. **fexu* 'property, goods, livestock' > Go. *faihu*, OS *fehu*, OHG *fihu*, as well as **filu* 'much' > Go. OS OHG *filu*. That the Go. situation is in part the result of analogy is suggested by OE (Anglian) dat. sg. *milc* < **milyki* < **miluki* 'milk' (or **-ī*?); by comparison, there is no dat. sg. †*mēn(e)þ* < **mōnaþi* < **mēnōþi* 'month'. Under Prokosch's law (§2.5) it might be expected that there would be variable loss in trisyllables, e.g. dat. sg. **ʒumini* 'man' > **ʒumin* but **attini* 'father', without change after a heavy initial syllable, also 3 sg. pres. **fariþi* >**fariþ* 'goes' but **bīðiþi* 'awaits', without change. If there ever existed such variation, however, Gothic has generalized the apocopated endings (*gumin*, *attin*, *fariþ*, *beidiþ*), and there is no secure evidence that the other Gmc. languages did not do the same.[4] Monosyllabic words of lesser stress retained a final short vowel regardless of its height: examples are PIE **ne* > PGmc. **ni* > Go. OHG *ni*, OE *ne*, OFris. OS *ni*, *ne* 'not' and PIE **so* > PGmc. **sa* > Go. *sa*, lengthened in OIcel. *sá* 'this'; cf. loss of the final vowel of the enclitic in Go. *sa-h* '(and) this' < **so-k*^{w}*e*.

Vowels originally protected by a final consonant were not regularly lost in PGmc., though only Runic preserves *a* under such circumstances, as in pp. **haitinaʀ** 'called' (cf. Go. *háitans*, OE *hāten*). This *a* is preserved as well in early loan-words into Finnish (§1.7), e.g. *kulta* 'gold', borrowed from PGmc. **ʒulþa*^{n} < PIE **ǵhl̥tom*. Gothic has also lost *i* before final *s* in most case-forms of *i*-stems like *gasts* 'guest' (cf. the umlaut in OIcel. *gestr*, OE *giest*), but *u* is preserved in *u*-stems (e.g. Go. *handus* 'hand'; cf. the back umlaut in OIcel. *hǫnd*), showing that there is regularization of stems in opposite fashion in the two stem classes in Gothic:[5] to analogically reformed *i*-stem *qums* 'arrival' (cf. OE *cyme* < **k*^{w}*umiz*) cf. *hatis* 'hatred' (transferred to the *a*-stems; cf. *i*-stem OE *hete*, OS *heti*); also fem adj. *nawis* 'dead', etc.[6] In most instances the final consonant that prevented loss of the preceding vowel was itself dropped, as is shown by the loss in forms like PIE 3 pl. **bhudhn̥t* > PGmc. **buðun(þ)* > Go. *-budun*, OE *budon*, etc. 'offered'; PIE *o*-stem acc. sg. **-om* > PGmc. **-a*^{n} (with nasalization) in Runic **staina** 'stone' (but OIcel. *stein*, Go. *stáin*, OE *stān*, etc.); cf. PIE *o*-stem acc. pl. **-ons* > PGmc. **-ans* in Go. *stáinans*, Runic **stabA** 'runestaves'. There must have been loss of *i* early, perhaps in PGmc. itself, in the ending **-omiz* reflected in the dat. (orig. instr.) pl. of a-stems (and the 1 pl. ind. of verbs), since the ending is reflected as *-am* already in Gothic; cf. Runic **-umʀ** (2×) on the Stentoften stone (mid-7th cent.).[7] The only exceptions to the loss of a lone final consonant after an unstressed vowel are *s/z* and *r*. Whereas *s/z* is plainly preserved in NGmc. and in Gothic (and see §§6.6, 6.12 on the fate of *z* in Go.), its development in WGmc. is contested, the commonest assumption being that *z* was lost but *s* preserved (see §6.16). Examples: PGmc. **daʒaz* > Go. *dags*, ON *dagr*, OE *dæg* OS *dag*, OHG *tag* 'day'; PGmc. **under* > Go. *undar*, OIcel. *undir* (without umlaut), OE *under*, OS *undar*, *under*, OHG *untar*.[8] On the development of final consonants, see further §§6.12, 6.14, 6.16.

When *a* was lost in a final syllable (after the PGmc. period, but uniformly across the branches of Gmc.), a preceding glide was nuclearized. The process is partly obscured in WGmc. by the analogical extension of geminates within paradigms, but due to Sievers' law (§5.8), WGmc. high vowels thus generated may in some instances be preserved after heavy stems. Examples are **kunja*^{n} > Go. *kuni* 'kind', OIcel. *kyn* (<

**kuni*, as shown by the umlaut); **rīkija*^{n} > Go. *reiki*, OIcel. *ríki*, OE *rīce*, OS *rīki*, OHG *rīchi* ‘dominion’; **ɣarwaz* > OIcel. *gǫrr* (Proto-Norse **ɣǫruʀ*), OE *gearu*, OS OHG *garo* ‘ready’. The significance of Go. *-w* in a form like *gáidw* (OE *gād* < **ɣaiðwa*^{n}) ‘want, lack’ is disputed: see Krause 1968: §88, Braune 2004b: §42. Very likely *-w* is due to paradigm regularization; cf. *skadus* ‘shadow’ (*u*-stem, originally *wa*-stem: cf. OE gen. pl. *sceadwa*, etc.).

1. Antonsen (2007) argues that Runic **wraita** on the Reistad stone (Norway, ca. 450) is a 1 sg. pret.’wrote’, and thus *-a* was not lost in second syllables in PGmc. The usual interpretation of the word as a noun (and hence with *-a*^{n}) is, admittedly, dubitable, but see Ringe 2017: 143, declaring Antonsen’s analysis impossible.

2. The evidence of *brœðr*, however, is insecure. Other forms suggest early loss of final *-i* in Scandinavia after a heavy syllable, as in Runic **ist** ‘is’ (Vetteland stone, Norway, mid-4th cent.) from PIE **h$_1$es-ti*, and OIcel. *umb*. Note the absence of umlaut, though the word is difficult, since retention of the final vowel in OE *ymbe* (but also *ymb*), OS OHG *umbi* raises doubts about the direct equivalence of Gk. *ἀμφί* ‘around’ usually assumed (e.g. by Hollifield (1980: 33). On this problem see §11.5. The final vowel in such forms perhaps derives from prep. **bī*; rather, Klingenschmitt (1987: 187) explains *ymbe*, *umbi* as proclitic, and thus the final vowel was not, in a sense, word final. OIcel. *ár* ‘early’ (Go. *áir*), without umlaut, probably derives from a loc. **aį(e)ri* (§6.11 *ad fin.*); cf. OE *ǣr*, OS OHG *ēr*, with umlaut, though it is not impossible that the comp. should have been substituted for the positive in WGmc.

3. OE *teagor* (which is poetic, ultimately Mercian) shows back mutation of *æ*, suggesting retention of rounding from lost final **-u* late enough to color the final syllabic sonorant consonant as *or* rather than **er*, as might have been expected after the front vowel in the root (§5.6).

4. A dissenter is Ringe (2002, and in Ringe & Taylor 2014: 289–96 *et passim*), but see §5.6 n. 13 *infra*.

5. That is to say, Gothic must originally have lost unstressed *i* and *u* before a final consonant after a heavy syllable but not a light. That unstressed *i* or *u* before a final consonant was not regularly lost in PGmc. (despite the seeming claim of, e.g. Krahe & Meid 1969: I, §120; but cf. §122) is demonstrated by, among other considerations, Runic forms like **uiniʀ** ‘friend’, **-mariʀ** ‘famed’ (with *ā*: name element, Thorsberg chape, ca. 200), and **waruʀ** ‘enclosure’. Prokosch (1939: §49c) argues rather that *i* and *u* were lost already in PGmc. after heavy syllables or after two syllables (though his remark “which phonetically, or metrically, amounts to the same thing” is not quite right, due, ironically, to Prokosch’s law: see §2.5), otherwise preserved. This would explain some matters, for example why *i* in the inflections of most case-forms of *i*-stems is lost in Gothic (since there must be phonological loss under some circumstances to motivate analogical loss in other environments; but this change appears to be Go. rather than PGmc.), and why there is no umlaut in the sg. of *i*-stems in OS and OHG. The idea faces some rather severe difficulties, however, such as the consistent preservation of *i* even after heavy stems in Runic *i*-stems as early as 200 (as above), of *i* after heavy syllables in loanwords into Finnish, e.g. *tiuris* ‘beast’ from PGmc. **diuriz* (> OE *dēor*), and the consistent umlaut in ON and OE heavy-stemmed *i*-stems, given that the general trend in *i*- and *u*- stems is replacement of the original inflections by *a*-stem (or *ō*-stem) inflections (which thus makes it easier to account for the Go. OS and OHG forms as analogical than the ON and OE ones). The nom. pl. *u*-stem ending **-iwiz* is sometimes said to have developed to **-iuz* already in PGmc. (so., e.g., Heusler 1967: §102; cf. Boutkan 1995b: 83–6), but this need not have been the case. There is valuable material in Streitberg 1896: §§146–7, though his conclusion that *i* (but not *u*) in a final syllable was lost already in PGmc. after a heavy syllable appears to be mistaken.

6. Some regard the reduction of **-is* to **-s* (and loss of final **-i*) in Go. as unconditional, e.g. Bjorvand 1991: 107, Boutkan 1995b: 59–62, 374–5. Thus, for example, *framis* ‘farther’ is to be regarded as analogical to a comp. adj. **framiza-*. Neither analysis appears to be capable of definitive proof, but it is worth observing that categorical loss of *i* would create an imbalance in the phonological development of the high vowels, since *u*, though usually restored, is lost after heavy syllables, as in, e.g., acc. sg. root-stem *baúrg* < **burɣu*^{n} (Krause 1968: §69.2d).

7. Was loss in the ultima earlier in a third syllable than a second? So, e.g., Krahe & Meid 1969: I, §121, calling the change “gemein-germ.” Boutkan (1995b) and Antonsen (2002: 241) work with similar assumptions. If PIE *e* in unstressed syllables is assumed to have become *i* except before *r* (§5.5), the assumption of earlier loss in third syllables would be the simplest way to explain why in the pres. ind. of strong verbs there is not umlaut throughout the paradigm in North and West Gmc. Certainly, *i* is preserved in second syllables in Runic, but rather than regular loss in all third syllables there might be expected conditioned loss governed by Prokosch’s law (§2.5; e.g. **daɣomz* : **stainomiz*), with subsequent generalization of the syncopated form. The

assumption of early loss in third syllables leaves some WGmc. forms with umlaut unexplained, e.g. OE *nd*-stem nom. plurals like *frīend* 'friend' and *hettend* 'enemy' (not †*hettand*).

8. Cf. PGmc. **anþeraz* > Go. *anþar*, OIcel. *annarr*, OE *ōðer*, OS *ōđar*, *ōđer*, *āđar*, OHG *ander*, *andar* 'other'.

