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VOWEL QUANTITY IN PROTO-GERMANIC.

The University of Texas, Ph.D., 1962
Language and Literature, linguistics

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VOWEL QUANTITY IN PROTO-GERMANIC

A

DISSERTATION

Presented to the Faculty of the Graduate School of
The University of Texas in Partial Fulfillment
of the Requirements
For the Degree of
DOCTOR OF PHILOSOPHY

By

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Austin, Texas
August, 1962
VOWEL QUANTITY IN PROTO-GERMANIC

APPROVED:

[Signatures]
PREFACE

In the summer of 1960 Professor W. P. Lehmann suggested that the problem of vowel quantity in Proto-Germanic might be suitable for treatment in a doctoral dissertation. After examining the work done on the subject, I noted that the problem of vowel quantity had not been treated for old Germanic languages, either structurally or otherwise, except in investigations of special problems or as subordinate parts of larger works. This dissertation is an attempt to provide a study of the structural role of vowel quantity in Proto-Germanic.

I wish to thank my dissertation supervisor, Professor Lehmann, for his help and encouragement. My thanks also to the other members of the committee, particularly Professor E. G. C. Polomé for his cogent criticisms and suggestions. I also owe a special debt to Professor Rudolph Willard for his helpful advice, especially in regard to metrical problems.

Finally, I wish to thank the Department of Germanic Languages and the Graduate School of the University of Texas, and the Office of Education of the Department of Health, Education, and Welfare for supporting my graduate work with a fellowship granted under Title IV of the National Defense Education Act of 1958.
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General Introduction

Views on vowel quantity in Proto-Germanic have remained very much the same since the early days of Germanic studies. The view that Proto-Germanic and all the Germanic dialects had short and long vowels, and in some final syllables overlong vowels, has been prevalent since the last half of the 19th Century. Much had been written on individual problems such as determining which vowels were long and which were short in different dialects. Yet a study of the problem as a whole has not been provided. As long as the traditional view was accepted by everyone, there was no apparent need for such a study.

Several recent developments have made the need for such a study more pressing. In the first place numerous recent analyses in the tradition of the Prague school of phonologists or in the Bloomfieldian tradition indicate that a long versus short contrast is by no means universal in the vowel systems of modern Germanic languages.

Secondly, there has been a growing interest in the interpretation of written documents. The results of such investigation have sometimes conflicted with established views concerning the interpretation of graphic symbols. This is particularly true of Gothic, although it should be noted that doubts currently being expressed about vowel length in Gothic were present in the writings of some grammarians in the 19th Century.
Finally, by one of the advances in linguistic theory of the past few decades linguistic analysis is expected to be undertaken with the aim of describing the entire system rather than isolated entities in it. Data which have been analyzed by the atomistic methods of the neo-grammarians often yield new insights if they are reinterpreted in terms of overall linguistic structures.

In the following pages we will attempt to discover if the assumed contrast between long and short vowels in Proto-Germanic is really cogent. The first four chapters present the various kinds of evidence which can be cited to support such a structural opposition. No attempt is made to present all the evidence from all Germanic languages, instead, the most conclusive sample of each kind of evidence, with exhaustiveness sought only when the evidence is extremely limited. Most of this evidence is already known, but it has not previously been collected so as to be accessible to the reader who is interested in the problem of vowel quantity in Germanic.

Throughout the first four chapters we speak of "long" and "short" vowels, following the practice of the historical grammars. The use of these terms, however, is not meant to prejudice the final conclusions. The usage is adopted as a convenient way of describing the structural opposition being investigated. Once the data are assembled, more
precise terminology will be adopted in Chapter Five, where the nature of the structural opposition is investigated. The traditional hypothesis of long and short vowels is there compared to two other hypotheses which have recently been suggested as alternative interpretations. One of these assumes that Proto-Germanic had vowels and complex nuclei consisting of vowel plus semi-vowel; the other, that Proto-Germanic had vowels, diphthongs, and geminate vowels.

After comparison of the three hypotheses, it is suggested that acceptance of the one which assumes geminate vowels in Proto-Germanic permits new solutions to several old problems, while not failing to account for any of the data handled successfully under the traditional interpretation. My reconstruction of the Proto-Germanic vowel system rests entirely on Germanic evidence, with the evidence from Indo-European disregarded for the most part. The reconstruction and selection of the geminate hypothesis are supported by structural interpretation of the vowel changes from Proto-Germanic into the various dialects and by tentative structural typologies of the various dialects in their oldest recorded forms.

The conclusions themselves are presented as tentative. If unconvincing, they with the evidence on which they are based may provide the way to an alternative hypothesis.
I. Evidence from Manuscripts

Introduction

Paleographic evidence in the oldest written Germanic materials is the most reliable which we can find in determining whether vowel length was significant in Proto-Germanic. I have attempted to collect such evidence from as many dialects as possible.

It should be emphasized that no attempt has been made to collect all the evidence from any one dialect. Presumably, if quantity is reliably attested in one manuscript, additional evidence in other manuscripts will only add information about details in that dialect. The assumption supporting this assertion is that our oldest Germanic manuscripts are likely to be underdifferentiated when dealing with quantity, for at least two reasons. First, the Latin tradition from which the writing systems other than that of Gothic were borrowed was greatly underdifferentiated with respect to vowel quantity. Second, it is normal for underdifferentiation to be encountered in materials transmitted in borrowed writing systems.

On the other hand, overdifferentiation is highly unlikely for both practical and theoretical reasons. Overdifferentiation does not imply that more than one graph is used to represent a single phoneme, for this
obviously does occur, as in: Old English ð alternating with ð. Furthermore, it does not refer to alternations which are graphically conditioned, such as ð alternating with ð in many medieval manuscripts depending on position within the word. It refers rather to the indication of subphonemic differences by different graphs. Theoretically it is improbable that native speakers of the language could hear such distinctions, and therefore they would not indicate them in manuscripts, assuming that the scribes were native speakers of the dialect being recorded. If devices which are thought to indicate linguistic distinctions are found in manuscripts, it is necessary to prove that they are not 1) graphically conditioned, or 2) in free variation; otherwise they represent phonemic distinctions.

If manuscripts make no distinction whatsoever between two members of the phonological system, they can be said to be totally underdifferentiated with respect to the items in question. It will then be impossible to obtain direct evidence from the manuscripts for proving the phonological distinction. As an example we may cite (th) in contemporary English orthography.

On the other hand, manuscripts may be partially (under)differentiated with respect to certain phonemic distinctions. That is, a phonemic difference may be
either marked or left unmarked in some manuscripts. The difference is most likely to be marked when it is minimal or near-minimal between two forms. Otherwise it may be left unmarked. Moreover, different scribes may mark the distinction with varying degrees of consistency ranging from total underdifferentiation to a completely phonemic representation. If a number of manuscripts can be found to be at least partially differentiated, this is credible evidence to establish the presence of a phonemic distinction in the dialect in question. I hope to show that such a situation of partial underdifferentiation exists in most of the older Germanic dialects with respect to vowel quantity.

If the degree of differentiation of two entities is very small in a given dialect, it may be difficult to demonstrate that the graphs marking the distinction are not in free variation. It may be that the internal evidence is too little to warrant drawing any final conclusions about that dialect. If, however, the few indications which are present are found to correspond to a distinction which has been proved to exist in related dialects, the evidence gains considerably in importance. Convergence of limited amounts of such data from a number of closely related dialects will support the conclusion that a distinction may exist in a dialect where it is barely indicated.
To be sure, the details of the distinction cannot be worked out by reliance on related dialects, but the fact that it does exist may have considerable importance for comparative work.

For the reasons discussed above, I present only the best evidence from as many Germanic dialects as possible in an effort to demonstrate the existence of a distinction in Proto-Germanic. The details of the distinction in the various dialects are not the primary concern here.

It has been shown repeatedly that the extant Gothic texts offer no direct evidence for vowel quantity. On the other hand I hope to show that positive evidence does exist in Old English. Others have already furnished it for Old Icelandic and Old High German.

The situation is clearest in Old Icelandic where we have direct testimony from a contemporary grammarian. The anonymous author of the First Grammatical Treatise not only states that there is a difference between long and short vowels, but he also cites minimal pairs to prove it. He marks the distinction with a stroke roughly equivalent to an acute accent, and cites such pairs as the following: fár, fár, rám, rám, of, of, úóm, úóm.

(raised dot indicating nasalization) plus fourteen more pairs. These eighteen minimal pairs establish the existence of a long-short contrast for each of the nine nasalized and nine non-nasalized vowels which had already been established by the same method. Nothing could be more in keeping with modern linguistic methodology for proving that a distinction exists. We can maintain reservations about the author’s description of what the distinction consists of, but we can hardly deny that some distinction must have existed.

We have not been quite so fortunate in Old High German and Old English, but in these dialects too we find evidence which is quite convincing.

Old High German and Old English grammars often claim that length is well established by double writings in the oldest extant materials and by accents. The most striking example of the use of accents is Notker’s well-known system. The accents appear to have been used primarily as indicators of major word-stresses, but a consistent distinction was made between the circumflex on etymologically long vowels and the acute on etymologically short vowels. It has sometimes been supposed that Notker based his system on that of Latin grammarians, and was not followed by other documents. Yet Paul Sievers has collected the material on Old High German accents and
has shown that, although Notker was the first to use accents consistently, they were indeed present earlier.\textsuperscript{2} Sievers recognized the necessity of looking at each manuscript in terms of its own system, a point of great methodological importance. The result is a classification of the manuscripts into four types, as follows:

I. Acutes limited to short vowels and circumflexes to long ones.

II. Acutes used for either short or long vowels (stress marker only), but circumflexes limited to long ones.

III. Acutes and circumflexes used interchangeably as stress markers.

IV. Acute used for both short and long stressed vowels, with little use of the circumflex, virtually only to indicate heaviest stress.\textsuperscript{3}

Only types I and II have any relevance to quantity, for they alone furnish sufficient evidence that some distinction was present. The evidence from type I is especially weighty. To this group Sievers reckons the following manuscripts: \textquote{\ldots}Hamelburger Markbeschreibung, die Reichenauer Beichte, Wiener Hundesegen, Bruchstücke

\textsuperscript{2} \textit{Die Accente in althochdeutschen und altsächsischen Handschriften}, Berlin, 1909 (\textit{Palaestra} 57).

\textsuperscript{3} P. Sievers, \textit{Accente}, pp. 121-123.
einer Beichte aus Vorau, Würzburger Markbeschreibung, St. Galler Glauben und Beichte I, Otlohs Gebet, Williram und der Prüler Wurmaegen, im Ganzen auch die Vorauer Handschrift, . . . ." (and of course Notker's writings). 4 Sievers was working on aims different from ours: he was attempting to correlate known facts about Old High German with the accents. But this does not render his evidence any less valid for our purposes, that is, to relate what is generally regarded as quantity to known facts about Germanic languages.

Wolfgang Keller has shown that the accents in Old English are of different origin from those in Old High German. 5 They continue the tradition of the Roman apex which disappeared on the continent by 300 AD but was preserved in Ireland. The apex was originally a mark of vowel quantity, but by the time of the oldest extant Old English manuscripts it was already being used in other functions, especially to mark monosyllabic words. Even when the accents were confined primarily to etymologically long vowels, there was no one who used them with

4 P. Sievers, Accente, pp. 40-41.

5 "Über die Akzente in den angelsächsischen Handschriften," Prager deutsche Studien 8 (1907), 97-120. See also W. H. Hulme, "Quantity Marks in Old-English Mss.," MLN 11 (1896), 17-24.
anything approaching the consistency of Notker. Nevertheless there is yet another method of indicating quantity which appears also in Old High German. It is double writing of the vowel in question, of which Keller says: "Für das Deutsche, wie für das Englische ist dies die älteste Quantitätsbezeichnung, die nie wieder ganz verloren ging."6 I hope to show in the section on Old English that a systematic examination of one of the texts in which double writing is fairly frequent offers convincing evidence that a vowel distinction of some sort also existed in Old English. The text chosen for this purpose is the Corpus Glossary.

The Corpus Glossary gives 115 examples of double writing of vowels (not including the many examples of uu for w or wy). Of these 115, five can be eliminated by other considerations. We are left with 110 attestations. An examination of these remaining 110 forms shows that based on comparison with other dialects 99 of them are etymologically long. Of the remaining eleven examples, only seven are clear examples of double writing for etymologically short vowels. Of these seven forms, six have vowel followed by liquid or nasal, sequences which seem to have been especially susceptible to fluctuations in quantity throughout the Old English period.

Even if we admit all of the 11 abovementioned forms as deviations from the norm, however, we find that 99 out of 110 or nearly 90 percent of the double vowels can be correlated with etymologically long vowels. Random inspection of the Old English forms in Corpus indicates that the number of etymologically short vowels with primary stress is at least equal to and probably greater than the number of etymologically long vowels with primary stress. It is obvious that the double writings are not randomly distributed. Unless they can be correlated more effectively with some other linguistic phenomenon, the evidence points to double writings as a marker of what is traditionally called vowel quantity.

A. North Germanic

1. Old Icelandic

The First Grammatical Treatise, which furnishes our evidence for Old Icelandic, is extant in a manuscript from the 14th Century, but is ascribed to the middle of the 12th Century. This was less than a century after the adaptation of the Latin alphabet to writing the ver-
nacular in Iceland. The First Grammatical Treatise then is considerably later than our oldest extant West Germanic texts, but stands near the beginning of the Icelandic writing tradition. The archaic nature of the First Grammarian's (hereafter FG) language is attested by the distinction which he cites between nasalized and non-nasalized vowels, though the nasalization is not marked in other extant Icelandic manuscripts. The FG begins by establishing a contrast between eight of the nine simple vowels which he proposes. For this purpose he contrasts eight vowels in the environment $aVr$ and states the existence of a ninth vowel $i$ for which he does not consider it necessary to furnish an example. The result is a nine vowel system as follows: $i$ $y$ $u$ $e$ $ø$ $o$ $ø$ $a$ $ø$

Having done this, he proceeds to show that each of these vowels can also be nasalized. He again cites illustrative pairs to demonstrate the contrast. They are as follows: $hær$, $hær$: $r̄e$, $r̄e$; $bêl$, $bêl$: $før$, $før$: $isa$, $isa$: $ôrar$, $ôrar$: $ôra$, $ôra$: pú at.

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7 The information used in this discussion is derived largely from Einar Haugen's edition and commentary, First Grammatical Treatise: The Earliest Germanic Phonology, Baltimore, 1950 (Language Monograph No. 25).

8 The forms are cited in Haugen's normalized transcription with accent indicating length and raised dot indicating nasalization.
púat; sýna, sýna. The FG then uses his examples in sentences to show the contrast in meaning between the forms with nasal vowels and those with oral vowels.

After having established eighteen distinct vowels he goes on to show that each of these can also have a short counterpart. He cites the following pairs: fár, fár; rámr, rámr; ol, ól; uón, uón; se pú; sépú; frámer, frá mér; uer, uér; uénesc, uénesc; uil, uil; mínna, mínna; gob, gób; móna, móna; gobróbe, gób róbe; münde, münde; dura, dúra; rúnar, rúnar; flytr, flýtr; brýnna, brýnna.

The result of all this is an analysis which contains 36 distinctive vowels. Inspection enables us to eliminate the contrast between short nasal and oral vowels. The short nasal vowels all occur before nasal résonants whereas none of the short oral vowels are found in this environment. Short nasal vowels are therefore allophones of short oral vowels before nasal resonants.

The contrast between long and short oral vowels is supported by comparative evidence as follows:

fár 'danger', OE fær, OS fár, OHG fár, fâra, fâri,
MD vâre, cf. Go. ferja.

far 'vessel', OE fær, OHG fár.

uér 'cond', Go. *unwers (cf. unwerjan 'be willing'),
OHG mite-wârî 'friendly'.
**uur** 'husband', Go. **wair** 'man', OE OS OHG OFr. **wer**.

Lat. **vir**.

**uill** 'toil', OE **wil** (Wuniendo **wær** wilbea þæscær,
Codex Exoniensis 353, 42).

**uill** 3rd sg. pres. to **villa** 'will, want', Go. **wilian**,
OE **willan**, OFr. **willa**, OS **willian**.

**gôb** 'good', Go. **gods**, OE OFr. OS **gôd**, OHG **guot**.

**gob** 'God', Go. **gub**, OE OFr. OS OHG **got**.

**gôb rôbe** 'good oars', from **rôdi** 'to row', formed from
rôdr 'oar', OE rôðor, OFr. rôther, rôder, MLG rôder,
rôr, MD roeder, roever, OHG ruodar.

Gobrôbe 'Godred', (name of a person), from Gob-**fridd**-er,
cf. OE **friddu** 'peace, rest', OFr. fretho, ferd, OS frîðu,
frêdu, OHG **friddu**.

**ôl** 'strap', OE ôlhwang 'strap, string', Skt. âli-.

**ol** 'beer', OE ealu, MD ale, ael, OS alo-fat, MHG al-
scaf 'cask'.

dûra 'doze on', Nicle. dûr 'nap', cf. dûsa 'keep quiet',
EFr. dûs 'quiet, dark'.

dura 'door', Go. dauro, OE dura, OFr. dore, dure,
OS duru, dora, OHG turi.

The last two pairs in the examples of oral vowels
add no evidence. **flytr** 'floats', 3rd sg. pres. to **flîota**,
OE fleotan, OFr. fliata, OS fliotan, MD vlieten, OHG
flózan presents no problem, but its short counterpart, flytr 'drives', 3rd sg. pres. to flytja is apparently a new formation in North Germanic. flytja must be derived from a different ablaut grade of the same root as fljótâ. The preservation of the -j- is good evidence for the shortness of the vowel (see Chapter III); but flytr does not show the -j- of the infinitive, and could equally well be interpreted as flytr, 3rd sg. pres. to flûta, which also has the meaning 'to drive'. On the basis of the previous evidence it seems preferable to assume a short y.

Finally, sébu versus se bú seems to contradict the assertion of the FG. sébu 'fastened', 3rd pl. pret. to sûja (usually means 'to sew'), Go sûjan, OE siowan, siowian, OFr. sûâ, OS siuwnian, MLG suwen, OHG siuwan clearly has a long vowel. (cf. Sturtevant, JEGP 30 (1931), 156).ottie se bú 'look thou', with se from sûâ 'to see!', is usually attested in North Germanic with a long vowel. We would expect se bú. On the other hand sûâ is compared to Go. sàiwuan, OE sèon, OFr. sûan, OS OHG sehan. The quantitative relationships are not totally clear in any of the dialects, and it is difficult to make a final decision. Perhaps the shortening can be attributed to unstressed sentence position, or perhaps short and long
forms were both current in Old Icelandic. Accordingly, only the first seven examples furnish ample support for the FG's claim.

The contrast of long and short vowels before nasals is also supported by comparative evidence:

rám 'hoarse', Nlcel. rámur, NNNorw. raam, NSSwed. Dial. rám.

rám 'husky', Nlcel. rammur, Scot. rammys 'excited',
MLG remdēsig 'exceptionally stupid'.

vôn 'expected', ME wân, wên 'hope', Go. wêns 'expectation',
OS OHG wân, OFr. wên 'opinion'.

vôn 'accustomed', Nlcel. vanur, OE gewun, OS gwôn, gwung, OHG gwôn.

frá mér from *fram mer 'from me', Go. OE OFr. OHG fram.

frâmer 'brazen', OE OFr. fram related to the preceding.
cf. Gk. pró-mo-e 'the first one'.

vënes 'boasts', medio-passive to Go. wenjan, OE wênan,
OFr. wêna, OS wânian, OHG wânen.

vënes 'get into this habit', medio-passive to wenja,
OE wênian 'wean', OFr. wênia, wenia, OS wênnian, MILG MD (ge)wennen, OHG gwênnen.

minna 'my', Go. meins, OE OS OHG mír.

minna 'remind', OS minnian, OFr. minnia, MD minnan
'to love', similarly OS minnea, OFr. MD minne, OHG minna.
móna 'mama', ME móne, MLG móne, môme, OHG muoma.

móna 'will not', from mon-a, Go. munan, OE OS munan 'remember'.

rūnar 'runes', Go. runa 'secret', OE rūn 'secret, consultation, rune', OS OHG rûna 'secret consultation'.

rūnar 'boars', from rinna 'to run, jump', Go. OE OS OHG rinnan, OFr. runna, MLG runnen.

brýnna 'sharper', to brún 'edge', Lith. briaurâ, OIr. brū.

brýnna 'to water', MHG brunnen 'to urinate', to brunn-r 'spring', Go. brunna, OE brunna, burna, OFr. burna, MLG borne, OS OHG brunno.

For the remaining pair, mōnde versus mōnde, we can offer no comparative support. mōnde 'ridged', comes from the verb móna 'to provide with a ridge' (referring to roofs), but related etyma such as mon 'mane', OE manu, OFr. OHG mana appear only with a short vowel. mōnde 'would', is the 3rd sg. pret. subjunctive to mono (cf. mona above).

