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On the Germanic and Old High German distance assimilation changes

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Abstract: This article revisits a vexed question, namely the phonological interpretation of the Germanic and Old High German distance assimilation changes. It will be argued that 1) the prehistoric Germanic subsystem of short vowels should be reconstructed with five phonemes (/i/, /e/, /u/, /o/, /a/), not with four (/i/, /e/, /u ~ o/, /a/) or with three (/i ~ e/, /u ~ o/, /a/); 2) the Old High German umlaut phenomena produced phonemic changes before the factors that triggered them off changed or disappeared, because the umlaut allophones gradually shifted to such a degree that they became distinctive in the phonological system of the language and contrastive at a lexical leve

> The inheritance from twentieth century structuralists still shapes our contemporary landscape in many ways, whether we are building on structuralist insights, sharpening them, or challenging them. (Honeybone/Salmons 2015: 32)

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Introduction

It is a well-known fact that the stressed vowels of the early North and West Germanic languages underwent distance assimilation changes that affected the short mid and high vowels *[i], *[e], *[u], and *[o], as well as the diphthong *[eu]. The subsequent Old High German developments generally known as i-umlauts affected a great number of vowels, both short and long, as well as the inherited diphthongs

The early and later changes were triggered off by similar factors, and their phonological consequences have been traditionally described by having recourse to similar assumptions. The first assumption is that the changes caused by specific sounds in unstressed or weakly stressed syllables resulted in complementary distributions of the relevant stressed vowels. The second assumption is that the new allophones became phonemes when the relevant sounds in the following syllable changed or disappeared.

Before analysing in detail the developments in question, it will be necessary to discuss the assumption on which the whole traditional description rests, namely that the new allophones became phonemes when the relevant sounds in the following syllable changed or disappeared.

There seems to be no doubt that distance assimilation changes operate across syllable boundaries and begin as low-level phonetic processes. What is still controversial in a diachronic perspective is the subsequent development of the relevant allophones.

Yet it seems reasonable to assume that it all depends on the degree of differentiation between the original phone and the new phone. If the assimilation process is weak or still at an early stage then the new phone shares with the original phone its basic position in the phonological system. If the assimilation process is strong or has already reached an advanced stage, then the new phone belongs to a different basic position in the phonological system. In the former case the loss or disappearance of the factors that triggered off the assimilation results in a reversal of the new phone to its original phonetic features, so that the umlaut allophone is lost. In the latter case, the umlaut allophone becomes a phoneme before the loss of the factors that triggered off the assimilation. This does not imply that the phonemicization takes place immediately, since the relevant allophone reaches its final stage through a gradual development. Take, for example, the assimilation produced by an i-sound on the vowel /u/ in the preceding syllable. At an early stage the new phone would be a somewhat advanced back vowel [u#], which would disappear if the triggering factors were lost. But at a later stage the new phone would be a front vowel [y], which would obviously belong to a different basic position in the phonological system.

What has just been said requires a reconsideration of the definition of phoneme. The view that two phones belong to different phonemes only if they occur in opposition at a lexical level is misleading, because it ignores the systemic level. To decide whether a phone is an allophone or a phoneme it is necessary to take account also of the distinctions in the phonological system of the language. This can be shown by having recourse to the well-known case of the glottal fricative [h] and of the velar nasal [ŋ]. In today's standard German, [h] occurs only before a vowel (as in Hut), whereas [ŋ] occurs only after a vowel (as in Ding, singen, Banke). If we refused to take account of the distinctions that can be established in the phonological system of the language, we would have to conclude that these two consonants do not possess phonemic status only because they never occur in mutual opposition. However, since we do take account of the systemic distinctions between fricatives and nasals, we assign the glottal phone to a fricative phoneme /h/ and the velar phone to the nasal phoneme /ŋ/.

The definition of phoneme should therefore be reformulated by taking account not only of the lexical level, but also of the distinctions that can be established in the phonological system of the language.

Having clarified this point, we can define the phoneme as a sound unit which is phonologically unique at any given stage of the language. Its uniqueness can be established by comparing the phones of the relevant language. Two cases are possible.

The first case has been anticipated above. Two phones possess phonemic status because they are distinctive in the phonological system of the language. They are mutually exclusive at a lexical level but occur in opposition to other phones of the same category. Relevant examples in today's German are /h/ and /ŋ/, which occur in oppositions like halten # falten and singen # sinnen, lang # Lamm [1]

In the second case, two phones possess phonemic status because they are distinctive in the phonological system of the language and are contrastive in equivalent or nearly equivalent proximity contexts. Examples of equivalent proximity context in today's German are offen # Ofen, which shows the opposition /#/ # /o:/, and Hunden (dat. pl.) # Hündin, which can be adduced to show the opposition /#/ # /#/. The nearly equivalent proximity context can be exemplified by a pair like Miete # Mode (/i:/ # /o:/), or by a pair like wecken # backen (/#/ # /a/).

Having reconsidered the definition of phoneme [2] so as to take account of the systemic level as well as of the lexical level, we may now proceed to consider the possible structural consequences of distance assimilation.

As already mentioned, distance assimilation changes operate across syllable boundaries and begin as low-level phonetic processes. However, under certain conditions the gradual changes triggered off by specific sounds in the following syllable may result in the phonemicization of the relevant allophones. This may happen in two ways: 1) the new allophone of the relevant phoneme becomes identical with that of another phoneme; 2) the phonetic features of the new allophone become distinctive within the system and contrastive in equivalent or nearly equivalent proximity contexts. In either case, the specific factors that triggered off the assimilation change are still present.

In the first case, the type of phonological change is a split with merger. [3] The phoneme /A/ splits into /A/ and to identity with the pre-existing phoneme /B/. The result is a decrease in the incidence of /A/ and an increase in the incidence of /B/. This type of phonological change may me assumed to have occurred when */u/ was lowered to a pre-existing */o/ before a low or mid vowel sound in the next syllable, except when a nasal plus consonant intervened (see Chapter 4, below).

In the second case, the type of phonological change is a simple split. The phoneme /C/ splits into /C/ and the new phoneme /D/. The result is a decrease in the incidence of /C/ to the benefit of /D/. In this second case, the phonetic features of the allophone [D] become distinctive within the system and contrastive in equivalent or nearly equivalent proximity contexts, so that the allophone becomes the phoneme /D/. When this happens, the conditioning factors of the change are still present. This can be illustrated with instances that underwent the Old High German iumlaut.[4]When the gradual fronting of back vowels before i-sounds in the next syllable reached its final target, the vowel system came to exhibit a new series of rounded front vowels, which were obviously distinct from the old unrounded front vowels, as well as from the rounded back vowels. Thus, the new vowel [ø:], for example, was now systemically distinct not only from [e:], but also from [o:]. Moreover, the new [ø:] now contrasted with both [e:] and [o:] in equivalent or nearly equivalent proximity contexts, irrespective of what followed in unstressed syllables. The new /ø:/, as in ōri (MHG #re) 'Öhr, Nadelöhr', contrasted both with /e:/, as in ērī beside ēra (MHG ēre) 'Ehre', and with /o:/, as in ōra (MHG ōre) 'Ohr'. [5]

As mentioned above, however, distance assimilation does not necessarily result in the phonemicization of the relevant allophone. This is because the trend to innovation may be weak or because the incipient rise of the allophone is interrupted by the loss of the factors that produced it. In the latter case the allophone simply "disappears", in that it reverts to its original phonetic features. Thus, if we wanted to ascribe to Proto-Germanic the early distance assimilation changes in spite of the fact that they are not attested in Gothic, we would probably have to postulate weaker assimilation trends in Gothic than in the other Germanic languages.