5.3 Bimoric vowels and diphthongs of final syllables

The bimoric syllabics of PGmc. reflect diphthongs (originally vowel + glide, §3.1) and long vowels derived from PIE, as well as vowels lengthened upon loss of a final or anteconsonantal laryngeal consonant, e.g. PIE **-oh₂* > **-ō* and PIE **-eh₁-ti* > PGmc. **-ēþ(i)*. Although they are sometimes grouped with the trimoric vowels (see §5.4), vowels contracted already in PIE from vowel sequences without an intervening laryngeal consonant (e.g. PIE thematic masc. nom. pl. **-ōs* < **-o-es*) are almost certainly to be regarded as bimoric.

In absolute finality, PGmc. *ō* develops to Go. *a* but NWGmc. *u*: cf. Runic 1 sg. pres. **wᵃritu** 'write' on the Järsberg stone (ca. 450) < PGmc. **wrītō*. In NGmc. this *u* is lost altogether (after causing fracture and *u*-mutation, §4.8), whereas in WGmc. it is lost only after heavy syllables, though it is frequently restored on an analogical basis, especially in OS and OHG. Examples: PGmc. **ʒeƀō* 'gift' > Go. *giba*, OIcel. *gjǫf*, OE *giefu*; PGmc. **laiƀō* 'remnant' > Go *láiba*, OIcel. *leif*, OE *lāf*;[1] PGmc. pres. 1 sg. **farō* 'go' > Go. *fara*, OIcel. *fer* (with analogical *e*), OE (Anglian) *færo*, *fearu*, OS OHG *faru*. Developments in monosyllables of lesser stress are less certain: PIE fem. **sō* 'this' gives Go. *sō* but OIcel. *sú* (perhaps lengthened from **su*: see §8.10); but to PIE **dō* > Go. *du* 'to' cf. OE OFris. OS *tō*, OHG *zuo*; plainly, the mutual influence of stressed and unstressed forms played a role.

For the most part, PGmc. *ō* was preserved as such when a consonant originally followed. This *ō* is reflected as *ō* in Gothic, *a* in NGmc., and probably *a* in WGmc. Under such circumstances final *-s/z* was preserved in PGmc. (§6.11), and the development of *ō* before it may be illustrated by the reflexes of the PIE nom. pl. masc. *o*-stem ending **-ōs* (< **-o-es*) reflected in Go. *dagōs* 'days', OIcel. *dagar*, OE *dagas*, OS *dagos*, *-as*; yet the WGmc. evidence is mostly insecure, due to the possible analogical influence of the acc. pl. inflection (§7.8). Final *r* was also preserved, and before it *ō* apparently remained in Gothic and developed to *a* in WGmc. (> OE OFris. *e*), as in Go. *fidwōr*, OE *fēower*, OS *fi(u)war* 'four' (Stiles 1985–6); perhaps also **watōr* > OE *wæter*, OS *water*, *watar*, OHG *wazzar* 'water' (cf. Gk. *ὕδωρ*). When final *n* (PIE *n*, *m*) originally followed, it was lost and the vowel nasalized, the vowel still reflected as *ō* in Runic NWGmc. (e.g. **runo** on the Einang stone, ca. 350–400), resulting otherwise in *a* (OE and OFris. *e* < *æ*), as with the PIE acc. sg. *ā*-stem ending **-eh₂-m* > **-ān* > **-ōⁿ*, as in Go. *giba* 'gift', OE *giefe*, OFris. *gife*, OS *geƀa*, OHG *geba*.[2] The same change is seen in monosyllables of lesser stress, except that the Go. reflex is *ō*, e.g. PIE fem. acc. sg. **tah₂-m* 'this' > **tām* > PGmc. **þōⁿ* > Go. *þō* and re-lengthened OIcel. *þá*, OE *þā*.

In absolute finality, *ēₗ* (/ɛ:/) developed to *a*, which is securely reflected only in Gothic, as in PIE instr. **-e-hₗ* > **-ē* in Go. dat. *stáina* (cf. original instr. *þē* in Go. *ni þē haldis* 'none the more'; also Go. dat. *ƕammēh* 'every' < PIE **-eh₁-kʷe* : *ƕamma* 'who' < PIE **-e-hₗ*, but see §7.8 on the *a*-stem dat. sg.). It is perhaps lost altogether in WGmc. endingless locatives (§7.8 under **dat. sg.**, but for alternative explanations see Dahl 1938: 51–5, Braune 2004a: §193 Anm. 8), and in the gen. of dual and plural personal

pronouns, e.g. OS *ūser* ‘of us’ (§8.2). Final *ē* in a monosyllable of lesser stress is preserved in Go. *þē* (above; cf. Gk. (Thera) *τη-δε* ‘in this way’) and OE *ðē* (as in *nā ðē raðor* ‘none the sooner’). When originally protected by a final consonant, *ē* is preserved as such in Gothic, with various developments in the other Gmc. languages, as in the PIE ablative ending **-ēd* > PGmc. **-ē(t)* in Go. *hidrē* ‘hither’ OIcel. *heðra*, OE *hider*, like Go. *hvadrē*, OE *hwæder* ‘whither’.[3] A possible exception in Gothic is before final *r*, assuming the development PIE **ph₂tḗr* ‘father’ > PGmc. **faðēr* > Go. *fadar*, OIcel. *faðir* (without umlaut; cf. Runic **swestar** ‘sister’, §5.6 n. 4), OE *fæder*, OS *fadar*, OHG *fatar*. Yet now it seems likelier that Go. *fadar* reflects the stem **faðer-* found in the voc. and acc. (cf. Gk. acc. *πατέρα*, and see Stiles 1988), given that long vowels protected by a final consonant are generally unshortened in Go.

PIE *ī* in absolute finality is reflected as *i* in Gothic (not *ei*, hence short). Elsewhere in Gmc. it should have developed the same way as *i* before a final consonant, being lost everywhere in ON, and after heavy syllables in WGmc., though the evidence is insufficient to prove this. Examples: Go. fem. *frijōndi* ‘friend’ (§7.40), likewise *mawi* ‘girl’ < **maƶwī*, fem. to *magus* ‘boy’. Before an original final consonant, *ī* preserved its length, to judge by the nom sg. of the *īn*-stems, e.g. Go. *managei*, OHG *menigī* ‘multitude’: see §7.34.

There is no secure evidence for PIE *ū* in a Gmc final, unstressed syllable.

PIE *oi* and *ai* are reflected in absolute finality as Go. *a*; in NWGmc. they were monophthongized to *ǣ* (thus falling together with PGmc. *ē₁*), as shown by Runic hypercorrect spellings in *ai* for the reflex of *ē₁*, e.g. **talgidai** ‘carved’ (Nøvling clasp, ca. 200: see Antonsen 1975: 5, but cf. Hollifield 1980: 150, H.F. Nielsen 2000: 160–4). This NWGmc. *ǣ* develops to OIcel. *e* > *i*, OE *æ* > *e*, OS OHG *a*. Examples: PIE 3 sg. middle **-toi* is reflected in Go. *háitada* ‘is called’ (OIcel. 1 sg. *heite* > *heiti*, with PIE **-ai*; see §§12.5, 12.29), OE *hātte* < **hāttæ*. The reflexes of PIE *ou* and *au* in absolute finality cannot be determined: Go. *u*-stem vocatives have both *-u* and *-áu*.

A developmental distinction needs to be drawn between PIE short and long diphthongs in Gmc. unstressed syllables.[4] The only very convincing evidence for the distinction, however, is the *u*-stem dat. (originally loc.) sg. inflection, PIE **-ēu̯* > PGmc. **-ēu* > Go. Runic OHG *-iu* (§7.25); cf. PIE **-eu̯-* in *u*-stem nom. pl. PIE **-eu̯-es* > PGmc. **-iwiz* > Go. *-jus*, NWGmc. **-iuz* > **-iz*. To be sure, PIE **-ēu̯* and **-eu̯-es* are not directly comparable, but the distinction between, e.g., OHG *-iu* and *-i* is suggestive, given that the original extra syllable in the latter ending might have been expected to provide greater protection for the diphthong that developed. The corresponding *i*-stem ending is inconclusive (see §7.21), and the other examples of PIE long diphthongs generally cited in support of a distinction (e.g. by Krahe & Meid 1969: I, §129) either develop the same way as short diphthongs or are actually trimoric as the term is defined in §5.4.

1. In OS and OHG *ō*-stems the acc. inflection *-a* has been substituted for the nom., hence OS *geba*, *lēba*, OHG *geba*, *leiba*.

2. OIcel. *gjǫf* is modeled on the nom. The original ending is reflected as *-a* in fem. adjs., e.g. acc sg. *spaka* ‘prescient’.

3. For this reason it is difficult to see how the weak 3 sg. pret. suffix can be reconstructed as PIE **dhēt* > PGmc. **-ðē(þ)*, yielding Go. *-da* and NWGmc. **-ðǣ* > OIcel. *-ði*, OE *-dæ* > *-de*, OS *-da*, OHG *-ta*. See §12.60, and cf. NWGmc. *ē* or *ǣ* in Runic 3 sg. pret. **tawide** ‘made’ (Garbølle Box, Zealand, ca. 400). It is thus tempting to suppose (with Krahe & Meid 1969: I, §§47, 124) that Go. *a* is the regular development of bimoric *ē* in all final syllables. But if the final vowel of Go. *hidrē* is trimoric in origin, as they suppose, the definition of trimoricity offered below in §5.4 cannot be correct unless *-ē* is not in origin an ablative ending (so

Hollifield 1980: 37). The matter cannot be resolved here. But possibly when originally protected by a final nasal consonant, bimoric *ē* developed to *ē* in Gothic, elsewhere to *a* (> OE *æ* > *e*), hence PGmc. **simlē^{n}* (?) > Go. *simlē* 'formerly', OE *sim(b)le* 'always', OS *sim(b)la*.

4. Long diphthongs are technically trimoric, but in the present context long diphthongs are to be regarded as involving PIE lengthened grade rather than later lengthening upon loss of a laryngeal consonant, and so long diphthongs in the present context do not belong to the category of trimoric vowels as defined in §5.4. On the other hand, it cannot be proved that the distinction is genuine, since there is no evidence for a trimoric Gmc. *êu* in opposition to merely long *ēu*.