Eight out of the nine pairs with vowel before nasal support the FG. Adding this evidence to that of the oral vowels, we see that it substantiates the claim made by the FG. Vowel length must have been phonemic in Old Icelandic.
We have noticed earlier that it is unnecessary to posit short, nasalized vowels. They occur only before nasals and are allophones of short, oral vowels. The long nasal vowels which the FG contrasted with the short nasal vowels are subject to the same analysis. But we also have the nine pairs which contrast long oral and long nasal vowels. Here there are no nasals present to account for the nasalization. Historically, however, it is easy to account for the nasalization, as the following etymologies will show:

hár 'shark', PGmc. *hanhu, Finn. borrowing hanka.

hår 'hair', OE hær, OFr. hâr, OS OHG hâr.

ró 'nook!', PNorse *wranhô, to OE OS wringan, OHG ringan 'struggle', Go. wruggo 'snare'.

ró 'yard', (of a ship's rigging), MLG râ.

fær 'gets', 3rd sg. pres. of fâ, PGmc. *fanh-an, Go. fahan, OE fôn, OFr. fâ, OS OHG fâhan, MD vaen, Lat. pango.

fér 'sheep', Go. faihu 'money', OE feoh, OFr. fiâ, OS fehu, OHG feho, fìhu 'cattle'.

i sá 'look through', Go. OE OFr. OS OHG in.

ísa 'ice floes', OE OFr. OS OHG ís.

órar 'our', PGmc. *unzaraz, Go. unsar, OE ûser, OFr. ûse, unse, OS unsa, OHG unsâr.

órar 'madness', cf. OE wôrian 'wander, stagger', OS wôrian 'confuse'.

 여러분 'younger', PGmc. *junhizan, Go. juhiza.
여러 'vex', PGmc. *wōrijan, denominative to ērr 'mad, crazy', cf. OE wērig 'tired', OS wōrag, OHG wuorag 'intoxicated'.

Buat presents a problem. Haugen chooses not to translate it and the passage which illustrates it is corrupt.

No satisfactory etymology has yet been offered.

Bu at 'you...there!', Go. OE bū, OFr. OS OHG thū.

Syna 'show', from syn 'face, look, appearance', Go. siuns, OE sien, OFr. siune, OS siun.

Syna 'laps', a feminine noun from the same root as the verb syna 'to sew', (cf. above). This form seems to contradict the earlier evidence which showed that vowels before nasals were always nasalized. It is often attributed to the possibility that the FG realized that -na was an ending whereas the -n- in syna 'to show' was part of the stem (Bugge, ANF 2 (1885), 232). In other words, nasalization did not cross morph boundaries.

Morph boundaries do not belong to the phonological level, however, and it would be more appropriate to consider absence of nasalization as due to a junctural phenomenon. It is possible that the FG, in choosing his examples, carefully pronounced each word, as some recent linguists have done. He was undoubtedly aware that -na was an ending, and the result may have been the insertion of
a juncture in a place where it may not have occurred in ordinary speech. At first glance *frä mér 'from me', seems to be an example of nasalization where we would expect an intervening juncture. We have noted earlier, however, that *frä is derived from *fram and has its nasalization from the lost final nasal. There is at least no evidence to contradict the suggestion that juncture before a nasal prevents nasalization of preceding vowels.

*bēl 'file', also fēl, PGmc. *finilo, OE fīol, fēol, OS fīla, MD vile, vii, OHG fīla. The alternation of b with f in East and North Germanic is not uncommon. It is probably the same alternation that occurs in the cluster bl- : fl- and might be an assimilation of f to b before l, and not a dissimilation of b to f as was once thought.

*bēl 'cloth', is not clear unless we read it as bel 'wool'. Yet it would then be expected to show a short vowel and would also have a more frequent form fēl occurring alongside it; compare Go. fill, OFr. OS OHG fell. It must be remembered, however, that at the point where PG has cited the forms in question he has not yet discussed the long-short contrast. There is no reason for us to assume that he has used only long vowels in his examples, even though he must have attempted to do so as much as possible. For finding a suitable pair to
establish the nasal-oral contrast he may have resorted to comparing a short oral vowel with a long nasal vowel.

The nasalization of certain long vowels not followed by a nasal consonant is therefore readily explained historically. To summarize, the following examples are found:

*finhl- > fēl > bēl *wranh- > rē *in > ū
*fah- > fē-r *junhizan > ĕra *fram > frā
*hah- > hā-r *unzaraz > ōrā

There were then three situations in which nasal vowels arose. They all involved loss of nasal and compensatory lengthening of the preceding vowel. The changes can be indicated as follows: (1) *-Vnh- > ū-, (2) *-Vnz- > ū-, (3) *-VN > ū (N = any nasal). (1) was a process common to the various Germanic dialects, as the cognates show. Although forms with nasal occur along with those in which it was lost (cf. NHG fangen, OHG fāhan), the loss of nasal before -h- seems to have been taking place already in Proto-Germanic times. (2) is a development common to Anglo-Frisian and North Germanic, while (3) is a North Germanic innovation.

The retention of nasalized vowels from such divergent periods of time to the 12th Century attests the degree to which vowels must have been nasalized in Old Icelandic. The nasal resonants must have been lost (1) before the
loss of -h- which conditioned their loss, and (2) before 
-z- which conditioned their loss fell together with Ger-
manic -r-. It appears that the distinction between oral 
and nasal vowels was lost in Old Icelandic soon after 
the time of the FG; but for the time when he compiled 
his grammar, it is impossible not to posit them. The 
simple vowels of Old Icelandic must have been the following:

\[
\begin{align*}
\text{i} & \quad \text{y} & \quad \text{u} \\
\text{e} & \quad \text{ø} & \quad \text{o} \\
\text{a} & \quad \text{ø} & \quad \text{a} \\
\end{align*}
\]

Long vowels before nasals may be regarded as allophones 
of long oral vowels or as allophones of nasal vowels, 
depending on whether phonetic or structural criteria 
are considered more important.

2. Old Norwegian

The evidence for vowel quantity in Old Norwegian 
consists of the use of an acute mark over long vowels. 
These acutes are found most frequently in the oldest 
manuscripts but even there they are used less frequently 
than in Old Icelandic.\(^9\)

\(^9\) For further information on the use of acutes in Old 
Icelandic see G. Lindblad, Det islãndska Accenttecknet, 
Lund, 1952 (Lunds Universitets Årsskrift, N.F., F.A., 
Vol. 48, No. 1).
The largest Norwegian manuscript which contains numerous accents is Codex Arnamagnæan 619 Quarto, a book of homilies from the early part of the 13th Century. Flom has provided us with information about the acutes. He estimates that they average 24 per page for the first 32 pages and 16 per page for the last 64 pages. This would give a total of 2816 for the entire manuscript. Flom's figures appear to be somewhat low. A spot check of ten pages revealed nine pages with more acutes than his estimate, and only one with fewer. I would estimate that there are more than 3000. A large number of these occur on the prepositions í and á, but there are nevertheless many different forms marked. By Flom's count, there are only approximately ten instances of acutes placed over short vowel in the entire manuscript. With such consistency of marking, there seems little doubt that length must have been phonemic in Old Norwegian of the early 13th Century.

Double writing did not come into use in Norway until somewhat later. For this reason it is of less importance to the present study.

3. Old Swedish

There are no examples of acutes to indicate vowel quantity in Old Swedish. Double writing of vowels, however, developed earlier in Sweden than in Iceland and Norway. The earliest manuscripts show occasional occurrences; some of the longer manuscripts from the 14th Century contain a sizable number of examples. This is even later than the date of the evidence from West Norse, but it is a result of the later development in Sweden of vernacular literature written with the Latin alphabet.

Numerous examples with double writings are cited by Kock in his Svensk Ljudhistoria. To check the validity of the assumption that double writing represents vowel quantity, I have taken two readily available short portions of text and examined the forms with double writing of vowels which appear in them. The first text contains the following forms: see, li, meente, een, saa, saar.
The second contains: pear, een (eet, eenni, eensak),


12 The texts are from E. Noreen, Fornsvensk Läsebok, Lund, 1932. The first is No. V, Selection 3, and the second is No. IX. The first is a diploma from 1354 and the second is a selection from the Dala Laws dated around 1350.
leef, gaas, faar, aa, naat, laath, haar, griiss, liins, liik, læriipt, sookn, boot, fôgt.

The following etymologies confirm the notion that double writing represents long vowels:

see 3rd pl. pres. to sê(a) 'to see', OIcel. sjâ, Go. saihuán, OE sêon, OS OHG sehan.

ii 'in', (7 occurrences), OIcel. i, Go. OE OS OHG in.

meente 3rd sg. pret. to mêna 'to think, mean', from MLG meinan, mênan, from OS mênian, OHG meinan, OE mænan.

een 'a, an, one', (3), OIcel. einn, Go. ains, OS ên, OHG ein, OE ân, OFr. ân, ên.

saâ 3rd sg. pret. to sê(a) 'to see', (cf. above), OIcel. sâ, Go. sahu, OE seah, OS OHG sah.

saar acc. pl. to sâr 'wound', OIcel. sâr, Go. sair 'pain', OHG OS sâr, OE OFr. sâr.

Þeer nom. pl. masc. demonstrative 'they, these', (2), Go. þai, OIcel. þeir, OE ðâ, OS thia, OHG ðê, deo, OFr. thâ.

een (7), eet (4), eenni, een-sak, cf. above een.

leef 'bread', (3), OIcel. hleifr, Go. hlaifs, OE hlâf, OFr. hlêf, OHG hleib, hlaiba.

gaas 'goose', (2), OE MLG gôs, OHG gans.

faar 3rd sg. pres. to fâ, here meaning 'to send', cf. First Grammatical Treatise fár.
aa 'on, upon', (3), OIcel. ā, Go. OHG ana, OE on, OFr. ana, on, OS an.

naat 'night', (2), OIcel. nátt, nött, Go. nahts, OE neaht, niht, OFr. nacht, OS OHG naht.

laath 2nd sg. imp. to lāta 'to let', OIcel. lāta, Go. letan, OE lātan, OS lātan, OFr. lèta, OHG lāzzan.

haar 'hair', cf. First Grammatical Treatise hár.

griiss 'pig', OIcel. gríss, OFr. OS OHG gris 'hoary, gray'.

liins gen. sg. to lín 'flax, linen', OIcel. lín, Go. lein, OE OS OHG lín.

liik 'corpse', OIcel. lik, Go. leik, OE OFr. OS lic, OHG líh.

sookn 'parish', OIcel. sôkn 'trial; assembly; parish', Go. sokns 'inquiry', OE sōcn 'inquiry; jurisdictional area of a court', OFr. sêkne pl. 'money for penance', OHG suchni 'inquiry'.

boot 'penance', OIcel. bèt, Go. bota, OE bôt, OS bôta, OFr. bôte, OHG buoz(a).

fôêt pret. part. to fôbe 'to feed', OIcel. fèda, Go. fodjan, OE fædan, OFr. fèda, OS fôdian, OHG fuoten.

There is one example in which a double writing would not be expected on the basis of comparative evidence.

lærriipt 'linen', from lín-ript, OIcel. ript, OE rift
'veil, garment', OHG beinrefta 'pants'. It probably does not carry primary stress, which makes it even more suspect. It may be a scribal error.

Together the portions of the two documents show 53 occurrences of double writing in 23 distinct forms (counting the case forms of een as distinct forms). Only one occurrence contradicts the supposition that vowel length was being marked. The correlation seems undeniable. Vowel quantity must have been significant in Old Swedish.

4. Old Danish

Double writings of vowels are used occasionally in Old Danish to indicate vowel quantity. In the only text readily available to me, a poetic fragment occupying both sides of two pages of manuscript, the following forms occur: heem (7) 'home', uutt (37) 'out', geen (37) 'against', maal (63) 'affair', staal (64) 'steel'. All of these can be compared to forms with a long vowel in other Germanic languages.

13 Edited with photographs of the manuscript and an exhaustive commentary by J. Brøndum-Nielsen, Et gammeldansk Digt om Christi Opstandelse, efter Fragment Stockh. *A 115 (ca. 1325), Copenhagen, 1955 (Det Kongelige Danske Videnskabernes Selskab: Historisk-filosofiske Meddelelser, Vol. 35, No. 1). References are to lines in the reconstructed text (pp. 71-73).
There are also occasional occurrences of a mark over vowels which has the appearance of an inverted half-circle. It also is used to mark long vowels. While there is less evidence in general than in the other Scandinavian dialects, it is sufficient to indicate that there must have also been a distinction between long and short vowels in Old Danish.

B. West Germanic

1. Old High German

Old High German offers more evidence for vowel quantity than does any other old Germanic language; it also presents the most diverse picture of dialects and dialect mixture.

Notker Labeo's system of accents, carried through most consistently in his translation of Boethius' De consolatione philosophiae, provides ample evidence for the distinction between long and short vowels in Alemannic of the late 10th Century. Not all the problems concerning his use of accents, particularly on syllables with less than primary stress, have been solved; but to pursue

them further remains outside the realm of this study. It is sufficient to restate that he used circumflexes only over long vowels, acutes only over short vowels; their primary function as markers of stress does not concern us here. 15

For a time it was thought that Hrabanus Maurus or even Notker himself adopted from the Latin grammarians the system of marking long vowels with circumflexes, short ones with acutes. But P. Sievers demonstrated that the principle was in use already in earlier Old High German manuscripts. 16 We may conclude therefore that the practice probably was borrowed directly from Latin usage along with the writing system. Yet Notker is the first to have used the distinction more than sporadically.

In reviewing the evidence from various parts of the High German speech area, it is convenient to use Sievers' classification of Old High German documents into four types. (See Introduction). Types I and II offer direct evidence for quantity in that circumflexes

15 The most thorough study is Fleischer, "Das Accentuationsystem Notkers in seinem Boethius," ZfdP 14 (1882), 129-172, 285-300. The bibliography has been reviewed by A. L. Lloyd in "Vowel Shortening and Stress in the Old High German of Notker Labeo," JEGP 60 (1961), 79-101.

16 P. Sievers, Accente, op. cit.
occur only over long vowels. In type II acutes may also occur on long vowels, but circumflexes never occur on short vowels. In types III and IV the acutes and circumflexes have come to be used purely as stress markers and therefore add no evidence about quantity.

The literary documents of Old High German which belong to types I and II can be classified by dialect as follows:

**Bavarian:** Wiener Hundesegen; Vorauer Beichte; Exhortatio ad plebem Christianam; Otlohs Gebet.

**Alemannic:** Notkers Schriften; St. Galler Glauben und Beichte I.

**Rhine Franconian:** Reichenauer Beichte.

**East Franconian:** Hamelburger Markbeschreibung; Würzburger Markbeschreibung; Willirams Paraphrase des hohen Liedes; Tatian, hands Ŷ, Ė, Ė, and perhaps α; Hildebrandslied.

Of these documents, only Notker, Williram, and the Tatian hands provide enough evidence to be independently significant. The others contain only a few circumflexes each and are not adequate for establishing quantity in Bavarian and Rhine Franconian, but are supplemented by glosses.

For many of the Old High German glosses contain circumflexes. The following manuscripts containing glosses from the 10th Century or earlier have one or more cir-
cumflexes each and belong to type I: CSGalli 136; 219; 454²; 557³; 215; 579; 820; 845; 877; 882; 159; 242; CTur-
icens. C. 59; CTuricensis Rhenov. 99⁴; 35; Clm. 6411;
3860⁴; 14804; 18550,1; 6242; 19415; 21525; 18375; Carls-
ruhe Aug. CCSS; LXIV; CCXVII; CXXXV; CXVI; C. monasterii
heremitarum 179; CSPauli XXVd/82; CVindob. 271; 969;
114; 2723; CWirzburg Mh. th. f. 146; C. Guelgerbyt.
Aug. 10,3,4⁰; C. Lugdunensis Voss. 51; C. musei Britannici
Add. 18400; 19723.⁷

The most important of these is CVindob. 2723, the
manuscript of the Monsee Glosses. These Bavarian glosses
from the 10th Century contain the following accents on
simple vowels: 152 circumflexes on long vowels, 24 acutes
on short vowels, one acute on a long vowel (P. Sievers,
Accente, pp. 45-46).

The following manuscripts with glosses belong to
type II: Cod. Parisinus 764⁰; Carlsruhe Aug. IC; C.
Bruxell. 18725. Of these the most important is the first,
which is the well-known Paris manuscript of the Kero
or Abrogans Glossary (Pa). Sievers counts 59 circumflexes
on long vowels with primary stress, 14 on long vowels
with secondary stress or weak stress, and only three
over short vowels; none of these three, however, carry

⁷ For the location of the manuscripts and resolution
of the abbreviations see P. Sievers, Accente, pp. 133-136.
primary stress (P. Sievers, Accentus, pp. 62-63). The language is a mixture of Bavarian and Alemannic.

The addition of the evidence from glosses shows that the relevant ones are mostly Upper German, with the most evidence in Bavarian. The use of circumflexes therefore indicates the existence of significant vowel quantity in Bavarian as well as Alemannic and East Franconian. Further evidence must be sought for other dialects.

Double writing of vowels also offers evidence for vowel quantity in Old High German. Most of the documents containing double writing unfortunately come from dialects in which circumflexes already furnish good evidence. Some of the older glossaries contain a number of double writings, for example, the Cassel Glosses (C) and the Hrabanus Glossary in Codex Vindobonensis 162 (R). More important, however, is the Alemannic interlinear version of the Benedictine Rule (Br) because in it long inflectional endings are doubled with some consistency.18 It is in the same dialect as Notker's writings and adds only details to our evidence. Some double writings are used by Tatian scribes, but again the evidence for quantity in East Franconian gained from circumflexes is more significant.

18 W. Braune, "Über die Quantität der althochdeutschen Endsilben," PBB.2 (1876), 125-167 deals at length with the Benedictine Rule.
A large number of double writings also occur in the Old High German translation of Isidor of Seville's treatise De fide Catholica contra Judaeos. E. Sievers has made a statistical survey of the double writings with the following results: There are 140 double writings in closed syllables (16 aa, 112 ii, 7 oo, 5 uu). In addition ae, æ, ø, are used to indicate è, which adds 22 to the total. He finds only 31 double writings in open syllables. The conclusion which he draws is that vowel quantity is consistently marked in closed syllables, rarely in open syllables. But when found in open syllables double writing is used only on long vowels. The problem is in determining the dialect of the Isidor. If we accept the view that it is South Rhine Franconian or the closely related West Franconian of the Carolingian Court, we have evidence for quantity in another of the Franconian dialects.

There are additional double writings in some of the smaller South Rhine Franconian documents. The Weissenburg Catechism contains the following forms with double writings: broot (2 occurrences) 'bread', giboot 'commandment', toot 'dead', tootem 'death', doodem 'dead', quaeme (2) 'come', fliiz 'dissension', striiti 'bickering', liib

19 ZFD 15 (1883), 247.
(2) 'life', gesaaaz 'one who is sitting'. The only form which presents a problem is gesaaaz. Kögel suggests that it is an old participial form meaning 'one who has sat down' therefore 'one who is sitting'. He relates it to Lith. sèdes. If we accept his explanation, then all of these forms are etymologically long. 20

We accordingly have evidence that quantity was significant in South Rhine Franconian, although it is not as good as that for Alemannic, Bavarian, and East Franconian.

The other two literary dialects of Old High German, Rhine Franconian and Middle Franconian, offer no evidence which is convincing. A check of all the glosses listed by Franck as possibly belonging to either of these dialects revealed only a few scattered double writings. 21 The examples which were found can mostly be explained equally well as representing something other than vowel length. For example, Codex Coloniensis LXXXI gives xngeefnpten eindkn, a cryptogram for ungeefnoten eindin 'unopened wilderness' (II, 560, 6). The ee sequence indicates two syllables, un-ge-eftoten. Another example, from Codex Coloniensis CVII f. 3a, is uzsuullon 'swollen up'.

(I, 319, 28) where the sequence uu represents wu.22 From literary documents we can provide only meer 'more' and leerda 'taught', each of which occurs three times in the Lorsch Confession, and intfaa 'receive' from the Augsburg Prayer.

The lack of more evidence for quantity in Rhine Franconian and Middle Franconian might be attributed to: 1) the relatively small number of documents which are extant, especially in Middle Franconian, 2) the scribal tradition in the area, 3) a lack of distinction between long and short vowels. For the present it will suffice to say that no convincing direct evidence for a distinction can be found in these two dialects. An analogous situation exists in the records of Old Low Franconian.