Having established how an allophone can become a phoneme before the conditioning context changes or disappears, we may now proceed to analyse both the early and the later distance assimilation changes.

The early distance assimilation changes

The developments in question may be provisionally summarized as follows: early raising and lowering affecting *[i] and *[e] as well as *[u] and *[o] before specific sounds in the next syllable.

The traditional phonological interpretation of the these developments – which are often ascribed to Proto-Germanic – goes back, substantially, to a study by Moulton (1961: 5–14).6 It rests on the two assumptions mentioned above, namely that 1) the changes caused by specific sounds in unstressed or weakly stressed syllables resulted in complementary distributions of the relevant stressed vowels and 2) the new allophones became phonemes when the relevant sounds in the following syllable changed or disappeared

This view is still widely (and sometimes tacitly) accepted, at least in part. Thus, Braune/Heidermanns (2018: 32) reports the status of PGmc [i] and [e] as still controversial, and explicitly state that PGmc [u] and [o] were allophones of a phoneme /u/ (cf. ibd.: 32, 53). Similarly, Fulk states that "it has sometimes been argued that there was no asymmetry in the PGmc. short vowels, rather that e and i were allophones, just as o and u were" (ibd.: 57).

However, the first point postulated by the traditional interpretation cannot be accepted at its face value, since it is by no means certain that the changes in question resulted in genuine complementary distributions dependent on the following syllable in either Proto-Germanic or in the pre-literary stages of Old High German. Irrespective of whether we prefer to reconstruct these developments for Proto-Germanic or pre-literary Old High German, this appears to be true not only for *[i] and *[e], but also for *[u] and *[o]. [7]

*[i] and *[e]

The original incidence and distribution of these two vowels was altered by two splits with merger:

- the raising of stressed *[e] to *[i] before nasal plus consonant or before a high vowel sound in the next syllable, as in *wenda- > *winda- > OHG wint 'Wind', *esti- > *isti- > OHG ist 'ist', *rebja- > ribja- > OHG rippi 'Rippe' [8] , *felu- > *filu- > OHG filu, filo 'viel' [9] ;
- the lowering of *[i] to *[e] before a low or mid vowel sound in the next syllable, as in *spik(k)a- > *spek(k)a- > OHG spek 'Speck', *libēn > *lebēn > OHG lebēn 'leben', *likkōn > lekkōn > OHG leccōn 'lecken'.

These changes cannot be shown to have occurred in Gothic (cf. Fulk 2018: 57–60), and the raising of *[e] to *[i] before *[u] in the next syllable can be assumed only for the prehistory of Old Saxon and Old High German (cf. Cercignani 1979: 81). And even if an u-umlaut of *[e] to *[i] could be assumed for North and West Germanic as a whole, it would still be impossible to postulate a complementary distribution of *[i] and *[e] dependent on the following syllable in the prehistory of any of the relevant languages. For not only in North Germanic, but also in Old Saxon and Old High German there were positions in which the contrast */i/ # */e/ was preserved. The relevant contexts are those in which either *[e] or no vowel occurred in the following syllable, since the opposition */i/ # */e/ can be shown to have been preserved at least in originally disyllabic forms in *[-e] as well as in monosyllables (Cercignani 1979: 80). A reconstructed disyllabic minimal pair is provided by the 2.sg. imp. forms *wige # *wege, 10 whereas the monosyllabic pair *it (OHG iz; MHG iz, ez [11]) 'es' # *sehs (OHG MHG sehs) 'sechs' confirms that *[i] and *[e] were not in complementary distribution dependent on the following syllable

Moreover, forms like OHG fisk 'Fisch' (< *fiska-), OHG linēn, 'lehnen' (< *hlinēn), OHG skidōn 'scheiden' (< *skidōn), OHG pl. feldir 'Felder' (cf. feld < *felþa-), OHG dat. herzin 'Herzen' (cf. herza < *hertōn-) and, with variation, OHG skif, skef 'Schiff' (< *skipa-), OHG fihu, fehu 'Vieh' (< *fehu-), show that the original vowels were not infrequently preserved or reintroduced. [12]

Although we should be aware of the fact that analogy cannot explain everything (Moulton 1961: 9; Russ 1978: 41), many of these instances can be explained as due to the analogy of related forms. However, at least a few (e. g. ebur < *ebura- 'Eber') suggest that the changes in question may well have been the result of tendencies rather than of regular phonological changes.

In any case, even if we chose, for the sake of the argument, to interpret all the instances as analogical forms, we should nevertheless conclude that the two front vowels preserved their phonemic status as */i/ and */e/, because their analogical reintroduction in specific forms could only occur if the two vowels had been retained as separate, independent phonemes. It is a wellknown fact that allophones cannot be used analogically by the speaker, since they are produced automatically in a specific context. [13] One might object that the analogy of related forms operated after the loss or change of the factors that triggered off or prevented umlaut, but

the extensive interparadigmatic and intraparadigmatic changes produced by analogy in the Germanic languages suggest that these developments operated at an early period, when those factors were still present.

But this is not all. Also the second point postulated by the traditional interpretation cannot be accepted at its face value. To assume that umlaut phenomena produced allophones which became phonemes when the relevant sounds in the following syllable changed or disappeared amounts to disregarding the fact that an umlaut allophone can become a phoneme before the loss of the factors that triggered off the assimilation (see Chapter 1, above).

Thus, even if we chose to ignore the evidence presented above, we would not be entitled to consider the two phones *[i] and *[e] as allophones of a single phoneme. On the contrary, we should conclude that the two vowels possessed phonemic status, because they would be distinctive at a systemic level and contrastive at a lexical level. At a systemic level, they would be distinct from their long counterparts */i:/ and */e:/ and, consequently, they would be distinct from each other. Moreover, they would be contrastive with */i:/ and */e:/, respectively, as well as mutually contrastive in equivalent or nearly equivalent proximity contexts, irrespective of what followed in unaccented syllables. This may be exemplified with forms like *wisō- (OHG wisa 'Wiese') and *wīsō- (OHG wīsa 'Weisheit'), in which the short */i/ would contrast with */i:/, as well as with forms like *skerō- (OHG skero 'Scher', 'Schermaus') and *skēro (OHG skiero 'schier' = 'bald'), in which the short */e/ would contrast with */e:/ despite the wellknown scarcity of instances exhibiting the long vowel. [14] The contrast between the two short vowels may be exemplified with forms like *wistiz < *westiz (OHG wist 'das Wesen') and *westan (OHG westan 'Westen'), as well as with many other instances exhibiting different equivalent or nearly equivalent proximity contexts. [15]

We may then conclude that the changes presented above affected the incidence and distribution of */i/ and */e/, not their status as phonemes. The sounds in the second syllable triggered off or prevented the changes in question, but could not alter the fact that *[i] and *[e] in the first syllable remained distinctive at a systemic level as well as contrastive in equivalent or nearly equivalent proximity contexts.