5.4 Trimoric vowels and diphthongs

A persistent problem in the analysis of final syllables is a set of inconsistencies in the development of certain long vowels. For example, the PIE *o*-stem gen. pl. ending **-ōm* and *ā*-stem acc. sg. **-ām* should both have developed to PGmc. **-ō^{n}*, yet they yield Go. *-o* and *-a*, respectively. Of the various attempts to account for such discrepancies, the one that now enjoys the most favor is the assumption that in PGmc. there were two types of long vowels. Most long vowels were simply bimoric. But when two syllabic segments were separated by a PIE laryngeal consonant, hiatus might remain upon loss of the consonant, delaying contraction. The plainest evidence of this is in Indo-Iranian, where the meters of Vedic Sanskrit and Avestan verse sometimes require that a long vowel be scanned as two syllables. This is relatively common in, e.g., the gen. pl. of all genders, where Vedic *-ām* is not infrequently equivalent to *-aam*. On the commonest view, the distinction between the reflexes of long vowels and uncontracted vowels is maintained in Gmc., where the two develop differently. In Gmc. linguistics the latter are referred to as trimoric. At one time it was the standard view that the difference between bimoric and trimoric vowels was intonational, the former bearing *Stoßton*, the latter *Schleifton*, an opposition that may be characterized as distinguishing even intonation and changing intonation, respectively (on which see §2.1). This view is no longer current, since Kuryłowicz (1958: 106–368) showed that the intonation oppositions of Greek and Lithuanian cannot have been inherited as such from PIE. Thus, for some scholars the term 'trimoric' is intended literally, denoting vowels three morae in length (so, e.g., Jasanoff 2004). To such an assumption it has been objected that since trimoric vowels are found only in final syllables, the assumption of such vowels requires a greater number of quantitative distinctions in unstressed than in stressed syllables (Schrijver 2004: 199), a typological improbability. Yet that is not necessarily the case, since stressed bivocalic sequences due to loss of an intervening laryngeal consonant must have occurred at some point in the development of Gmc.; there is simply no evidence that they developed differently from other long vowels in stressed syllables, nor should any such difference be expected. It is also possible, however, that trimoric vowels were simply uncontracted vowels which remained uncontracted until unstressed bimoric vowels were shortened, and then trimoric vowels contracted and remained as long vowels for a time.[1] In reconstructions in this book, trimoric vowels and diphthongs are indicated by a circumflex diacritic, e.g. *ê*, *ô*, *ôi*, etc., though other notational devices will be encountered in the literature.

It was once widely agreed that trimoric vowels arose in environments in addition to the perilaryngeal one just described.[2] The PIE thematic masc. nom. pl. inflection **-ōs* < **-o-es* was regularly regarded as an example (so, e.g., Fulk 1992: 420, Ringe 2017: 92), but it is now to be doubted that vowels arising in this manner were trimoric.[3]

Likewise, compensatory lengthening upon loss of a final consonant has sometimes been thought to result in a trimoric vowel: so, e.g., Bammesberger 1990: 167 n. 275, 169. Similarly, Prokosch (1939: §49n) analyzes the trimoricity in the PGmc. gen. sg. inflection *-*ôz* of the *ō*-stems as due to compensation for the loss of a final vowel in PIE, i.e. '*-ā-so* > *-*âs* (*θεâς*)' (cf. masc. *-*so*), but rather the ending is to be analyzed as *-*eh₂-es* or *-*eh₂-os*, given that the consonant-stem inflection is *-*es* or *-*os* (§§7.2, 7.15). Very likely trimoric vowels did arise in PGmc. upon the loss of *j* between unstressed vowels (§6.11 *ad fin.*), though the evidence is not unassailable (see below). On PIE long diphthongs, see §5.3 n. 4.

In addition to the differing developments of bimoric and trimoric vowels, some evidence for trimoric vowels in Gmc. is furnished by the meter of *Beowulf*, in which originally trimoric vowels, like inflections ending in a consonant, prevent resolution under secondary stress, whereas final, originally bimoric vowels, at least when shortened, demand resolution, a principle now known as Kaluza's law.[4] The fem. *ō*-stem gen. sg. inflection (as above), for example, is one that prevents resolution (see *Beowulf* 2118a).

It will thus be seen that in studies of trimoricity it has commonly been the assumption that the distinction between bimoric and trimoric vowels rests upon whether or not they could be shortened in PGmc., with Gothic providing the most reliable evidence. But it was shown above that bimoric vowels protected by a final consonant were not generally shortened in PGmc., and thus, many endings formerly thought to reflect trimoric vowels can be better explained as preserving length because of the original presence of a final consonant. The distinction is of some significance, since bimoric and trimoric vowels and diphthongs in final syllables closed by a consonant do not always develop identically. An example is Go. *ō*-stem acc. sg. *-a* < *-*ō*ⁿ < *-*eh₂m* : gen. pl. *-ō* < *-*ôⁿ* *-*oHom*; another is Go. 3 sg. pass. *-da* < PGmc. *-*ðai* < PIE *-*toi* : Go. *ō*-stem dat. sg. *-ái* < PGmc. *-*âi* < PIE *-*eh₂-ei̯*; a probable example (see §5.3 n. 3) is Go. weak 3 sg. pret. *-da* < *-*ðēþ* < **dhehₜt* : adverbial *-ē* (as in *jáindrē* 'thither', *hidrē* 'hither') < *-*êð* < *-*ehₜet*. In addition, bimoric and trimoric vowels in absolute finality develop differently, as with Go. 1 sg. pres. ind. *-a* < PGmc. *-*ō*, but cf. Go. pret. 3 sg. *saísō* < PGmc. **se-zô* < PIE **se-sóhₜ-e*. Ringe (2017: 91; not his notation) tabulates the different developments of bimoric and trimoric *o*-timbre vowels as follows:

PGmc.	Go.	ON	OE	OHG
*-ō	-a	*-u > Ø	-u ~ Ø	-u ~ Ø
*-ōⁿ	-a	-a	-æ > -e	-a
*-ô, *-ôⁿ	-o	-a	-a	-o
*-ōz	-os	-ar	-æ > -e	-a
*-ôz	-os	-ar	-a	-o

The most securely attested trimoric vowels and diphthongs of PGmc. (as defined here) and their developments are as follows:

The PIE *o*-stem ablative sg. ending *-*o-hₜed*[5] is reflected as an adverbial ending in PGmc. *-*ô(t)*, e.g. Go. *ga-leikō* 'in like manner', OIcel. *líka*, OE *ge-līce*, OFris. *līke*, OS *gi-līko*, OHG *gi-līhho*. PGmc. *ô* in the gen. pl. *a*-stem inflection *-*ôⁿ* < PIE *-*oHom* (?) develops similarly, except that the Go. inflection *-ē* is of disputed origin (§7.8), and in Anglo-Frisian the nasalized (and thus unfronted) vowel remains long relatively late, as shown by the treatment of the inflection as heavy in the meter of *Beowulf* under Kaluza's law: so, e.g., gen. pl. Go. *dagē*, OIcel. OE *daga*, OS *dago*, OHG *tago* 'day'.

A trimoric vowel must be assumed in certain masc. and neut. *n*-stem inflections, e.g. Go. neut. nom. sg. *haírtō* 'heart', masc. OE *nama*, OHG *namo* (cf. PGmc. *-ō^{n}* in acc. sg. Go. *giba*, OE *giefe*, OFris. *gife*, OS *geƀa*, OHG *geba* 'gift'). In this instance, however, *ô* is certainly not due to loss of an intervocalic laryngeal consonant, and although there are parallels to the trimoricity in Balto-Slavic (see Jasanoff 2002), such forms present a considerable obstacle to explaining Gmc. trimoricity purely on the basis of derivation from PIE.[6] An example of a trimoric *ô* in absolute finality was given above, Go. *saísō*, OIcel. *sera* 'sowed' < * *se-sóh$_1$e*. The endings of the 1 & 3 sg. pres. sj. of weak verbs of class 2 (Go. *-ō*, OHG *-o*, etc.) give evidence of a trimoric vowel that arose in PGmc. by the loss of intervocalic *j* (Ringe 2017: 160). A fairly plain demonstration of the different developments of bimoric and trimoric vowels is afforded by the OE *ō*-stem inflections (§7.15), originally nom. pl. *-a* < *-*ôz* < PIE *-*eh$_2$es* : acc. pl. *-e* < *-*ōz* < PIE *-*eh$_2$ns* (Hollifield 1980: 43).

The PIE *i*-stem nom. pl. ending *-*ei̯-es* should have developed to PGmc. *-*i(j)iz* > *-*îz*, and this accounts well for Go. *-eis* and ON *-ir*, though *-*īz* would probably produce the same results, and the WGmc. endings are difficult to explain (see §7.21).

The PIE *ā*-stem dat. sg. inflection *-*ah$_2$-ei̯* gives PGmc. *-*ôi*, which develops regularly in Gothic (*-ái*) and in OE (*-e* < early *-æ* < NWGmc. *-*ǣ*); on the reflex elsewhere in Gmc., see §7.15. Compare the development of final bimoric *ai* to Go. *a* in 3 sg. pass. *-da*. The meter of *Beowulf* attests to a trimoric vowel in the masc. nom. pl. inflection of adjectives; perhaps the best explanation is that pronominal PGmc. *-*ai* (PIE *-*oi̯*) was added to the ending *-a* (Brunner 1965: §150.1).[7]

If the analysis of weak verbs of the third class offered by Bennett (1962) is correct, certain forms in the present paradigm of these might be expected to show PGmc. *-*âi-* < *-*a(j)i-* < PIE *-*h$_1$i̯-e-*, e.g. Go. 2 sg. *habáis* 'have', OE (Anglian) *hafas(t)*, OS *haƀes*, *-as*; but OIcel. *hef(i)r* is hard to reconcile with this view (§12.47).

It will be seen, then, that if trimoric vowels result only from the loss of a laryngeal consonant between vocalic segments or the loss of *j* between unstressed vowels in PGmc., the undeniable examples are few—many fewer than the handbooks generally allow—and undeniable exceptions do occur.[8] A great many of the supposed discrepant developments of bimoric and trimoric vocoids must instead be due to differences between the development of bimoric vowels in absolute finality and before an original final consonant.

An alternative to the assumption of PGmc. trimoric vowels is the hypothesis that PIE *ā* and *ō* developed differently in WGmc., and perhaps elsewhere, when unstressed, except in absolute finality, where they both result in PGmc. *ō* (Möller 1880, Jellinek 1891a, 1895, van Wijk 1907–8, A.W. Jones 1979; cf. Boutkan 1995b: 105–9). The idea has been revived and defended by Schrijver (2004), with extensive discussion and the theory of a Saami substrate in NWGmc. Earlier it was supposed that the *Auslautgesetze* could be regularized on the basis of accentual considerations: so, originally, Paul 1879: 178–208, later Hamp 1959, Wagner 1986b: 43–8, d'Alquen 1988.

1. For most purposes it matters little what the precise nature of trimoric vowels was, though certain analyses depend upon a particular specification, e.g. the argument of Jasanoff (2002: 37) that an extra mora was added to final *-ō* in Gmc. and Balto-Slavic, creating a trimoric vowel (see §7.31 n. 4) and the argument of Lane (1963) that trimoric vowels arose only when one of the two vowels involved was long. Similar to Lane's is the view of Ringe (2017: 93, 153–64), though he also credits trimoricity as a result of contractions like PIE *-*o-es* > *-*ōs* and of word-final vowel plus laryngeal, and he suggests that trimoric vowels may have been glottalized. Similarly, rejection of the theory of trimoricity generally depends upon a particular interpretation of what is meant by trimoricity: for example, Boutkan, who describes trimoricity as a matter of quantity and rejects the theory, nonetheless reconstructs a bivocalic sequence for the gen. pl. (1995b: 140, following F.

Kortlandt). Although the distinction between bimoric and trimoric vowels remains central to many approaches to the laws of finals, it should be said that the distinction is rejected by many, e.g. Marchand (1973: 102).