2. Old Saxon

Although we do not have a large number of extant Old Saxon documents, we are fortunate in possessing one fragment which marks long vowels with a high degree of consistency. The manuscript in question is the Vatican codex (V) which contains the Old Saxon Genesis fragment and lines 1279-1358 of the Heliand. The Heliand fragment

22 References, by volume, page, and line are to Steinmeyer and Sievers' edition of Die aithochdeutschen Glossen (5 vols.), Berlin, 1879-1922.
provides us with 151 acutes in 80 lines (but see below). P. Sievers (Accente, pp. 118-119) has examined the accents and has found that only five fall on short stem vowels, whereas 91 occur on long stem vowels. Nevertheless he concluded, largely on the basis of other Old Saxon manuscripts, that the acute in Old Saxon was primarily a marker of stress and not length (p. 120). It would seem that in drawing this conclusion he forgot his own earlier exhortation to deal with each manuscript individually.

Hench, in a review of the Zangemeister-Braune edition of V, had correctly emphasized the importance of the acutes in the Heliand fragment as marks of quantity.23 Since his statistics do not agree with those of P. Sievers, I have examined the accents in V as given by Braune. Hench claims that the following forms have acutes which were missed by Braune: nāhor 1279 'nearer', sufō 1282 'very', hēlag 1292 'holy', sūdan 1300 'truth', šīnīf 1304 'eternal life', lif 1343 'life', mégo 1354 'reward', méngithāhteō 1354 'sins' (Braune méngithahteo). These examples would only serve to strengthen the argument since they are all etymologically long, but I have omitted them because Hench marks several of them as doubtful and I have not seen a facsimile of the manuscript.

23 MLN 9 (1894), 244-248. The edition under review is Bruchstücke der altsächsischen Bibeldichtung aus der Bibliotheca Palatina, Heidelberg, 1894.
There are 101 acutes which appear to indicate length, and six which do not. The exceptions are sát 1286 'sat', lóf 1289 'praise', thing 1295 'things', salíga 1300 'blessed', efþó 1329 'or', éndi 1340 'end'. Hench states that the mark over sát is weak and looks like a fleck on the manuscript. salíga is obviously a scribal error since the correctly accented form sálíga is attested six times in V. Of the remaining four forms, éndi and thing cannot be readily explained, efþó could be by analogy with thó; and lóf, although it is usually thought to be short, is also attested with double writing of the vowel in Old English (loob Corpus Glossary 2174, see below).

The 101 long accented vowels are distributed as follows: ı 27 occurrences, é 25, á 29, ó 17, ō 3. In addition there are 44 diphthongs which are accented. Hench claims to find 116 long vowels marked in polysyllabic words as opposed to only seven left unmarked. The reason for his high figure is his inclusion of many examples which are given as long vowels in the Behaghel-Mitzka edition, but which are written as diphthongs in V.24 For example, the various forms of mód 'spirit' and mótan 'be capable of' are written in V with stem vowel -ů-, -uť-, or -uo-. These have been eliminated from consideration for the

sake of consistency. We have no good criterion to determine within the framework of V which of these should be considered diphthongs and which long vowels.

The evidence for length is listed below. The forms are alphabetized according to the syllable which contains the accented vowel, although they are arranged in groups according to the stem vowel.

gebäan 1307 'experience'
geb å 1342 'you'
erilbegiscaru 1331 'fate of earthly life'
lif 1323 'life'
rikea 1308, 1316, 1344 'kingdom'
uuerooldrikea 1290 'earthly kingdom'
rikeas 1320 'kingdom'
rikeost 1334 'most powerful'
rikero 1321 'powerful'
riki 1302, 1306 'kingdom'
himilriki 1328 'kingdom of heaven'
sidör 1330 'afterwards'
gesidos 1280 'followers'
sinum 1316 'his'
sinun 1335 'his'
faselitat 1349 'use up'
suiö 1303 'very'
suigoda 1291 'remained silent'
beseufkon 1311 'mislead'
uuifdana 1349 'wide'
uuifa 1281 'wise'
uuisda 1294 'taught'
uuifte 1339 'evil'
uuifti 1347 'torture'

égan 1287, 1335 'own'
egun 1348 'have'
eniga 1317 'any'
ér 1346, 1352 'before'
ëuuana 1302 'eternal'
ëuuandaga 1324 'eternity'
gestlic 1323 'spiritual'
he 1296 'he'
hálaglic 1303 'holy'
hélag 1313 'holy'
hérran 1342 'lord'
gihrénd 1315 'cleansed'
gihrénd 1327 'each'
biknégan 1310 'attain'
léó 1332, 1337 'evil'
léóano 1355 'evil'
léóas 1341 'evil'
léram 1341 'teaching'
léréan 1289 'teach'
ghilésta 1355 'deeds'
méngíthanteo 1354 'sins'
sér 1357 'painfully'

dádeun 1318 'deeds'
dádī 1307, 1310 'deeds'
fráhon 1308 'lord'
ferlátan 1353 'give up'
látat 1342 'let'
márean 1305 'splendid'
márlíc 1295 'splendid'
ginald 1319 'merciful'
asíiga 1304, 1306, 1308, 1312, 1314, 1336 'blessed'
sádhun 1296 'shrewd'
sáadhunó 1288 'words of wisdom'
frícospráka 1340 'slander'
spráku 1296 'parley'
sprákuá 1288 'speeches'
thaíthun 1284 'thought'
thár 1326 'there'
uuárir 1298, 1300, 1301, 1304, 1306, 1316, 1320 'were'

ódmuoši 1302 'humility'
ógar 1331 'another'
ófrum 1347 'others'
ók 1304, 1306, 1308, 1312, 1314, 1316, 1320 'also'
godo 1344 'good'
gíró 1260 'chose'
antlóc 1293 'opened'
lón 1343, 1355 'reward'
thó 1279 'then'
uuópan 1352 'mourned'

hú 1289 'how'
kútháean 1285 'make known'
rúnóon 1311 'secret'
The degree of consistency with which acutes are placed on long vowels in \( V \) is striking. Of 163 vowels marked long by Behaghel-Mitzka, only 31 are not represented by either a vowel with an acute or a diphthong in \( V \). Of these, eight are examples of \( sô \) and four of \( -lîc \). These may have been shortened, \( sô \) because of its use in the sentence as a weakly stressed particle and \( -lîc \) because it did not carry primary stress, reducing the total number of unmarked etymologically long vowels to 19. Twelve of these are attested in other forms in \( V \) with an acute. Of the remaining seven forms, three are among those listed by Hench as having an acute which was overlooked by Braune (náhor 1279, médu 1345, and the second long vowel of méngithántëo 1354). Only four other forms can then be classified as totally unmarked as to quantity in \( V \). They are fíundscepi 1340 'enmity' in which the first element of two successive vowels may have been shortened, leaving a diphthong, sâlda 1327 'blessing', lôgnor 1341 'denied', and màgmundëa 1305 'meek'. The length of the vowel in màgmundëa is dubious, so that only sâlda and lôgnor are completely aberrant.

Not only did the scribe of \( V \) use the acute to mark long vowels, but he used it with a great deal of consistency. In spite of the small number of Old Saxon manu-
scripts, we can conclude from this evidence that a long versus short distinction is almost certain to have existed in Old Saxon.

3. Old Low Franconian

In Low Franconian, as in Old Saxon, we have a gap of several centuries between the oldest documents and the development of an important literary language. But in Low Franconian we have much less material; with an interlinear version of the Psalms the only literary document. Psalms 18 and 53,7-73,9 are extant in copies from around 1600 of the original manuscript which is ascribed to the 9th Century. There is no evidence in the Psalms for phonemic vowel length.

We are forced to turn to Middle Dutch of the 13th Century if we hope to find any evidence. Here we find that long vowels are rather consistently marked in closed syllables. The usual graphs are the following: for á (ae); è (ee); ò (oo, oe, o1); ì (i1, y); û (uu, ue, ui, uy). On the other hand, length is seldom marked in open syllables. From this it appears that a quantity distinction in Middle Dutch was present only in closed syllables. Vowels in open syllables were neutral with respect to quantity, although a qualitative difference reflected the source of the vowels in some dialects.
4. Old Frisian

The oldest materials in Old Frisian are legal documents in Old East Frisian, which date from the late 13th Century at the earliest. They contain no markers of vowel quantity. The earliest Frisian documents which do are those written in Old West Frisian. Here we find extensive use of double writings ee, oo, ii, ij, uu and combination of vowel plus e for å (ae) and ò (oe). The scribal practice in these manuscripts (in some cases incunabula) appears to have been borrowed from Middle Dutch. It is not as consistent as in Middle Dutch, but is sufficient to establish distinctive length. Since these manuscripts are from the last decades of the 15th Century, chronologically comparable to Early New High German, the evidence from Old Frisian is of no great significance for our purposes.

5. Old English

Despite the fact that we have a large number of Old English documents from the 10th Century and earlier, we are not fortunate enough to have had a scribe who marked quantity as systematically as did Notker, or a grammarian who described it as did the First Grammarian. In the 19th Century it was thought that acute-like marks
which were found especially in 10th Century manuscripts were used to mark long vowels. Yet a number of inconsistencies were found, and many studies of these marks ended in confusion.\textsuperscript{25} Much of the confusion was brought to an end by W. Keller in 1907 when he showed that several principles had governed the use of the accents.\textsuperscript{26}

Keller showed that the mark in question was the apex, borrowed from Ireland where it had in turn been borrowed from Latin usage. In Irish it was used primarily as an indicator of vowel length; presumably it was first used in English for the same purpose. It is found most frequently on monosyllables where vowel length was a minimal distinction, such as god 'good' as opposed to god 'God'. Apparently some scribes began associating it with monosyllabic words, and it soon began to appear even on weakly stressed, short monosyllables. It was occasionally used as a stress marker as well.

The result of the work by Keller has been that Old English grammars written since 1907 have regarded double writing as the only generally reliable device for deter-


\textsuperscript{26} Keller, "Akzente," op.cit.
mining quantity in the 10th Century or before. While this is certainly true, it also is likely, as I hope to show, that the apices found in some manuscripts can contribute evidence for establishing the existence of a distinction between long and short vowels.

Since double writing is assumed to be the best indicator of long vowels in Old English, the first items to be examined are the Old English forms in the Corpus Glossary. This glossary, which can be taken to represent the Mercian dialect, seems to have more double writings than any other comparable amount of Old English.

The Corpus Glossary contains 115 examples of double writing of vowels (not counting the many examples of uu for w or wu). Of these, three are bi-syllabic; they result from a combination of the prefix ge- plus a verb beginning with e- (ge gode 453 'went', geeblieca dun 1694 'made equal', gee dun 78 'went'). 27 Of the remaining 112 forms, two will not be included because both their meaning and etymology are obscure (mees Lindsay C250, p. 35 and horn naap 8). 28 Of the other 110 forms, comparison with other Germanic dialects or lack of contrary evidence allows us to assume that 99 have long stem vowels.

27 The references are to Sweet's Oldest English Texts, London, 1885.

28 mees is cited from W. M. Lindsay, The Corpus Glossary, Cambridge, 1921 because it was not recorded by Sweet.
The remaining 11 occurrences include two which are so aberrant that the double writings are difficult to interpret (gruít 1619 for grūt 'groats' and ryee 2128 for ryhe 'blanket'). Two others (seeg 1786 for secg 'sedge' and brooc 2014 for broce? 'badger') may be copying errors. The remaining seven forms are clear examples of double writings for etymologically short vowels. They include: boor 7 for bor 'stylus', goon 882 for gor 'dung', fornoom 1083 for fornam 'carried off', hool 2159 for hol 'hole', haam 370 for ham 'undergarment', waer 425 for wearr 'wart', and loob 2174 for lof 'song'. Six of these seven forms are sequences of vowel plus liquid or nasal. This sequence is especially subject to quantitative fluctuations in Old English. The other exception, loob, has already been mentioned in the investigation of Old Saxon.

If, however, we assume that all of these 11 forms had short vowels, we still find that 99 out of 110 or 90 percent of the accented vowels are long. The distribution of the long vowels is: 11, 11 forms; 14 occurrences; ee, 6 : 6; aa, 24 : 36; oo, 20 : 27; uu, 8 : 16. The forms are listed with the appropriate reference to Sweet.

Hyphens affixed to a form indicate that it was part of

29 Professor E. Polomé has called my attention to Modern Dutch weer 'blister, callous, wart' which seems to reflect a Gmc. *ai vocalism. This would eliminate one more of the "aberrant" forms if waer were related to it.
a compound, or in the case of verbs that it had a prefix. Compounds are given in full and glossed only if the usual meaning of the part of the compound with double writing is not clear in the meaning of the compound. Nevertheless, forms occurring in several compounds were treated in the statistics above as several occurrences of a single form.

ili 765, 1023 'hedgehog'
brigg 1681 'porridge'
criid 1807 'bubbles up'
fill 1234 'file'
ilim 295, 449 'lime, glue'
ilimcaluuer 954 'sticky pressed curds'
mill 1314 'mile'
pilc 49 'point'
sciir 1625 'clear'
siic 800 'strains'
tiig 1293 'Tiw' (Gmc. war god)
wiingeardes 151 'vineyard'

beeme 2015 'trumpet'
beer 254 'litter'
breer 161 'briar'
geheende 798 'humiliated'
gaarleec 113 'garlic'
meeli 123 'basin'

aac 535, 1749 'oak'
aalgewere 1040 'tinder'
aam 352 'weaver's rod'
aar 255 'ore'
baan- 1426, 2025 'leg'
baar 287 'boar'
baat 1225 'boat'
braadlastecus 703 'broad axe'
braadponne 407 'frying pan'
(-)faag 22, 201, 841, 1612, 1914, 2029 'stained, variegated'
faam 832 'foam'
flaan 353 'arrow'
gaad 1937 'goad'
gaarleec 113 'garlic'
jabogaar 2002 'auger'
haalstaan 604 'crystal'
laac 737, 798 'favor, offering'
laam 199, 1227 'clay'
gemaad 2105 'mad'
paad 1654, 1676 'coat'
paat 429 'path'
stremraad 129 'bed of a stream'
saa 17 'bucket'
scaap 220 'shone'
haalstaan 604 'crystal'
waar 120 'seaweed'

brondoom 1757 'rust'
boog 215 'arm'
bool 1337 'necklace'
cynedoom 1719 'supreme authority'
flooc 1602 'fluke'
flood 1, 20, 342 'flood, tide'
foor 1615 'pig'
-foot 122, 1513, 1697 'foot'
good 477 'good'
goos 172, 450, 960, 963 'goose'
hood 369 'hood'
hrooc 991 'rook'
anmood 521 'steadfast'
gemoot 584 'assembly'
waergrood 930 'gallows'
roopnis 1229 'liberality'
forsooc 650 'objected'
sooth 944 'soot'
stool 2059 'stool'
wood 1196 'eloquence'

uufr 334 'owl'
buat 338 'beaver' (of a helmet)
brouw (-) 336, 931, 1469 'brown'
gebuur 493 'farmer'
cuu 2085 'cow'
luos 1560 'louse'
muus (-) 1340, 1348 'mouse'
hrædemuus 2103 'bat'
(-)tuun 324, 546, 557 'enclosure'
tuuncressa 1359 'garden cress'
cæbrauło 2094 'vestibule'

For early West Saxon, Keller has examined portions of the Parker manuscript of the Old English Chronicle, the Lauderdale manuscript of Alfred's translation of
Orosius, and the Hatton manuscript of Alfred's translation of Gregory's *Cura Pastoralis*. He shows that the apices fall predominantly on monosyllabic words with long vowels. For the part of the Chronicle covering the years 851 to 924, he counts 94 apices, of which only three occur on short vowels. In Chapter I of Orosius there are 96 on long vowels and seven on short vowels. Finally, in Chapters V-X of the *Cura Pastoralis* he finds 66 apices on long, 16 on short vowels (Keller, "Akzente," pp. 113-115). Of the 279 occurrences of the apex, 253 or 90 percent are found on long vowels.

I have examined the first four chapters of the *Cura Pastoralis* with the following results: total number of apices-80, on long vowels-65, on short vowels-15.30 If, however, we eliminate prepositions and verbal prefixes, the totals are reduced to 44 on long vowels, and only three on short vowels. One clearly sees the change in usage of the apex from a marker of quantity to an indicator of monosyllabic words. On the other hand, if sequences of vowel plus nasal or liquid are eliminated, we find 51 apices on long vowels, but only two on short vowels. The reduction is largely due to the frequent occurrences of ōn (8 times) and ān- (twice), and yet

30 The text used was *King Alfred's West-Saxon Version of Gregory's Pastoral Care* edited by H. Sweet, London, 1871.
it is striking in comparison with the evidence from the
Corpus Glossary where the sequence of vowel plus nasal
or liquid also contributes most of the aberrant forms.
This sequence must have been especially susceptible to
lengthening in Old English.

Another source of evidence we find in double writings
scattered throughout the Hatton manuscript. There are
only 91 occurrences in the entire manuscript, but all
represent long vowels. The forms and number of occu-
rences are as follows: doon (9), dooð (5), doo (16) from
the verb dön 'to do'; food (2), foo (6) from førn 'to
catch'; good (9), goode (5), goodes (3), goodum (3),
goodne, goodan 'good'; woo (4) 'perversity, iniquity';
doom (2) 'dom'; foot 'foot'; pool 'pool'; coom 'come';
tiid (5) 'time'; til (4) 'hedgehog'; fìicbeam (2) 'fig
tree'; wiif 'wife'; gliigmenn 'minstrels'; hìi 'they';
geciid 'blames'; pilstæfe 'pestle'; foròsiò 'decease';
medwiisan 'the dull ones'; gaan, gaa from pàn 'to go';
wàa 'woe'; geweeme 'entice'. The occurrences according
to vowels are: oo 69, òó 18, aa 3, ee 1. The limitation
of the 91 occurrences to only 21 words and of 60 to three
words (dòn, førn, gòo) suggests that we are dealing with
traditional spellings, at least to some extent. Never-
theless their occurrence only on long vowels, even if
we regard it as traditional, reflects an earlier quan-
titative distinction. Taken together the apices and the double writings furnish good evidence for distinctive vowel quantity in Early West Saxon.

Evidence for vowel length in Northumbrian can be found in the Old English interlinear glosses to the Lindisfarne Gospels, which were written around 950. An examination of the first six chapters of Mark reveals that the scribal practice was very similar to that in Early West Saxon. Apices are used with about the same frequency as in the Hatton manuscript, while double writings occur somewhat more often. The apex occurs 85 times, 75 on long vowels (ée once and éa three times), 10 on short vowels. The occurrences on short vowels are the following: frúma I-1 'beginning'; lónð I-5, I-28, I-38, VI-55 'district, country'; wudubinde I-6 'woodbine'; únclaene I-23 'unclean'; hís III-21 'his'; bolstáre IV-38 'cushion'; lónga V-10 'for a long time'. We notice again that the elimination of the sequence vowel plus nasal or liquid reduces the occurrences on short vowels to one.

There are also 27 occurrences of double writing of vowels in the same six chapters. All of these represent

long vowels. The forms and number of occurrences are: 

**huu** (8) 'how'; **gaast** (2), **gaastas** 'spirit'; **gaa** (7), 
**gaad** (2), **gaas** (2) from **gan** 'to go'; **neesto** 'next'; **gesiist** 
'see'; **feersuigo** 'amazement'; **maaste** 'most'; **ofsla** 'kill'. 

The remarks about traditional spelling which were made 
about Early West Saxon could also be applied to the North-
umbrian of the Lindisfarne Gospels. Moreover, the com-
bination of apices and double writings again supports 
the contention that quantity was distinctive, this time 
in Northumbrian of the 10th Century.

There is no convincing evidence for distinctive 
vowel length in Kentish, largely because documents are 
missing, as in Low Franconian and the Middle German dialects. 

There are a few double writings in Kentish charters (**wilf** 
41-14, **wilb** 42-6, **hilum** 40-17), but at least one example 
(atee 38-10 'oats') seems to represent a short vowel.32 

There are also a few apices on long vowels (**an** 37-17, 
**agefe** 41-19) but also some on short vowels (**erfe** 34-9 
and **fs** 41-1). No conclusions can be drawn from this 
limited material. Only West Saxon, Mercian, and North-
umbrian can be said to offer convincing evidence for 
distinctive vowel length in Old English.

32 References are to the charters and line numbers in 
Sweet's *Oldest English Texts*. 
Conclusion

Although the evidence in Old English manuscripts is more limited than that in Old High German, we find enough to indicate that the distinction between long and short vowels was also present in Old English. When we add this evidence to that already collected from other dialects, we can state that all older Germanic dialects in which extensive texts are found show some evidence for the long versus short distinction. This includes Old Icelandic, Old Norwegian, Old Swedish, Old Danish, the major literary dialects of Old High German, Old Saxon, Middle Dutch, Old Frisian, and West Saxon, Mercian, and Northumbrian Old English. The only dialects in which no conclusive evidence could be found are those which are sparsely attested, including the Middle and Rhine Franconian dialects of Old High German, Old Low Franconian, and Kentish Old English.
II. Metrical Evidence for Vowel Length

Introduction

We have seen that many of our oldest Germanic documents provide evidence for a distinction between long and short vowels. At the same time we have noted that a single occurrence of a form with one of the various devices used to mark length is not necessarily reliable evidence for the length of the form in question. Various practices are sometimes observed within a single manuscript, as in the use of the apex in Old English or in that of the circumflex in Old High German. As a result, we rely on statistical studies only to show that a quantitative distinction must have existed. For conclusive evidence on the length of a particular form, we need to find indicators in several dialects, or at least a number of occurrences in different manuscripts of a single dialect.

