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THE PROTO-NORSE VOWEL SYSTEM AND THE YOUNGER FUÞARK

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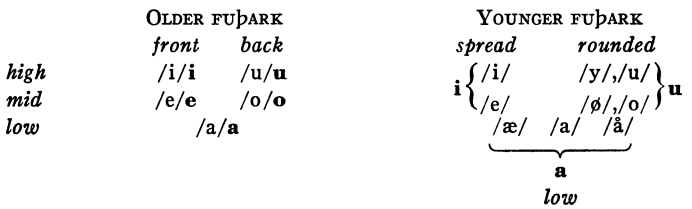
1. After taking Scandinavian runologists to task for not having applied the methods of modern phonology to the problems of runic interpretation, Paul Diderichsen states that "the reduction of the alphabet [in the younger fuþark] has brought all Scandinavian historical linguists to despair because the new alphabet does not permit exact formulations of linguistic usage in the spoken language, which is considered by many to be the only object of linguistic science." He then adds that "seen from the point of view of the linguistic system, the language in the younger runic monuments is a completely different language from that which was spoken, for which reason an adequate transcription is basically impossible."[1] It is Diderichsen's contention that the reduction in the number of symbols from the older to the younger fuþark is the direct result of phonological developments which took place in late Proto-Norse, and he notes that the reduction "touches only those parts of the sound system in which several sounds are produced at the same point in the mouth, but with certain articulatory differences which are repeated in several sound groups in a similar manner" (321).

As in the case of the elimination of separate symbols for voiced stops and spirants, Diderichsen sees a "strict regularity" in the reduction of the vowel symbols from **i e a o u** in the older fuþark to **i a u** (plus **ą**) in the younger.[2] According to his view, the rise of new phonemes resulting from umlaut augmented the five-phoneme system of early Proto-Norse by four new members (*y ø æ å*), but instead of creating new designations for the new phonemes, the younger fuþark actually did away with the symbols for the mid vowels *e* and *o*, establishing a new principle for the designation of the vocalic phonemes. I believe we can interpret Diderichsen's view to be this: Since there were only five symbols to represent nine vowel phonemes, the younger fuþark

[1] Paul Diderichsen, "Runer og runeforskning i nordisk belysning," *Nordisk tidskrift för vetenskap, konst och industri* (1945), 323.

[2] Diderichsen, 322. Concerning the use of **ą**, see Karl Martin Nielsen, "Til runedanskens ortografi," *Arkiv för nordisk filologi*, LXXV (1960), 3–6.

developed a system in which only three oppositions found expression.[3]



2. In an excellent treatment of the orthography of the Danish runic monuments, Karl Martin Nielsen attempts to show that "the designation of vowels in the Danish runic inscriptions is more regular than generally assumed, which gives them an increased linguistic-historical significance."[4] He believes this regularity in spelling is determined by two factors: etymology and phonetic change. Nielsen agrees with Diderichsen concerning the end product of the reduction in vowel symbols, but he rejects any connection between this reduction and the development of mutation phonemes: "The fact that the new futhark, which was not created until after syncope had partially taken place (cf. Eggjum), does not have special symbols for the umlauted vowels is a consequence of the reduction of symbols itself and is not determined by the phenomena of umlaut" (15).

It is, of course, quite easy to explain the use of the symbols **u** for /u/ and /y/, and **a** for /a/, /æ/, and /å/ on the basis of etymology, since the mutated phonemes derive from the primary phonemes /u/ and /a/. It is another matter, however, to account for the use of **i** for /e/ and of **u** for /o/ and /ø/. Neither etymological considerations nor phonetic change can explain this peculiar usage. The phonemes /e/ and /o/ were present in Proto-Norse (cf. Gallehus **ek hlewagastiR holtijaR horna tawido**) and both seem to have maintained their separate existence until after the inception of the younger fuþark. In the Jelling and post-Jelling group of inscriptions (900–1050 A.D.), an uncertainty in the use of **i** and **a** indicates that /e/ has undergone a lowering to /æ/,

[3] Diderichsen merely states that *a* "occupies a special position" (322). Whether he envisages this special position within the system as being characterized by the lowness in contrast to the high and mid vowels or by the neutrality of *a* with regard to the contrast front : back, I am unable to determine.