2. Hirt (1894: 99–117, summary 115–17) identifies four sources of trimoricity in PIE: contraction (e.g. abl. sg. **-o-ed* > **-ôd*), loss of a syllable (e.g. *i*-stem gen. sg. **-oi̯so* > **-ôis*), compensatory lengthening upon loss of a consonant (e.g. *ā*-stem acc. pl. **-āns* > **-âs*), and some other, unknown factor (e.g. Gk. diphthongal stem voc. *βασιλεῦ* 'king' : nom. *βασιλεύς*).

3. So, e.g., Jasanoff 2004: 22–3. Lane (1963: 165) remarks that although this plural ending **-ōs* (> Skt. *-ās*) must occasionally be scanned as disyllabic in Vedic verse, so must a number of endings that cannot be the result of contraction of any sort, and neither they nor this **-ōs* is disyllabic with anything approaching the frequency of the corresponding fem. ending *-ās* < **-eh₂-es*. Disyllabic scansion in these other endings thus must be analogical. See also Lindeman 1987: 45–6 on analogical scansions. The meter of *Beowulf* unfortunately provides no evidence on this score.

4. For example, in the verse *wīs wordcwida* there must not be metrical resolution of *-cwida* (with *-a* < PGmc. **-ôⁿ*), as the verse would otherwise comprise just three metrical positions rather than the requisite four, whereas in the verse *nȳdwracu nīþgrim* there must be resolution of *-wracu* (with *-u* < Gmc. **-ō*) to reduce the verse from five positions to four. For discussion and references, see Fulk 1992: §§153–68, and for subsequent scholarship, Neidorf & Pascual 2014.

5. So Beekes 2011: §13.2.9. Most studies regard the PGmc. vowel (and the Proto-Baltic) as trimoric, though Fortson (2010: §6.45) expresses uncertainty about the laryngeal. See Hollifield 1980: 27–8. Certainly Beekes is not justified in reconstructing the corresponding dat. inflection as **-oh₁ei* rather than **-ōi* < **-o-ei*. Lane (1963: 167) adduces evidence from Vedic meter for trimoricity in the ablative ending, though there remains room for doubt. On the uncertainties involved in adverbial endings, see Boutkan 1995b: 378–81. As the example illustrates, distinguishing trimoric from bimoric vowels in PGmc. is fraught with difficulties. For an excellent overview of the problem, see Stiles 1988.

6. It is noteworthy in this context that the reflex of the PGmc. *ō*-stem acc. sg. ending **-ōⁿ* prevents metrical resolution at *Beowulf* 596a, though it, like the *n*-stem endings here discussed, does not involve loss of an intervocalic laryngeal in the usual reconstruction (**-ōⁿ* < **-ām* < **-eh₂-m*, not **-eh₂-m̥*). This inflection is not commonly disyllabic in Vedic, but the Proto-Baltic ending also points to a trimoric vowel (see Hollifield 1980: 28), and so perhaps the same process that produced a trimoric vowel in the *n*-stem masc. and neut. nom. sg., whatever that process was, also produced trimoricity here.

7. The possibility must be recognized, however, that trimoric and unshortened bimoric vowels were treated identically under Kaluza's law. The (non)resolvable verses in *Beowulf* relevant to this question are few.

8. For a tabulation of endings containing trimoric vowels according to the handbooks' most liberal interpretation, see Boutkan 1995b: 115–20.

5.5 Changes of medial vowels in the early preliterary period

For the most part, in the PGmc. period vowels in syllables of lesser stress underwent the same changes as fully stressed vowels, but some differences are to be remarked.

It is commonly reported that PIE *e* develops to PGmc. unstressed *i* except before *r*: so, e.g., A. Campbell 1977: §331.2; Krahe & Meid 1969: I, §45. Examples are nom. pl. **lambezō* > **lambizu* > OHG *lembir* 'lambs' and pp. **kʷumenaz* > **kumin* > OE *cymen* 'come', but **afteraz* > OE *æfter* 'after' (without umlaut; cf. Go. *aftarō* 'in back of', with analogical *-ō*, and Skt. *apataram* 'farther off'); also PGmc. **anþeraz* > Go. *anþar*, OIcel. *annarr*, OE *ōðer*, OS *ōðar*, *ōđer*, *āđar*, OHG *ander*, *andar* 'other'; **faðer-* > Go. *fadar*, OIcel. *faðir*, OHG *fater*. There are exceptions, however, such as 2 pl. pres. **ʒraƀeþe* > OIcel. *grafið*, OHG *grabet* 'dig' (without umlaut) and gen. sg. **daʒes(a)* > OHG *tages* (see §7.8 on the inflection), though of course these can be explained as due to substitution of *e* for *i* after the PGmc. period, or other analogical developments. Accordingly, some suppose that in unstressed syllables as in stressed there was raising of *e* only before a high vowel in the next syllable (so, e.g., van Helten

1891: 460, Hirt 1931–4: 1.41, Boutkan 1995b: 72–89; but see §4.4 *supra* regarding the reliability of this formulation for stressed syllables), as for instance in 2 sg. pres. **ʒraƀesi* > **ʒraƀis(i)/-iz(i)* > OIcel. *grefr*, OHG *grebis* 'dig'. Even if the latter is the case, though, it must be assumed that *e* yields *i* before final *z*, as in the *s*-stem nom. sg. (so, e.g., Antonsen 2002: 240–1). Yet once again there are exceptions. The PGmc. suffix **-il-* causes umlaut wherever it can (OE *yfel* 'bad', *micel* 'large', *lȳtel* 'little', etc.), though it corresponds to both *-ελ-* and *-ιλ-* in Greek (*στυφελός* 'solid', *ποικίλος* 'pied', etc.); likewise, PIE **ne* 'not' (Skt. *ná*, Lat. *ne-* in *nesciō* 'not know', *nefās* 'abomination', etc.) gives PGmc. **ni* (Go. OFris. OS OHG *ni*, unstressed). It was shown above (§4.4) that the raising of *e* to *i* in stressed syllables is subject to many exceptions, probably due to elimination of paradigm alternations, and the same should be expected in unstressed syllables if the change was similarly a type of distance assimilation. The assumption that unstressed *e* was everywhere raised except before *r* has in its favor the development of *e* to *i* in unstressed monosyllables, e.g. PGmc. **ek* > OE *ic*, OS *ik*, OHG *ih* (OIcel. *ek* reflects the tonic form), and PIE **ne* > PGmc. **ni* (above). The evidence is too insecure to draw any firm conclusions at present, but certainly the reflex of PIE *e* in Gmc. unstressed syllables is most commonly *i*, except before *r*.[1]

As for PGmc. **er*, it is sometimes asserted that this changed categorically to **ar* in PGmc. or in NWGmc.[2] Yet the handbooks of ON (e.g. Heusler 1967: §§105, 113) relate that this change is to be expected only in originally medial syllables: to OIcel. *annarr* 'other' < **anþeraz* cf. *undir* 'under' < **under* (§5.6 & n. 3). Moreover, it is most commonly assumed that PGmc. final **-er* remains as such in Anglo-Frisian (so, e.g., Brunner 1965: §44 Anm. 4, A. Campbell 1977: §369), though it is also possible that final **-er* changed to **-ar* in WGmc., becoming **-ær* by Anglo-Frisian Brightening (§4.12), later *-er*. In support of the latter view, Ringe points out that WGmc. **-ar* does, after all, yield OE *-er* in OE *fēower*, OFris. *fiower*, *fiuwer* 'four' (Ringe & Taylor 2014: 18). Yet this observation does not demand that OE *under* be derived from WGmc. **undar*. The spelling of 'after' with ⟨er⟩ in early Northumbrian (in both *Cædmon's Hymn* and *Bede's Death Song*) speaks for the usual interpretation, but then early Anglian spellings of 'over' with ⟨aer⟩ (*Leiden Riddle*, Épinal Glossary, in the latter beside ⟨er⟩), must be assumed to show confusion of unstressed vowels. OHG *ander* 'other', *after* 'after', however, are hard to explain if **er* became **ar* in PGmc. (Braune 2004a: §§64, 65 Anm. 3). The question cannot be settled conclusively, though one's view about this is likely to parallel one's view about whether PGmc. $\bar{e}_1$ developed categorically to *ā* in NWGmc. (§4.6).

Although PIE *o* regularly developed to *a* in PGmc. stressed syllables (§3.2), it is usually thought to have remained *o* longer under certain unstressed conditions.[3] According to this view, as a connecting vowel in compounds it probably remained rounded before labial consonants, given the evidence of early Germanic names preserved in Latin texts, such as *Ario-vistus* and *Lango-bardi*. In NWGmc. it is reflected as *u* (but Go. *a*) before *m*, as with the development of PIE **-omis* to PGmc. **-o-m(i)z* in dat. pl. Go. *stáinam* but OIcel. *steinum*, OE *stānum*, OS *stēnum* OHG *steinum*, and of PIE **-omes* to PGmc. **-om(i)z* in 1 pl. pres. Go. *baíram* but OIcel. *berum* (and cf. OHG *berumēs*) 'bear'.[4] A similar development is commonly said to affect both this same *o* and also *ō*, which developed to *u* and *ū*, before *u* in the next syllable.[5] This change is sometimes regarded as coeval with the other (see, e.g., A. Campbell 1977: §331.6), though the NGmc. evidence is insecure. Examples: PGmc. **-on-um* > **-onu^n* > *-un* in the acc. sg. of masc. *n*-stems, e.g. OS *gumon*, *-un*, OHG *gomon*, *-un* 'man', OE (North-

umbrian Runic) **galgu** ‘gallows’;[6] PGmc. *-*ōn-um* > *-*ōnuⁿ* > *-ūn* in the acc. sg. of fem. *n*-stem nouns, e.g. OHG *zungūn* ‘tongue’, OE (Northumbrian) *foldu* ‘earth’, *eorðu* ‘earth’.[7] The ON evidence for these latter changes is almost all capable of alternative explanation,[8] and perhaps even seemingly convincing examples can be accounted for otherwise, such as agentive nouns in *-uðr* < *-*ōðuz*, e.g. OIcel. *mjǫtuðr*, OE *me(o)tod*, OS *metod* ‘God’ (*‘deliberator’: cf. **metōjanaⁿ* > Go. *mitōn* ‘plan’; further examples in Kluge 1926: §29).[9] For details, see van Helten 1891: 460–7, Walde 1900: 167–79. See also below (§5.6) on *ō* > *ū* in NWGmc.