We also have another possible means of determining that there must have been a quantitative vowel distinction in the oldest Germanic materials. Under carefully defined conditions we might be able to demonstrate that specific linguistic items contain long or short vowels. Such evidence can be provided by a close examination of metrical practices in Old Germanic poetry. Since the time
of Sievers it has become increasingly clear that early Germanic poets followed certain patterns which varied according to time and place, but which are almost always subject to description in terms of metrical patterns and available linguistic material.¹ Research in recent years has vindicated the assumption that the poets skilfully utilized a limited number of basic patterns which were flexible only within well-defined limits. The study of these patterns may lead to conclusions about specific linguistic problems. Careful re-examination of lines which were once considered aberrant may suggest new interpretation of the linguistic data so that the lines in question can be shown to be quite regular.² As a result, we become doubly convinced of the existence of presumed linguistic features which are supported by metrical evidence.

We shall begin our investigation by examining Germanic alliterative poetry in an attempt to discover what

¹ The standard work is E. Sievers' Altgermanische Metrik, Halle, 1893. A. Heusler's Deutsche Versgeschichte mit Einschluss des altenglischen und altnordischen Stabreimverses (3 vols.), Berlin and Leipzig, 1925-1929 is also thorough. The relationship between variations in metrical patterns and linguistic developments is shown in W. P. Lehmann's The Development of Germanic Verse Form, Austin 1956.

evidence it can offer for distinctive vowel length in
the various Germanic dialects. Then we shall proceed
to investigate the use of rime, first as an ornamental
device in the North Germanic Skaldic poetry, then as
the chief metrical device in the Old High German Evangeliengeschichte by Otfrid of Weissenburg.

A. Alliterative Poetry

Germanic alliterative verse is characterized by
a line consisting of a certain number of heavily stressed
syllables (lifts), two or more of which begin with the
same consonant or with any vowel (alliteration), and
a variable but limited number of weakly stressed syllables
(drops). The most archaic form of this poetic line which
is extant is most conveniently analyzed as consisting
of two shorter units or half-lines, each ideally containing
two lifts. The half-lines are bound by alliteration
to form long lines with four lifts. The main stress
seems to fall on the first lift of the second half-line,
which always alliterates with one and very often with
both of the lifts of the first half-line, but rarely
with the last one of the second half-line.

A further feature is that with certain exceptions
only a heavy syllable may occupy a lift. Light syllables
generally occupy only drops. A light syllable can be
defined as a syllable ending in a short vowel such as
either syllable in OE Go-de dat. sg. 'God' as opposed
to nom. sg. God which is heavy. Other examples of heavy
syllables are the initial syllables of OE gö-de nom.
pl. masc. or gö-ne acc. sg. masc. 'good'. An additional
complication is furnished by the fact that a light syllable
with primary stress plus another syllable, either light
or heavy, can fill a lift. The substitution of such
a sequence for a heavy syllable is known as resolution.
For example, in Beowulf 113 swylce gigantes / bê wið
Gode wunnon 'likewise giants, then against God fought'.
the second half-line may be scanned as xxlevatorb with Go-de
counting as equivalent to a long syllable and so satisfying
the demand of a lift (v = lift, x = any weakly stressed
syllable, | = caesura). As a rule light syllables can
occur in a lift without resolution only when they are
immediately preceded by a syllable carrying major (sec-ond-
dary or primary) stress. For example, in Beowulf 2858
wolde dôm Codes / dæcum ræ dan 'the mastery of God had

3 Lines from Beowulf are cited from the third edition
of F. Klaeber's Beowulf and the Fight at Finnsburg, Boston,
1950 (with first and second supplements).

4 For further information on the linguistic meaning of
the caesura see A. J. Bliss, The Metre of Beowulf, Oxford,
1958, pp. 36-39.
to rule the actions...", the first half-line may be scanned $xx^2|sx$ ($\diamond$ = light syllable) without resolution of Go-des.

A form with the structure CVCV(C) which occurs in a lift may accordingly be scanned in any one of three ways. If we know or assume that the first vowel is long, it may scan as $sx$. If we assume that the first vowel is short, the form may be scanned with resolution as $s$. If another lift immediately precedes the lift under discussion, the latter may be scanned $sx$. Since all three are possible, many lines of Germanic alliterative verse are metrically ambiguous with the scansion depending in part on the length assigned to vowels occurring in lifts. If we take Beowulf 1217a hyse, mid hâle 'young man, with good fortune', and assume nothing about the length of the vowels, we might conceivably scan the hemistich as $s|x^2x$, $sx|x^2x$, $s|x^2$, or $sx|x^2$ depending on the length which we assumed for the stem vowels of hyse and hâle. Now we find that three of these four patterns actually do occur in Beowulf. The first, Bliss's 1Ala, occurs 362 times, the second, 1A*1a, 546 times, the third, 2Bl-, is listed by Bliss as occurring only once, and the last, 2Ela, occurs 20 times. The third scansion is probably

5 The formulaic designations of the various scanions and the statistics are from Bliss, Metre, whose system is built on that of Sievers.
a misreading and can be safely eliminated. On the other hand probability can obviously not serve as sole criterion for arriving at the right scansion of individual lines. We find that the first scansion, 1A1a, is the generally accepted one, since the line is read as hyse, mid hæle with a long vowel assigned to hæle and a short vowel assigned to hyse. The decision is made on non-metrical evidence, such as that discussed in Chapters I, III, and IV. Lines such as this which can be scanned in several ways, if we do not already know something about which vowels are long and which are short, are of no use in proving vowel length in specific cases. In order to demonstrate the existence of long and short vowels, we must find lines which lend themselves to only one probable scansion. They must be so constructed that any alternative scansion would lead to a metrical pattern which does not normally occur in the poetic tradition of the poet being investigated.

6 Professor R. Willard has called it to my attention that the half-line which Bliss scans as 2B1- (2673a bord wið rœnd) is more satisfactorily explained by Pope in _The Rhythm of Beowulf_, New Haven, 1942, p. 320 where he shows that the present reading is based on a misreading of the manuscript. Klaeber gives 2672b-2673a as liggidum forborn / bord wið rœnd 'In waves of flame burned / shield to its edge'. Pope proposes, on the basis of spacing in the manuscript, liggidum for / Bord bord wið rœnd 'In waves of flame he (the dragon) came. / Shield burned to its edge', making 2673a a normal D line.
We begin our investigation with Old English, since the poet of *Beowulf* uses an alliterative line which corresponds exactly to the one described at the beginning of this chapter. In addition the *Beowulf* has been the subject of considerable metrical research. If we examine inflected forms of *God* 'God' and *gôd* 'good' (adjective) which are of the structure CVCV(C), we have a series of examples in which the two forms presumably differ only in the length of the vowel. We find 12 occurrences of *God*- and 16 of *gôd*- which fit this requirement. According to the scansion of Bliss, 10 of the 12 occurrences of *God*- alliterate and all of these are resolved. The other two occurrences follow the pattern ~x, one with main stress ~x (2858a); one with secondary stress ~x (570a). Both of these examples follow immediately upon lifts, so the scansion follows the requirements outlined above. Of the 16 occurrences of *gôd*-, 15 alliterate; the other (758a) does not, but it occupies a lift. All occurrences are scanned as ~x just as we would expect.

If we assume now that we do not know the length of the vowel in any of the forms, we can see which of the lines become metrically ambiguous. In the chart below are listed the types of lines which occur, first with *God*-, then with *gôd*-.. Column one contains the line
references, column two gives Bliss's scansion, column three his designation for it; column four gives its number of occurrences in the same type of half-line (a or b) in Beowulf. Column five indicates the scansion which would have resulted if we had given the alternative reading, taking God as gōd or vice versa. Column six gives Bliss's designation for this pattern and column seven the number of occurrences in similar half-lines in Beowulf. If a scansion is given in column six with a zero in column seven, it indicates that the proposed scansion occurs in Beowulf, but not in the same type of half-line. (That is to say that 1D*1 occurs 22 times in a half-lines but never in a b half-line, see below). For easy reference, the half-lines in question are listed beneath the chart along with literal translations.

<table>
<thead>
<tr>
<th></th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
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<tbody>
<tr>
<td>570a</td>
<td>2x</td>
<td>D3</td>
<td>40</td>
<td>2x</td>
<td>1D2</td>
<td>22</td>
</tr>
<tr>
<td>711b</td>
<td>2x</td>
<td>E2</td>
<td>189</td>
<td>2x</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>786b, 1682b, 227b, 625b, 1397b, 1626b</td>
<td>2x</td>
<td>D1</td>
<td>220</td>
<td>2x</td>
<td>2x</td>
<td>1D*1 0</td>
</tr>
<tr>
<td>2469b</td>
<td>2E</td>
<td>E2</td>
<td>75</td>
<td>2x</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>2858a</td>
<td>2x</td>
<td>C2b</td>
<td>31</td>
<td>2x</td>
<td>2C1b 19</td>
<td></td>
</tr>
<tr>
<td>113b</td>
<td>2x</td>
<td>C1b</td>
<td>81</td>
<td>2x</td>
<td>alb(2A1a) 1</td>
<td></td>
</tr>
<tr>
<td>1997b</td>
<td>2x</td>
<td>A3a</td>
<td>26</td>
<td>2x</td>
<td>?</td>
<td></td>
</tr>
</tbody>
</table>
I  II  III  IV  V  VI  VII

205a, 355a  xxx2x  alc  113  xxx2  elc  2
675a, 1518a  xxx2x  ald  140  xxx2x  eld  3
758a, 2949a  xxxxx2x  ale  57  xxxxx2x  ele  1
1190b, 2944b, xx2x|z  3Blb  256  xx2|z  ?
384b, 2327b
3036a, 3114a, z|x2x  1A*1a  296  z|x2x  1A1a  163
2249a
2178b, 2641b  z|x2x  2A1a  538  z|x2x  2Cl-  1
1163b  xx2x|z2x  alb(2A1a)1  xx2|x2x  2Clb  81

2063  293

God-
570a  beorht bêacon  Godes 'the bright beacon of God'
711b  Godes yrre bær 'God's ire he bore'
788b  Godes andscacan  'God's adversary'
1682b  Godes andsaca  'God's adversary'
227b  Godc hancodon  'to God they gave thanks'
625b  Godc hancodc  'to God she gave thanks'
1394b  Godc hancodc  'to God he gave thanks'
2459b  Godes leocht gecas  'God's light he chose'
2858a  wolde dom Godes  'the mastery of God had to'
113b  bæ wîd Gode wunnon  'then against God they fought'
1997b  Gode ic bæc seage  'to God I say thanks'

god-
205a  hæfde se gûda  'had the good one'
355a  ðê mè se gûda  'what to me the good one'
675a  gesprecc ðê se gûda  'said then the good one'
1518a  ongeat ðê se gûda  'saw then the good one'
758a  gemunde ðê se gûda  'remembered then the good one'
2949a  gewât him ðê se gûda  'betook himself then the good one'
384b  ic bæm gôdan sceal  'I to the good one shall'
2327b  bæt Sâm gôdan wæs  'that to the good one was'
3013a  gôduw gerponen  'to the good one arrived'
3114a  gôduw togene  'the good one towards'
2249a  gôde begeatun  'good ones got'
2178b  gôduw dæcum  'in good deeds'
2641b  gôde teald  'good ones he reckoned'
1163b  bær ðê gôdan twegen  'to where the good ones two'
A glance at the chart suffices to convince us that interpretation of God- with a short vowel and god- with a long vowel is well supported by metrical evidence. In 13 out of 14 examples the number of occurrences in column four exceeds the number in column seven. The one exception (1163b) is part of a group of so-called hypermetric lines which are extra long and subject to slightly different scansion than the normal verse. Such groups of lines occur at three places in Beowulf (1163-1168, 1705-1707, 2995-2996). The chance occurrence of a form of god- in one of these hypermetric lines does not alter our basic conclusion. Even if we include this line, we note that the total number of occurrences of patterns represented in column four is 2063 as opposed to 293 occurrences of patterns appearing in column seven.

Not only is our overall assumption about the length of vowels in God- and god- therefore justified, but we can also furnish strong evidence for determining vowel length in specific lines. Wherever question marks occur in column six, we can be virtually certain which interpretation is best. Where the ratio of column four to column seven is 50:1 or better, we can be almost as certain.

One such chart should serve to illustrate the usefulness of metrics in determining vowel length, but a
few further specific examples are given below: 1179a
folc and rice 'people and kingdom' is scanned by Bliss as \( i'x'x \) (1Ala) which occurs 161 times in a half-lines.
If rice had a short vowel, it would have to scan \( \_ix_\) (2Bl-), a pattern which does not seem to occur elsewhere in Beowulf (see note 6). Similarly 86lb rics wyr\( \text{\`} \)ra 'more worthy of the kingdom' scans as \( \_x\_x \) (2Ala) which occurs 533 times in b half-lines, while the scansion of rics with a short vowel would give \( \_ix_\) (2Cl-) which occurs only once in a b half-line (187lb ðegn betstan 'the best warrior'). 892a dryhtlic iren 'noble sword' scans \( \_x\_x \) (2Ala) which occurs 435 times in a half-lines, while \( \_x\_x \) never occurs in Beowulf. Both rice and iren must be assumed to have long stem vowels.

Conversely 376b sohte holdne wine 'he sought his loyal friend' scans \( xx'x\_x \) (3Blb), a pattern which occurs 256 times in b half-lines. If scanned as \( xx'x\_x \) it would be a hypermetrical alb(2Ala) type which occurs only once in Beowulf (1163b, see chart). Hence wine must have a short stem vowel. Similar examples can be found for a great number of Old English forms which occur in the oldest alliterative poetry.

We now turn to Old Icelandic alliterative verse, to examine examples of the most frequent line of Eddic verse and then that of Skaldic verse. The most common
Eddic poetic form, especially in the older period, was the fornyrðislag, a stanza of four long lines, each consisting of two half-lines bound by alliteration. The metrical structure of these half-lines is very similar to those in Beowulf. The second form, the ljóðaháttr, also consisted of four lines, the first and third of which were like the fornyrðislag lines, while the second and fourth lines were not broken by a caesura and had only three or even two lifts. Nevertheless, there appears to have been considerable variety in the number of patterns which could occur in the earliest Eddic verse. Generally, half-lines contain two lifts and two drops, so that to judge from lines such as brymskviða 30.8 vârar hendi, 'to Vor's hand', or Lokasenna 24.4 vitka liki 'like a magician', we might assume that the stem vowels in vârar and liki are long, giving a 2x,2x scansion which is the canonical form of Sievers' type A.7 Nevertheless, half-lines with only one drop are by no means unknown, as for example Guðrúnarkviða I 6.6 sunnan lanz 'in the south-land' or 7.3 vindr of lôk 'the wind tossed'. These shorter half-lines seem to occur especially often in the poems composed in ljóðaháttr (cf. Heusler, DV I, p. 178).

If we have a half-line with only one drop, and it includes

7 The references are to G. Neckel's Edda Vol. I, Heidelberg, 1914.
one metrically ambiguous form, such as Hávamál 154.4 vági á 'also the waves' or Grímnismál 17.1 Hrísi vex 'groves grow', we can be even more certain that the stem vowel of the disyllabic form is long. To be sure, there are a few examples of lines consisting solely of two lifts. Sievers cites three: Rigspula 8.9 lótþ hrygg 'bent back', 11.4 sónr húss 'son of the house', and Gudrúnarkviða I 26.8 sómr (or sóumk) ey (Neckel gives sæmkk ey, cod. Regius 2365 40 gives sámkk ey; the translation is uncertain). In addition there is the well-known line Hávamál 76.1 and 77.1 dývr fé 'cattle die'. Since none of these include forms which are metrically resolved, however, we can be reasonably sure that, when dealing with lines such as vági á and Hrísi vex, we have long stem vowels in the disyllabic words.

In general it is not possible to be as rigorous in determining vowel quantity from metrical patterns in Eddic poetry as in Beowulf. This may be attributed largely to the fact that in the Edda we are dealing with a number of poems composed by different poets at different times. On the other hand if we were to take CVCV(C) words in all their occurrences and scan them with both short and long stem vowels, we would get gross probability statements similar to those for OE God- and god in Beowulf.
In the alliterative poetry of the Icelandic skalds we get more certain evidence for determining long vowels. The most common Skaldic stanza consists of eight lines (dróttkvætt), each of which has three lifts and usually three drops. The first two lifts and the corresponding drops can regularly be scanned with one of Sievers' five types. The final lift regularly occurs as the first syllable of a disyllabic form which ends the line. The scansion of this word is regularly 2x and it is not subject to resolution. If then a CVCV(C) word occurs in final position in a Skaldic dróttkvætt line, we can be almost certain that the stem vowel is long. This gives us a large number of possible occurrences which add weighty evidence as to length of vowel. On the other hand we could hardly hope to prove that a CVCV(C) word had a short stem vowel by this means unless we found that it occurred frequently in other positions but never at the end of a dróttkvætt line.

To illustrate, we find that the Lausavísur (occasional poems) which occur in the Saga of Egill Skallagrímsson, an Icelandic poet of the 10th Century, contain 348 dróttkvætt lines. Seventy-eight of these lines end in CVCV(C) words. All of them are assumed to have long stem vowels. The forms are as follows:
In contrast to the restrictions placed on final position, there are 38 occurrences of CVCV(C) forms with short stem vowel in other positions in the same 348 lines.
The occurrence of CVCV(C) words in final position of dróttkvætt lines, then, gives strong evidence that the stem vowel in question is long.

In Old Saxon poetry we find that the drops tend to contain more linguistic material than those of either Old Icelandic or Old English. The result is that it becomes more difficult to find lines in which we can show that the second syllable of a CVCV(C) word is needed to fill a drop. Nevertheless, it is possible to find many lines which contain only two lifts and two drops. For example, 44 of the first 186 half-lines in the Heliand can be scanned in this fashion. The restrictions are similar to those in Old English and Old Icelandic as far as quantity is concerned. Light syllables in lifts are resolved with the following syllables unless the preceding syllable receives a primary or secondary stress (1a Manega uuáron 'there were many' scans \(zx|\ddot{x}\), while 17a thuru craft godas 'by the power of God' scans as \(xx|\ddot{x}\), and 31a aðalordfrumo 'great creator' as \(z|\ddot{x}\)).

There is also a strong tendency on the part of the poet to avoid lines with fewer than two lifts and two


10 References are to the Heliand in Behaghel and Mitzka's Heliand und Genesis (7th ed.), Tübingen, 1958.
drops. Kauffmann (PBB 12 (1887), 348-349) even goes so far as to propose textual emendations for the eight lines in which he finds only three metrical syllables (31b, 1154b, 1603a, 3109b, 3455a, 5302b, 5544b, 5937a). Whether we accept his emendations or not, the probability is very great that lines such as 6b lêra Cristes 'the teaching of Christ', 1503a uuâron uwordun 'with truthful words', 2338a mèron mahti 'more powerfully', 3810a tinsi sôkid 'levies taxes', or 4091b òlat sagde 'said thanks' should be scanned as 'x|x'. This gives us a criterion for assigning long stem vowels to lêra, uuârun, mèron, sôkid, òlat, and similar forms which might occur. While our conclusions may not carry as much weight as those derived from Beowulf or Skaldic dróttkvætt meter, they can make a substantial contribution in their own right.

In Old High German, alliterative poetry is not extant in great enough quantities to allow statistical generalizations.

B. Rime

The study of rime could contribute to our knowledge of distinctive vowel differences if we could demonstrate that poets rime certain vowels with each other but not with other vowels. After such demonstration we could
conclude that vowels which rime are identical or similar, depending on the practice of individual poets. More specifically we are interested in vocalic assonances which may be part of rime.

For clarification we can examine internal rime (hending) which began to appear at an early date in Skaldic poetry. Hending was only an ornament and did not replace alliteration as the binding force of the poetic line. But already in the 10th Century it was introduced in the eight line Skaldic dróttkvætt stanza according to a pattern which later became the rule. Every odd line contained a rime which required only that a consonant following a vowel with primary or secondary stress in the first part of the line be identical with the first consonant after the stressed vowel in the final disyllabic word (Esat lítillar Ljóti 'A little prayer to Ljot'). This type of rime (skothending) is of no interest to us. In the even lines, however, it was also required that the vowels preceding the consonant be identical (aðalhending) (leik ek við hal blíkan 'struggle I against the pale one'). If we find that the vocalic rimes are exact, we should be able to draw conclusions about quality and quantity of the vowels.