*[u] and *[o]

It is usually assumed that PIE */o/ merged with */a/ in early Proto-Germanic (as in *gosti- > *gasti- 'Gast'), so that */o/ was eliminated from the vowel system until the lowering of *[u] in favourable contexts produced an allophone *[o], which eventually split off from */u/ as the new phoneme */o/

This is the predominant view, despite the fact that there is some indication that the original */o/ may have been retained in certain non-initial syllables (cf. Fulk 2018: 55–57, 87–90 and the literature cited there), for example in the acc. sg. of an-stems (*-on-m# > *-on-um > *-un) – cf. OHG gomon, gomun 'Mann'. Moreover, */o/ was preserved in the

old natural interjections *oh > OHG oh (beside ō) and *foi > OHG foi 'ei', while instances like *und, *unt > OHG unz 'bis' [16] and *uz (> OHG ur) 'aus, außer' show that *[u] could also occur in monosyllabic words. On the strength of this evidence we may then conclude that the alleged complementary distribution of *[u] and *[o] should be rejected in favour of an opposition */u/ # */o/. One might object that *[o] could be found only in interjections and in unstressed syllables, but this cannot obscure the fact that *[o] did occur at a lexical level

The low incidence of */o/ was of course increased by the lowering of */u/ before a low or mid vowel sound in the next syllable, except when a nasal plus consonant intervened. [17] This split with merger of */u/ can be exemplified with instances like *wurda- > *worda- > OHG wort 'Wort', *fulla- > folla- > OHG fol 'voll', *budan- > *bodan- > OHG boto 'Bote', etc., which should be compared with *kuzi- > OHG kuri 'Kür', *sunu- > OHG sunu 'Sohn', *wundō- > OHG wunta 'Wunde', etc.

However, there are exceptions also to this lowering development. An instance like *sumara- > OHG sumar 'Sommer' and the well attested phonological variation between /u/ and /o/ in Old High German as well as in other Germanic languages (cf. Fulk 2018: 55–57), [18] suggest that the original vowel was not infrequently preserved or reintroduced. Examples of this variation are*kuman- > OHG cuman, coman 'kommen', *fruma- > OHG fruma, froma 'Fromme', *fugla- > OHG fugal, fogal 'Vogel', *uber- > OHG ubar, obar 'über', etc. [19]

These instances can frequently be explained as due to analogical levelling, which – as we have seen – presupposes the existence of two independent phonemes, in this case */u/ and */o/. Moreover, at least some of these instances suggest that the lowering did not operate with regularity, so that the change in question cannot be adduced in favour of a complementary distribution of *[u] and *[o] dependent on the following syllable.

In any case, even if we could assume a genuine complementary distribution of *[u] and *[o] dependent on the following syllable, we would not be entitled to consider the two phones as allophones of a single phoneme. On the contrary, we should conclude that the two vowels had phonemic status, because they would be distinctive at a systemic level and contrastive at a lexical level. At a systemic level, they would be distinct from their long counterparts */u:/ and */o:/ and, consequently, they would be distinct from each other. Moreover, they would be contrastive with */u:/ and */o:/, respectively, as well as mutually contrastive, in equivalent or nearly equivalent proximity contexts, irrespective of what followed in unaccented syllables. This may be exemplified with forms like *budila- (OHG butil 'Büttel, Diener') and *būdila- (OHG būtil 'Beutel'), in which the short */u/ would contrast with */u:/ [20] , just as in instances like *gomō- < *gumō- (OHG gomo 'Mann') and *gōmō- (OHG guomo 'Gaumen' [21]) the short */o/ would contrast with */o:/. The contrast between the two short vowels may be exemplified with forms like *wordan < *wurdan (OHG wort 'Wort') and *wurdiz (OHG wurt 'Schicksal'), [22]

as well as with many other instances in equivalent or nearly equivalent proximity contexts.

We may then conclude that the changes presented above affected the incidence and distribution of */u/ and */o/, not their status as phonemes. The sounds in the second syllable triggered off or prevented the changes in question, but could not alter the fact that *[u] and *[o] in the first syllable remained distinctive at a systemic level as well as contrastive in equivalent or nearly equivalent proximity contexts.

*[eu]

The developments affecting this diphthong appear to have been similar to those already discussed for *[e] and *[u]. The raising of the first element of the diphthong is generally ascribed to Proto-Germanic, whereas the lowering of the second element appears to belong to the prehistory of the individual Germanic languages. [23]

With regard to Old High German, we should in any case assume a pre-literary split of */eu/ into */iu/ and */eo/, with dialect differences:

- */eu/ became */iu/ before a high vowel sound in the next syllable, as in *deurja- > OHG tiuri 'teuer', *leugu > OHG liugu '(ich) lüge', etc. But in Upper German, though not in Franconian, the raising of the first element of the diphthong occurred also before a labial or velar consonant irrespective of the vowel sound in the next syllable, as in *leugan- > Upper German liugan, Franconian liogan 'lügen'
- */eu/ became */eo/ (which subsequently changed to /io/ by dissimilation) before a low or mid vowel sound in the next syllable, as in *deuza- > OHG teor, tior 'Tier', *geutō- > OHG giozo 'fließendes Wasser', etc. But in Upper German, *[eu] became *[iu] also before a labial or velar consonant irrespective of the vowel sound in the next syllable, as in *leugan- > Upper German liugan, Franconian liogan 'lügen'. [24]

As in the case of *[e] and *[u], we are not entitled to assume an allophonic variation */iu ~ eo/ (cf. Moulton 1961: 12; Russ 1978: 54), since the split in question produced two units which were systemically distinctive among the diphthongs (*/iu/, */eo/, */ai/, */au/) as well as contrastive in equivalent or nearly equivalent proximity contexts, irrespective of what followed in unaccented syllables.

This may be exemplified with forms like *liubjan < *leubjan (OHG liuben 'lieben'), *laibjan (OHG leiben 'leiben = übriglassen') and *laubjan (OHG louben 'erlauben'), in which */iu/ contrasts with */ai/ and */au/, just as in instances like *leobō < *leubō (OHG lioba 'Liebe'), *laibō (OHG leiba 'Überbleibsel') and *lauba- (OHG loub 'Laub') the diphthong */eo/ contrasts with */ai/ and */au/. The contrast between */iu/ and */eo/ may be exemplified with forms like *niusen < *neuhsjan (OHG MHG niusen

= nüsen 'versuchen') and *[h]niosan < *hneusan (OHG [h]niosan, MHG niesen 'niesen').

Interim summary

Neither the two front vowels nor the two back vowels discussed above can be assumed to have been allophones of a single phoneme in the prehistory of the Germanic languages. The same applies to the two diphthongs developed from */eu/. At an early stage of its pre-literary development, [25] the Old High German short vowel subsystem exhibited five phonemes: */i/ and */e/, */u/ and */o/, as well as */a/ (as in *halsa- > OHG hals 'Hals'); the subsystem of diphthongs exhibited four phonemes: */iu/ and */eo/, as well as */ai/ and */au/. Examples of */ai/ are *baina- > OHG bain > bein 'Bein' and *aizō- > OHG ēra 'Ehre'. Examples of /au/ are *hlaupan- > OHG hlauffan > loufan 'laufen' and *rauda- > OHG rōt 'rot'.

The Old High German i-umlaut [26]

The traditional phonological interpretation of the Old High German i-umlaut goes back, substantially, to studies by Twaddell (1938); Penzl (1949); Marchand (1956); Moulton (1961); Antonsen (1964); Penzl (1974); and others.

As in the case of the older developments, this interpretation rests on the assumption that 1) the changes caused by specific sounds in unstressed or weakly stressed syllables resulted in complementary distributions of the relevant stressed vowels and 2) the new allophones became phonemes when the relevant sounds in the following syllable changed or disappeared. Handbooks on German historical phonology and on sound change normally accept this view – cf., for example, Russ (1978: 56–57) and Salmons (2021: 13–14).

The pre-literary Old High German vowels affected by i-umlaut were [a], [a:], [o], [o:], [u], [u:], [iu], [uo], [ou] before i-sounds ([i], [i:], [j]) in the next syllable. The products of the relevant changes were (approximately) [æ] and [e], [æ:], [ø], [ø:], [y], [y:], [iy], [yø], [øy].