There is no scholarly consensus about the development of PIE syllabic laryngeals in Gmc. unstressed syllables. From the equation PIE * *dhug(h)ḫ₂tér-* > Skt. *duhitár-* = Gk. *θυγατέρ-* = Go. *daúhtar* ‘daughter’ it would seem that a syllabic laryngeal was simply lost.[10] Yet it has been questioned whether the laryngeal in this word was actually syllabic in PIE or whether it was vocalized on a dialectal basis (see Fulk 1988: 153; Hackstein 2002). Not infrequently it has been argued that a syllabic laryngeal may under some conditions be reflected as *u* (so, e.g., Streitberg 1896: §56, Lehmann 1952: 53–5). The hypothesis of Bennett (1978, supported by Ringe 1988: 429) that *H̥* was lost in medial syllables but preserved as *u* in final ones, aside from lacking any straightforward phonological rationale, faces the difficulty that the securest example of PIE *H̥* > Gmc. *u*, OE *ened*, *æned*, OHG *anut*, *anot* ‘duck’ < **anuði-* (cf. Skt. *ātíḥ*, Lith. *ántis*, Gk. *νῆσσα* Lat. *anas*, gen. *anatis*) is to be reconstructed as an *i*-stem, and thus *H̥* would not have appeared in a final syllable in any PGmc. case-form.[11] By contrast, the likeliest explanation of OE *birce* ‘birch’ (< PIE **bherH̥ĝ-*) and its Gmc. cognates is that *H̥* has been lost from such forms without a trace: cf. PIE **bhr̥H̥ĝ-* in Skt. *bhūrja-*. A comprehensive explanation remains to be devised.[12]

1. For discussion and references, see Boutkan 1995a, 1995b: 72–89, who concludes that in NWGmc., *e* was raised to *i* only before *i* or *j* in the next syllable, or before the reflex of PIE *s*. In the latter study he draws this conclusion on the basis of four inflections: (1) PIE 2 & 3 sg. pres. ind. **-esi*, **-eti* > **-is*, **-iþ*; (2) PIE *o*-stem gen. sg. **-éso* as reflected in OHG *-es*; PIE 2 pl. ind. **-et(H)e* as reflected in OHG *-et*; and (4) PGmc. *n*-stem gen. & dat. sg. **-ena/es*, **-eni* as reflected in OHG *-en*, *-in*, respectively. Cf. the discussion in Ringe 2017: 147–51 (*contra* Lloyd 1961), with counterexamples.

2. See, e.g., Stiles 1988: 133, 136 n. 4, Ringe 2017: 150. The relevant article cited by Stiles as forthcoming, however, appears never to have been published.

3. See Eulenburg 1904, responding to Bremer 1903 (where it is argued that all the evidence of personal names may be due to inflectional endings in the classical languages, or to Celtic influence); likewise Banta 1980, Polomé 1994: 4–5. Boutkan (1995b: 90) credits Bremer’s argument, but the restriction of preserved *o* almost entirely to the position before a labial consonant (as pointed out by Eulenburg) raises significant doubts. Still, as Boutkan remarks, the allophones of PGmc. /a/ cannot be known, and it is not necessary to assume the maintenance of a phonemic distinction between PIE *a* and *o* in any environment in PGmc., as /a/ may have been rounded in some environments.

4. Beeler (1979) proposes instead that *o* developed normally to *a*, which was subsequently lost, producing nuclearization of *m*, leading to *-um*.

5. Boutkan (1995b *passim*) refers to this raising as van Helten’s law: see van Helten 1891: 460–3, and see Hollifield 1984 for a detailed study. The idea is rejected in Ringe & Taylor 2014: 62–5.

6. Note, however, that Walde (1900: 169) explains Northumbrian *-u* in such masc. forms as analogical to WGmc. fem. forms with *ū* < *ō*. Streitberg (1893: 49–50) objects to a phonological change *ō* > *ū* on the ground that *ē* does not become *ī* before *i*, but it must be remembered that the PGmc. (and NWGmc.) inventory of long vowels was asymmetrical.

7. The WGmc. *s*-stems are sometimes invoked in evidence of this change, but on some of the difficulties involved see Hogg & Fulk 2011: §2.99 nn. 1–2, and cf., e.g., von Unwerth 1910: 11.

8. The handbooks of ON (e.g. Noreen 1970: §148) generally prescribe that *u* (*o*) in a form like nom. acc. pl. neut. *heilug* ‘holy’ (< **xailaʒō*) is developed from *ǫ*, the latter due to back mutation of *a* (§4.8). This would

place the development of *u* in such forms well after the close of the NWGmc. period. Inscriptions in the Older Futhark afford no unambiguous evidence, but since PGmc. *-er-* develops to *-ar-* in NGmc. (but perhaps not throughout WGmc.: §5.5), the development seen in PGmc. nom. sg. fem. **anþerō* > **anþaru* > **annǫru* > OIcel. *ǫnnur* 'other' would seem to date the change to the post-NWGmc. period.

9. The change has not yet occurred ca. 500 CE in the form **haukoþuʀ** on the Vånga stone from Sweden (if in fact **-oþuʀ**, with *ō*, represents this same agentive suffix).

10. See the references in Szemerényi 1996: §5.3.4 Addendum.

11. See Fulk 1988: 153–4, 170–1. Boutkan (1995b: 94–7) would explain *u* in **anuð* as due to analogy to acc. **anuð-un* < **anað-un*: see Müller 2007: 75–6.

12. The literature is cited in G. Schmidt 1973: 64–7 and Fulk 1988.

5.6 Later preliterary changes of medial and final vowels

Go. *iu* from earlier *iw* by loss of a following vowel became *ju* in unstressed syllables, as in nom. pl. *sunjus* 'sons' < **suniwiz*. Final **-ī/î* was shortened in Gothic, as in acc. *haírdi* 'herdsman' < **xirðija*^{n}, voc. *haírdi* < **xirði(j)i*.[1]

Possibly *ai* was monophthongized to *ǣ* in (N)WGmc. middle syllables, as it was in final (§5.3), as is suggested by the correspondences of the Go. comparative suffix *-aiz-* = OHG *-er-* on adjs. and of Go. *libáin-* 'life', *lubáin-* 'hope' = OE *lifen* 'sustenance', *lufen* 'hope'. If so, *au* was probably correspondingly monophthongized to *ō*, though there is no relevant evidence.

It is commonly assumed that PGmc. *ō* yields NWGmc. *ū* before tautosyllabic *n* (so, e.g., Prokosch 1939: §84d, Krahe & Meid 1969: I, §47).[2] This assumption seems necessary in order to account for developments in the *ōn*-stems (§7.33). For discussion, with references, and a vigorous defense, see Hill 2010: 432–43; also Ringe & Taylor 2014: 63. Certain NGmc. evidence discourages the assumption that this could be a development of the NWGmc. protolanguage, most notably Runic **-on** for expected ***-un** in two fifth-century inscriptions, and accordingly Hill concludes that the change, demanded by the *u*-mutation in forms like dat. sg. *gǫtu* 'path', is a separate, later development in NGmc. The idea of Panieri (2015) that raising could be caused by *i* in the following syllable, e.g. OHG dat. sg. *zungūn* < **tungōn(i)*, betrays no acquaintance with similar, earlier proposals (see Hill 2010: 440–1). For a review of alternative analyses, see Boutkan 1995b: 289–90.

It is sometimes assumed that *ē*$_{1}$ developed to *ā* in both unstressed and stressed syllables in NWGmc.: so, e.g. Bazell 1937, Hollifield 1980: 103–4. It was shown above (§4.6) that this is improbable in stressed syllables if Ingvaeonic is regarded as descended from Proto-WGmc. (cf. Antonsen 1975: 27). In unstressed syllables, too, it was more likely *ǣ*, represented as **e**, and perhaps **a**, in Runic (**tawide**, **swestar**: see above, §5.3, and below, n. 4); so also Korlandt 1989: 103–4, 1990: 5–6.

Old Norse. The development of unstressed vowels in NGmc. is especially complex. Most short vowels in final syllables (whether originally final or due to PGmc. loss of a final syllable) are lost, but not before causing front or back mutation, where possible. Unlike in WGmc., short vowels are lost after both heavy and light syllables, though the facts of front umlaut show that *i* must have been reduced (with lowering) and lost earlier after heavy stems than light (§4.7). Examples are **daʒaʀ* > *dagr* 'day', acc. sg. **staina*^{n} > *stein* 'stone', **maʒuʀ* > *mǫgr* 'boy, son', and PNorse **feruþ* in the expression *í fjǫrð* 'last year' (cf. Skt. *parút*, Gk. *πέρυσι*). However, short vowels were

preserved before a nasal consonant or *r* (not *ʀ*), as in NGmc. 3 pl. pret. **gābun* > *gáfu* 'gave' and PGmc. **ubir(i)* > *yfir* 'over'. Before a nasal consonant in a closed syllable, *a* develops to *e* (later *i*), as in **wōðanaʀ* > *Óðinn* (name, without *i*-umlaut) and pp. **faranaʀ* > *farinn* 'gone'; likewise before *g*, as in **ainaʒaʀ* > *einigr* 'any' (but *heilagr* 'holy'). As in Go., *e* before *r* yields *a*,[3] as in *hvaðarr* 'which of two' (Go. *ƕaþar*, OE *hwæðer*). On the dating of apocope, see Isakson 2000, H.F. Nielsen 2000: 259–61.

Long vowels were shortened in final syllables, as in **swestēr* > NGmc. **swestǣr* > *syster*, later *systir* 'sister' (showing that $\bar{e}_1$ developed differently in stressed and unstressed syllables: see §4.6);[4] gen. sg. *ō*-stem **manôʀ* > *manar* 'mane'; PGmc. *-ai* in **haitǣ* > *heite*, later *heiti* 'am called', and so forth. In some middle syllables, however, *ai* developed to *ā*, as in *vitaðr* 'known' < **witaiðaʀ* (cf. Go. *witáiþs*): see Noreen 1970: §139 for details. The diphthong *iu* was also reduced, as in **suniuʀ* > *synir* 'sons'.

After the loss of vowels in the ultima, as outlined above, an unstressed short vowel was syncopated in what was now the penultima if it was an open syllable or if the syllable was closed only by a cluster *st* or *sk*, which thus was treated as a unitary phoneme, the way it is for the purpose of alliteration in early Gmc. verse. Thus, for example, there is syncope in NGmc. acc. sg. masc. **gamalanu*^{n} > *gamlan* 'old' (but nom. sg. *gamall* < **gamalaʀ*) and nom. pl. masc. **haitanǣʀ* > *heitner*, later *heitnir* 'called' (cf. gen. sg. *heitins* < **haitanas*). When this resulted in stem alternations within the paradigm, often one stem was extended throughout, as for example in superlatives in **-ist-* (e.g. dat. pl. **juŋgistōm* > *yngstum* 'youngest', with *yngst-* then extended to the nom. sg., hence *yngstr* rather than †*yngistr*).

Under the same conditions, NGmc. *ǣ* and *ī* were lost, whereas *ō* is reflected as *a*, though again there is much stem uniformization within paradigms. Examples: NGmc. gen. sg. fem. **þaʒǣnôʀ* > *þagnar* 'silence' (cf. Go. neut. *þaháins*); acc. sg. fem. *gullna* 'golden' (cf. Go. *gulþeina*); 1 sg. pret. *hvarfaða* 'went about' (cf. Go. *ƕarbōda*). Under all other conditions, long vowels in medial syllables were shortened, with *ō* again yielding *a*. Examples: NGmc. nom. sg. **blindōstaʀ* > *blindastr* 'blindest'; NGmc. 1 pl. pres. sj. **geƀǣm(e)* > *gefem*, later *gefim* 'give';[5] NGmc. 1 pl. pret. sj. **grōƀīme* > *grœfim* 'dig'.