11 This line and the one just below are line one and two from the 29th Lausavísur of Egill cited from Jónsson's Skjálsverk.
I have examined the aðalhendingar in seventeen dróttkvætt stanzas attributed to þórarin svarti þórólfsson, an Icelandic poet of the 10th Century. The 68 vowel assonances in the seventeen stanzas are as follows:

Short vowels ɪː (2), ɛː (9), ɹː (1), ɑː (8), œː (3), øː (4), uː (5), and ɪː (1); Long vowels ɪː (6), ɹː (2), ɛː (2), ɜː (2), ɑː (2), ɹː (1), øː (6), uː (1), and ɹː (2); Diphthongs ei (7), ey (2), and au (3). Among the 68 there is not a single example of a long vowel assonating with a short vowel.

The riming of ɪː and ɹː reflects linguistic developments in Old Icelandic. At the time when the lines containing the seemingly impure assonances were composed, the vowels in question may have been allophones resulting from umlaut processes. For our purposes, however, the most important evidence is that long vowels and short vowels are kept separate. This gives convincing evidence that there was a distinction between long and short vowels; furthermore,
it may enable us to reach conclusions about individual forms if they consistently rime with either long or short vowels.\textsuperscript{14} The extreme regularity in the use of aðalhendingar, then, adds a valuable device to our methods of determining vowel length in Old Icelandic.\textsuperscript{15}

The use of endrime as the major device for unifying poetic lines gives us another source of evidence if we can also show that the vocalic assonances in the endrimes are exact. The use of endrime as a major device in Icelandic poetry did not become widespread until the 14th Century and is therefore of less interest than is internal rime. There is, however, one exception in which endrime was used throughout a poem in the 10th Century. This is the famous "Hǫfuðlausn" (head ransom) of the same Egill Skalagrímsson whose lausavisur were examined above.\textsuperscript{16} The assonances of the 148 lines are as follows: Short vowels ĭː ĭ (4), eː (7), aː (25), oː (11), oː (8), uː (4), aː (1); Long vowels ɪː (1), åː (4), ðː(4).

\textsuperscript{14} This method was used K. Gislon in "Forandringer af 'Quantitet' i Oldnordisk-Islandsk," Aarhoger for Nordisk Oldkyndighed og Historie (1866), pp. 242-305.

\textsuperscript{15} In regard to this regularity see pp. 178-283 of Kahle's Rimarum. Of 3840 aðalhendingar cited (the figure is from Kahle, p. 1), only five examples are listed in which a short vowel and long vowel are rime (p. 283).

\textsuperscript{16} Text from Jónsson's Skjaldedigtning, pp. 30-33.
(3), ö:ö (1), å:å (2); Diphthongs ei:ei (2), au:au (1).

We notice that the situation is exactly analogous to that found in the adalhendingar. Long vowels and short vowels are kept completely separated. We can again assume a distinction between long and short vowels, although the limited corpus prohibits generalizations about individual forms.

The other important source of information about endrime in early Germanic poetry is the Evangelienbuch by Otfrid of Weissenburg. This document, preserved in a 9th Century manuscript corrected by the author, is by far the largest corpus of Old High German poetry. If we find that Otfrid's rimes did not permit short and long vowels to assonate, we will also have evidence for vowel length in Old High German, more specifically for vowel length in South Rhine Franconian.

Many studies of Otfrid's rime have already been made; we will only cite some of the conclusions.\textsuperscript{17} In 1873 Wilmanns furnished evidence that Otfrid avoided riming long and short vowels.\textsuperscript{18} The major exception is the sequence vowel plus \textsuperscript{r}, and to some extent vowel

\textsuperscript{17} Extensive bibliography can be found in W. Braune's Althochdeutsches Lesebuch (13th ed. prepared by K. Helm), Tübingen, 1958, pp. 171-173.

\textsuperscript{18} "Metrische Untersuchungen Über die Sprache Otfrids," ZfdA 16 (1873), 113-131.
plus n, where Otfrid apparently had difficulty making a distinction (ZfdA 16.119-122). The problem is somewhat complicated by the fact that Otfrid often uses endings or weakly stressed final syllables for his rimes. Examining these separately, Wilmanns finds only eight examples in which long vowels in stem syllables rime with short vowels in stem syllables (ZfdA 16.124). His conclusion is supported by an investigation of the sequences -ot and -ôt in stem syllables: in approximately 100 occurrences of -ôt and 17 of -ot, in only one do the two rime (got: nôt 4,30,31). Accordingly there is strong evidence in support of the existence of a distinction between long and short vowels in Old High German. On the other hand Otfrid's metrical practice seems sufficiently free so that we cannot reach conclusions about individual forms except by statistical investigations.

Conclusion

The discussions in this chapter have led to the conclusion that Germanic metrical patterns provide additional evidence for distinctive vowel length in the various Germanic dialects. Strong metrical evidence for the existence of such a distinction has been found in Old English, Old Icelandic, Old Saxon, and Old High German. Furthermore,
we have seen that in rigorously controlled environments we may be able to draw conclusions about vowel length in individual forms. This is true of Old English, Old Icelandic, and to a lesser extent of Old Saxon. We can now add this evidence from metrics to that furnished by manuscript studies.
III. Structural Evidence

Introduction

A third major type of evidence for vowel length in Germanic may be called structural. It is found in specific morphological categories, e.g. in two form classes which show striking similarities and yet are regularly different in one respect. We may then conclude that the forms in both classes were at one time members of a single class split by a phonetic alternation which was originally complementary but later became phonemic. Quantity played an important role in some such developments.

The best-known example in Germanic is the alternation in Gothic between -ja- stem nouns which regularly have light root syllables, and those which regularly have heavy root syllables, or disyllabic stems (harjis 'army' but hairdeis 'shepherd'). At one time both of these noun classes consisted of a root followed by a suffix */y/ plus ending. As a result of the alternation of Indo-European resonants described in Sievers' Law, as formulated by Edgerton (Lg. 10 (1934), 235-265, 19 (1943), 83-124), the resonant */y/ had two phonetic shapes in addition to [1], [y] which occurred after light root syllables and [1y] which occurred after heavy syllables.
Later developments obscured the original relationship and caused a split of the one class into two distinct classes. The conditioning factor was the nature of the stem syllable. If of CVC- structure, it could be heavy only if the vowel were long. Therefore, when we find nouns in Gothic of the structure CVC-ēis we assume either a long stem vowel or analogical leveling. Conversely, CVC-īis would indicate a short vowel in the stem. We can be certain that such a distinction existed in the vowels. Whether it still did at the time of attestation is not as easy to answer. We will return to the discussion of the Gothic examples shortly.

Another type of structural evidence is not limited to specific morphological categories, but rather to certain structure points within the total inventory of linguistic forms. It may be found that all medial vowels with weak stress which immediately follow syllables with primary stress are syncopated at a certain stage of a language. If so, the change is unconditioned in that environment. On the other hand, some of the vowels may be syncopated and others maintained. If we can discover a further factor which conditions this change, we identify a conditioned change which has taken place in the relevant environment. Further, the maintenance of unstressed medial vowels immediately after syllables with primary
stress implies the absence of the conditioning factor which causes others to be lost.

A number of Germanic languages show reflexes of such changes where the conditioning factor is the nature of the syllable with primary stress. Syncopation of certain vowels occurs after heavy syllables but not after light syllables. As an example we can cite OS hōbid, hōbdes (nom., gen. sg.) 'head' but heban, hebanes 'sky, heaven'. The reflexes of similarly conditioned changes can be used as further evidence that a distinction between long and short vowels existed at the time when the change occurred. If we can trace such a change within the attested forms of a language, we have positive evidence that the distinction was operative at a given time.

In the following pages we will describe some of the more important cases of the types of alternation which contribute evidence to the existence of distinctive vowel quantity in various Germanic languages, especially in Proto-Germanic.

A. Gothic

The main source of structural evidence for distinctive vowel quantity in Gothic is the Sievers' Law alternation already mentioned. It occurs not only in the variation
between the two types of -Ja- nouns but also in the second and third person singular and second plural present indicative active (-jib, -jib, -jib versus -eis, -eib, -eib) of the Class I weak verbs in -jan. The conditioning factor is phonological: -ji- occurs after light syllables and -eI- after heavy syllables, or after disyllabic stems.

The forms of the -ja- nominal declension which illustrate the difference are the nominative and genitive singulars of masculine nouns. Examples are: Light stems niblis (J 18, 26) 'relative', harjis (L 8, 30) 'army'; Heavy stems lekeis (C 4, 14) 'physician', huaiteis (J 12, 24) 'wheat'. The same situation is presumably found in the -ja- adjectives, but no certain contrasting pairs are attested to illustrate the difference.

Examples from the weak verbs of Class I furnish somewhat more evidence. Such are: Light stems hazjib (R 15, 11) 'praise', satjib (K 9, 7) 'sets', hramjib (J 19, 6) 'crucify', hugjib (G 5, 10) 'think', and-huljib (E 3, 5) 'reveals'; Heavy stems weneib (K 13, 7) 'hopes', boteib (J 6, 63) 'aids', domeib (K 10, 15) 'judge', hrukeib (J 13, 38) 'crows', brukeib (T 1, 8) 'use', baideis (G 2, 14) 'force', daubeib (C 3, 5) 'kill', hauheib.

References are to Streitberg's Gotische Bibel (2nd ed.), Heidelberg, 1919. The abbreviations are found on page XLVII.
(J 13, 32) 'is glorified', hnaïweip (L 14, 11) 'humbles',
gya-sleíbeip (Mc 8, 36) 'suffers injury'.

The evidence indicates that a quantitative distinction existed in Gothic or at some earlier stage of the language. eí, e, o, au, aí are followed only by the variant expected after long vowels, i and a by that after short vowels. u occurs twice in the examples above as a short vowel and twice as a long vowel. I could find no examples for "secondary" aí or au from i/e or u before r, h, or ru. Jellinek considered this evidence foolproof for demonstrating distinctive vowel quantity in Gothic.

He was convinced that the alternation was still productive at Wulfa's time: "Dieser Gegensatz ist in der Sprache durchaus lebendig."2 Marchand, on the other hand, is willing only to grant that "morphophonemic variations can never be taken as proof of pronunciation at the stage of the language in which they occur, but only of an earlier stage."3 For the time being we permit his minimal assumption which still allows us to add Gothic or Pre-Gothic structural evidence to that for the existence of distinctive vowel length in Proto-Germanic.

3 "Vowel Length in Gothic," General Linguistics 1 (1955), 84.
B. North Germanic

In citing structural evidence for distinctive vowel length in North Germanic we rely primarily on Old Icelandic, since the evidence from the other dialects differs in no important respects.

One of the regular Old Icelandic phonological developments is the loss of -\( \ddot{a} \)- in weakly stressed syllables everywhere except between a light syllable with primary stress and a back vowel (\( \ddot{a}, \ddot{o}, \ddot{u}, \) or \( \ddot{y} \)).\(^4\) This provides us with a great number of near minimal contrasts between long and short vowels in words of the type CVC\( \ddot{A} \) (\( A = \) any back vowel) versus CVCA. Since the Old Icelandic present infinitive usually ends in -\( \ddot{a} \), there are many occurrences of the environment described.

The weak verbs which appear in Class I in Gothic therefore are divided into two groups, according to light or heavy stem. (Go. \texttt{sati}b 'sets', OIcel. \texttt{set}ia 'to set'; Go. \texttt{dom}eb 'judge', OIcel. \texttt{d}ö\texttt{ma} 'to judge'). The earlier characteristic -\( \ddot{a} \)- of the Class I weak verbs had been lost after heavy stems by Old Icelandic times, leaving only an unlauted stem vowel to indicate its disappearance. The distinction appears at various places throughout

the conjugation. Whenever the ending is a back vowel, the -i- (graphically i) appears after light stems. This includes first and third plural present indicative, first singular present optative, and the present participle as well as the infinitive. A comparison of these forms shows the following distinctions:

Light stem temia 'tame', heavy stem fóra 'lead'.

<table>
<thead>
<tr>
<th>Inf.</th>
<th>temia</th>
<th>fóra</th>
<th>Opt. 1</th>
<th>temia</th>
<th>fóra</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pl. 1</td>
<td>temiom</td>
<td>fórom</td>
<td>Pres. Part.</td>
<td>temiande</td>
<td>fórande</td>
</tr>
<tr>
<td>Pl. 3</td>
<td>temia</td>
<td>fóra</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Proto-Germanic distinction between light and heavy stems in the weak verbs of Class I is not necessarily reflected in all Old Icelandic verbs which show a -i- after the stem syllable. For new formations in North Germanic would have been treated in the same fashion, since the disappearance of -i- in the environments specified above was a regular occurrence in North Germanic. Strictly speaking, no -i- was lost after Class I weak verbs with heavy stems from Proto-Germanic. The Sievers' Law alternation had already established the conditions for its disappearance. Regardless of the source of such verbs (*ve/*vo primary verbs; *eye/*eyo secondary verbs, etc.) the combination of the breakdown of Sievers' Law plus i umlaut would have given i as the reflex of all these
forms soon after the Proto-Germanic period. On the other hand, Sievers' Law plus the "converse of Sievers' Law" would have uniformly given -i- after light stem syllables. In these instances, the Old Icelandic situation actually reflects the Proto-Germanic situation. Yet the loss of the *-y- after heavy syllables was a process quite different from the general Scandinavian loss of -i- after heavy syllables. New formations which might have come into the language after the breakdown of Sievers' Law would, however, be subject to this latter loss.

As examples we can cite the following infinitives which show the maintenance of the distinction from Proto-Germanic times:

letia 'stay', Go. latjan, OS lettian, OE lettan, OHG lezzen, OFr. letta.
mâla 'talk', Go. mabljan, OE mâlan, mæðlan, OS mahalian, OHG mahalen.
hylia 'cover', Go. huljan, OE hyllan, OS hullian, OHG hullen, OFr. hella.
fûsa 'drive', OE fûsan, OS fûsian.
skilia 'give information', OE sciclean 'separate', cf. Go. skilja 'butcher'.

kvipa 'fear', OE cwidoan, OS cuiðian.

fódæ 'raise', Go. OS fóðian, OE fédæ, OHG fuoten, OFr. foda, fêda.

Since the derivational -j- caused umlaut, it is difficult to find examples for back vowels. In addition ë usually was a reflex of ø, itself primarily a result of a- umlaut. The great majority of -j- verbs with light stems come from Germanic verbs with a as the stem vowel.

In the Old Icelandic nominal declensions the difference between heavy and light stems is much more clearly marked than in Gothic. In the -ja- stems (masculines and neuters) and -jô- stems (feminines), the endings differ after light and heavy stems in all cases except the dative singular of neuter -ja- stems. The following declensions of nibr 'offspring', hirber 'shepherd', kyn 'kin', kvæ ba 'poem', ben 'mortal wound', and heipr 'heath' illustrate the differences.6

<table>
<thead>
<tr>
<th>-ja- masculines</th>
<th>-ja- neuters</th>
<th>-jô- feminines</th>
</tr>
</thead>
<tbody>
<tr>
<td>light heavy</td>
<td>light heavy</td>
<td>light heavy</td>
</tr>
<tr>
<td>N nibr</td>
<td>hirber</td>
<td>kyn</td>
</tr>
<tr>
<td>N nib</td>
<td>hirbe</td>
<td>kyn</td>
</tr>
<tr>
<td>G nibs</td>
<td>hirbes</td>
<td>kyns</td>
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<tr>
<td>D nib</td>
<td>hirbe</td>
<td>kyn</td>
</tr>
<tr>
<td>N nibiar</td>
<td>hirbar</td>
<td>kyn</td>
</tr>
<tr>
<td>A nibia</td>
<td>hirba</td>
<td>kynia</td>
</tr>
<tr>
<td>G nibia</td>
<td>hirba</td>
<td>kynia</td>
</tr>
<tr>
<td>D nibiom</td>
<td>hirpom</td>
<td>kyniom</td>
</tr>
</tbody>
</table>

Only the -ja- masculines with light stems are rare. Most of them have fallen together with the -i- declension.7 Besides nibr there are only a few remnants. Old Swedish examples, which follow the same pattern of alternation, are somewhat more numerous.8 There are enough examples in the other genders, however, to add considerable evidence in favor of a quantitative distinction. The cases with -i- after light syllables generally reflect the retention of a Proto-Germanic [y], whereas the corresponding endings after heavy syllables have no direct reflexes of the [iy] allophone. The second element may have been assimilated to the following vowel at a very early date; by another proposed explanation it fell together with the [y] allophone after the breakdown of Sievers' Law and then disappeared in accordance with the rule for loss of -i- in weakly stressed syllables in North Germanic as outlined above. The -e ending is primarily a reflex of earlier *i from various sources. It is primarily relevant here to point out that the alternations found in the -ja-/jo- declension offer evidence for light and heavy syllables existing side by side in Proto-Germanic as well as in some stage of North Germanic after the Proto-Germanic period.

Since umlaut operated in the -ja-/i̯a- declension in much the same manner as in the -i̯- verbs, the same restrictions apply to the occurrence of stem vowels. Therefore we will not cite any further forms, since they would merely repeat the evidence presented above.

C. West Germanic

One of the results of the West Germanic consonant gemination was that all consonants, except r, which followed a short stressed vowel and preceded -i̯- were doubled (Go. satjan 'set', OE settan, OS settian, OHG sezzen; Go. sibja 'tribe, race', OE sibb, OS sibbia, OHG sippa). After this change, the contrast between light and heavy syllables was obliterated in the West Germanic Class I weak verbs and -ja-/i̯a- declension. The subsequent loss or retention of -i̯- was a matter of development in the various dialects, but it was no longer conditioned by the preceding syllable. It was generally lost in Old English before the literary period but was maintained in Old Saxon. In Old High German it was lost during the early part of the literary period (willeon (Wessobrunn Prayer) 'will', willon (Otfrid)). Only when the stem ended in -r- did the earlier distinction between light and heavy syllables remain. Even here one can no longer make the distinction in Old Saxon (hörjan 'hear', nerian
'save') since the reflex of Germanic */y/ was retained regardless of the length of the preceding syllable.

On the other hand, in Old High German and Old English we find the retention of the old distinction in the stems which end in -r. As examples we can cite the following forms: Class I weak verbs with light stems OHG nerien 'save', OE noerian, Go. nasjan; OHG werien 'defend', OE werian, Go. warjan; OE herian 'praise', Go. hazjan; OHG burien 'lift', OE byrian 'happen', OIcel. byria. Heavy stems OHG læren 'teach', OE læran, Go. laisjan; OHG hören 'hear', OE hieran, Go. hausjan; OHG stiuren 'steer', OE stieran, Go. stiurjan; OHG biwären 'prove', OE wærân 'confederate', Go. tuswerjan 'doubt'.

The situation should be similar in the -ja-/jœ- declension, but examples are extremely difficult to find. We can cite the following genitive singular which is masculine in Old English and neuter in Old High German: OE heries 'army', OHG heries, Go. härjis (cf. for example OE læces 'physician', OHG lâches, Go. lekeis).

There are three other major sources of structural evidence for distinctive vowel quantity in West Germanic. They can be traced with varying degrees of clarity in the different dialects, but the treatment is similar enough to allow us to discuss each of the three separately rather than by dialects. The sources of evidence are,
in the order in which we will discuss them, 1) treatment of final unstressed vowels, 2) treatment of medial unstressed vowels in trisyllabic forms, and 3) the development of anaptyctic vowels before resonants to form new syllables.

The observation that -i and -u were treated in parallel fashion in the various West Germanic dialects was first made by E. Sievers. In general it can be said that final weakly stressed -i and -u in disyllabic forms were lost after long stem syllables but retained after short stem syllables. Other final vowels (a and e) do not show this same split but are lost or retained regardless of the preceding syllable. (Final vowels in three or four syllable forms are not considered here since they add additional detail but little evidence). Since the loss of final -i and -u after long syllables can be traced in some cases in extant materials, the quantitative distinction in stem syllables was in existence at the time they were recorded.

The conditions described above are represented most faithfully in Old English, where the distinction appears in feminine nouns of the ë-declension in the nominative singular. Here the Germanic ending *-ô (Go. -o) developed

into -u, which was lost after heavy syllables and retained after short ones. As examples we can cite: Short stems sacu 'persecution', laçu 'invitation', wracu 'revenge', scolu 'troop!', naflu 'nave', faru 'journey', giefu 'gift', lufu 'love', sceamu 'shame', bedu 'prayer'. Long stems lår 'learning', för 'trip', glôr 'glove', gâd 'goad', âr 'honor', rôd 'cross'. This distinction could not occur in Old Saxon and Old High German because the expected reflex of the *-ô ending in the nominative singular was replaced by -a from the accusative singular (PGe. *-ôn).

In Old Frisian the situation must once have been similar to that in Old English, but in the extant materials considerable leveling has occurred.