[4] Nielsen, 70.

but this is a secondary development not directly connected with the reduction of symbols. Nielsen himself points out the fact that there is no confusion between the use of **i** for /e/ and **a** for /æ/ in the oldest Danish inscriptions (1–2). It therefore seems to me that Diderichsen's phonological explanation of the reduction is to be preferred.

3. From the discussion thus far, it is apparent that both Diderichsen and Nielsen operate on the assumption that the phonemic system represented by the younger fuþark is identical with that generally posited for a later stage in Old Norse, that is West Norse, with nine phonemes[5]:

i	y	u
e	ø	o
æ	ǫ	(å)
	a	

This is the system described by the First Grammarian for Old Icelandic in the twelfth century.[6] In a treatment of umlaut in Old English and Old Icelandic, I have attempted to show that the First Grammarian's system had already undergone radical changes from Proto-Norse.[7] It would therefore seem ill-advised to attempt a description of East Norse developments by positing such a West Norse system as the point of departure. In order to understand the East Norse developments more fully, it is necessary to proceed from the Proto-Germanic vowel system, where, in my opinion, we must seek the beginnings of the various mutation phenomena found in the North and West Germanic languages.

Without going into all the details of some controversial aspects, I shall posit here the following phonemic system for the vowels of Proto-Germanic[8]:

[5] See also Alf Sommerfelt, "Systèmes vocaliques," *Norsk tidskrift for sprogvidenskap*, V (1932), 113.

[6] See Einar Haugen's edition and translation, *Language Monographs*, XXV (1950), 13–14.

[7] Elmer H. Antonsen, "Germanic Umlaut Anew," *Language*, XXXVII (1961), 217–224.

[8] In contrast to my treatment in the article cited above, I am now of the opinion that we must consider Proto-Germanic **i* and **e* to be separate phonemes. In addition to the arguments brought forth by W. P. Lehmann, "A Definition of Proto-Germanic," *Language*, XXXVII (1961), 67–74, and by E. A. Makayev, "Ponjatie obščegermanskogo jazyka," *Voprosy germanskogo jazykoznanija* (Mos-

	spread	*neutral*	*rounded*	*spread*	*neutral*	*rounded*
high	/i/		/u/	/i:/		/u:/
mid	/e/			/e:/		/o:/
low		/a/			/a:/	

I am convinced that the vowel mutations known as *i*-, *a*-, and *u*-umlaut in the Scandinavian languages, and also as breaking in Old English, are the result of a single phonetic tendency (traceable to the Proto-Germanic period) which called forth a partial assimilation of the vowel of a stressed syllable to the vowel of a following unstressed syllable. This assimilation was completely automatic. It took place at a time when the full vowels of the unstressed syllables were still present, was most probably a consequence of the rise of the Germanic stress accent, and resulted in the formation of positional variants of the phonemes present at the time. The assimilation was partial in that it affected only one aspect of the articulation of the stressed phoneme—the point of articulation.

The Proto-Germanic system displays the opposition spread : rounded in the high and mid series, while low /a/ is neutral with regard to this contrast. Through *i*-umlaut, the rounded phonemes developed front allophones, while neutral /a/ was realized in a somewhat higher front

cow-Leningrad, 1961), 44–67, I should like to point out the following: (1) If Proto-Gmc. **i* and **e* were one phoneme, as proposed by James W. Marchand, "Germanic Short **i* and **e*: Two Phonemes or One," *Language*, XXXIII (1957), 346–354, Old English /ɤ/ *eo* would always be the result of the introduction of the reflex of the *a*-umlaut of the phoneme *[i e] into a position before /-u/ by morphological leveling, since the regular development of *[i e] before /-u/ would have been /ɯ/ *io*. Such an assumption seems highly implausible. (2) Although Marchand has demonstrated the importance of considering the different results of morphological leveling in the various Germanic dialects, such pairs as OE *spic*, OHG *spec* do not prove that **i* and **e* were a single phoneme in Proto-Germanic. The same results can also be attributed to the attraction of the low allophone of /i/, [iˇ], into the orbit of /e/ and of the high allophone of /e/, [eˆ], into the orbit of /i/. The evidence seems to suggest that this had not yet occurred in Proto-Norse. (3) The presence of /i/ in the past participle of strong verbs of the first ablaut series must be attributed to analogy. Such leveling must have occurred very early, since it is found in all Germanic dialects. If **i* and **e* were one phoneme, there would be no possibility of leveling between the two variants.