West Germanic. In final unstressed syllables, *a* and *a*^{n} were lost regardless of the weight of the preceding syllable, as in PGmc. nom. sg. **daʒaz* > **daʒa*[6] > OE *dæg*, OS *dag*, OHG *tag* 'day', acc. sg. PGmc. **daʒa*^{n} > OE *dæg*, OS *dag*, OHG *tag*. When this change resulted in a word-final postconsonantal sonorant (e.g. **wundraz* > **wundr*), the sonorant remained nonsyllabic for a time, as shown by the meters of alliterative poetry.[7] Although it is commonly regarded as belonging to the WGmc. protolanguage, nuclearization (vocalization, syllabification) of final sonorants cannot have taken place very early, and it must be assumed to have occurred on a dialectal basis, as suggested also by the divergent results in English and elsewhere (see below). Indeed, in some instances OE spelling suggests that certain final resonants remained nonsyllabic in the historical period, as with *botm* 'bottom' and *ādl* 'disease'.[8] Glides which became final in this manner, however, were vocalized early, e.g. PGmc. **xarjaz* > WGmc. **hari* > OE *here*, OS OHG *heri* 'army' and PGmc. **sarwa*^{n} > WGmc. **saru* > OE *searo*, OS OHG *saro* 'device, armament'. When thus nuclearized, the resultant high vowels underwent the same development as original high vowels, being lost after heavy syllables, though not infrequently the sound is restored on an analogical basis. Examples are OE *mǣd* 'meadow' (pl. *mǣdwa*), OS *sē* 'sea' (beside analogical *sēo*), gen. *sēwes*, OS OHG analogical *kunni* 'kin, kind' (cf. OE *cynn* < PGmc. **kunja*^{n}). In addition to such nuclear-

ization there is anaptyxis in the WGmc. languages: it is infrequent in OE (see Hogg 1992: §§6.34–7); in OHG it occurs between a liquid and *h* (e.g. *forahta*, *forohta* beside *forhta* 'fright') and in some clusters containing *w* (e.g. *garawēr* beside *garwēr* 'ready': see Braune 2004a: §69);[9] and in OS it is particularly common, occurring in a considerable variety of consonant combinations (see Holthausen 1921: §144). Unlike inherited vowels, such vowels are unstable.

Although the change did not take place in the WGmc. protolanguage itself, the pattern of retention of unstressed high vowels after light syllables but not heavy is plainer in WGmc. than elsewhere, though OS and OHG obscure the original pattern more than OE through analogical change.[10] In Anglo-Frisian this syncope took place later than the application of *i*-umlaut (cf. OE *giest*, OFris. *iest* 'guest') but before *i*-umlaut elsewhere in WGmc. (OS OHG *gast*). The change does not occur in a closed syllable, nor in a final syllable closed by a consonant, as this would result in unwieldy consonant clusters. Examples: PGmc. **winiz* > WGmc. **wini* > OE *wine*, OS OHG *wini* 'friend'; PGmc. **brūðiz* > OE *brȳd*, OFris. *brēd*, OS *brūd*, OHG *brūt* 'bride'; WGmc. **aɣisôⁿ* > OE *egesa*, OS OHG *egiso* 'fear'; PGmc. 3 sg. pret. **xauziðē* > OE *hīerde*, OS *hōrda*, OHG *hōrta* 'heard', but PGmc. pp. **xauziðaz* > WGmc. **xaurid(a)* > OE *hīered*, OS *-hōrid*, OHG *-hōrit*; PGmc. **sunuz* > OE OS *sunu*, OHG *sun*, *sunu* 'son'; PGmc. **xanduz* > OE OS *hand*, OHG *hant*; WGmc. gen. pl. **eƀurôⁿ* > OE *eofora*, OHG *eburo* 'boar'; (Greek-derived) Lat. *diabolus* borrowed as **diuƀul-* (see A. Campbell 1977: §492) > OE *dēofol*, OS *diuƀal*, *diuƀul*, OHG *tiufal*, but OE dat. pl. *dēoflum*, OS *diuƀlun*, OHG *tiuflun* (Wessobrunn). Again, a sequence of light syllable plus another of any weight is equivalent to a heavy syllable (§2.5) in regard to this change, as in OE neut. pl. *we(o)rod* < **werudu*, though there is much analogical leveling of alternants. An exception to the rule is that, at least in OE, although a medial high vowel in an open syllable might be expected to have been syncopated after a heavy syllable, it is instead preserved before the inflection *-u*, as in OE (Mercian) neut. nom./acc. pl. *lȳtelu* 'little' < **lūtilō* and *nētenu* 'cattle' < **nēatinu* < **nautīnō*: see Fulk 2010b.

Ingvaeonic and Anglo-Frisian. In general, in Ingvaeonic and Anglo-Frisian the same changes occurred medially as in stressed syllables. Thus, there is the NSGmc. loss of a nasal consonant before a voiceless fricative, with compensatory lengthening (and later shortening) of the preceding vowel (§4.11), as with **juɣunþ-* > OE *geoguþ*, OFris. *iogethe*, OS *jugud*, but OHG *jugund* 'youth' (cf. Lat. *juvent-* < **i̯uHn̥t-*) and the 3 pl. pres. ind. inflection **-anþ(i)* > OE *-aþ*, OFris. *-at(h)*, *-et(h)*, OS *-að*, but Go. *-and*, OHG *-ant*. As in stressed syllables, Anglo-Frisian *a* was nasalized before a nasal consonant (but only a tautosyllabic one if the vowel was unstressed), otherwise fronted to *æ* (§4.11, later *e*: see below), as in OE *faran*, OFris. *fara* 'go' and acc. sg. OE *naman*, OFris. *noma*, but with fronting in OE masc. *a*-stem gen. sg. *-es* (early *-æs*), OFris. *-es*, and before heterosyllabic *n* in inflected forms of OE OFris. pp. *faren-* 'gone' < **farænd-* < **faran-*.[11] The same change appears to have applied in OS, where the fronted vowel is variously spelt ⟨a⟩ and ⟨e⟩, as with the *a*-stem gen. sg. inflection *-as*, *-es* (Klein 1977: 390–537). Front mutation is fully operative in unstressed syllables, as in **aƀalijaz* > **aƀali* > OE *æðele*, OFris. *ethele*, but OS *aðali*; OE *-ede* in *æpplede* 'embossed' (cf., e.g., OS *hringodi* 'ringed').

Unaccented non-high vowels (that is, *a*, as well as short vowels derived from it—fronted *æ*, umlauted *e*, raised *i* before palatal consonants—and *e* preserved before *r*), were lost in all medial open syllables in Anglo-Frisian, regardless of the weight of the preceding syllable, as in acc. sg. masc. OE OFris. *gōdne* 'good' < **-anōⁿ* (cf. OS

gōdan(a), OHG *guotan*); OE dat. pl. *mangum* 'many' < **manaʒum(iz)* (cf. nom. sg. *manig* < **manæʒ* < **manaʒ(az)*), later analogical *manigum*, OFris. *monige*; PGmc. **samanōjana*^{n} > OE *samnian*, OFris. *somnia*, *samenia*, OHG *samanōn* 'gather'; PGmc. **daʒa-werka*^{n} > OE *dægweorc*, OFris. *deiwerch*, OHG *tagawerk* 'day's work'; WGmc. **ala-maxtīʒaz* > OE *ælmihtig*, OFris. *elmechtich*, OS *alamahtig*, OHG *alamahtīg* 'almighty'. An exception to the rule appears to occur when *a*, in an open syllable following a heavy syllable, is followed by final *-u* in the next syllable, as in OE (Mercian) nom. sg. fem. *īdelu* 'idle' < **īðalō* and *ēadigu* 'blessed' < **auðagō*: see Fulk 2010b.

The nuclearization of final postconsonantal sonorants conforms to a recognizable pattern in OE, and it is possible that the change is Anglo-Frisian, though this cannot be proved, since unstressed short vowels are generally reduced to *e* in Frisian. In OE the quality of the syllabic sonorant was at first determined by the quality of the vowel in the preceding syllable: after a front vowel the sonorant was written with preceding *i* (later *e*), otherwise *u* (later *o*). Examples (from names in early Latin texts) are *-caestir* (later *ceaster*, borrowed from Lat. *castra*) and *Eorcun-* (already beside *Earcon-*). There is no *i*-umlaut in forms with *i* before the sonorant, though it cannot be determined whether that is because the change postdates umlaut or because *i* does not represent an actual vowel but the fronted quality of the syllabic resonant. At all events, in course of time spellings like *er* and *or* could be used interchangeably, after front or back vowels, and thus they can represent only syllabic sonorants rather than a sequence of vowel plus sonorant. For further evidence, see Hogg & Fulk 2011: §6.96.

Old English. All remaining long vowels in unstressed syllables were shortened, but not necessarily at one time. Thus, for example, *ī* was shortened early enough medially to be syncopated before most inflections, as in dat. pl. *gyldnum* 'golden' (cf. Go. *gulþeináim*) and Anglian dat. pl. *nētnum* 'cattle' (but cf. acc. pl. *nētenu*, §5.6); compare the final development in *hierde* 'herdsman' < *-i* < *-ī* < **-ij(az)*, with *ī* arising (and being shortened) too late to be syncopated. At least some long vowels were shortened earlier in final syllables, so that *ā* (< *ai*, as in stressed syllables, §4.12) developed to *e* in final syllables but *o* in medial, and the resulting paradigm allomorphy led to much mixture of stems, as with *earfeþ* beside *earfoþ* 'difficulty' < **arƀaiþ-*; cf. Go. *arbáiþs* 'labor'. WGmc. *ǣ* < *ē*$_{1}$ is reflected in OE as *e*, as in *bōcere* 'scholar' < **-ǣri(z)*.

Breaking did not apply to syllables of low stress, though it is found in certain derivational suffixes, e.g. *-weard* beside *-ward*, with alternation due originally to alternate stressed and unstressed forms, e.g. stressed after the unstressed syllable in *ūteweard* 'external', unstressed in *tōward* beside commoner *tōweard* 'impending'. Rather than break, *æ* was retracted to *a* (and later commonly rounded) before *l* or *r* plus consonant, as in *hlāfard*, *hlāford* 'lord' < **xlaiƀa-warðaz* and *anwald*, *anwold* 'control'.

Old English evinces some salient exceptions to the deletion of medial short vowels treated above (in part under **West Germanic**). In the notably conservative language of the Mercian gloss on the Vespasian Psalter, both syncope and apocope fail to affect disyllabic stems with a heavy initial syllable when they bear the inflection *-u* (fem. nom. sg. or neut. nom./acc. pl.), e.g. *īdelu* 'idle' and *nētenu* 'cattle', as opposed to forms bearing other inflections, e.g. *īdlan* < **īdalanu* and *nētna* < **nēatīnô*. Such forms are in almost perfectly consistent contrast to those of originally monosyllabic stems made disyllabic by the nuclearization (syllabification) of a final sonorant, e.g. *fācen* 'crimes' and *wēpen* 'weapons' (< **fācnu*, **wēpnu*).[12] Also exceptional in WS and (in part) Kentish are 2 & 3 sg. pres. ind. forms of verbs, with syncope occurring after both heavy and (less regularly) light stems, as in WS *giefst*, *giefð* 'give' and *brȳcst*, *brȳcð*

'enjoy' (Anglian *gefest*, *gefeþ*, *brūcest*, *brūceþ*, with analogical removal of *i*-umlaut). The commonest explanation now for such verb forms is that they underwent syncope when followed by a pronoun, the prosodic group acting like a single word, so that the inflectional vowel was in a position to be syncopated. The syncopated forms were then generalized in WS, the unsyncopated in Anglian.[13] Syncope also affects some superlative adjs. of high frequency in WS, e.g. *hīehsta* 'highest', *gingsta* 'youngest' (beside *gingesta*), due either to treatment of *-st-* as a unitary phoneme (so that the syllable was open) or to the analogy of comparatives, in which the connecting vowel had been syncopated.