Further evidence can be found in the nominative and accusative singular of the -u- declension. Evidence for the retention of -u after short stems is present in all three of the older dialects as well as Old Frisian, but the evidence for its loss after long syllables is partially obscured by the confusion of the -u- declension with other declensions. We can assume, however, that the loss of final -u was a prerequisite to this confusion of declensions. The evidence is best in Old English and Old Saxon, while in Old High German and Old Frisian the declension has nearly disappeared. Short stems OE sunu 'son', OFr. sunu, OS sunu, OHG sunu; OE sidu 'custom'.
OS sīdu, OHG sītu; OE magu 'son', OS magu, OHG Magu-
OE heoru 'sword', OS heru; Long stems OE flōd 'flood',
OFR. flōd, OS flōd, OHG flōut; OE lītō 'wine', OFR. līth,
OS līd, OHG līd; OE hād 'rank', OFR. -hēd, OS hēd, OHG
heit; OE dēa̯d 'death', OFR. dāth, OS dōd, OHG tôt.

Finally, evidence for the similar treatment of final
-i is to be found in the nominative and accusative sin-
gular of the -i- declension. Old English, Old Frisian,
and Old Saxon provide the best evidence. The Old Frisian
forms show some analogical development whereby long stems
occasionally have -e and short stems no ending. The
forms given below are the most frequent. In Old High
German the -i is usually lost even after short stem syl-
lables, although a few remnants of the earlier situation
are to be found. The Old High German forms with short
stems listed below are found only in some of the earliest
records: Short stems OE wine 'friend', OFR. wine, OS
wini, OHG wini; OE cyne 'arrival', OFR. keme, OS kumi,
OHG -kumi; OE mete 'food', OFR. mete, OS meti. Long
stems OE tid 'time', OFR. tid, OS tid, OHG zit; OE nied
'need', OFR. nēd, OS nōd, OHG nōt; OE brūd 'bride', OFR.
brēd, OS brūd, OHG brūt; OE wēn 'hope', OS wān, OFR.
wēn, OHG wān; OE dēa̯d 'deed', OFR. dēd, OS dād, OHG tāt.

Another development which is characteristic of West
Germanic dialects is the syncope of medial weakly stressed
short vowels which precede single consonants in three-
syllable words with heavy first syllable. If the first
syllable is light, however, the medial vowel tends to
remain.

This situation is not fully represented in any extant
dialect. In Old English it is largely true of \textit{-i-} and
especially \textit{-u-} in the oldest documents, while \textit{-a-} and
\textit{-e-} are syncopated regardless of the preceding syllable.
In Old High German, on the other hand, short medial vowels
are generally retained. The major exception is the treat-
ment of the derivational \textit{-i-} from Germanic */y/ in the
preterite of Class I weak verbs. Here the distribution
described in the preceding paragraph holds for Old High
German also. Old Saxon occupies a position somewhat between
Old English and Old High German. Syncopation occurs
only after long syllables, but it is not consistently
carried through in the written materials. We may compare
OE \textit{yfeles} (gen. sg. masc.) 'evil', OS \textit{ubiles}, OHG \textit{ubeles},
Go. \textit{ubilis} but OE \textit{hêafdes} 'head', OS \textit{hôbdes}, OHG \textit{houbites},
Go. \textit{haubidis}.\textsuperscript{10}

The clearest reflex of the alternation resulting
from the varying treatment of medial syllables, however,

\textsuperscript{10} The general principles involved are found with many
examples in Sievers' "Zur Accent- und Lautlehre der ger-
manischen Sprachen: II. Die Behandlung unbetonter Vokale,"
\textit{PBB} 5 (1878), 63-101.
is found in the preterites of Class I weak verbs as mentioned above for Old High German. The majority of these retain an -i- after light syllables, but not after heavy syllables. Examples of the first/third singular preterite forms will illustrate the difference: Light stems OE fremede 'supported', OS fremida, OHG frumita; OE dynede 'made noise', OS dunida; OE cnysede 'shoved', OHG knusita; OE nerede 'saved', OS nerida, OHG nerita. Heavy stems OE hïerde 'heard', OS hôrda, OHG hôrta; OE wênde 'expected', OS wânda, OHG wânda; OE dêlde 'divided', OS délþa, OHG teitla; OE rûmde 'cleared', OS rûnda, OHG rûnda.

The alternation shown above is only indirectly a result of the Sievers' Law alternation described earlier in connection with the same group of verbs. Proto-Germanic */y/ had a third allophone which occurred when */y/ occurred between consonants: [1], which developed into a short vowel -i- regardless of the length of the preceding syllable. It was then treated as a weakly stressed medial vowel in accordance with the process described above. This can be demonstrated by comparing the Old Icelandic forms in which medial -i- was lost regardless of the preceding syllable but medial -i- before back vowels retained. Compare the following infinitives and preterite first person singulars from Old English and Old Icelandic: OE fremman 'support', fremede, OIcel. fremia, frampa
or OE *werian* 'defend', *werede*, OIcel. *veria*, *varba.\n
The -1- must have been lost between consonants in Old Icelandic before it could cause umlaut. This same vocalic allophone of PGmc. */y/ is responsible for the fact that the preterite forms of weak verbs with light stem syllables do not show the gemination which occurred before -1-; compare OE *fremman*, *fremede*; Go. *framian*, *framida*.

To summarize, then, the evidence from syncopation of medial syllables indicates that there was an active quantitative distinction some time after the various West Germanic dialects became separated from the other Germanic dialects. Further evidence for the persistence of this distinction can be derived from the development of anaptyctic vowels before resonants.

The Proto-Germanic resonants */r l m n y w/ all presumably showed the same three types of allophones as those discussed above for */y/\n\n11 The Gothic forms *akras* (nom. sg.) 'field', *akra* (dat. sg.), and *wokra* (dat. sg.) 'tax' would then reflect earlier *akres*, *akra*, and *wokra*. The liquids and nasals in Gothic do not show this distinction graphically and there is no sure way to determine when it ceased to exist. The usual view is that [r] and [rr] have fallen together phonetically.
in Gothic, while [r] remained syllabic. For our purposes it is important only to assume that this happened in West Germanic some time after Proto-Germanic and before the time of our written documents. In the earliest West Germanic documents we find a tendency for an anaptyctic vowel to be inserted before the formerly syllabic nasal in absolute final position. This vowel is usually a in Old Saxon and Old High German; in Old English it is i or e after a front vowel in the stem syllable, u or o after a back vowel.

In Old High German and Old Saxon the anaptyctic vowels are regularly found before nasals or liquids in final position, while in Old English forms are found both with and without anaptyxis. As examples: Go. fugls 'bird', OIcel. fugu, OE fuzol, OS fugal, OHG fugal; Go. akra 'field', OIcel. akar, OE æcer, OS accar, OHG acchar; Go. taikn 'sign', OIcel. teikn, OE tâcn, OS têkan, OHG zeihhan; OIcel. botn 'bottom', OE botm, OS bodam, OHG bodam.

At first these new vowels did not appear in inflected forms which had a vowel after the resonant. Earliest Old English accordingly shows genitive singulars of the above forms as fugles, æcres, tâcnes, and botnes. Yet a very early tendency developed by which the anaptyctic vowel was also introduced into these internal open syllables,
if the stem syllable was light. We should therefore be able to find stages of the West Germanic dialects in which short or long stem vowels can be ascertained by the presence or absence of an anaptyctic vowel in certain inflected forms.

Such a situation occurs in some of the earliest Old High German documents. The following examples from the Paris manuscript of the Abrogans illustrate the distinction: Light stem syllables nagal (12, 36) 'nail', nagala (14, 1); fagar (12, 30) 'pretty', fagari (14, 11), cf. Go. fagra; fogalo (16, 25) 'bird', cf. Go. fugls; epano (28, 33) 'flat', cf. Go. ibns. Heavy stem syllables tuncal (12, 18) 'dark', tuncllo (12, 14); zuifal (16, 28) 'doubt', zuiflera (42, 10), cf. Go. zweifl (acc. sg.); zaihnti (42, 37) 'shows', cf. Go. taiknjan; lutremo (34, 23) 'clean', cf. Go. hlutra; aotmot (2, 12) 'breathes', cf. OE ædm.

In the course of the 9th Century the new vowels also developed after heavy stem syllables in Old High German, but for a time at least the distinction was clearly evident.


13 References, by page and line, are to Volume I of Die althochdeutschen Glossen.
In Old Saxon and Old English it is only before \( \tilde{e} \) that the distinction between light and heavy stem syllables is at all observed.\textsuperscript{14} There is some variation even here, and evidence for quantity could be obtained only by taking single manuscripts which make a distinction and carefully examining the practices followed in them.

The development of these new vowels in West Germanic eventually led to a falling together of forms which in Proto-Germanic had a syllabic resonant following the first syllable and those which had a sequence of vowel plus non-syllabic resonant. This can be attributed partially to the syncopation of medial vowels after heavy syllables and partially to the development of anaptyctic vowels after light syllables. The periods during which light and heavy syllables could be distinguished by the presence or absence of following vowels from syncope and anaptyxis were relatively short in the various dialects; yet the possibility of tracing these phenomena through the literary records indicates that a quantitative distinction in vowels under primary stress was very much in existence at this time.

Conclusion

In the preceding pages I have attempted to show that structural evidence from the extant Germanic documents can add considerable support to the contention that vowel length was distinctive in Proto-Germanic. While it is not always possible to use the kind of evidence just cited to prove anything about the language in which it occurs, it can at least prove something about an earlier stage of the language. Furthermore, if the appearance of such a distinction can be traced in extant materials, the conditioning factor must still be present, as is indicated by the development of syncopation and anaptyxis in Old High German.

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IV. Comparative Evidence

It is methodologically important to observe that phenomena in one stage of a language do not disclose segments of its structure in an earlier or later stage. The nine vowel system of American English obviously does not enable us to insist that English has always had nine vowels. We need not, however, conclude that no comparative evidence can be used in making descriptive statements about languages preserved only in written materials.

Two sets of forms in one stage of a language may show a phonemic distinction which corresponds to a phonemic distinction in the same sets of forms in an earlier stage of the same language. If, in an intermediate stage, the distinction is not graphically represented in the same two sets of forms, we can safely assume that we are dealing with an underdifferentiated writing system. Similarly, a distinction which is present in the same two sets of forms of two or more daughter languages may generally be assumed to have been present in the proto-language as a distinction, although its phonetic shape may have changed considerably.\(^1\) Furthermore, if one daughter language shows a phonemic distinction in two

sets of forms which is not graphically recorded in the oldest stage of another daughter language, but which is found to exist in the same two sets of forms at a later stage of the second daughter language, we can conclude:

1) The oldest stage of the second daughter language has an underdifferentiated writing system in which two phonemes are written with one symbol. 2) The distinction must have existed in the proto-language. Using this line of reasoning we will discuss a number of examples in which evidence for a distinction between long and short vowels can be found in various Germanic dialects, as well as in Proto-Germanic.

Each of the five simple vowel symbols of the Latin alphabet (i, e, a, o, u) was used in one or more stages of some Germanic dialects to indicate two phonemes. The evidence for this assertion will be presented in the order in which the five vowel symbols are listed above. The two phonemes which are written with one symbol will tentatively be designated as V and ũ. When we state that two phonemes are written with one symbol in a given dialect, we are sometimes discounting the evidence of Chapter I. Strictly speaking, we should sometimes have to qualify our statements by saying that a given dialect usually does not differentiate between certain pairs
of phonemes in the written language, although it may occasionally do so by using various kinds of diacritics.

(1) used for ı and i̯: In all of the oldest Germanic dialects except Gothic, (ı) can represent either ı or i. In Gothic, ı is represented by (ı) and i̯ by (ei).

Many of the West Germanic languages later developed diphthongs from earlier i. This was true of High German, Dutch, and English. We can compare Gothic, Old High German, Old Icelandic, Modern Icelandic, and New High German. The evidence is especially good in the strong verbs of Class I where i̯ in the infinitive can be contrasted with ı in the past participle.2

2 Forms cited from the older dialects are given in normal orthography with a circumflex used to mark length as assigned by modern editors. Some forms, especially those in Gothic, are not attested in the forms cited, but they are certain because of oblique forms which are attested. Forms from spoken languages are given in phonemic transcription, with only segmental phonemes indicated. A raised dot is used to indicate vowel length in New High German and New Low German. The transcriptions of New Low German are based on the broad phonetic transcriptions given in Otto Mensing’s Schleswig-Holsteinisches Wörterbuch (5 vols.), Neumünster, 1927-1935. Modern Icelandic forms are based on the phonetic transcriptions in Sigfús Blöndal’s Íslenzk-Dýnsk Orðabók, Reykjavík, 1920-1924. The phonemicization follows the system outlined by Einar Haugen in "The Phonemics of Modern Icelandic," Lgl. 34 (1958), 55-88. /ı/ indicates a combination of primary stress and lengthening of the immediately preceding vowel, vowel nucleus, or consonant. /e/ indicates a weakly stressed central vowel. /s/ represents a post-alveolar groove fricative (NHG sch).
(e) used for e and ê: In Old Saxon, the reflex of Gmc. *ai appears as ê which is written (e). The same symbol is used for Old Saxon e from Gmc. *e and the i-mutation of Gmc. *a. Gmc. *ai before r, h, and w in Old High German also becomes ê so that in this environment a situation similar to that in Old Saxon is found.

Middle Dutch shows the same development of Gmc. *ai to

3 Long vowels or vowel nuclei in Modern Icelandic do not necessarily reflect the distinction which was present in Old Icelandic. The old distinction is reflected rather in the particular vowel or vowel nucleus which appears in Modern Icelandic. Old Icelandic ı is reflected by /i/ in Modern Icelandic while OIcel. ĭ is reflected by NIcel. /i/. Similar distinctions appear for all the Icelandic vowels. An old short vowel is usually represented by a simple vowel in Modern Icelandic, while an old long vowel is represented by a complex nucleus.
ê, but the orthography makes a distinction in closed
syllables (e = (e), ê = (ee)). By comparing New High
German or New Low German forms with those of the older
dialects, we can show that (e) must have been used in
Old High German and Old Saxon to represent two phonemes.
We must select our examples carefully because of the
lengthening of short vowels in open syllables which took
place during the time between the early dialects and
the modern spoken dialects. In the Middle Dutch period
this lengthening had already occurred, so that (ee) is
written only in closed syllables. (e) in open syllables
must have regularly indicated ê at this time.

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It is clear from the evidence that (e) was ambiguous in Old High German and Old Saxon. It could represent either e or ê. We could make a similar argument for Anglian Old English where (e) represents reflexes of Gmc. *e₁ and *a as well as *ê₁ and *ê₂, but Early Modern English vowel changes along with dialect mixture have largely obscured the earlier distribution.

(a) used for ą and â: The reflex of Gmc. *ê₁ appears in Old High German, Old Saxon, and North Germanic as (a). The same symbol was used for the reflex of Gmc. *a. In Gothic, (e) was used for the reflex of Gmc. *ê₁ and (a) for the reflex of Gmc. *a. By comparing Gothic, Old Icelandic, Old High German, Modern Icelandic, and New High German we can readily see that a distinction has been maintained from Proto-Germanic times even though it has not always been reflected in the orthography.

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<td>skattr</td>
<td>scoaz</td>
<td>skat'tur/</td>
<td>šats/</td>
</tr>
</tbody>
</table>

(o) used for a and â: (o) represents the reflex of Gmc. *u* when *a* had occupied the following syllable in North and West Germanic. It also was used for the reflex of Gmc. *â* in North Germanic, Old English, and Old Saxon. In addition, it was used for the reflex of Gmc. *au* in Old Saxon and before h and dentals in Old High German. By comparing Old Icelandic, Old Saxon, Old High German, Modern Icelandic, New Low German, and New High German we see that (o) represented two phonemes in various older Germanic dialects.
(u) used for ū and ū: (u) was used in all of the oldest Germanic dialects for the reflex of the Gmc. *u's which were not subject to a- umlaut. It also represents the reflex of Gmc. *û. Since none of the oldest dialects make an orthographic distinction, in order to establish that (u) was an ambiguous symbol we must cite forms from at least two modern dialects which diverged early. We will use Old High German, Old Icelandic, New High German, and Modern Icelandic for this purpose.

<table>
<thead>
<tr>
<th>Û</th>
<th>OIcel.</th>
<th>OHG</th>
<th>NIceel.</th>
<th>NHG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Òdwellíng</td>
<td>bû</td>
<td>bû</td>
<td>/buû/</td>
<td>/baw/</td>
</tr>
<tr>
<td>'belly'</td>
<td>bûkr</td>
<td>bûh</td>
<td>/buû'gur/</td>
<td>/bawx/</td>
</tr>
<tr>
<td>'foul'</td>
<td>fûl</td>
<td>fûl</td>
<td>/buû'l/</td>
<td>/fawl/</td>
</tr>
<tr>
<td>'hide'</td>
<td>hût</td>
<td>hût</td>
<td>/huû'b/</td>
<td>/hawt/</td>
</tr>
<tr>
<td>'house'</td>
<td>hûs</td>
<td>hûs</td>
<td>/huû's/</td>
<td>/haws/</td>
</tr>
<tr>
<td>'room'</td>
<td>rûm</td>
<td>rûm</td>
<td>/ruû'm/</td>
<td>/rawm/</td>
</tr>
<tr>
<td>'guzzle'</td>
<td>sûpa</td>
<td>sûfan</td>
<td>/suû'ba/</td>
<td>/zawf'en/</td>
</tr>
<tr>
<td>'sour'</td>
<td>sûr</td>
<td>sûr</td>
<td>/suû'r/</td>
<td>/zawr/</td>
</tr>
<tr>
<td>'courtyard'</td>
<td>tûn</td>
<td>zûn</td>
<td>/tuû'n/</td>
<td>/tsawn/</td>
</tr>
<tr>
<td>'trust'</td>
<td>trûa</td>
<td>trûwen</td>
<td>/truu'a/</td>
<td>/trawyn/</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ù</th>
<th>OIcel.</th>
<th>OHG</th>
<th>NIceel.</th>
<th>NHG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Òground</td>
<td>grund</td>
<td>grunt</td>
<td>/grun'd/</td>
<td>/grunt/</td>
</tr>
<tr>
<td>'guilt'</td>
<td>skuld</td>
<td>scult</td>
<td>/sgul'd/</td>
<td>/sult/</td>
</tr>
<tr>
<td>'dog'</td>
<td>hundr</td>
<td>hunt</td>
<td>/hun'dur/</td>
<td>/hunt/</td>
</tr>
<tr>
<td>'need'</td>
<td>burft</td>
<td>durft</td>
<td>/purft/</td>
<td>/durft/</td>
</tr>
<tr>
<td>'around'</td>
<td>um</td>
<td>umbi</td>
<td>/um'/</td>
<td>/um'/</td>
</tr>
<tr>
<td>'wound'</td>
<td>und</td>
<td>wunta</td>
<td>/un'd/</td>
<td>/vunda/</td>
</tr>
<tr>
<td>'root'</td>
<td>urt</td>
<td>wurz</td>
<td>/ur't/</td>
<td>/vurts/</td>
</tr>
<tr>
<td>'found'</td>
<td>fundenn</td>
<td>gifuntan</td>
<td>/fun'din/</td>
<td>/gefunden/</td>
</tr>
<tr>
<td>'well'</td>
<td>brunnr</td>
<td>brunno</td>
<td>/brun'ur/</td>
<td>/brunr/</td>
</tr>
<tr>
<td>'birth'</td>
<td>burðr</td>
<td>giburt</td>
<td>/burð'ur/</td>
<td>/gibur/</td>
</tr>
</tbody>
</table>
The evidence which has just been presented demonstrates conclusively that underdifferentiation in the writing of vowels in various old Germanic dialects was not uncommon. The evidence from the modern dialects does not necessarily give us information about the phonetic nature of the distinctions which were present in the oldest materials or in Proto-Germanic. Yet in almost all the forms cited above, vowels identified by historical grammars as long or diphthongal in the oldest documents are represented by long vowels or complex nuclei in the modern dialects. On the other hand short vowels are represented by short or simple vowels in the modern dialects. It is natural for us to assume then, on the basis of the comparative method, that similar differences might have existed in the oldest written documents as well as in Proto-Germanic. In the following pages we shall review the evidence collected so far and attempt to arrive at the most plausible description of the distinction or distinctions which were present.
V. Interpretation of the Evidence

In Chapters I through IV we have assembled evidence, much of it well-known, to show that the generally assumed opposition between "long" and "short" vowels really did exist in the oldest Germanic languages and in Proto-Germanic. At the beginning it was pointed that the use of the terms "long" and "short" was to be taken as a traditional and convenient method of giving a name to the opposition which was being investigated. It was not meant to prejudice the final conclusions. Wherever "long" has previously appeared in this study, it should be understood to mean "what is called long in the historical grammars." Similarly, "short" has been used in the same traditional sense. It remains to be seen whether this reservation is in fact necessary.