Concerning /a:/ = $\overline{\text{æ}}$, see William G. Moulton, "Zur Geschichte des deutschen Vokalsystems," *Beiträge zur Geschichte der deutschen Sprache*, LXXXIII (1961, Tübingen), 5–6.

allophone. Mid-spread /e/ also developed a higher allophone. Lower allophones of the high spread and rounded phonemes were called forth by *a*-umlaut, while *u*-umlaut produced back allophones of the spread phonemes and a higher back allophone of neutral /a/. In certain instances, it was possible for a stressed phoneme to be affected by both *i*- and *u*-umlaut. In the case of low neutral /a/, this combined umlaut resulted in a higher central allophone.[9] It is important to keep in mind that in the high and mid series, only the contrast spread and rounded is phonologically relevant, and that the low phoneme /a/ (with all its allophones) is neutral. The Proto-Germanic phonemic-allophonic system may therefore be represented as follows:

	spread	*neutral*	*rounded*	*spread*	*neutral*	*rounded*
high	/i/[ɯ] [i˅] [e^]		[y]/u/	/i:/[ɯ:]		[y:]/u:/
mid	/e/[ɤ]		[o]	/e:/[ɤ:]		[ø:]/o:/
		[æ] [ə] [ɑ]			[æ:] [ə:] [ɑ:]	
low		/a/			/a:/	

This system is modified in the transition to Proto-Norse by the development of a new phoneme from the former low allophone [o] of the phoneme /u/. The phonemicization must have taken place before the reduction of unstressed /-i/, since the new phoneme /o/ also develops a front allophone [ø] when introduced into this position through morphological leveling (cf. Gallehus /holtijaR/ [høltijaR]). The cause of the phonemicization was probably the syncope of unstressed /-a/ in certain positions, but other factors may well have contributed to the result, including the lack of symmetry between the long and short vowel systems of Proto-Germanic.[10] It also seems likely

[9] The allophone [ə], which I describe here as the result of combined *i*- and *u*-umlaut, is usually considered to be the *i*-umlaut of *ǫ* or the *u*-umlaut of *æ*. For a more detailed discussion, see *Lg.*, XXXVII, 221–222.

As will be seen, not all the allophones theoretically possible have left distinct traces in later stages of the language. Thus, while it is likely that /e/, /i:/, and /u:/ were realized in lower allophones before /-a/, we have no reflexes of them in Scandinavian and they will therefore be omitted from the discussion.

[10] See W. F. Twaddell, "The Prehistoric Germanic Short Syllabics," *Language*, XXIV (1948), 139–151, and M. M. Guchman, "Sootnošenie fonologii i fonetiki v sravnitel'no-istoričeskix issledovanijax," *Voprosy germanskogo jazykoznanija*, (Moscow-Leningrad, 1961), 114–116.

that early Proto-Norse still maintained the identity of Proto-Germanic /i/ and /e/ in the form of the allophones [iˇ] and [eˆ] before /-a/ and /-i/, respectively; cf. Kragehul, Lindholmen, Järsberg **erilaʀ** [eˆrilaʀ], and Tune **wita(n)dahalaiban** [wiˇta-].[11] The early Proto-Norse vowel system therefore included the five phonemes /i e a o u/, which could occur with or without length and in the various allophones outlined above.

During the course of the Proto-Norse period, the five-phoneme system we have derived for early Proto-Norse was radically modified as the result of the reduction of unstressed vowels in at least certain positions (though not necessarily in all). Through this reduction, the mutation allophones ceased to be positional variants and became independent phonemes.[12] This phonemicization must have occurred for all the allophones posited above before the appearance of the earliest inscriptions with the younger fuþark.[13] Instead of the five phonemes present in early Proto-Norse, late Proto-Norse displays a complex system of twelve independent phonemes, all of which may occur with or without length and with or without nasality:

	front		*central*	*back*	
	spread	*rounded*		*spread*	*rounded*
high	/i/	/y/		/ɯ/	/u/
higher-mid	/e/	/ø/		/ɤ/	/o/
lower-mid	/æ/		/ə/	/ɑ/	
low			/a/		

The number of phonological oppositions has been significantly increased in late Proto-Norse. Instead of three heights, as in Proto-Germanic and early Proto-Norse, there are now four, while the opposition spread : rounded has been augmented by a new contrast, front : back. In the new lower-mid series, there is a contrast between front : central : back,

[11] Guchman, 103–104; Erik Noreen, "Några urnordiska inskrifter," *Arkiv för nordisk filologi,* LX (1945), 145–150; P. Skautrup, *Det danske sprogs historie* I (Copenhagen, 1944), §§9–10.