Although, as noted above, high vowels were not at first syncopated in a medial light syllable after an open syllable (e.g. *nerede* < **nazidǣ*), already at a prehistoric date there was loss of *i* in such an environment when the consonant following the vowel was *l* or *r*, as in gen. sg. masc. *micles* 'large' < **mikilæs* and *betra* 'better' < **batizô*: see Brunner 1965: §159 for exceptions. The vowel *u* remained resistant to the change longer: cf. inflected *sweotole* 'plain', *eofore* 'boar'. Loss of *i* (and *u*) before consonants other than *l*, *r* is less regular, e.g. *eg(e)sa* 'fear', *ef(e)sian* 'shear', *heolstor* 'darkness' (cf. early pl. *helustras*); and monosyllabic endingless forms could appear by analogy to inflected ones, e.g. *fir(e)n* 'crime', *meol(o)c* 'milk'. Syncope is constant in a few such words, e.g. *eln* 'ell', *hwelc* 'which', *twelf* '12'. It is generally absent when it would create a syllable coda with a disfavored sonority sequence, e.g. *wæter* 'water', *bydel* (PDE *beadle*).

In general, unstressed *æ* and *i* are retained in early texts but are soon reduced to *e*, as in *a*-stem gen. and dat. sg. *-æs* and *-æ*, later *-es* and *-e*, as well as masc. *i*-stem nom. sg. *-i*, later *-e*. The vowel *a* remains, whereas *u* may appear as *u* or *o*. The front vowels that coalesced as *e*, however, will appear as *i* in a palatal environment, as in *mihtig* < **-īʒ*, *ēadig* 'blessed' < **-æʒ* (cf. early dat. pl. *ēadgum*, later analogical *ēadegum*, where *g* is velar), *Denisc* 'Danish', *sārlic* 'painful' and so forth.

As in the other WGmc. languages, unstressed vowels tend to weaken and be variously spelt with the passage of time. For further details, and for developments of the literary period, see the grammars cited in §1.16. One pattern that may be remarked, however, is the tendency to dissimilate identical or similar vowels in successive unstressed syllables, e.g. *-edon* for earlier *-odon* in the 3 pl. pret. of weak verbs of class 3 and *-esta* for *-osta* in superlatives (A. Campbell 1977: §385).

Old Frisian. There is the same late development of *-ī* in the *ja*-stems as in OE, e.g. **rīkij(aⁿ)* > *rīke* 'realm'. Most remaining unstressed vowels are reduced to *e*, as in WGmc. **ʒeƀu* > *ieve* 'gift' and *nerede* 'saved' < **naziðē*. Before palatals, this *i* may or may not be found instead of *e* (as in OE), as in *Rūmiska*, *Rūmeska* 'Roman' and *wēldich*, *wēldech* 'potent'. But the ending *-um* was mostly preserved as such, and WGmc. *ō* from a variety of sources is generally reflected as *a*, as in *hona* 'cock' < **xanôⁿ*, *mōna* 'month' (cf. Go. *mēnōƀs*), and *achta* '8' < PIE **oḱtṓ(u)*.

Old Saxon. When a postconsonantal final sonorant is nuclearized, usually *a* is written before it, occasionally *e*, as in *wintar* 'winter' (cf. Go. *wintrus*) and *hunger* 'hunger' (cf. Go. *hūhrus*). But before *m* usually *o* is written, occasionally *u*, as in *wastom*, *-um* 'growth'.

Non-final short vowels for the most part retain their original quality, as with *thiodan* 'lord', *fadar* 'father', *egiso* 'terror', and *siƀun* '7'. But there is a tendency especially in the non-high vowels to be assimilated to the quality of a following vowel, as in gen. sg. *heƀenes* 'heaven' (nom. *heƀan*) and gen. pl. *thesoro*, *-aro* 'these' (cf.

OHG *desero*). The composition vowel in compounds is most commonly retained but is subject to fluctuation in quality, as in *ala-jung* 'quite young' beside *alo-waldand* '(the) Almighty'.

Changes in quality indicate that the remaining unstressed long vowels were shortened both internally and finally, e.g. *fiskari* 'fisherman' beside *dōperi* 'baptist' < *-*āri*; *sikur*, *sikor*, from Lat. *sēcūrus*; dat. sg. *daga*, *dage* 'day' < NWGmc. **daɣǣ*.

Old High German. The treatment of unstressed vowels is similar to the treatment in OS. In final syllables, the short vowels *a*, *e*, *i*, *o*, *u* generally remain distinct until ca. 900, at which point they start to be confused, gradually tending toward the representation of all of them as *e*, earlier in absolute finality than before a final consonant, and earlier in Upper German than in Central German. In all dialects the opposition between *u* and *o* is weakened early in favor of *o*. Already in the earliest texts, in medial syllables the five-vowel opposition tends to be reduced to a three-vowel one, *a*, *i*, *u*. As in OS, a syllabified sonorant has usually *a* written before it, but often *u* in a labial environment, especially before *m*.

The most remarkable feature of OHG unstressed vocalism is the retention of long vowels, as indicated especially in the *Isidor* and Notker (§1.20). Long vowels corresponding to all five short ones appear in final syllables that are closed by a consonant, whereas the variety of long vowels is reduced in other unstressed syllables.[14]

1. Phonological shortening is the usual assumption, though Wright (1954: §154) notes that if this is correct, weak imperatives like *sōkei* and *hazei* must have their vowel by analogy, and he notes the possibility that heavy-stemmed voc. acc. sg. *hairdi* and such have their vowel by analogy to light-stemmed voc. acc. sg. *hari*, and there was no final shortening. It should be noted, however, that light-stemmed *hazei* can be explained only on an analogical basis, and so it is more economical to assume final shortening.

2. Given the history of this idea, it cannot justly be referred to as 'Boutkan's law' (Kortlandt 2006b: 4).

3. Perhaps originally only in medial syllables: cf. *undir* 'under' < **under*, and see §5.5.

4. The suffixal vowel in Runic **swestar** (Opedal, Norway, ca. 425) is usually assumed to represent *ǣ*: so, e.g., Krause (1971: 52), who remarks that otherwise OIcel. *systir* would be difficult to explain; similarly Hollifield 1984: 65. Panieri (2013) argues instead for *ā*, whereas Stiles (1984, with extensive references) makes a strong case that **swestar** reflects an old vocative in PIE **-er*.

5. But under such circumstances NGmc. *ǣ* yields *a* before an alveolar consonant, e.g. **-ǣþ-* > *-að-* in pass. parts. of weak verbs of class 3, such as *sagaðr* 'said'.

6. Note, e.g., the loss of final **-z* in **kaba** (for *kamba*) on the Frienstedt comb (ca. 250–300).

7. Thus, e.g., OE *hleahtor* 'laughter' < **xlaxtraz* must be scanned as a monosyllable at *Beowulf* 611a, and OS *mēđom-* 'treasure' < **maiþma-* at *Heliand* 3261a, 3772a: see Fulk 1992: §§76–98, *idem* 2005: 151. Similarly, OIcel. *gestr* 'guest' < **gastiʀ* (and similar words in postconsonantal *-r*) remain monosyllabic in Icelandic poetry until the fourteenth century, and *-n* in *vatn* 'water' < **watnaⁿ* remains nonsyllabic to this day in Icelandic and Faroese. But words of this kind in OE are variably to be scanned with syllabic and nonsyllabic final sonorant consonants, even the same word within a single text, and so it must be recognized that the change is prehistoric, the nonsyllabic scansion at least in some instances a consequence of the conservatism of poetic tradition.

8. It must be borne in mind that syllabicity is not a matter of physiological facts but of native speakers' perceptions. See Fulk 1992: §§77–8, with references. For further evidence of the lateness of this change, see Vennemann 1991. The literature shows much confusion on this head, with frequent references to a final postconsonantal sonorant consonant (as in OE *fugl* 'bird') as 'syllabic' (so, e.g., Boutkan 1995b: 172). WGmc. spelling does not permit a distinction to be drawn between nuclearization and epenthesis in connection with final sonorant consonants: see Hogg 1992: §§6.34–45.

9. On OHG epenthesis, see Wulf 1985, Howell 1991a, Vennemann 1991.

10. Syncope of *i* after heavy syllables is the norm in OS and OHG only in the preterite of weak verbs of the first class. The morphological distribution of the change allows Kiparsky (2009) to argue that such preterites lost *i* because they remained prosodic compounds (of stem plus 'do') in OHG. Plainly, however, *u* was

syncopated in a form like OHG *tiuflun* 'devils', and, equally plainly, analogical restoration did affect such forms, producing, e.g., gen. *tiufales* beside nom. *tiufal*. See, e.g., Schatz 1927: §94. The loss of high vowels described here is the standard view, rejected by Antonsen (2002: 237–60), who denies that umlaut occurred earlier in OE than in OHG and argues that the root-stems were a productive class in Gmc.

11. In such forms the vowel of the suffix *-en-* should have been lost before a vocalic inflection (see below). It must be assumed that before that loss the fronted *æ* was extended to cases in which the following *n* was tautosyllabic (e.g. nom. sg. masc. *faren*), and after the syncope in open syllables the disyllabic stem was extended analogically throughout the paradigm.

12. For discussion, see Fulk 2010b.

13. This explanation originates with Walde (1900: 125 n. 1). For discussion and references, see Fulk 1992: §§320–2. Objections and an alternative analysis covering all these exceptions to medial vowel deletion have been offered by Ringe (2002, and in Ringe & Taylor 2014: 289–96 *et passim*), but see the counter-objections of Bermúdez-Otero (2015: 13–14). Alternative analyses also face the difficulty that there does not seem to be any plausible explanation how Mercian could correctly have distributed the inflection in otherwise identical paradigms like those of *īdelu* and *fācen* if the former represented an analogical restoration rather than a phonological result.

14. The relevant inflections with final long vowels are nom. acc. pl. of masc. *a*-stems (*-ā*), nom. acc. pl. of *ō*-stems (*-ā*), nom. acc. sg. & pl. of *īn*-stems (*-ī*), weak pret. sj. 1–3 sg. (*-tī* in Alemannic), and perhaps pres. sj. 1 & 3 sg. (*-ē* once in the Benedictine Rule). At least some of these long vowels may have been analogically induced by related forms, especially *-ī* in the fem. abstract nouns (e.g. *hōhī* by analogy to gen. pl. *hōhīno*, dat. pl. *hōhīm*: so Russ 1978: 58–9). For a list of all relevant inflections, see Gabriel 1969: 105–8.