Of these changes, the raising and fronting of [a] to [e] (traditionally called "primary umlaut of a") is indicated in the Old High German sources (from ca. 750): generally by #e# like the reflex of PGmc */e/, occasionally also by the digraphs #ae# and #ei#, the ligature #æ#, and the caudata #ę#, which are occasionally used also for the reflex of PGmc */e/. The latter appears as #ai# only in the oldest sources – cf. Braune/Heidermanns (2018: 48, fn. 2; 44, fn. 4). In dictionaries and grammars the product of the new e-sound is often represented with ę (or ė) as opposed to ë from PGmc */e/. [27] Normally, the two vowels are not distinguished in either the Middle or New High German orthography, but their separate identity appears to be confirmed by Middle High German rhymes and by recent dialects that show different reflexes of the two vowels – references in Braune/Heidermanns (2018: 48, fn. 1).

The partial raising and fronting of [a] to [æ] (frequently called "secondary umlaut of a") is occasionally indicated by #e# in Old High German and more frequently, though not consistently, with #e# and #æ# in the early Middle High German sources. [28] If we take into account instances like Otfrid's mehti and wehsit (see below, Chapter 8.1), we may conclude that in the Old High German period the letter #e# could represent three different short vowels: [e], [#], and [æ].

Attempts to indicate the other products of i-umlaut are found only in late Old High German, especially in the case of [y:], which is sometimes rendered with #iu# after the merger of /iu/ (< PGmc */eu/) with umlauted /u:/ (cf. Braune/Heidermanns 2018: 79). However, the representation of the other umlauted vowels remained incomplete until into the early New High German period.

Since i-umlaut is caused by i-sounds in the following syllable, the relevant changes must have taken place before the factors that triggered them off changed or disappeared. This means that i-umlaut was completed before or during the Old High German period (ca. 750–1050) [29] , even if it is not normally indicated in the available sources (but see below, Chapters 8.1, 9). The gap between the time when the relevant changes occurred and the time when the available sources indicate (though not invariably) the umlauted vowels has generally been regarded as a difficulty in the reconstruction of the processes involved. Some scholars have postulated two different periods in which i-umlaut was active, but this hypothesis conflicts with the available evidence, since the i-sounds in unstressed or weakly stressed syllables changed or disappeared by the end of the Old High German period at the latest: [i] and [i:] were weakened to approximately [#], while [j] disappeared even earlier (cf. Braune/Heidermanns 2018: 87–88; 158, fn. 2).

In a well-known article published in 1938, William F. Twaddell tried to resolve this difficulty by maintaining that there was no reason for the scribes to indicate the Old High German umlauted vowels, since these were merely allophones of the original phonemes. This approach was taken up and expanded by Herbert Penzl (1949), while the allophone theory in connection with i-umlaut was elaborated by other scholars, Marchand (1956) and Moulton (1961) among others

In a generally neglected article published in 1960, Henry Kratz (1960: 471) argued that "Twaddell and Penzl's theories explaining OHG umlaut are not only not supported by any evidence", but "are rather contradicted by what evidence is available". Yet, Kratz failed to provide a satisfactory explanation of i-umlaut, in that he suggested that "the product of mutation was a series of central rather than front vowels" and that these "became fronted at different times, varying considerably from vowel to vowel and for different instances of the same vowel (depending on phonetic environment)", and that all this happened over a long period extending from the eighth century to Middle High German times (cf. Kratz 1960: 473). [30]

As we have seen, however, the Old High German i-umlaut was completed before or during the Old High German period, since the

gradual phonetic developments in question require the presence of the triggering factors in the following syllable.

In a later article published in 1972, Peter H. Erdmann lamented that Kratz's objections to Twaddell and Penzl had not received the attention they deserved and set out to explain i-umlaut in structuralistic terms. The gist of his argumentation is that the Old High German umlaut should be described by having recourse to the phonological development known as conditioned or combinatory change (cf. Erdmann 1972: 22–23). However, this type of change can have different results, and Erdmann failed to offer a specific interpretation and description of the Old High German situation with special regard to how i-umlaut produced the new vowel phonemes.

The i-umlaut of OHG /a/

The available evidence shows that the change in question produced two different results: 1) a vowel /æ/, when the raising and fronting influence of the i-sounds in the next syllable was counteracted by certain consonant clusters; 2) a vowel /e/ in other contexts. The first case will be referred to as "weak i-umlaut of /a/"; the second, as "strong i-umlaut of /a/". The traditional terms "primary umlaut" and "secondary umlaut" were devised to indicate that the stage [e] was reached in Old High German and that the stage [æ] belongs to Middle High German. However, these terms are doubly misleading: chronologically as well as phonologically (see below). [31]

Since the strong i-umlaut of /a/ is usually assumed to have interfered with the reflex of PGmc /e/, the point has been extensively discussed from a phonological point of view on the traditional assumption that the development in question implied a complex interplay of allophones. Marchand (1956: 89) gives the most detailed description of this interpretation, which substantially goes back to Twaddell (1938: 180–181) and Penzl (1949: 225–226), and which has been taken up (with variations) also by Fourquet (1952); Moulton (1961: 22–23); Antonsen (1964: 189–190); Schulze (2010: 88–89), and others. As to phonemicization, the traditional view is always the same: the relevant allophones became phonemes when the i-sounds in the following syllable merged with other vowels or disappeared.

With regard to the developments related to the i-umlaut of /a/, Marchand (1956: 89f.) assumes three periods of phonemic umlaut (including PGmc */e/ > */i/) and a single period of phonetic umlaut "from Proto-Germanic down to MHG times". However, as already emphasized above, all the i-umlaut phenomena under discussion must have been completed in the Old High German period, and the phonemicization of the relevant allophones occurred when the triggering factors were still present.

The raising and fronting of /a/ produced a split into /a/, /æ/ and /ë/# [32]. Both /æ/ and /ë/ became # systemically distinctive among the unrounded front vowels, since they were clearly distinct from the pre-

existing front vowels /e/ and /i/. At a lexical level, they contrasted with other short front vowels in equivalent or nearly equivalent proximity contexts. Consequently they contrasted also with /a/. Thus, for example, the /æ/ in [gi]slahti (MHG geslähte) 'Geschlecht' contrasted with the /e/ and /i/ of sleht, sliht (< *slihtaz > *slehtaz) 'schlicht' and with the /a/ of slahta (< *slahtō) 'Schlacht', while the /ë/ of # [ir]belgen (< *balgjan) '(obsolete) bälgen' [33] contrasted with the /e/ of belgan (< *belgan) '(obsolete) belgen' [34] and with the /a/ of balg (< *balgiz) 'Balg'.

A subsequent re-adjustment of the unrounded front vowels resulted in a lowering and fronting of the new /ë/ to /e/ and, consequently, in a lowering of the pre-existing /e/ (< PGmc */e/) to # /#/. It is a well-known fact that the appearance of a new phoneme can trigger off the shift of another. However, the lowering of the old vowel did not affect forms in which /e/ had come to stand before a syllable containing an i-sound (see 8.2, below).

As a result of these developments, Old High German came to exhibit three types of short esounds. This state of affairs is not surprising, especially if one considers that three types of short e-sounds are reported from Modern Swiss German (Russ 1990: 369), where their distribution is, however, somewhat different. In the line of development that led to Present Standard German, the three vowels were later reduced to one, the antecedent of today's /#/.