[12] Twaddell, *op. cit.*; Herbert Penzl, "Zur Entstehung des *i*-Umlauts im Nordgermanischen," *Arkiv för nordisk filologi,* LXVI (1951), 1–16; M. Steblin-Kamenskij, "Concerning the Three Periods in the Scandinavian *i*-Umlaut," *Arkiv,* LXXIV (1959), 105–111.

[13] See Adolf Noreen, *Geschichte der nordischen Sprachen* (Strassburg, 1913), §50.

but spreading and rounding are irrelevant.

Could such a highly developed system possibly have been represented in the late inscriptions using the older fuþark and in the early inscriptions with the younger fuþark? According to Nielsen's criteria of etymology and phonetic change, it is entirely possible that the derived (mutated) phonemes were designated by the symbol for the corresponding primary phoneme in late Proto-Norse, i.e., in the older fuþark. If we accept Diderichsen's basic contention that the younger fuþark designated only the contrasts spread : rounded : low (or neutral),[14] it becomes obvious that the parsimonious representation of the vowels in the younger fuþark could very well have covered all the phonemes posited above. If **u** could designate not only the two back rounded phonemes /u/ and /o/, but also the front rounded /y/ and /ø/, then there is no reason to exclude the possibility that **i** could represent not only front spread /i/ and /e/, but also the back spread phonemes /ɯ/ and /ɤ/. Similarly, if we grant that **a** could represent /æ/ and /ɑ/ as well as /a/, we must also allow it as the designation for /ə/, the lower-mid central phoneme which is the product of the combined *i*- and *u*-umlaut of Proto-Germanic /a/. It is my contention that this is actually the case, and that the reduction in the number of vowel symbols in the younger fuþark is a direct result of the amazing increase in vowel phonemes from five in early Proto-Norse to twelve in late Proto-Norse. The younger fuþark, to my mind, represents a unique solution to the dilemma of too many phonemes with too few symbols. This solution was a further simplification of the orthographic system which must have been based on the premise that since the five symbols available did not accurately represent the sound system of the language in any case, that sound system could be expressed by an even simpler orthography in which only the crassest oppositions were taken into consideration.[15]

[14] It is now evident that a rephrasing of Diderichsen's statement on the reduction of symbols (321) is in order. The reduction of symbols touched only those parts of the vowel system which are pronounced with the same lip position, but with different points of articulation which are repeated in several sound groups in the same manner.

[15] Some scholars have greeted with skepticism previous attempts to explain mutation phenomena on a phonological basis because the phonologists were not able to pinpoint the exact time of the phonemicization of the umlaut allophones by citing examples of a shift in orthographic practices (see Nielsen, 14–17, and Henry

Diderichsen has pointed out that such greater economy in the inventory of symbols is not necessarily so impractical for those who did the reading and writing as it might seem from our preconceived notions. He also points out that there are very few inscriptions which are really ambiguous because of the notational system employed (323).

From the late Proto-Norse system, East Norse and West Norse have their common derivation. From this point on, however, each branch begins its separate development.

4. In order to substantiate our theory, we must account for the further development of the back spread, lower-mid central, and lower-mid back phonemes in East Norse. Since the runic inscriptions do not permit us to distinguish the various phonemes within the gross categories of spread, rounded, and neutral, we must seek evidence from the later stages of the language which are better attested.