5.7 Vowels in prefixes

Like prepositions, with which they are often identical, prefixes might be stressed (as in nouns) or unstressed (verbs: §2.2). Under Prokosch's law, prepositions with final vowels should show vowel lengthening when stressed.[1] The lengthened vowels could then be extended to the corresponding stressed prefixes. Thus, for example, **bi* > OE *be* or, when stressed, *bī*, and to the verbs *be-gān* 'traverse' and *be-nemnan* 'name' may be compared the nouns *bīgenga* 'inhabitant' and *bīnama* 'pronoun', though many nouns show variable lengthening or none in the prefix, e.g. OHG *bī̆jiht* 'witness' (NHG *Beichte*; cf. OHG *bi-jehan* 'attest'). As in some other grammatical categories (see, e.g., §2.5 n. 2), Gothic appears to have generalized the short vowels, having only *bi(-)*, never †*bei(-)*.

Aside from such lengthening, vowels in PGmc. monosyllabic prefixes underwent the same changes as stressed vowels. Thus, for example, there are the Gothic forms *and(a)-* (prep. *and* 'throughout'; cf. Gk. *ἄντα* 'opposite'), *faúr(a)-* (prep. *faúr(a)* 'before'; cf. Lat. *por-*), *uf-* (prep. *uf* 'under'; cf. Gk. *ὑπό* 'under'), and so forth. Later the vowels in unstressed prefixes weaken, as with OE *ge-* (early *gi-*), *of-þyncan* 'displease' (stressed in *æf-þunca* 'source of offense') and *oþ-gān* 'escape' (stressed in *ūþgenge* 'evanescent'). Occasionally such vowels are lost in the individual WGmc. languages, as with OE *blinnan* 'cease' < WGmc. **bi-linnan*,[2] OE OS *būtan* 'except' < **bi-ūtan*, MHG *gloube* 'belief' < OHG *gi-loubo* and NHG *bleiben* 'remain' < OHG *bi-līban*. Occasional forms of a similar nature are to be found in OIcel., e.g. *greiða* 'arrange' (cf. Go. *ga-ráidjan*) and *frýja* 'defy' (cf. Go. *fra-wrōhjan*). But usually prefixes of both verbs and nouns are lost altogether in North Germanic. The former presence of a prefix is not infrequently detectable in verse, where the meaningless particle *of* or *um* replaces it, as required by meter (see Kuhn 1929). New prefixed forms arose, however, with stress on

the prefix, e.g. *af-ráð* ‘payment’ (cf. *ráða af* ‘get off’) and *fram-ganga* ‘advance’ (noun; cf. *ganga fram* ‘go forward’).

1. A preposition was stressed when it did not stand immediately before its object, as shown by the meters of alliterative verse.

2. So also with OE **ni*, proclitic to verbs, as in *nis* ‘is not’ and *næbbe* ‘have not’.

5.8 Sievers’ law

According to Sievers (1877–8: 129), in Indic, *i* or *u*, when it bears no accent (not even the *svarita*, comparable to the Greek circumflex), is a consonant after a light syllable, a vowel after a heavy, regardless of which other syllable bears the accent.[1] Thus, for example, there is *y* after a light syllable in Skt. *ávya* but *i* in *mártia*. He proposed that the same variation can explain certain inflectional alternations in Gmc., such as that between the Go. *ja*-stems gen. sg. *harjis* ‘army’ and *haírdeis* ‘herdsman’, from **korii̯éso* and **ǩerdhii̯éso.* The conditioning and scope of the law have been much debated (as has its status as derived from PIE itself).[2] For a time there prevailed a virtual orthodoxy based on the elaborations of the law formulated by Edgerton (1934, 1943, 1962), who regarded the law as exceptionally regular, applying also to liquid and nasal consonants (e.g. **-atra-* in alternation with **-āt̯̊ra-*), and resulting automatically not just in the nuclearization of the relevant segment after heavy syllables but denuclearization after light, e.g. **-at-iy-a-* > **-atya-* (in Edgerton’s notation), the latter development referred to in the literature as the ‘converse of Sievers’ law’. But Sievers was aware of the many exceptions to the law in Sanskrit, and current scholarship tends to treat the law more conservatively, recognizing the extent to which (de)nuclearization is morphologically regulated.

In Gmc. only *i/j* (and not *u/w*) attests to alternations of this type, and evidence for it is not found in all the environments in which it might be expected. For example, although Go. masc. *ja*-stems like *harjis* and *haírdeis* attest to the variation, *jō*-stems do not—there is no inflectional difference between, e.g., *bandi* ‘band’ and *mawi* ‘maiden’—and denuclearization has subsequently applied after heavy syllables, giving, e.g., nom. pl. *háirdjōs* rather than †*-ijōs* (see Kortlandt 1986). Even in *ja*-stem nouns the law does not apply without exception, e.g. gen. sg. *arbjis* ‘heritage’ for expected **arbeis*, and *andbahtjis* beside *andbahteis* ‘service’.[3] The alternation is also detectable in weak verbs of the first class, e.g. 3 sg. pres. ind. *nasjiþ* ‘saves’ beside *sōkeiþ* ‘seeks’, with PGmc. **-jiþ* and **-i(j)iþ*, respectively, though here, too, there are exceptions, including imp. sg. *-ei* after both heavy and light stems, and exclusively *-ei-* in verbal derivatives like *naseins* ‘salvation’ and *hazeins* ‘praise’. Verb stems of more than one syllable group with the heavy monosyllables in this respect (e.g. *mikileiþ* ‘magnifies’, *swōgateiþ* ‘sighs’, and *sipōneiþ* ‘is a disciple’), but there is OE evidence that this is a Go. innovation, and originally a disyllable with a light initial syllable patterned with the heavy stems, whereas a disyllable with a heavy initial syllable patterned with the light. Thus, WGmc. gemination occurs in OE *ja-* and *jō*-stems like *fæstenn* ‘evening’ < **fastunjaz* and *hæftenn* ‘captivity’ < **xaftunjō*, but not *byrele* ‘cup-bearer’ < **burilijaz* or acc. sg. *gydene* ‘goddess’ < **ʒuðinijōⁿ* (Dahl 1938: 74–81; Erdmann 1972; Barrack 1998).[4] The different effect of the two types of disyllables on a following segment is paralleled by the effect of the two in respect to OE high-vowel apocope, whereby, for

example, the nom./acc. neuter inflection *-u* is retained in words like Mercian *hēafudu* 'heads', parallel to *fatu* vessels, but lost in words like *weorod* 'hosts', parallel to *word* 'words' (see §5.6 *supra*). Failure of breaking in OE *tellan* 'tell' (for expected †*tiellan* < **taljan*), as opposed to *fiellan* 'fell' < **feallijan*, with a PGmc. geminate, may also be explained on this basis (Barrack 1998: 151–5).

In the course of the development of West Germanic the distinction between **-ij-* and **-j-* was eliminated in favor of the latter, certainly not in Proto-WGmc. itself, given NSGmc. changes to weak verbs (Ringe & Taylor 2014: 156–7). In Runic, however, *-ij-* occurs regularly after heavy syllables, as in **holtijaz** 'Holt's son' (or 'from Holt'?; Gallehus horn, ca. 400) and asm. **makija** 'sword' (with *ā*; Vimose chape; 3rd cent.); but although, conversely, the suffix is **-j-** in **harja** (name; Vimose comb, 3rd cent.) and **swaba-harjaʀ** (name; Rö stone, ca. 400), it is **-ij-** in **harija** (name; Skåäng stone, ca. 500), and always in the name-element **-warijaʀ** (3×, e.g. **staina-warijaʀ** on the Rö stone).[5] In OIcel., a reflex of the original alternation remains, inasmuch as when the following vowel is lost, postconsonantal **-j-* is also lost, whereas **-ij-* is reflected as *-i(-)*: to *jō*-stem acc. sg. *ben* 'wound' compare *heiði* 'heath'. On the other hand, if the following vowel is preserved, *j* remains, whereas **-ij-* is lost except after velar consonants: to gen. sg. *benjar* cf. *heiðar*, but *eggjar* 'blade'.

Sievers' law has been explained variously as a product of syllable contact laws or footing in metrical phonology: see §§2.4–5, and for a critique of both approaches, Y. Kim 2001. For prosodic approaches and approaches on the basis of syllable structure subsequent to the overview of Barrack (1998), see Kiparsky 1998, Pierce 2006 (to which cf. Barrack 2010); see further Schulte 2000b.

1. "[U]nbetontes (nicht svaritiertes) *i* oder *u* vor einem vocal ist consonant nach kurzer, vocal nach langer silbe ohne rücksicht auf die sonstige accentlage des wortes." Prokosch (1939: §33b) sees this variation as due to different syllabification, e.g. Go. *sat-jis*, *har-jis*, *stō-jis* : *sō-keis*, *miki-leis*, *haír-deis*, so that "interconsonantic *-ji- = ii* was contracted to *ī*." Although such syllabification has been advocated for PGmc., it is hard to reconcile with the orthographic and phonological evidence of some early Gmc. languages: see §2.4.

2. For the literature, see Seebold 1972: 25–175 and, more succinctly, Collinge 1985: 159–74. Debates about the law are particularly relevant to Gmc. syllabification: see §2.4. As for derivation of the law from PIE, Koivulehto (1986) finds evidence in early Gmc. loanwords in Finnish that at the time of borrowing, *j* was not automatically syllabic after a heavy syllable, given the change of dental consonant plus *j* to **-čč-* > Finnish *-ts-*, as in *ratsas* 'riding' (cf. OE *rǣde* 'ready for riding' < **raiðijaz*). Boutkan (1995b: 203) points out that Runic **holtijaz** would not have had the structure in PIE to produce nuclearization (PIE **kl̥d-i̯-*); further examples in Ringe 2017: 144–5.

3. For other exceptions, see Seebold 1972: 74–8; cf. Kiparsky 2000, with an Optimality Theory account. At all events, a form like *harjis* must be formed analogically (see §7.10), and certainly Go. alternations under Sievers' law can be regarded only as relics of a once-active phonological process (Schuhmann 2011).

4. Words like *fæstenn* may also appear with a non-geminate consonant, but this is due to degemination between unstressed vowels in late OE (see A. Campbell 1977: §457). Barrack (1998: 221–239) collects the data showing that, conversely, gemination never occurs in *ja*-stems like *byrele*, and it is vanishingly rare in *jō*-stems like *gyden*. Adamczyk (2001) was apparently unaware of Barrack's work. It should be added, it is possible that some of the words collected by Barrack have their geminate from a source other than WGmc. consonant gemination: e.g., to OE *fæstenn*, OS *fastunnia* cf. Go. *fastubni* '(observance of) fast', and see §6.11 *infra*. Most of the evidence, however, cannot be explained this way.

5. For a comprehensive list of such Runic forms, see Syrett 1994: 80–1; for an attempt to make sense of them, see Syrett 1998. Bammesberger (2007) argues that **-warijaʀ** contains a long vowel.