The weak i-umlaut of /a/

In the whole of the Old High German area (Franconian and Upper German) the weak i-umlaut of /a/ produced the new phoneme /æ/ before i-sounds in the next syllable, when the clusters /ht/, /hs/ or consonant plus /w/ intervened. This change is not normally indicated in the relevant sources until the Middle High German period, when this phoneme is rendered, though not consistently, with #e# or #ä#. However, the letter #e# for /æ/ is occasionally used also in the Old High German period. Examples: mahti, mehti (in Otfrid) 'Mächte' (cf. maht 'Macht' < *mahti-), gislahti (< *gislahti-) > MHG geslehte, geslähte 'Geschlecht', wahsit, wehsit (in Otfrid) '(er) wächst' (cf. wahsan 'wachsen' < *wahsan-), etc. Before consonant plus /w/: garwen (< *garwjan-) 'bereiten'

In Upper German, though not in Franconian, the new /æ/ developed also when the intervening clusters were /l/ or /r/ plus consonant, [35] /h(h)/ < PGmc /k/, or /h/ < PGmc /h/. Examples: haltit/heltit '(er) hält' (cf. haltan < *haldan-), warmen/wermen (< *warmjan-) 'warmen', sahhit/sehhit '(er) streitet' (cf. sahhan < *sakan-) 'streiten', ahir/ehir (< *ahiz-) 'Ähre', etc.

The fact that OHG /æ/ was not rendered with a specific letter should be explained with the circumstance that in the Middle Ages the Latin ligature #æ# and its variants #ae#, #ę#, though known to the scribes, were perceived as equivalents of #e#, which in Old High German was used both for the reflex of PGm */e/ (as in erda < *erþō- 'Erde') and for the product

of the strong i-umlaut of /a/ (as in festi < *fastja- 'fest'). Moreover, in many instances there was morphological alternation between forms with /a/ and forms with /æ/ (as in maht – mahti, wahsan – wahsit, etc.), so that the forms with /æ/ were orthographically associated with the corresponding forms with /a/, which were obviously written with #a#

As anticipated above (Chapter 8), the weak i-umlaut of /a/ produced a new phoneme, since this change made [æ] systemically distinctive among the unrounded front vowels and contrastive in equivalent or nearly equivalent proximity contexts, irrespective of what followed in unaccented syllables. Thus, for example, a pair like slahta (< *slahtō) 'Schlacht' – (gi)slahti/slehti (< *slahtja-) 'Geschlecht' (MHG geslehte, geslähte) could not be adduced as evidence of an allophonic variation /a ~ æ/, since in this case the two vowels were in contrast between /l/ and /h/, just as they contrasted in other equivalent or nearly equivalent proximity contexts. The same obviously applies also to an Upper German pair like haltan 'halten' – haltit/heltit (MHG hältet) '(er) hält', in which the two vowels were in contrast between /h/ and /l/ plus consonant.

The strong i-umlaut of /a

As a result of this change, [a] was raised and fronted to [ë] before # i-sounds in the next syllable, except when certain consonant clusters intervened (see Chapter 8.1, above). Examples: festi (< *fastja-) 'fest' (cf. fasto < *fasta- 'fast'), ferit (< *fariþ) '(er) fährt' (cf. faran 'fahren' < faran-), etc. [36]

As anticipated above (Chapter 8), the strong i-umlaut of /a/ produced a new phoneme, since [ë] # (subsequently [e]) became systemically distinctive among the unrounded front vowels and contrastive in equivalent or nearly equivalent proximity contexts, irrespective of what followed in unaccented syllables. Thus, for example, a pair like fasto 'fast' (< *fasta-) – festi 'fest' (< *fastja-) could not be adduced as evidence of an allophonic variation /a ~ ë/, since in this # case the two vowels were in contrast between /f/ and /s/, just as they contrasted in other equivalent or nearly equivalent proximity contexts. For the same reasons a pair like erda (< *erþō-) 'Erde' – herti (< *harti-) 'hart' (cf. Braune/Heidermanns 2018: 48, fn. 1) cannot be adduced to show that [#] (< PGmc /e/) and [e] (< umlauted /a/) were allophones of the same phoneme

The raising and fronting of /a/ to /ë/ was followed by a re-adjustment of the unrounded front # vowels, which resulted in a lowering of the new /ë/ to /e/ (as in # festi < *fastja- 'fest') and, consequently, of the old /e/ to /#/ (as in erda < *erþō- 'Erde'). However, the lowering of the old vowel did not affect forms in which /e/ had come to stand before a syllable containing an isound. No need, therefore, to postulate (despite Braune/Heidermanns 2018: 48, fn. 1) an iumlaut of OHG /#/ to /e/ when it came to stand before a syllable containing an i-sound, since in forms like ledīg (< *led+īg) 'ledig' and pelliz (< L pellīcia) 'Pelz' we can assume that the reflex of PGmc /e/ was not lowered to /#/. [37]

The i-umlaut of OHG /a:/, /o/, /o:/, /u/, /u:/, /iu/, /uo/, /ou/

As mentioned above, the products of i-umlaut are not normally indicated in Old High German, except in the case of umlauted /a/ and /u:/ (see Chapters 7, 8.1, above), occasionally also of umlauted /a:/ (written #e#), /o:/ (written #oe#, #oi#), /u/ (written #ui#, #i#, #iu#, #y#), and /uo/ (written #ui#) [38]. However, i-umlaut must have affected all vowels and diphthongs in the oldest period of the language, since the i-sounds in unstressed or weakly stressed syllables changed or disappeared by the end of the Old High German period at the latest (see 7, above).

The i-umlaut of the relevant vowels resulted in splits when their respective allophones reached front values. At this stage, the new [æ:] came to be distinct from the pre-existing [e:] as well as from [a:], while the allophones of the back vowels became distinctive because the features of the other front vowels – [i(:)] and [e(:)] – were not rounded. Thus, not only [æ:], but also the allophones of the back vowels became distinctive at a systemic level and contrastive at a lexical level in equivalent or nearly equivalent proximity contexts.

The relevant changes may be presented as follows:

- split of /a:/ into /a:/ and /æ:/, as in gāha (MHG gāhe) 'Eile' (obsolete 'Gach' [39]) and gāhi 'jäh, jähe' (MHG gæhe).
- split of /o/ into /o/ and /ø/, as in holo (MHG hole, hol) 'Loch' (obsolete 'Hohle') and holī [40] (MHG höle, höl) 'Höhle'.
- split of /o:/ into /o:/ and /ø:/, as in scōno (MHG schōne) 'schon' and scōni (MHG sch#ne) 'schön'.
- split of /u/ into /u/ and /y/, as in brunno (MHG brunne, burne [41]) 'Brunnen' (obsolete 'Brunne') and brunnī (MHG brünne) 'Brünne'.
- split of /u:/ into /u:/ and /y:/, as in (h)lūtēn (MHG lūten) 'lauten' and (h)lūten, (h)liuten (MHG liuten) 'läuten' [42].

The i-umlaut of the diphthongs /iu/, /ou/, /uo/ resulted in splits when their elements came to exhibit front values. At this stage, they became distinctive at a systemic level and contrastive at a lexical level. Within the vowel system, the rounded front features of their second elements made them distinct from the pre-existing /ai/ > /ei/, which had unrounded front features in the second element. At a lexical level, /iy/, /øy/, /yø/ were now in opposition to /iu/, /ou/, /uo/ in equivalent or nearly equivalent proximity contexts. The changes that produced a new series of diphthongs exhibiting a second element with rounded front features may be presented as follows:

- split of /iu/ into /iu/ and /iy/, as in hiuru (MHG hiure = hūre) 'heuer' and hiuri (MHG [ge]hiure = hūre) 'geheuer, einfältig' [43].
- split of /ou/ into /ou/ and /øy/, as in houwa (MHG houwe) 'Haue' and houwi (MHG höuwe) 'Heu'.

