OLD GERMANIC METRICS
IN THE LIGHT OF INDO-EUROPEAN METRICS
AND ACCENT TYPOLOGY*

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The purpose of this paper is threefold. First, the origin and development of the structure of the normal line in Germanic alliterative verse is examined in the context of Indo-European metrics (section 1). Second, a set of fundamental metrical properties (including the place and pattern of alliteration) of Germanic verse is explained as reflexes of Indo-European metrical features (section 2). Third, the phonological basis of Germanic metrics as against Old Irish metrics is explored in terms of accent typology (section 3).

0. INTRODUCTION. This paper attempts to clarify the diachronic basis of Old Germanic metrics as characterized in the framework of traditional scholarship (e.g. Sievers 1893, Lehmann 1956, Cable 1974, Duncan 1985, etc.) with reference to Indo-European metrics (Meillet 1923, Jakobson 1952, Watkins 1963, West 1973, Nagy 1974, etc.) and accent typology (Van Coetsem, Hendricks, and McCormick, 1981). Familiarity with the fundamentals of Germanic metrics in the traditional conception is presupposed throughout the paper.

1. PREHISTORY OF OLD GERMANIC METRICS
1.1. ORIGINAL METRICAL STRUCTURES. Behind the Germanic normal

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line attested in historical times. I postulate the following set of metrical structures as original forms:

(1) a. [4 | 4]: x x x x | x x x x
b. [5 | 3]: x x x x x | x x x
c. [2 | 2]: x x | x x

Stated verbally, verse lines 1a and 1b (hereafter collectively referred to as the longer scheme in the context of Germanic and Old Irish metrics) consist of eight metrical positions, with the caesura coming after the fourth position and the fifth position, respectively. 1c (hereafter the shorter scheme) is composed of four metrical positions, which are divided into halves by the caesura.

Placed in the Indo-European context, the assumed metrical structures have cognate forms in other Indo-European languages. With respect to the lines with eight positions, the corresponding meters are attested in Vedic, Greek, Slavic, and Old Irish, that is, the four major languages or language groups that have received in-depth analysis in Indo-European comparative metrics (cf. Meillet 1923, Jakobson 1952, Watkins 1963, Nagy 1974, etc.)

(2) Vedic gāyatrī: [4, 4]; —— - —
úpa tvagne divé-dive,
dóśāvastar, dhiyā vayám,
námo bháranta émasi; (Rig-Veda 1.1.7)

Although the caesura is not an obligatory constituent of the gāyatrī/anuśṭūbh (the shorter verse), the longer verse, i.e., the triṣṭubh/jagati, does have a caesura either after the fourth or the fifth position (see 3 below). It is interesting to note that in structural terms the longer verse is composed by adding to the shorter counterpart an internal extra constituent (or, conversely, the shorter verse is derived by subtracting an internal additional constituent from the longer verse) (cf. Arnold 1905,

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1 For the treatment of the hypermetrical or expanded line in the light of Indo-European metrics, see Suzuki 1988c.

2 One significant feature of Indo-European metrics is a coexistence of shorter and longer verses. The shorter verse typically consists of eight positions, while the longer counterpart contains twelve positions. In Germanic and Old Irish, however, by virtue of subsequent phonological developments, loss and shortening of unstressed syllables notably, what continued the Indo-European shorter verse came to function as the longer verse. Correspondingly, an extra short verse form was created to carry the function of the shorter verse. In order to avoid terminological confusion, as noted above in this paper we reserve the term of the shorter/longer verse exclusively for Indo-European metrics.

(3) Vedic *tristubh*: [4 | 3, 4]; \( \ddash \; \ddash \; - \; - \; \ddash \; \ddash \; \ddash \; \ddash \; \ddash \) [5 | 2, 4]; \( \ddash \; - \; \ddash \; \ddash \; \ddash \; \ddash \; \ddash \) sá suṣṭūbhā, sá śkvata gaṇēṇa
valāṃ ruroja phaligāṃ rāveṇa:
Bṛhaspātir usriyā havyasūdah
kānikrada vāvaṣatīr ūd ājat. (Rig-Veda 4.50.5)

(4) Greek *glyconic*: \( \ddash \; - \; \ddash \; \ddash \; \ddash \) tāv δ’ἐγὼ τάδ’ ἀμειβόμαν’
χαῖροις ἐρχεοι κα’με θεν (Sappho 94. 6–7; West 1982: 32)

(5) Slavic laments: [4 | 4]; x x x x | x x x x
Jâ nijësam | tūžilica,
Nēgo cfnā | kūkavica!
Pâ i njōj je | drūgī lîjek, (Jakobson 1952: 429)

(6) Slavic epics: [5 | 3]; x x x x x | x x x
N̄ ōvinu bíj̄ f má̂m̄ - si
v̄ p̄ - p̄k̄ý̂ tát̄k̄ - si,
Mám̄ p̄ - Jánk̄ dûm̄š̄i: (Jakobson 1952: 447ff.)