We will assume at this point that sufficient evidence has been given to demonstrate the existence of a structural opposition, traditionally long versus short, in the vowel systems of the oldest recorded dialects. The evidence has been drawn from: 1) Manuscripts, including the testimony of the Icelandic First Grammarian; doubling of vowels in Old Swedish, Old Danish, Old High German, Middle Dutch, and Old English; and diacritics in Old Norwegian, Old Saxon, Old High German, and Old English. 2) Metrics,
including alliterative verse in Old English, Old Icelandic, and Old Saxon; and rime in Old Icelandic and Old High German. 3) Morphophonemic alternations and different treatment of certain phonological structure points in all the major dialects. 4) Comparison of older dialects with modern spoken languages. One or more of these types of evidence has been found for all of the above dialects. Manuscript evidence was also sought for the subgroupings of Old High German and Old English. Evidence was found in all the subgroups except those which are attested only in a small number of texts, such as the Kentish dialect of Old English and the Rhine Franconian dialect of Old High German. We must now attempt to furnish a hypothesis about the approximate phonetic nature of the opposition which has been demonstrated, and above all we must describe the phonological role of the opposition in Proto-Germanic and in the subsequent history of the Germanic languages.

The various interpretations of the opposition which have been offered can be classed for the most part under three headings. They are: 1) Short vowels versus long vowels (hereafter referred to as the "length hypothesis"). 2) Single vowels versus double vowels (the "geminate hypothesis"). 3) Simple vowels versus complex nuclei consisting of vowel plus semi-vowel (the "glide hypothesis").
It is beyond the scope of this work to trace the history of each of these hypotheses, but their major proponents will be mentioned briefly.

The length hypothesis is explicitly stated or taken for granted in the major historical and comparative grammars published in the neo-grammairian tradition. The vowel systems of Proto-Germanic and all the oldest dialects are assumed to have had long vowels, short vowels, and diphthongs. It is not surprising that the evidence was interpreted in this fashion when we consider that most of the founders of the neo-grammairian tradition were German. Long vowels, short vowels, and diphthongs are usually posited for Modern German; starting from a language with such a structure the grammarians may have been tempted to posit similar sound values for the symbols used in the older dialects.

The geminate hypothesis has recently been suggested by E. Hamp in an attempt to account for certain developments of final syllables in Germanic. The major impetus and the evidence are provided by structural considerations. Jakob Grimm also seems to have felt that Germanic long vowels were really sequences of two vowels, although

his views were prompted by an analysis of their origin rather than by descriptive analysis. 2

The glide hypothesis is proposed in an article by G. L. Trager and H. L. Smith, Jr. 3 They posit three short vowels /i a u/ and three semi-vowels /y w h/, with various nuclei /iy ih ah uh uw iw aw ay/ for Proto-Germanic. This hypothesis appears to derive from the Trager-Smith analysis of Modern English plus the explanation of Proto-Indo-European original long vowels as sequences of vowel plus laryngeal. Little evidence has been mustered to support it thus far. 4 Such an analysis has been accepted by a number of scholars, however, for the vowel system of Old English. 5 The arguments are here backed by at least one attempt to show that the glide hypothesis furnished a better explanation for some details of the phonology. 6


4 Trager attempted to reconstruct an overall typology of Germanic vocalisms in a paper presented orally at the Linguistic Institute in July, 1960.


A related hypothesis was suggested well over a century ago by Rasmus Rask and his followers who posited complex nuclei for Old Icelandic, naturally in far less sophisticated terms. Rask's conclusions were based on the pronunciation of Modern Icelandic which he felt had changed little from that of Old Icelandic.

Regardless of factors which may have influenced researchers to interpret the evidence in one way or another, our concern is to find a hypothesis which best fits the data. Therefore we will examine each hypothesis for the problems it raises or solves without further regard to its historical development. Historical information can be found in articles such as that cited in footnote 7, or in studies of Medieval and Renaissance grammarians.

We begin with the length hypothesis, which is by far the most widely held among contemporary scholars. With it one can readily account for most of the vocalic differences which may be established by the evidence cited in the preceding chapters—especially the metrical evidence which seems to presuppose a quantitative system—

7 See G. T. Flom, "On the History of Views about the Vowel System of Old Norse," JEGP 38 (1939), 549-567 for references to Rask's work and important articles which departed from the view set forth by Rask.

and the structural evidence. The comparative evidence is necessarily ambiguous since it is based on data from modern dialects which show different types of vocalic systems. The continental Germanic dialects have preserved quantitative systems to a large extent, although many analyses of modern dialects are disputed or incomplete. The manuscript evidence is equally ambiguous. The use of diacritics as proposed by the First Grammarian or as used by Notker offers some support, however slight, to the contention that vowels were differentiated by quantity. It is clear that the evidence cited so far does not constrain us to accept or reject the length hypothesis. The same can be said for the other two hypotheses.

Since all complex nuclei behave as long vowels under the conditions described in Chapters II and III, the glide hypothesis would fit the metrical and structural considerations. In Chapter IV it is shown that diphthongs develop into long vowels (PGmc. *ai but OS å) and long vowels develop into diphthongs (PGmc. *å becomes OHG uo) so that the glide hypothesis would fit into the system extremely well at this point. None of the evidence from Chapter I points to the glide theory, and we will see later that it may offer evidence against it.
Once again the evidence from Chapters II and III could equally well be explained by the geminate hypothesis. For modern dialects we can find support in Haugen's analysis of Modern Icelandic as well as in one of the alternative analyses of Modern Standard German. Many Upper German dialects might also prove amenable to such analysis. Double writings might be interpreted as evidence for geminates (as they apparently were by Grimm), but again we must emphasize that the origins of scribal practices are far too complex and indeterminate to be taken literally.

Clearly the evidence from Chapters I through IV will not suffice to decide which hypothesis best fits the data. We must seek further evidence from details of the phonology. Strong evidence against any of the hypotheses is especially important since we want the hypothesis to account as simply as possible for all the data. Before continuing, however, I will attempt to indicate what I consider to be the significant differences, in phonetic and phonemic terms, which are entailed by the three hypotheses.

Numerous treatises have been written on the subject of vowel length. It has been shown that many secondary

9 Two major ones which serve also as sources for further references are B. Malmberg's Die Quantität als phonetisch-phonologischer Begriff, Leipzig, 1944, and M. Durand's Voyelles longues et voyelles brèves: Essais sur la nature de la quantité vocalique, Paris 1944.
features such as a tense-lax contrast may play an important role. Yet the fact remains that we are justified in speaking of long vowels versus short vowels only if, under the same conditions, a given long vowel is acoustically and perceptually longer than its short counterpart. In identical environments the absolute length (i.e., duration) of a long vowel is greater than that of a short vowel. It is possible that a long vowel in one environment may be shorter than a short vowel in another, but in the same environment the long vowel must be longer. Furthermore, length may vary according to the articulatory position of the vowels. It is necessary only that a long vowel be longer than its short counterpart in the same articulatory position. We will continue the practice of using a raised dot to indicate long vowels as opposed to the circumflex which is an editor's mark and is used throughout this work only to mark the difference whose existence we claim to have shown, but whose exact nature we are attempting to discover.

Geminate vowels as used here differ phonemically but not necessarily phonetically from long vowels. The decision whether a given nucleus should be analyzed as a long vowel or a sequence of two short vowels must depend on the overall phonemic patterning. Generally we are justified in positing geminates only if sequences of
qualitatively unlike vowels which form syllabic nuclei are also found.\textsuperscript{10}

The term "glide" was deliberately chosen for the Trager-Smith hypothesis rather than the customary "diphthong." It is useful to us to distinguish between the two. A diphthong may be defined as a succession of two vowels of different quality. If the first element is more prominent, it is a "falling" diphthong, if the second is more prominent, it is a "rising" diphthong, and if both elements are equally prominent, it is a "level" diphthong. A glide on the other hand is a sequence of a vowel and semi-vowel.\textsuperscript{11} My criterion for classing one of the elements of a complex vocalic nucleus as a semi-vowel is that it must have consonantal allophones in other environments. It is also possible that in a given language, one phoneme, which occurs as an element of complex nuclei and has consonantal allophones, belongs to a set with other phonemes which may pattern similarly in complex nuclei but have no consonantal allophones. For the sake of overall consistency these might then also be termed semi-vowels.

\textsuperscript{10} In this reasoning I follow K. Pike, \textit{Phonemics: A Technique for Reducing Languages to Writing}, Ann Arbor 1947, p. 138.

\textsuperscript{11} It is regrettable that "glide" is frequently used in the meaning of "off-" or "on-glide" which designates what I have called a "semi-vowel." I have chosen to redefine glide precisely rather than to create a new term.
From what has just been said it follows that a language with diphthongs may also have geminates, but not long vowels. A language with glides may have long vowels but not geminates. This gives us sufficient criteria for separating the geminate hypothesis on the one hand from the length and glide hypotheses on the other. A decision between the latter two must be based on a further criterion, analogous to that which separates geminates from diphthongs. If the articulatory organs are held more or less constant throughout the articulation of a vowel, it may be a simple vowel, either long or short. If there is a marked change of position of the articulatory organs during the articulation, it may be a glide, or of course a diphthong depending on the criteria discussed above. Thus geminates and long vowels are distinguished from diphthongs and glides by basically phonetic criteria, while geminates and diphthongs are differentiated from long vowels and glides by criteria which are purely phonemic.\textsuperscript{12}

The glide hypothesis rests on the assumption that

\textsuperscript{12} Phonemic criteria may occasionally override phonetic criteria, as when we say that a given glide has an allophone in certain environments which consists only of lengthening, or that one glide phoneme occurs in all its environments as vowel plus lengthening. The latter situation arises when a vowel and a semi-vowel happen to correspond in their characteristic articulation, but overall pattern forces the interpretation as a glide.
all the vowels which are analyzed as long in the historical grammars were really glides. The major proof for the glide hypothesis then would be evidence which refutes the widely-voiced claim that so-called Germanic long vowels show no qualitative variation in the course of their articulation. Here the evidence from Chapter I and Chapter IV is helpful in making a decision. Where an orthographic distinction was made, as outlined in Chapter I, almost always diacritics or double writings of the same symbol were used to mark the distinction. Generally, however, no distinction at all was made in the manuscripts (Chapter IV). These two facts would seem to mitigate strongly against acceptance of glides, especially since scribes seem to have been sensitive to qualitative distinctions which did arise, such as Gmc. *ô in Old High German appearing as (o oa ua) and finally (uo). Proponents of the glide hypothesis could argue that no symbol was available for writing a centering glide, and yet we might expect to find at least traces of attempts at creating such a symbol if the scribes had sensed any qualitative shift during the course of articulation. On the basis of this evidence the glide hypothesis may be tentatively rejected. Either of the other two hypotheses fit the data from Chapters I and IV better.
A further point against the glide hypothesis, at least in the form presented by Smith and Trager, is the assumption that all long vowels derive from sequences of vowel plus laryngeal. I can find no compelling reason to relate the centering glide of Modern English to Indo-European laryngeals of unknown phonetic shape. Few Indo-Europeanists would be willing to posit so many laryngeals. Using laryngeals to explain previously unsolved problems seems justified, but using them to interpret data which already have a sound interpretation does not.\footnote{It should be pointed out that the authors claimed their paper to be only programmatic and still in need of verification. Stockwell, while not explicitly mentioning the Smith-Trager suggestion, recognizes that a great structural change must have occurred in the vowel system between Indo-European and the Old English period for which he posits glides. He argues that simplicity is the best evidence in favor of his analysis of Old English as being like Modern English since the time depth from Indo-European to Old English is far greater (Texas Studies 2 (1961), 538.} The Indo-European evidence available can surely not be used to support the glide hypothesis. Unless it can be shown that the glide hypothesis solves some other problem which cannot be solved by either the length or geminate hypotheses, it will have to be rejected.

We have seen that either the length or the geminate hypothesis will fit the data presented in Chapters I through IV. We must now find additional evidence to
arrive at a decision whereby we accept one or the other as being more probable. Since the length hypothesis enjoys the widest support we will begin by pointing out some of the problems which are difficult to explain by means of it.

One of these is purely structural. If we treat long vowels as unit phonemes, we find that some Germanic languages have gone through periods of diphthongization and monophthongization. When diphthongization occurs, a unit phoneme becomes a sequence of two phonemes in a long versus short system; when monophthongization occurs, a sequence of two phonemes becomes one phoneme. In Old High German we would then be required to say that *Emp.ONE* compares with OHG /uo/ or /uh/ which is reflected in New High German by /uː/. Or in other words, in the course of about 1000 years one phoneme becomes two and then again becomes one. One solution would be to treat length /ː/ as a separate phoneme. Such a solution indicates that length is a prosodic feature which can be applied to any segmental phoneme. The problem would then be

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14 Diphthongization is used here and throughout in a general sense. The result of the process can be either a glide or a diphthong depending on the phonetic analysis. Technically we could distinguish between diphthongization and something else, perhaps "glidization" or "gliding." I prefer not to introduce another term.
only slightly different. We would have to say that a
suprasegmental phoneme became a segmental phoneme and
then again became a suprasegmental phoneme in the course
of about 1000 years. This statement is just as uneconomical
as that involving the use of long vowels. Such changes
are by no means impossible to imagine and do not in them-
selves constitute a particularly serious weakness of
the length hypothesis, yet a more economical hypothesis
would be desirable.

A more serious problem is that of treatment of vowels
in final syllables in Proto-Germanic. It has long been
observed that most long vowels in final syllables were
shortened by the time of the preservation of written
documents. A certain residue was found, however, in which
Gothic had apparently preserved long vowels and other
dialects showed deviations from the expected reflex.
Indo-Europeanists related a number of such occurrences
to circumflex intonation in Greek and Lithuanian. Then,
as a device to account for the developments in Germanic,
it was suggested that the Germanic equivalent of circum-
flex intonation in final syllables was an extra unit
of length. Vowels were said to have one, two, or three
"morae" or time units, corresponding to short, long,
and overlong vowels. It was then assumed that all final
vowels lost one mora between Proto-Germanic and the re-
cording of Wulfila's bible. This view gained widespread acceptance around 1900 and has prevailed ever since. It has very serious defects from the point of view of structural linguistics. In the first place, we do not expect to find three grades of distinctive length in a Germanic language, if in any language. Such a priori notions should of course not interfere with an analysis which best fits the data, but at least we can be somewhat sceptical of the correctness of our interpretation.

A more important objection is that the three-mora vowels are posited only for final syllables. This leaves a striking gap in the vocalic structure at a point where we least expect to find it, namely in initial syllables. We would prefer a hypothesis which would have more general application. Although structural gaps occur in many linguistic analyses, they often indicate deficiencies in such analyses and thereby furnish a key to a better analysis.

The first objection is readily answered if we assume


For further explication of the morae hypothesis and for references to other publications on the subject.

that Proto-Germanic final syllables had circumflex intonation. The assumption of a phonemic three-mora vowel is then not necessary. Any extra length which accompanied circumflex intonation would have been incidental to the phonemic structure. In addition, circumflex intonation is recorded in modern North German dialects, normally as a result of the loss of a final syllable, so that the assumption of such an intonation for Germanic dialects has the support of living languages. It is worthy of note that the loss of a final syllable is one of the sources often cited for the origin of overlong Proto-Germanic finals.\textsuperscript{17}

If the answer is to be found in circumflex intonation, then final syllables could contain short vowels, long vowels with acute intonation (level or falling pitch?), and long vowels with circumflex intonation (rising or rising-falling pitch?).

There is at least one paradigm, however, in which the two-way distinction of long vowels does not suffice. This is in the endings of the Germanic -ô- stem declension. At an early stage of Proto-Germanic the nominative singular is assumed to have been *-ô, the accusative singular *-ôn, and the genitive plural *-ôn ($\sim$ = circumflex intonation). If final nasals were lost as early as is generally supposed,

\textsuperscript{17} See K. Brugmann, Kurze vergleichende Grammatik der indogermanischen Sprachen, Leipzig and Berlin, 1922 (reprint), p. 54 for a listing of various possible sources.
we would expect the nominative and accusative singular to fall together, even with the assumption of circumflex intonation. Yet a three-way distinction is maintained into the period of written documents in Old English. The forms are nom. sg. *giefu 'gift', acc. sg. *giefe, and gen. pl. *giefa. It is in order to account for these forms that Hamp was led to his ingenious system of geminate vowels and secondary accent. He assumes that a secondary accent had developed on post-junctural syllables in Pre-Germanic times, first as an allophone of juncture then as a phonemic entity. With the Germanic shift, this secondary accent replaced the old primary which had occurred on final syllables. At this time there would have been a contrast between final syllables with weak accent and those with secondary accent. Hamp assumes that the circumflex vowels originated from collapse of two vowels originally separated by a juncture, with secondary accent falling on the first vowel of a bi-vocalic nucleus.

When, however, secondary accent resulted from the accent shift, the secondary fell on the second vowel of the nucleus. As a result nom. sg. *-ô would be written as /-aá/, acc. sg. *-ôn would have appeared as /-aa/ (weak accent), and gen. pl. *-ôn would have given /-áa/. He supports his assumption of secondary accent by suggesting
that the distinction in Norwegian and Swedish between
accent one and accent two reflects the old distinction,
with accent two and the absence of glottal catch in Danish
resulting from the old secondary accent on final syllables.
I have included in its entirety the following chart of
the historical development as Hamp sees it (Studia Linguistica
13.44):

<table>
<thead>
<tr>
<th>Language</th>
<th>Initial</th>
<th>Final</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE</td>
<td>initial (primary accent)</td>
<td>(?)^~ '(?) (?)</td>
<td></td>
</tr>
<tr>
<td>Pre-Gmc.</td>
<td>initial (primary accent)</td>
<td>present:absent (secondary accent)</td>
<td>'(?)^~ '(?)</td>
</tr>
<tr>
<td>Gmc. and</td>
<td>present:absent (secondary accent)</td>
<td>Ur Norse</td>
<td>'(?)^~ '(?)</td>
</tr>
<tr>
<td>ON</td>
<td>2 syllables:1 syllable (inter-junctural distance)</td>
<td></td>
<td>[z\text{-}] / [\text{-z}] /</td>
</tr>
</tbody>
</table>
| Scand.   | initial (high tone/stress?) | (accent 2:accent 1); absence:presence (of glottal stop) | \( \emptyset : ? \)

The equation of the Scandinavian accent system with
Proto-Germanic secondary accent is in my opinion an important
step forward provided that the secondary accent is assumed
to have been an expiratory accent as was the primary in
Germanic. The difference between weak and secondary
accent accounts excellently for the difference between
\( \ast \hat{\-} \text{on} \) and \( \ast \hat{\-} \hat{\-} \). The distinction between \( \ast \hat{\-} \hat{\-} \) and \( \ast \hat{\-} \text{on} \) on
the basis of the position of the secondary accent seems
less convincing at first glance. In the first place no
supporting evidence is found outside the development of
a limited number of Germanic finals. Secondly, the assignment of secondary accent, in place of a circumflex intonation, to the first vowel seems wrong to me. Hamp also recognizes the possibility of reversing the secondaries so that circumflex vowels are \( \Upsilon \) and secondary accents from old primaries result in \( \check{\Upsilon} \). This seems to account better for the fact that circumflex vowels are retained as long vowels in Gothic while those with secondary from Indo-European primary are shortened. The accent on the second vowel of the nucleus could be said to offer resistance to shortening. We already know that Germanic expiratory accent offered resistance to shortening. It can be seen in the retention of long vowels under primary stress when they occurred finally. Compare, for example, Go. *huo* (nom. sg. fem.) 'who', *so* (nom. sg. fem.) 'this'. Furthermore, if weakly accented vowels occurring post-juncturally developed a secondary accent in Pre-Germanic, and if circumflex vowels resulted from the collapse of two vowels with intervening juncture, then this would automatically give a secondary accent on the second vowel of the nucleus.

Hamp's suggestion is extremely attractive since it utilizes a suprasegmental feature which is preserved in some form in all modern Germanic languages, and must have been present in the proto-language. Secondly, it does
everything that assumptions about circumflex intonation
can do, including elimination of a third degree of dis-
tinctive length. Finally, if we accept the revision
suggested above, it gives a plausible phonetic interpretation
to falling (VV) and rising (VV) accentuation, as well
as to the resistance to shortening in the latter if we
assume that the accent was expiratory accent rather than
a pitch accent (Hamp remains ambiguous on this point).
On the basis of this assumption we will use "stress"
to replace the ambiguous "accent" in the following pages.
The criticism remains valid, however, that a large gap
is left in the vocalic system since nothing analogous
can be found in initial syllables. I hope to show that
some support can be found in initial syllables as well,
giving far more weight to the hypothesis of geminate
vowels and the distinction between rising and falling
accentuation.