- split of /uo/ into /uo/ and /yø/, as in suozo (MHG sueze, adv.) [44] and suozi (MHG süeze) 'süß' [45]

That in the original sources the indication of all these changes was only sporadic (and sometimes dubious) is only apparently perplexing if we keep in mind that in the Old High German period little attempt was made to distinguish between short and long vowels and that the letter #e# was used for three different e-vowels: [#] (erda < *erþō-), [e] (festi < *fastja-, Chapter 8.2), [æ] (mehti, Chapter 8.1), occasionally also for [æ:], as in gesprechi for gisprāhhi 'Gespräch' (cf. Braune/Heidermanns 2018: 57, fn. 2). Even in the Middle High German period the situation was substantially the same as it was in late Old High German. Understandably enough, our handbooks and editions provide us with normalized lists of sounds and letters, but the old manuscripts offer a very different, and sometimes chaotic, picture. This can be seen even in an old book like Victor Michels's primer, which provides an overall picture of how the Middle High German vowels were actually rendered by contemporary scribes (cf. Michels 1921: 41–51). [46] A more detailed presentation is to be found throughout the grammar of Klein, Solms and Wegera, in which the symbols used for umlauted vowels are given with regard to specific lexical or grammatical uses and with dialectal differentiations (KSW 2018: 76 et passim; KSW 2009: 106 et passim). Generally speaking, it should be noted that the letter #o#, for example, continued to be used for both /ø/ and /ø:/, and the same applies to the new #o ## and #o ##. The confusion is even worse if we consider other vowels and diphthongs, since /u/ and /u:/, /y/ and /y:/, /uo/ and /yø/, as well as /ou/ and /øy/ were not infrequently rendered with the same letters, while the new #u ## was used for both /y/ and /y:/ [47] .

The lack of a distinction between short and long vowels reflects common Medieval Latin practice, the use of an acute (#) or circumflex (ˆ) accent on long vowels being by no means regular. However, the confusion between umlauted and unumlauted vowels shows that the letters of the Latin alphabet were slowly and gradually adapted to the needs of the German language, and that this process of adaptation was probably to a certain extent delayed by the fact that in many instances there was morphological alternation between forms with unumlauted vowels and forms with umlauted vowels, so that the forms with umlauted vowels were orthographically associated with forms with the corresponding unumlauted vowels.

Umlaut and morphology

Both the early assimilation changes and the Old High German i-umlauts gave rise from the start to morphological alternations, which in turn opened the way to analogical formations. Thus, for example, we find that the /#/ of OHG geban (< * geban-) 'geben' regularly alternates with the /i/ of OHG gibu (< *gebu) '(ich) gebe', whereas OHG gebu (dat. sg. of

geba 'Gabe') has /#/ from the accusative and nominative, the latter being itself analogically formed on the accusative: *gibu replaced by *geba

The morphological alternations connected with the products of the Old High German i-umlaut phenomena were obviously more extensive and became more and more important in producing new formations. Thus, for example, umlauted vowels came to be used as markers of the plural number at least from the early New High German period, as can be seen from such instances as NHG Hals (OHG hals < *halsa-), which exhibits a new formation Hälse (OHG halsa, MHG halse), and NHG Hof (OHG hof < *hufa-) which exhibits the new plural Höfe (OHG hofa, MHG hofe). However, the fact that the origins of the alternations in question were closely related to i-umlaut does not entitle us to make phonemicization dependent on morphological alternations.48 As emphasized above, allophones cannot be used analogically by the speaker, since they are produced automatically in a specific context.

General conclusions

A critical analysis of the available material has led to the following conclusions.

1. Neither the two front vowels *[i] and *[e] nor the two back vowels *[u] and *[o] can be assumed to have been allophones of a single phoneme in the prehistory of the Germanic languages. The same applies to the two diphthongs developed from */eu/. At an early stage of its pre-literary development, the Old High German short vowel subsystem exhibited five phonemes: */i/ and */e/, */u/ and */o/, as well as */a/ (as in *halsa- > OHG hals 'Hals'); the subsystem of diphthongs exhibited four phonemes: */iu/, */eo/, */ai/, and */au/ (Chapters 2–6)
2. The Old High German umlaut phenomena produced phonemic changes before the factors that triggered them off changed or disappeared, because the umlaut allophones gradually became distinctive in the phonological system of the language and contrastive at a lexical level. (Chapters 7–10).

References

Antonsen, Elmer H. (1964): „Zum Umlaut im Deutschen". Beiträge zur Geschichte der deutschen Sprache und Literatur 86/2,3: 177–197.

AWB (1952–) = Althochdeutsches Wörterbuch. Auf Grund der von Elias von Steinmeyer hinterlassenen Sammlungen im Auftrag der Sächsischen Akademie der Wissenschaften zu Leipzig, Bearbeitet und herausgegeben von Elisabeth Karg-Gasterstädt und Theodor Frings.Leipzig: SAW.

Braune, Wilhelm/Reiffenstein (2004) = Wilhelm Braune, Althochdeutsche Grammatik I: Lautund Formenlehre, 15. Auflage. Bearbeitet von Ingo Reiffenstein. Tübingen: Niemeyer.

Braune, Wilhelm/Heidermanns (2018) = Wilhelm Braune, Althochdeutsche Grammatik I: Laut- und Formenlehre, 16. Auflage. Neu bearbeitet von Frank Heidermanns. Berlin/Boston: de Gruyter.

Cercignani, Fausto (1979): "Proto-Germanic */i/ and */e/ Revisited". The Journal of English and Germanic Philology 78/1: 72–82.

Cercignani, Fausto (2022): "The development of the Old High German umlauted vowels and the reflex of New High German /#:/ in Present Standard German". Linguistik online 113, 1/22: 45–57.

Coetsem, Frans van (1997): "Reconditioning and umlaut in Germanic, and the question of ē 2". In: Goblirsch, Kurt Gustav/Mayou, Martha/Taylor, Marvin (eds.): Germanic Studies in Honor of Anatoly Liberman. Odense, Odense University Press: 423–437.

Dal, Ingerid (1971): Untersuchungen zur germanischen und deutschen Sprachgeschichte. Oslo: Universitetsforlaget.

Erdmann, Peter (1972): „Zur strukturalistischen Erklärung des i-Umlautes". Linguistics 78: 16– 24.

Fertig, David (1996): "Phonology, orthography and the umlaut puzzle". In: Lippi-Green, Rosina L./Salmons, Joseph C. (eds.): Germanic linguistics: Syntactic and diachronic. Amsterdam: Benjamins: 169–184.

Fourquet, Jean (1952): "The two e's of Middle High German. A diachronic phonemic approach". Word 8/2: 122–135.

Fulk, Robert D. (2018): A comparative grammar of the early Germanic languages. Amsterdam/Philadelphia: Benjamins.

Grimm, Jakob/Grimm, Wilhelm (1965–2018): Deutsches Wörterbuch. Digitalisierte Version im Digitalen Wörterbuch der deutschen Sprache. dwds.de/d/wb-2dwb [12.05.2022].

Historical Phonology (2015) = Honeybone, Patrick/Salmons, Joseph (eds.): The Oxford Handbook of Historical Phonology. Oxford: Oxford University Press.

Honeybone, Patrick/Salmons, Joseph (2015): "Structuralist Historical Phonology: Systems inSegmental Change". Historical Phonology: 32–46.

Iverson, Gregory K./Davis, Garry W./Salmons, Joseph C. (1994): "Blocking environments inOld High German umlaut". Folia Linguistica Historica 15: 131–148.

Iverson, Gregory K./Salmons, Joseph C. (1996): „The Primacy of Primary Umlaut". Beiträge zur Geschichte der deutschen Sprache und Literatur 118: 69–86.