(7) Old Irish gnomic-epic verse: [5 | 3]; x x x x x | x x x
di-renoar c<ah<n->idan | ògdír[iu]
di-renoar c<ah<n->anog | eneclann. (Watkins 1963: 226)

Note also the structure of [4 | 3], which is more frequently attested:

(8) Old Irish gnomic-epic verse: [4 | 3]; x x x x | x x x
cia deilm dremun | derdrethar
dremnas fot broinn | buředāig? (Watkins 1963: 222)

Turning to [2 | 2], we find a comparable form in Old Irish:

(9) Old Irish gnomic-epic verse: [2 | 2]; x x x x | x x
Cet mac | Máγach
magen | curad
cride | n-ega (Watkins 1963: 239)

The limited attestation of [2 | 2] as opposed to [4 | 4] and [5 | 3], and more specifically the sharing of this structure by Germanic and Old Irish as the shorter scheme may be ascribed to analogous phonological developments which these two languages subsequently underwent, namely, to the fixation of stress accent on word-initial position and the concomitantly induced weakening/reduction in unstressed positions (Watkins 1963; also Wallace 1975, Salmons 1984). For some implications of this observation, see section 3 of this paper.
A significant metrical property characteristic of Indo-European metrics is the restrictedness of metrical patterning in the latter part of the line (cadence) as against the initial counterpart. This feature, in conjunction with the existence of the caesura and the establishment of word-initial stress, gave rise to the constant presence of stress immediately following the caesura in stress-based meters (Slavic, Old Irish, and Germanic). Such a stress therefore acquired a metrically privileged status by bearing a caesura-marking function.

(10) a. \([4 \mid 4]\): x x x x y x x x
b. \([5 \mid 3]\): x x x x x y x x
c. \([2 \mid 2]\): x x y x

1.2. GERMANIC INNOVATIONS. The most significant innovation in Germanic metrics involved the relationship of the longer schemes \([5 \mid 3] / [4 \mid 4]\) on the one hand, and the shorter counterpart \([2 \mid 2]\) on the other. In other Indo-European languages, Old Irish in particular, the longer and shorter schemes (or verses) are concerned with distinct metrical lines; a given metrical line is either of one type, or of the other, but not of both (cf. 7, 8, and 9). In Germanic, by contrast, the longer and shorter schemes jointly determine a single metrical line by bearing on different levels of metrical structure. More specifically, the longer schemes, namely, \([4 \mid 4]\) or \([5 \mid 3]\), specify among others the number of metrical positions per line. The shorter scheme, on the other hand, determines the number of metrically strong positions (lifts) per line. Thus, with respect to what is metrically specified, the longer and the shorter schemes are complementary in function.

This change may be described in phonological terms roughly as follows. Since a metrically strong position is always occupied by a stressed syllable (the converse does not necessarily obtain, though), the shorter scheme is concerned with a phonological level in which only the concatenation of stressed syllables is of relevance. The longer scheme, which is insensitive to such a distinction, involves another level which consists of a string of syllables, indifferent to a difference in stress.

In the conception of non-linear phonology (whichever particular variant one may be subscribed to), the above-mentioned two levels are hierarchically related to each other; the level of stress constitutes a superordinate structure over the other counterpart. In this way, the Germanic innovation under consideration may be characterized as an introduction of the hierarchical organization of the longer and the
shorter schemes within a single metrical structure. (For details on the phonological basis of the innovation, see section 3.)

Related to the above-noted innovation is another remarkable characteristic of Germanic metrics. Unlike other Indo-European languages, where each metrical position corresponds to a single syllable (isosyllabism), this one-to-one correspondence does not hold in Germanic; a metrical position, excluding the line-terminating drop, may be occupied by more than one syllable. This innovation in the way of correspondence may be held to be a consequence of the hierarchical organization of the longer and the shorter schemes.

As discussed in section 2, a position of the shorter scheme is not limited to a single stressed syllable. By resolution, it may be occupied by two syllables. This shows that one-syllable-per-one-position or isosyllabism does not constitute an organizing principle. A metrically strong position is mapped to a structure which is superordinate to a syllable, as demonstrated in section 3. As regards the relationship between the longer and the shorter schemes in terms of specificity, obviously the latter is more specific in that it concerns metrically strong positions, rather than simply metrical positions of whatever kind. Given this difference in specifiability, from an economical point of view, what is stipulated by the more specific rule is more likely to be left unspecified than to be specified to another effect by the less specific counterpart. More concretely, since the shorter scheme refers to a structure higher than a syllable as a unit corresponding to a metrically strong position, the longer scheme is naturally expected not to single out a syllable as an occupant of the same position contrary to what the shorter scheme requires. Moreover, since the longer scheme treats metrical positions equally without regard to metrical strength, the scheme in question analogously should impose no such restriction (i.e. isosyllabism) on what is realized as drop. It follows then that given the relationship with the shorter scheme the longer counterpart more naturally should make no stipulation as to what should occupy a metrical position, still less limit it to a single syllable.