One of the puzzling features of Germanic phonology
is the development of Gmc. *eu in Scandinavian. It regu-
larly appears in extant manuscripts as a rising diphthong
iů or iō depending on umlaut processes. Nevertheless
it is generally assumed that the development of rising
diphthongs is an innovation in North Germanic. It is
believed that Proto-Germanic had only falling diphthongs
*êu, *ái, and *âu. Therefore, the North Germanic development
is seen as a sporadic secondary change. I would suggest instead that North Germanic, as with the Proto-Germanic secondary stress, is conservative in this respect. Rising diphthongs in North Germanic reflect a possibility which was already present in Proto-Germanic. Remnants of similar reflexes of Gmc. *eu with rising accentuation are to be found in Old East Frisian, although again they are generally thought to be innovations.

If we posit geminate vowels for Proto-Germanic, as Hamp has suggested, we might assume that the primary stress, which was present on initial syllables, could fall on either the first or second vowel as in final syllables. We could further assume that it generally fell on the first vowel of the nucleus for the following reasons: 1) Diphthongs which have arisen from long vowels in Germanic languages have usually been falling. 2) Modern Germanic languages, even those with a quantity system, seem to show a greater concentration of energy


19 See W. Stellar, Abriss der altfriesischen Grammatik, Halle, 1928, p. 15 for the evidence. W. H. Bennett, "A West Norse-Frisian-Kentish Parallel," International Anthropological and Linguistic Review 1 (1953), 71-80 has related these three dialects as a common innovating area on the basis of the development of rising diphthongs. It is clear from his evidence, however, that a terminus a quo for this development cannot be established on manuscript evidence.
at the beginning of the vowel or vowel nucleus. 3) When the stress shift occurred and primary stress was shifted or fixed on the first syllable, it seems probable that it would have moved as near the beginning of the syllable as possible.

On the other hand there is no reason why this always should have been true. It is quite conceivable that the stress could sometimes have fallen on the second vowel of a complex nucleus. I suggest that while there was a strong tendency to fix the stress on the first vowel, there was at least one sequence, Gmc. *Eu, where the stress fell on the second vowel. In keeping with the general tendency, most of the dialects later moved this stress to the first vowel also, but in North Germanic and to some extent in Old Frisian, the earlier distinction was maintained.

Further possibilities of clarifying systemic relationships are offered if we accept the explanation provided by van Coetsam for Gmc. *e2. 20 He assumes that Gmc. *eu was paralleled by another diphthong *ei which split,

20 Das System der starken Verba und die Periodisierung im Alten Germanischen, Amsterdam, 1956, pp. 22-45. References to the enormous literature on the subject are given by van Coetsam along with discussion of the various theories. His hypothesis is far from proven but it is the best explanation from the Germanic side without consideration of Indo-European.
near the end of the Proto-Germanic period, into *ī which fell together with *ī from PIE *ḱ, and *ē which became *ē², the split paralleling that of *eu into *iu and *eu. If we assume that Omc. *ei also had rising accentuation, it provides us with a means of keeping *ē₁ and *ē² separate, while showing them to be phonetically close enough together that they could collapse in some dialects (Gothic, Old English other than West Saxon, and some dialects of Old Frisian).

Following this suggestion the system of Proto-Germanic just prior to the split of the rising diphthongs would have included four simple vowels /i e a u/ and eight complex nuclei (with the acute used to indicate placement of primary stress) /ii ée áa úu ei eú ái áu/. The rising diphthongs would then split, with /ei/ appearing as /ii/ and /eé/, and /eů/ appearing as /iů/ and /eů/. The reflexes of /iů/ and /eů/ can be seen in North Germanic and Old Frisian with rising accentuation. /ii/ fell together with /ii/ in all dialects while /eé/ was preserved as *ē² and /ée/ appeared as *ē₁ in all dialects except Gothic and the others mentioned above, where /eé/ and /ée/ fell together. In these latter dialects it was thus treated in the same manner as /ii/. If the presence of such rising diphthongs in initial syllables is accepted, far more credence would be given to the suggestion made by
Hamp for final syllables. It remains to be seen, however, how the vocalic system outlined above could be fitted into the later developments in the various Germanic dialects. In at least two instances, namely in explaining Germanic final syllables and in accounting for rising diphthongs in Scandinavian, a simpler interpretation is provided by the geminate hypothesis than by either of the major competing ones. I will endeavor to show below that the developments accounted for by the length hypothesis are at least equally well accounted for by the geminate hypothesis.

A number of scholars have attempted in recent years to show that the Gothic of Wulfila was not characterized by the long versus short vowel contrast usually assigned to it. Instead the vowels may have differed only qualitatively with a tense versus lax contrast replacing distinctive length. A system based on this proposal might have the following vowels: \( \text{I} \quad \text{U} \)  

If this analysis is correct, we would assume that Proto-Germanic geminates were accompanied by non-phonemic tenseness while simple vowels were accompanied by non-phonemic laxness. Such a view is supported by a similar tense

articulation of long vowels and lax articulation of short vowels in Modern Standard German and in Dutch. The developments from Proto-Germanic to Gothic could then be traced as follows:

<table>
<thead>
<tr>
<th>Late PGmc. 22</th>
<th>Pre-Gothic</th>
<th>Gothic</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>1</td>
<td>i (ei)</td>
</tr>
<tr>
<td>ì</td>
<td>ì</td>
<td>ì (i)</td>
</tr>
<tr>
<td>e</td>
<td>e</td>
<td>e (e)</td>
</tr>
<tr>
<td>ëe</td>
<td>ë</td>
<td>ë (aë)</td>
</tr>
<tr>
<td>a</td>
<td>a</td>
<td>a (a)</td>
</tr>
<tr>
<td>òa</td>
<td>òa</td>
<td>òa (au)</td>
</tr>
<tr>
<td>u</td>
<td>U</td>
<td>U (u)</td>
</tr>
<tr>
<td>òu</td>
<td>òu</td>
<td>òu (u)</td>
</tr>
<tr>
<td>ái</td>
<td>ái</td>
<td>ái (iu)</td>
</tr>
<tr>
<td>áu</td>
<td>áu</td>
<td>áu (iu)</td>
</tr>
<tr>
<td>eü</td>
<td>eü</td>
<td>eü (iu)</td>
</tr>
</tbody>
</table>

Such a system represents a compromise between the traditional view which rests on etymological and structural evidence, and some recent views which depend largely on graphemic evidence. The extreme view in the latter direction would not make a distinction between /u/ and /U/ since they are written with the same symbol. If one prefers the more traditional view, the chart can be emended by substituting long vowels for tense vowels in the Gothic and Pre-Gothic columns. In any case the collapse of PGmc. */i/ and */e/ in Pre-Gothic ended the

22 /ii/ will regularly be omitted since it leaves no distinct reflexes in any Germanic dialect. Capital letters are used to represent lax, open vowels, lower case to represent tense, close vowels. The symbols which are traditionally used in grammars appear in parentheses.
period where simple and geminate vowels would account for all the data. I feel that the interpretation of the Gothic evidence has reached an impasse. There is not sufficient evidence to decide which interpretation is best. We will, therefore, not dwell on it any longer, but merely point out that either interpretation can readily be derived from the Proto-Germanic system outlined above.

Based on the testimony of the First Grammarian, Old Icelandic had a system of long versus short vowels plus a number of glides, since he clearly identifies the consonantal nature of the semi-vowels. The following chart is designed to show the development from Proto-Germanic to the Old Icelandic of the First Grammarian. It includes only the minimum number of umlaut processes necessary to show the major sources for Old Icelandic vowels. Details can be found in the handbooks. In addition, nine long nasalized vowels are to be included in the system, but they are of slight importance in the overall development and have been omitted from consideration here (cf. Chapter I).

23 See Haugen, FGT, pp. 18-20, 34-36. The First Grammarian would go further and associate the semi-vowels with certain of the vowels, but this seems to be a purely phonetic identification which does not do justice to the phonemic state of the semi-vowels.
Not all the glides which may have occurred in Old Icelandic are listed, but only those which reflect the direct line of development from Proto-Germanic complex nuclei. Rising diphthongs which developed from "breaking" before certain consonants are also disregarded, since they are a late development.

Since the evidence for Proto-Norse is somewhat limited, it is not easy to determine whether vowels should be analyzed as geminates or long vowels. I have chosen to treat

24 Spelled (iou) in the grammars (see Noreen, Altisl. Gram., pp. 52-53) and called a "schwebende Triphthong." I take the runic spellings on which this assumption is based to represent attempts at indicating the lowering of the second element.
them here as geminates although the other possibility seems equally plausible. It depends on when we assume that the diphthongs became glides.

The simplest starting point for describing the various developments in West Germanic languages would be a Proto-West-Germanic which differed from Late Proto-Germanic only in the split of /u/ into /u/ and /o/, and the partial realignment of the /i/ and /e/ phonemes by the same processes. Following these changes, /åa/ would be reinterpreted as /öo/, and a new /åa/ from PGmc. /anh/ would be marginally present. The inventory of vowels would then include /i e a o u/ with the following complex nuclei: /ii eé ée óo ūu āi āu ūu eú/. There is admittedly a lopsidedness to this system, but it was soon erased by the development of /ée/ to /åa/ and /éé/ to /éé/, except in Anglian Old English and Old Frisian where /éé/ and /éé/ fell together. The gap at /åa/ was filled from other sources, including the one mentioned above, in these dialects.

We will begin our survey of West Germanic developments by outlining the development from Proto-West-Germanic to Early West Saxon through an intermediate stage. For this purpose we will use the analysis offered by Stockwell for Early West Saxon. The object is to show how the system of geminates could lead to a system composed wholly
of glides. The basic assumption is that the second vowels of complex nuclei could be treated as other weakly stressed vowels, leading to the collapse of /a o e/ into a single vowel /ə/ which then became a centering off-glide.

<table>
<thead>
<tr>
<th>FWGmc.</th>
<th>Intermediate Stage</th>
<th>EWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>i</td>
<td>i</td>
</tr>
<tr>
<td>ii</td>
<td>ii</td>
<td>iy</td>
</tr>
<tr>
<td>e</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td>eë</td>
<td>eë</td>
<td>eë</td>
</tr>
<tr>
<td>éë</td>
<td>éë</td>
<td>ëë</td>
</tr>
<tr>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>óo</td>
<td>óo</td>
<td>óo</td>
</tr>
<tr>
<td>u</td>
<td>u</td>
<td>u</td>
</tr>
<tr>
<td>úu</td>
<td>úu</td>
<td>úu</td>
</tr>
<tr>
<td>áù</td>
<td>áù</td>
<td>áù</td>
</tr>
<tr>
<td>íù</td>
<td>íù</td>
<td>íù</td>
</tr>
<tr>
<td>éù</td>
<td>éù</td>
<td>éù</td>
</tr>
</tbody>
</table>

Such an interpretation is highly tentative; the assumption of a changeover to a contrast of long versus short vowels could be made with equal plausibility. Yet the solution given here offers a possible link from Proto-Germanic to Modern English without forcing major structural change at any point. We do not mean to imply that Early West Saxon is the direct ancestor of Modern English, but assume rather that all Old English dialects would fit a modified version of this scheme. Anglian would differ only in coalescence of /éë/ and /éë/ in
the intermediate stage and derivation of /æe/ mainly from PWGmc. /ði/. Other necessary alterations could be made as required.

It should be noted that the so-called short diphthongs are here treated as allophones of the front vowels following Stockwell and Barritt. 25 If these digraphs were treated as representing separate phonemes, as for example in Hockett's analysis, the inventory of simple vowels would be increased by three, but they would easily fit into the scheme. 26 If on the other hand we accepted the traditional analysis and assumed that they really did represent short diphthongs, then the whole system would have to be changed and a quantitative distinction would have to be posited. 27 I reject this interpretation mainly on grounds of simplicity and because of the fact that the short diphthongs are metrically equivalent to simple vowels.

In Old Saxon the evidence points to the development of a quantitative system, with monophthongization of West Germanic falling diphthongs, except before West


27 Most recently defended by Kuhn, Lg. 37 (1961), 529.
Germanic /w/ and /j/ where new glides are formed. Evidence from many modern Low German dialects lends support to this interpretation. The only change of major structural consequence is that diphthongs are replaced by glides when their second elements come to be allophones of West Germanic /w/ and /j/ as mentioned above. The following chart outlines the changes which occurred.

<table>
<thead>
<tr>
<th>PWGmc.</th>
<th>Intermediate Stage</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>1</td>
<td>i</td>
</tr>
<tr>
<td>ii</td>
<td>i</td>
<td>i</td>
</tr>
<tr>
<td>e</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td>ée</td>
<td>ée</td>
<td>e</td>
</tr>
<tr>
<td>ée</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td>a</td>
<td>áa</td>
<td>a</td>
</tr>
<tr>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>óo</td>
<td>óo</td>
<td>o</td>
</tr>
<tr>
<td>u</td>
<td>u</td>
<td>u</td>
</tr>
<tr>
<td>úu</td>
<td>úu</td>
<td>u</td>
</tr>
<tr>
<td>ái</td>
<td>ái</td>
<td>ej</td>
</tr>
<tr>
<td>áu</td>
<td>áu</td>
<td>aw</td>
</tr>
<tr>
<td>iú</td>
<td>iu</td>
<td>iw</td>
</tr>
<tr>
<td>eú</td>
<td>éu</td>
<td>ew</td>
</tr>
</tbody>
</table>

In Old High German it seems most practical to retain a system of geminate vowels since sequences of two vowels can most readily account for the diphthongizations of West Germanic /ée/ and /óo/. The chart below shows the major developments which lead to a High German dialect similar to that of the translation of Tatian's Evangelien-harmonie into East Franconian. This represents only one dialect but the other Old High German dialects could presumably be fitted in with only minor changes.
<table>
<thead>
<tr>
<th>PWGmc.</th>
<th>Intermediate Stage</th>
<th>OHG</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>1</td>
<td>i</td>
</tr>
<tr>
<td>ii</td>
<td>ii</td>
<td>i.e</td>
</tr>
<tr>
<td>e</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td>eë</td>
<td>ee</td>
<td>e</td>
</tr>
<tr>
<td>èë</td>
<td>æë</td>
<td>æë</td>
</tr>
<tr>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td>ñæ</td>
<td>æa</td>
<td>æa</td>
</tr>
<tr>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>óo</td>
<td>oo</td>
<td>oo</td>
</tr>
<tr>
<td>u</td>
<td>u</td>
<td>u</td>
</tr>
<tr>
<td>úu</td>
<td>uu</td>
<td>uu</td>
</tr>
<tr>
<td>ái</td>
<td>ai</td>
<td>ai</td>
</tr>
<tr>
<td>áu</td>
<td>au</td>
<td>au</td>
</tr>
<tr>
<td>íú</td>
<td>iu</td>
<td>iu</td>
</tr>
<tr>
<td>eú</td>
<td>eo</td>
<td>eo</td>
</tr>
</tbody>
</table>

The monophthongization of W.Gmc. /ái/ and /áu/ in Old High German is analogous to that which occurred in Old Saxon, except that the environments are far more restricted. In Old High German /ái/ was monophthongized only before r, w, and h, /áu/ before h and all dentals. The new sounds filled a gap left by the diphthongization of W.Gmc. /eë/ and /óo/.

An analysis similar to that presented here probably would fit modern German dialects, especially Bavarian and High Alemannic, where monophthongization of Middle High German diphthongs has not been carried through. The question how Modern Standard German should be analyzed has still not been conclusively solved although it appears that either a length or a geminate hypothesis can fit the data. The conclusion to be drawn from this might
be that the German speech area can be characterized by the tendency towards gemination in the south and the tendency towards length in the north, with varying degrees of alternative possibilities between.

We can now recapitulate by listing the major structural changes which differentiated the dialects of the oldest written materials from Proto-Germanic. In Gothic the Proto-Germanic system of geminates and diphthongs was changed to a system in which the significant contrast was between tense, close and lax, open vowels or long and short vowels, depending on one's analysis. Whichever alternative is chosen, the remaining opposition must have been present as a subphonemic characteristic. Two of the three Late Proto-Germanic diphthongs were monophthongized.

North Germanic is characterized primarily by the development of a system of long and short vowels and glides. A number of new vowels are formed by umlaut processes. The most striking feature of the Old Icelandic system, however, is the preservation of rising glides from the Late Proto-Germanic rising diphthongs.

Among the West Germanic languages Old High German is most conservative in that it preserves a vowel system typologically similar to that of Late Proto-Germanic. Monophthongization is limited, but at least two new diph-
thongs are formed. In this latter characteristic it might be related typologically to Old English where the weakening of unstressed vowels in complex nuclei leads to a system composed almost entirely of diphthongs. The second elements of the diphthongs then become semi-vowels leading to a vowel system typologically similar to that of Modern English.

The continental West Germanic languages, aside from Old High German, develop systems of long and short vowels plus glides, typologically similar to that of North Germanic. Some Old Frisian dialects correspond to Gothic and Anglian Old English in the treatment of Gmc. /eː/ and /έe/, and to North Germanic in preserving traces of rising diphthongs. The tense, close versus lax, open opposition which was subphonemic in Proto-Germanic seems to have been preserved or intensified as a phonetic characteristic in all of the continental Germanic dialects, where it is still present in most modern dialects.

The following chart is a schematic representation of the major phonological tendencies which were manifested in the vowel systems of the various Germanic dialects around the 10th Century. Gothic is anomalous in that it represents a language from a considerably earlier period of time, but its vowel system is among the least conservative of any Germanic language. Old English and
Old High German are attested at this time, Old Saxon about a century earlier, and Old Icelandic and Middle Dutch a few centuries later. Old Frisian is only slightly attested before the 15th Century, so the conclusions made about it in its 10th Century form are conjectured from the later records and from analogous developments in neighboring dialects. The chart has a slight resemblance to a scheme of areal distribution, but it is meant to reflect only typological relationships. The correspondence of the two is not surprising when we consider that we are dealing with genetically related languages which have remained in contact over a long period of time.

Key to the numbers:
1) Diphthongization.
2) Tense, close versus lax, open.
3) Long versus short.
4) Monophthongization.
5) Collapsing of Gmc. /éé/ and /ée/.
6) Preservation of rising diphthongs.
Most of the chart, with the exception of items (1) and (6), can equally well be based on the traditional interpretation of Proto-Germanic vowels, but nowhere does it offer a simpler solution. Following Hamp's suggestion with the modifications outlined above, we are able to offer simple explanations for the developments subsumed under (1) and (6). This I consider to be the strongest argument favoring acceptance of the geminate hypothesis along with the explanation of vowel changes in final syllables as already outlined by Hamp.

While the notation involved in such a system looks radically different from that traditionally used, the phonetic entities being described need not be considered as strikingly different. The foreseeable charge that the reader is being dealt "paper phonetics" may be answered with the assertion that the phonetics required to make the traditional analysis plausible will largely suffice for the analysis offered here. Perhaps the most striking change under the new system is that of PGmc. /êa/ to /âa/ and PGmc. /âa/ to /ôo/ in most of the dialects. Yet when we consider the large structural holes that were left in the vowel system of Proto-Germanic by the collapse of PIE /a o e/ into PGmc. /a/ and /â ô/ into /âa/, it is easy to imagine that the allophones of PGmc. /e/ and /a/ when doubled were phonetically something
like [ææ] and [œœ] and therefore subject to reinterpretation, particularly under pressure from /eœ/ (perhaps [ee]). Furthermore, the new /o/ which developed from PGmc. /u/ offered a plausible source for [œœ] which, reinterpreted as /œo/ once again introduced symmetry to the vowel system. Our analysis fits the Indo-European evidence at least as well, if not better than the traditional one at this point.

This brings us to the end of our discussion of the Proto-Germanic vowel system. We have attempted to show that Proto-Germanic was characterized by four short vowels /i e a u/ and eight complex nuclei /ii ee åa úu ei eü ái áu/. Late in the Proto-Germanic period the symmetry was upset by the split of two of these nuclei: of /ei/ into /ii/, which soon fell together with /ii/; and into /eœ/, which developed into /eœ/, either falling together with PGmc. /eœ/ or assuming the structural role of the latter, which was then lowered and reinterpreted as /ån/ in the various dialects. At the same time PGmc. /eú/ split into /iú/ and /eú/. It is this system of Late Proto-Germanic, vowels /i e a u/ and nuclei /ii ee åa úu iú eü ái áu/ which is the point of departure for explaining the later developments in the various Germanic dialects.
What has been presented is only a working hypothesis, yet one which is supported by various kinds of evidence. Further discussion or evidence may lead to its acceptance or rejection. It has been developed from the Germanic evidence with only occasional reference to Indo-European. I have not undertaken to integrate it into the Indo-European evidence, although I consider it entirely plausible to do so. Since Proto-Indo-European is a language reconstructed from various proto-languages, I consider it methodologically important to reconstruct these proto-languages from extant material without regard to Indo-European comparative evidence. Nevertheless the evidence from the two sources must ultimately be reconciled. This task may provide further support of the analysis presented here.
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