Kiparsky, Paul (2015): "Phonologization". Historical Phonology: 563–580.

Köbler, Gerhard (2014): Althochdeutsches Wörterbuch. koeblergerhard.de/ahdwbhin.html [12.05.2022]

Kostakis, Andrew (2019): "Gothic #r# and Old High German #r#: Implications from phonological patterning". Glossa: a journal of general linguistics 4/1: 1–26.

Kratz, Henry (1960): "The Phonemic Approach to Umlaut in Old High German and Old Norse".The Journal of English and Germanic Philology 59/3: 463–479.

Kroonen, Guus (2013): Etymological dictionary of Proto-Germanic. Leiden: Brill

KSW (2009) = Klein, Thomas/Solms, Hans-Joachim/Wegera, Klaus-Peter: Mittelhochdeutsche Grammatik III. Tübingen: Niemeyer.

KSW (2018) = Klein, Thomas/Solms, Hans-Joachim/Wegera, Klaus-Peter: Mittelhochdeutsche Grammatik II.1. Berlin/Boston: de Gruyter.

Liberman, Anatoly (1991): "Phonologization in Germanic: Umlauts and vowel shifts". In: Antonsen, Elmer H./Hock, Hans Henrich (eds.): Stæfcræft: Studies in Germanic linguistics. Philadelphia/Amsterdam, Benjamins: 125–137.

Liberman, Anatoly (2007): "Palatalized and velarized consonants in English against their Germanic background, with special reference to i-umlaut". In: Cain, Chistopher M./Russom, Geoffrey (eds.): Studies in the History of the English Language III. Managing Chaos: Strategies for Identifying Change in English. Berlin/Boston, de Gruyter Mouton: 5–36.

Lühr, Rosemarie (1979): „Das Wort 'und' im Westgermanischen". Münchener Studien zur Sprachwissenschaft 38: 117–154

Marchand, James W. (1956): "The Phonemic Status of OHG e". Word 12/1: 82–90.

Michels, Victor (1921): Mittelhochdeutsches Elementarbuch. Heidelberg:Winter.

Moulton, William G. (1961): „Zur Geschichte des deutschen Vokalsystems". Beiträge zur Geschichte der deutschen Sprache und Literatur 83: 1–35.

MWB (2006–) = Mittelhochdeutsches Wörterbuch. Mainzer Akademie der Wissenschaften und der Literatur: Akademie der Wissenschaften zu Göttingen. mhdwb-online.de/ [12.05.2022].

Noreen, Adolf (1923): Altnordische Grammatik I. Altisländische und altnorwegische Grammatik. Halle: Niemeyer.

Panieri, Luca (2012–2013): „Eine neue phonetische Hypothese zum primären Umlaut von germ. */a/ im Althochdeutschen". Linguistik Online 53, 3/12: 85–98.

Penzl, Herbert (1949): „Umlaut and Secondary Umlaut in Old High German". Language 25/3: 223–240.

Penzl, Herbert (1974): „Zur Entstehung der frühneuhochdeutschen Diphthongierung". In: Besch, Werner et al. (eds.): Studien zur deutschen Literatur und Sprache des Mittelalters. Berlin, Schmidt: 345–357.

Prokosch, Eduard (1939): A comparative Germanic grammar. Philadelphia: Linguistic Society of America.

Ringe, Don (2006): From Proto-Indo-European to Proto-Germanic. Oxford: Oxford University Press.

Russ, Charles, V. J. (1978): Historical German Phonology and Morphology. Oxford: Oxford University Press.

Russ, Charles, V. J. (ed.) (1990): The Dialects of Modern German: A Linguistic Survey. London: Routledge.

Salmons, Joseph (2012): A History of German. What the past reveals about today's language, Oxford: Oxford University Press.

Salmons, Joseph (2021): Sound Change. Edinburgh: Edinburgh University Press.

Simmler, Franz (2000): „Phonetik und Phonologie, Graphetik und Graphemik des Mittelhochdeutschen". In: Besch, Werner et al. (eds.):

Sprachgeschichte: Ein Handbuch zur Geschichte der deutschen Sprache und ihrer Erforschung II. Berlin/New York: de Gruyter: 1320–1331.

Schulze, Jan Henning (2010): Der i-Umlaut im Althochdeutschen. Theorie, Phonetik und Typologie sowie eine optimalitätstheoretische Analyse. Bamberg: Bamberg University Press.

Twaddell, William Freeman (1938): „A Note on Old High German Umlaut". Monatshefte für Deutschen Unterricht 30/3,4: 177–181.

Wiesinger, Peter (1970): Phonetisch-phonologische Untersuchungen zur Vokalentwicklung in den deutschen Dialekten II. Berlin: de Gruyter.

Voyles, Joseph B. (1991): „A History of OHG i-umlaut". Beiträge zur Geschichte der deutschen Sprache und Literatur 113: 159–194.

Wolf, Norbert Richard (2000): „Phonetik und Phonologie, Graphetik und Graphemik des Frühneuhochdeutschen". In: Besch, Werner et al. (eds.): Sprachgeschichte: Ein Handbuch zur Geschichte der deutschen Sprache und ihrer Erforschung II. Berlin/New York: de Gruyter: 1527–1542.

Notes

1 Obviously, the pairs singen # sinnen and lang # Lamm could not be adduced for the old period of the language, since at that time instances like singen and lang exhibited the sequence /ŋg/, so that the velar nasal did not possess phonemic status.

2 For different theoretical approaches to the notion of phoneme and phonological change cf. Historical Phonology (2015), which provides numerous cross-references throughout the volume.

3 Sometimes called "primary split" as opposed to "secondary split", the latter also known as simple split. On split with merger and other types of phonemic change cf. Honeybone/Salmons (2015: 42–43).

4 The Old High German i-umlaut is frequently cited in discussions on phonologization. Cf., e. g., Kiparsky (2015: 563 et passim), who uses the "Stratal Optimality Theory" framework.

5 When not otherwise stated, all the examples cited in this article are taken from AWB (1952–); Köbler (2014) and MWB (2006–).

6 For a recent discussion (with ample bibliography) of umlaut phenomena in the Germanic languages and of the preceding assimilatory changes of stressed vowels in Germanic cf. Fulk (2018: 55–59.)

7 The exact phonetic value of *[e] and *[o] cannot of course be established, but the tendency to lower *[u] to *[o] (see Chapter 4, below) and the variation between *[i] and *[e] (see Chapter 3, below) favours the assumption that *[o] and *[e] were mid-close, not mid-open vowels.

8 The raising of *[e] to *[i] occurred also before an intervening /ww/, as in *trewwja- > *trewwi- > *triwwi- > OHG triuwi (triuuui,triuui) 'treu' vs. *trewwō- > OHG trewwa (treuua) 'Treue'. But the first two elements of the sequence /eww/ soon merged with the diphthong */iu/ from */eu/ (see Chapter 5, below), so that an instance like OHG trewwa became triuwa (triuua). No need, therefore, to postulate a new pre-OHGm *[eu], which Moulton (1961: 15–16) ascribed to a phoneme */eu ~ eo/.

9 The instance *sedu- > *sidu- > OHG situ is inconclusive, since it may have original -i- (cf. Köbler 2014: s. v. situ).

10 Pre-OHG *wigan (~ *wihan) > OHG *wigan, MHG (er)wigen 'ermatten', 'kämpfen' and Pre-OHG *wegan > OHG wegan, MHG wegen 'bewegen'. For the loss of the final vowel in the original imperative forms cf. Fulk (2018: 282–283).