Previous studies of umlaut in Scandinavian have stressed the appar-

Kratz, "The Phonemic Approach to Umlaut in Old High German and Old Norse," *Journal of English and Germanic Philology*, LIX [1960], 463–479). There is nothing in the phonemic theory of mutation which demands an immediate change in spelling habits upon the completion of phonemicization. We know that mutated phonemes were not regularly designated in Middle Low German and Middle High German, although their presence has been established beyond any doubt (see, e.g., Ida Marquardsen, "Der Einfluss des Mittelniederdeutschen auf das Dänische im 15. Jahrhundert," *Beiträge*, XXXIII [1908], 405–458). We also know from the First Grammatical Treatise that it was common to write Old Icelandic without special designations of the umlaut phonemes (see Haugen's edition, 14). The relationship between the appearance of new phonemes and spelling reform can be stated only in the following manner: Once a reorganization of the phonemic system of a language has taken place, the possibility of a reform in spelling is present. In other words, when we find conscious attempts to record differences in pronunciation, a phonemic change has occurred. The absence of such attempts in no way proves the absence of phonemic change. In many cases, the special designation of umlaut phonemes is the result of historical accident (cf. the use of *iu* for /y/ in late Old High German after the monophthongization of [iu] to [y:]). Nielsen (15) cites Eggjum's **mąnʀ** *mœnn*ʀ as evidence that the reduction of vowel symbols was not connected with the rise of new umlaut phonemes, since the umlaut "could have been designated with the **e**-rune." It should be pointed out, however, that there is no reason to expect **e** here, since /e/ and /æ/ were separate phonemes, just as /æ/ and /a/ were. Since there was no special symbol for /æ/ available, orthographic conservatism, or as Nielsen would put it, "etymology" dictated the continued use of the older spelling. Concerning the rise of the Old Norse digraphs and ligatures, see *Language*, XXXVII, 223–224.

ent differences in the geographical distribution of mutation phenomena in East and West Norse. The presence of more numerous umlaut reflexes in West Norse has even led some scholars to assume that the entire umlaut process originated in the West and somehow "spread" to the East, where it was carried out only fitfully.[16] Such an assumption is, of course, untenable. So complicated a linguistic process as umlaut could hardly have been borrowed from one speech community into another, as Höfler has so ably pointed out.[17] H. Markström, on the basis of a thorough study of the reflexes of old /a/ before /-u/, comes to the following conclusion: "It is likely that the *u*-umlaut [of *a*] was carried out throughout the entire Scandinavian linguistic area. The result may have varied right from the beginning in various parts of the North, but the different realizations in East and West, in my opinion, rest to a great extent on sound changes which set in after the umlaut [process] had ceased."[18]

Among the phenomena connected with *u*- (*w*-)umlaut in East Norse, it is interesting to note the influence of particular consonantal environments. The consonants which play an important rôle include a preceding bilabial, a following /-r, -l/ or velar cluster, and a preceding /l-/ in conjunction with /-g-/ before the umlaut-causing /-u/.[19] These mutations have usually been referred to as "combined umlaut." The term is not altogether inappropriate. It is descriptive of the instances in which distinctive reflexes of the mutated vowels are retained, but it does not accurately describe the historical development of these reflexes.

A realistic view of the phonetic process involved in mutation requires us to assume that the results of *i*- and *u*-umlaut were front allophones of the rounded vowels and back allophones of the spread vowels.[20] If the

[16] See, e.g., M. I. Steblin-Kamenskij, *Istorija skandinavskix jazykov* (Moscow-Leningrad, 1953), 114–116.

[17] Otto Höfler, "Stammbaumtheorie, Wellentheorie, Entwicklungstheorie," *Beiträge*, LXXVII (1955, Tübingen), 30–66.

[18] Herbert Markström, *Om utvecklingen av gammalt* ă *framför* u *i nordiska språk: Tilljämning och omljud*, (Uppsala, 1954), 151.

[19] Adolf Noreen, *Altschwedische Grammatik* (Halle, 1897), §§59.7, 67, 69.6, 70; Johannes Brøndum-Nielsen, *Gammeldansk Grammatik* I (Copenhagen, 1928), §§84–85, 87–90, 92; Harry Andersen, "Til *u*-Omlyden i Dansk," *Acta Philologica Scandinavica*, XVI (1942–1943), 281.

[20] First formulated by Charles F. Hockett, "The Stressed Syllabics of Old English," *Language*, XXXV (1959), 595.

later reflexes of both mutations appear as the same front rounded phonemes /y/ or /ø/, this must be the result of some further development in the phonemic system. I therefore agree with Markström that the appearance of mutation phonemes in certain environments and their absence in others represents a secondary development in East Norse. Markström further points out that most investigators have been unduly concerned with the supposed labial nature of the vowel which resulted from the *u*-umlaut of /a/.[21] He himself believes that the mutated vowel was "a somewhat raised and weakly labialized variant of the *a*-sound" (151), which he represents by [ɒ]. I should like to call special attention once again to the fact that the labialization found in the later reflexes of *u*-umlauted vowels is not a direct result of the mutation itself. For this reason, I have chosen the symbol [ɑ] for the *u*-umlaut of /a/, which was a somewhat higher, back variant of /a/. The position of the lips was not affected by mutation, merely the point of articulation.

A vowel system consisting of twelve stressed phonemes of the 4+4+3+1 type is something of a rarity in the annals of human speech, although such systems are not unknown.[22] They must be more or less instable because of the tenuous nature of the margins of safety between the various phonemes. The symmetry between the front and back series of vowels is difficult to maintain because of the natural configuration of the speech organs. The back phonemes, pronounced closer to the angle of the jaw, have less latitude for functioning than the front phonemes.[23] In English and Icelandic, the back spread phonemes display a distinct tendency to gravitate toward the central position and in some instances coalesce with the front phonemes.[24] Similar tendencies leading to a breakdown of the late Proto-Norse system should not surprise us in East Norse. The presence of distinctive reflexes in environments which we may describe as labio-velar and their absence in other positions can only lead us to the conclusion that the original late Proto-Norse back spread phonemes derived from *u*-umlaut were later fronted in East

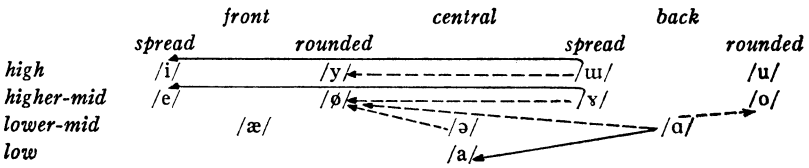
[21] Cf., e.g., Brøndum-Nielsen, *GG* §84, and Andreas Heusler, *Altisländisches Elementarbuch*[4] (Heidelberg, 1950), §§67–75.

[22] See N. S. Trubetzkoy, *Grundzüge der Phonologie* (Prague, 1939), 106, and Charles F. Hockett, *Manual of Phonology* (Baltimore, 1955), §§244–2443.

[23] See André Martinet, "Rôle de la correlation dans la phonologie diachronique," *Travaux du Cercle linguistique de Prague*, VIII (1939), 285.

[24] See *Language*, XXXVII, 222–223 and 228–229.

Norse, so that they coalesced with the two series of front phonemes already present. In most environments, they fell together with the front spread series; in labio-velar surroundings, however, they fell together with the front round series.



Lower-mid central /ə/, the reflex of combined *i*- and *u*-umlaut, is normally found in labio-velar environments and seems to have always coalesced with front round /ø/. Lower-mid back /ɑ/, however, underwent various developments by joining /ø/ or /o/ in labio-velar environments, but reverting to low central /a/ in other positions.[25] These shifts were greatly aided by morphological leveling.[26] The following examples will illustrate the development from early Proto-Norse through East Norse:

Early Proto-Norse		*Late Proto-Norse*		*East Norse*
*/lingwa-/[lɯŋgwa-]	>	*/lɯngw-/	>	/lyŋ/ *Lyng-* 'heather'
cf. */lingu-/[lɯŋgu-]	>	*/lɯng-/	>	/liŋ/ *Ling-* (*ASG* §71.3)
*/ketwa-/[kɤtwa-]	>	*/kɤtw-/	>	/køt/ 'meat' (*GG* §89; *ASG* §69.3)
*/barnu-/[bɑrnu-]	>	*/bɑrn-/	>	/børn/ 'children' (*GG* §85)
cf. */gatuʀ/[gɑtuʀ]	>	*/gɑtuʀ/	>	/gatur/ 'streets' (*ASG* §67.2)
*/akwisi-/[əkwisi-]	>	*/əkws-/	>	/øks-/ 'ax' (*GG* §148; *ASG* §69.6)
*/lausi-/[ləwsi-]	>	*/ləus-/[ləws-]	>	*/løus-/[løws-] > /lø:s-/ 'loosen' (*ASG* §59.8)
*/laus-/[lɑws-]	>	*/lɑus-/[lɑws-]	>	*/løus/[løws] > /lø:s/ 'loose' (*ASG* §59.8)

The system of vowel designation in the younger fuþark makes it difficult to ascertain with any degree of accuracy just when these East Norse realignments took place and by what intermediate steps. The development of the diphthong **au** may, however, give us a clue to the

[25] Brøndum-Nielsen, *GG* §§127, 152 ff.; A. Noreen, *ASG* §§73–74.
[26] H. Andersen, *APhS*, XVI, 270.