11 The form ez beside iz is first attested in the eleventh century (cf. KSW 2018: 385).

12 More instances in Braune/Heidermanns (2018: 50–53) and Fulk (2018: 55–59).

13 It is a well-known fact that speakers are normally unaware of allophonic variation and sometimes resist sugges-tions that the phones involved are different.

14 The long vowel /e:/, as in OHG hēr, hear, hiar (< *hēr), 'hier', reflects PGmc secondary */e:/ (/ē2/) of contro-versial origin (cf. Fulk 2018: 51–52)

15 These and other examples are necessarily presented in their prehistoric forms. It would be pointless to give only the corresponding attested forms. Moulton (1961: 9–12, 15) adduced the reconstructed pair *wistiz 'das Wesen' – *westaz 'West' in support of his */i ~ e/ theory.

16 On the etymology of OHG unz cf. Köbler (2014: s. v. unz) and Lühr (1979: 117).

17 Even if one accepted the traditional view that the early Proto-Germanic vocalic subsystem did not exhibit a short vowel */o/ (cf. e. g., Ringe 2006: 214), one should still explain the lowering of */u/ as part of the assimilatory trends of the period rather than as a mere system adjustment to eliminate asymmetry.

18 Noreen (1923: 55) gives numerous examples for Old Norse, for example sonr, sunr (OHG sunu < *sunu-, 'Sohn').

19 More examples in Braune/Heidermanns (2018: 53–56).

20 In these examples, the contrast between */u/ and */u:/ obviously refers to the reconstructed forms *budila- and *būdila-, since the Old High German forms butil and būtil exhibited */y/ and */y:/, respectively (see Chapter 9, below).

21 Today's 'Gaumen' reflects an Old High German variant goumo from *gaumō- beside gōmō-.

22 This pair was proposed by Moulton (1961: 15) in support of his */u ~ o/ theory and is sometimes taken up in other treatments – see, for example, Russ (1978: 40).

23 Yet Prokosch (1939: 103) assumed that PGmc "eu appears normally as eo before a, as iu elsewhere". Cf. Fulk (2018: 57–59 and fn. 4)

24 As Salmons (2012: 129) notes, "Franconian has generalized more vowel lowering than Upper German".

25 The two subsystems mentioned above are here ascribed to the prehistory of Old High German rather than to Proto-Germanic or North and West Germanic, because the developments of the individual Germanic languages, though strikingly similar, are by no means identical, and the main focus here is on Old High German

26 For a review of various attempts to explain the umlaut phenomena in question cf. Fertig (1996), Simmler (2000: 1322–1325) and Fulk (2018: 61–67 and fn. 18). The Old High German umlaut phenomena are discussed by various scholars in terms of different theoretical approaches also in HistoricalPhonology (2015), which provides numer-ous cross-references throughout the volume. For a psychophysical phonetic interpretation of the Old High German umlaut cf. Schulze (2010). Liberman (2007: 19 et passim) suggests that i-umlaut was due to intervening palatalized consonants and rejects all explanations based on assimilation, as if the alleged palatalized consonants could be produced without some kind of assimilation. In an earlier attack on assimilation, he had tried to explain umlaut as a compensatory process caused by the weakening of i-sounds in unaccented syllables (cf. Liberman 1991: 132).

27 But KSW (2018: 989) adopts ę instead of ë.

28 Braune/Heidermanns (2018: 45–46, fn. 2). The letter #e# occurs also for [æ] at least in Otfrid.

29 Iverson/Davis/Salmons (1994: 131–132) accept the view that only "primary umlaut" should be ascribed to Old High German. However, in a later article

Iverson/Salmons state that both "primary" and "secondary" umlaut, though "structurally distinct", "took place well within the OHG period" (1996: 69).

30 Cf. Panieri (2012–2013), where the umlaut of OHG /a/ to /e/ is explained as having occurred through a stage [#].

31 Iverson/Salmons (1996) argue unconvincingly that "primary umlaut" did antecede "secondary umlaut". All ef-forts in this direction are conciously or unconciously prompted by the fact that, unlike the weak i-umlaut of /a/, the strong i-umlaut of /a/ is normally indicated by the Old High German orthography (see Chapter 7, above).

32 The symbol [ë#] stands for a slightly centralized [ę].

33 Cf. Grimm/Grimm (1965–2018): s. v. bälgen (to flay or skin), which has #ä# instead of #e# on the analogy of Balg.

34 Cf. Grimm/Grimm (1965–2018): s. v. belgen (to quarrel or wrangle). Cf. the new formation balgen from Balg.

35 On the phonetic features of OHG /r/ cf. Kostakis (2019).

36 The early loss of /i/ in the suffix /-it-/ explains such alternations as OHG brennen (*brannjan) – branta(< *brann[i]ta < *brannida) 'brannte', for which Grimm's somewhat misleading term "Rückumlaut" (or retro-grade mutation) is still often used (KSW 2018: 785 and the literature cited there).

37 But an instance like felis (< *felesa-, *falisa-) 'Fels' is in any case ambiguous, since the reflex of OHG /e/ in modern dialects may reflect the strong i-umlaut of /a/ (cf. Kroonen 2013, s. v. *fel[e]sa-). On *leþ- (> OHG led-) beside *liþ- cf. Kroonen (2013, s. v. liþu-).

38 For these four cases cf. Braune/Heidermanns (2018: 57, fn. 2; 72–73, fn. 4; 55, fn. 5; 64, fn. 3).

39 Not to be confused with the adverb gach (OHG gāho, MHG gāch) – cf. Grimm/Grimm (1965–2018): s. v. Gach, f. and gach.

40 For the obsolete form Hohle cf. Grimm/Grimm (1965–2018): s. v. Hohle. The form holī (originally *hulī- > MHG hüle) appears to derive from a new formation *holī- on the analogy of *hola- < *hula- (OHG hol). Both MHG höle and hole (*hulō-) underwent open syllable lengthening.

41 Like the variant borne (NHG Born), MHG burne shows r-metathesis – cf. Grimm/Grimm (1965–2018): s. v. Born and Brunne.

42 The #ä# in läuten is due to the analogy of the #a# in laut, the historical spelling of OHG MHG liuten being leuten(Grimm/Grimm (1965–2018): s. v. läuten), which has #eu# representing earlier /øy/ (/y:/ > /#y/ > /øy/ > /œ#/ > /##/). Cf. Leute (OHG liuti, MHG liute), with /y:/ from /iy/ (umlauted /iu/), and heute (OHG hiutu, MHG hiute) with /y:/ from /iu/.

43 Soon after its rise, the phoneme /iy/ generally merged with /y:/ from umlauted /u:/. Before the end of the Old High German period a similar merger affected /iu/ in vast areas of Alemannic and Franconian (cf. Wiesinger 1970: 233–236).

44 Cf. also fruoi (MHG vrüeje) 'früh' vs. fruo (MHG frue, adj.) – KSW (2018: 335–336).

45 For the subsequent development of the High German umlauted vowels cf. Cercignani (2022)

46 For the situation in early New High German cf. Wolf (2000: 1530–1532).

47 The new u# derives from ui, just as a# derives from ae and o# from oe. When the rarer variant u# became frequent, the way was open for the reduction of the small letter #e# (in German cursive script: #e#) to #, and to the subsequent change of #a##, #ő#, #ű# to #ä#, #ö#, #ü#.

48 Referring to Dal (1971: 39f.), Voyles (1991: 172f.), and van Coetsem (1997: 424f.), Braune/Reiffenstein (2004: 55–57) suggest that the phonemicization of the alleged i-umlaut allophones is closely linked to (or has as a pre-requisite) the morphologization of umlaut. For a more detailed presentation of the question cf. Braune/Heider-manns (2018: 82–85).