chronology. From the Proto-Germanic and early Proto-Norse point of view, /au/ is best described as a low round diphthong (compared to low spread /ai/). It is common practice to represent **au** in runic transcriptions as *ǫu* and *øy* (with *i*-umlaut).[27] Actually, however, these diphthongs represent a syllable nucleus with an off-glide and are better represented phonetically as [ɑw] and [əw].[28] It is obvious that all reflexes of Proto-Germanic /au/ will be rounded, whereas those of /ai/ will be spread unless there is some extraneous rounding influence. The monophthongization of /au/ to /ø:/ in East Norse is perfectly understandable. The glide subjects the nucleus to *u*-umlaut [ɑw], while the glide plus /-i/ in the next syllable calls forth combined umlaut [əw]. In late Proto-Norse, these two diphthongs enjoy independent phonemic status as central round /əu/ and back round /ɑu/. They coalesce once again, however, when the East Norse system undergoes realignment: /ə/ falls together with /ø/ producing the diphthong /øu/ [øw]; /ɑ/ in environments conducive to rounding also coalesces with /ø/, and since the rounding environment is always present in the diphthong in the form of the glide, /ɑu/ also becomes /øu/ [øw]. When monophthongization occurs, the result is a uniform /ø:/. Because the nucleus of /au/ develops in the same manner as any other /a/ with *u*-umlaut in a labiovelar environment, the shifts in the phonemic system of East Norse must have occurred before the monophthongization of the diphthongs.[29]

The positing of additional phonemes for late Proto-Norse and early East Norse may seem to some to be an unnecessary aggravation of an already complicated situation. These phonemes must be posited, however, if we are to explain mutation in the living Germanic languages as the result of a single assimilatory tendency, the roots of which are to be found in Proto-Germanic itself. This theory eliminates the necessity for positing different periods in the phonetic stage of mutation and for assuming that umlaut arose first in one Germanic dialect and then spread to others. It explains why umlaut seems to have been carried out more regularly in West Norse than in East Norse and helps us to under-

[27] See Nielsen, 19–22.

[28] Cf. Hockett's treatment of the diphthongs in Old English, *Language*, XXXV, 595–597, and Makayev, 67.

[29] See Nielsen, 67–69.

stand more clearly the uniform result of the monophthongization of *ǫu* and *øy*.[30]

[30] Lehmann rightly calls for a strict delimitation of linguistic periods on the basis of linguistic evidence. He defines Proto-Germanic as "that stage of Germanic which was spoken between the time of the Germanic accent shift and the loss of /e a/ when final and weakly stressed" (*Language*, XXXVII, 70). I agree wholeheartedly with Lehmann's view that the accent shift was the most important moment in the transition from Proto-Indo-European to Proto-Germanic. It is difficult to agree with his assumption that the loss of final Gmc. /e a/ marked the close of the Proto-Germanic period. The chronology of the loss of final weakly stressed PIE /e a o/ in Germanic is subject to dispute. Makayev points out that "Even if we admit the presence of the final short vowels in Proto-Germanic, one must postulate them for a very early period, in any case before the onset of the assimilatory processes in the area of the vocalism. It does not seem possible to find a phonetic explanation for the loss of final *a*, *e*, *o*; one might suppose that it was the result of a reorganization of the morphological system" (59). The vowel assimilations and the reduction of weakly stressed vowels in Germanic are usually attributed to the action of the fixed stress accent. The absence of assimilatory reflexes of final /e a/ would be strange if they were really still present in Proto-Germanic and then lost as the result of the influence of the stress accent. I prefer to mark the end of the Proto-Germanic period with the phonemicization of [o] < /u/. With this phonemicization, the first of the positional variants takes up an independent position in the short vowel system, giving the latter a new symmetry and providing the basis for the further development of the vocalism in North and West Germanic. It is also at this point that Gothic diverges from the other dialects, since Gothic follows a different path in the utilization of the Proto-Germanic allophones (cf. Moulton 7–9). I therefore define Proto-Norse as that stage of North Germanic spoken from the time of the phonemicization of short /o/ to the time of the phonemicization of all other umlaut allophones (i.e., the time of the reduction of unstressed /-u, -i/ in at least certain positions). What I have termed "late Proto-Norse" is then technically no longer Proto-Norse at all, but in default of a better term, it can be used to describe the period between the phonemicization of the *i*- and *u*-umlaut allophones and the development of those features which differentiate East and West Norse.