As stated in the previous section, in Indo-European metrics the initial was free in terms of metrical patterning. In the course of subsequent developments, however, the initial increasingly followed regularization to the point where it came closer to the cadence in the way of metrical restriction. Here we would not go into details concerning the process of
regularization followed by other languages. The important point to be noted about these secondary developments, however, is the direction of regularization. The patterns inherent in the cadence were extended to the initial by reanalysis.

In the absence of evidence to the contrary, an analogous event may be assumed for Germanic. That is, the originally free initial may have been gradually regularized on the basis of the permissible patterns of association between the longer and the shorter schemes in the cadence.

The process of regularization, in addition to restricting the metrical patterning of the initial, also contributed to the unification of the cadence structure in favor of four positions. That is, the cadence with four positions, i.e. | 4], was generalized at the expense of | 3]. Concerning this process, we are confronted with the following question: why did the generalization proceed in the direction it did? Put differently, of the two competing forms why was [4 | 4] generalized rather than [5 | 3]?

This question may be partly answered in structural/functional terms. Based on the model of the cadence, the following configurations may have been derived for the initial with five positions.

(11) a. x x
     | |
     x x x x x
b. x x
    | |
    x x x x x
c. x x
   | |
   x x x x x
d. x x
  | |
  x x x x x

Since a metrical position is not limited to a single syllable for association as discussed earlier, configurations 11a, 11c, and 11d may be analyzed as equivalent to Types D, A, and E, respectively. (For 11b, see section 2.7.) In other words, the initial with five positions very often turns out to be structurally indistinguishable from the simpler one with four

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positions. From the standpoint of poets and their audience, this means that \([5 \mid \) is less frequently appealed to for (re)producing and appreciating given lines of poetry in metrical terms. This then led to the weakening of the raison d'être of the five-positional initial (except for a perceptually distinct preform underlying Type D*), and ultimately the scheme \([5 \mid 3]\) itself.

Corresponding to the generalization of \([4 \mid \), furthermore, \([3 \mid \) was replaced by \([4 \mid \). Given a line which was originally identified as of \([5 \mid 3]\), by reanalysis the initial came to be recognized as consisting of four positions. This leaves one weak position unassociated. As it was, on the other hand, the corresponding cadences could not be reduced to any of the extant types of \([4 \mid \), namely, \(/{x}/x, /x/x,\) and \(/x/x/\). These distinct concatenations then received formal recognition by being combined with the preceding weak position still unassociated. In this way, the original \([5 \mid 3]\) eventually was restructured as \([4 \mid 4]\).

1.3. SUMMARY. The essential ingredients for the composition of the normal line in Germanic verse are the following:

(a) the longer schemes: \([4 \mid 4]\) and \([5 \mid 3]\) (of Indo-European inheritance);

(b) the shorter scheme: \([2 \mid 2]\) (shared by Germanic and Old Irish).

By Germanic innovation, then, the longer and shorter schemes were combined into a single scheme by hierarchical organization.

2. DIACHRONIC EXPLANATION FOR METRICAL FEATURES OF GERMANIC ALLITERATIVE VERSE

2.1. A-VERSE VS. B-VERSE. As noted by Sievers 1893: §7.2, Bliss 1967: 91, and others, the a-verse has greater freedom in terms of metrical structure. By comparing the a-verse and the b-verse with the initial and the cadence of Indo-European verse, respectively, the asymmetry in question may be explained as a reflex of the Indo-European metrical feature, whereby the initial is less restricted than the cadence in terms of metrical patterning.

2.2. INCORPORATION OF ALLITERATION AS A STRUCTURAL DEVICE. In Old Germanic verse alliteration constitutes an obligatory metrical device. In other words, alliteration is a structural as opposed to an ornamental constituent of verse. This proves to be of crucial importance when we
compare it with Old Irish verse in its earliest form, where alliteration, although it is frequently employed, plays no more than an ornamental function (Watkins 1963: 219).

This difference in the status of alliteration, or more specifically the establishment of alliteration as an obligatory device in Germanic verse may be ascribed to the Germanic innovation noted previously, whereby in loose terms the shorter scheme is linked to the level of stress. Subsequent to this innovation, stress no longer provides necessary salience to the metrically accented position of the shorter scheme, namely, the one immediately following the caesura (cf. 10c). For all of the four positions are now equally associated with stress. That position, as it may be recalled, invariably bears word stress in Old Irish poetry, thereby fulfilling the caesura-signalling function. Faced with this situation, alliteration was chosen as a required device for giving added salience to the position in question. In this way, alliteration became a structural property of verse in Germanic.

2.3 Place of Alliteration. Alliteration always appears in the third lift. Traditionally, this position is accorded a privileged status by being characterized as a binder of alliteration. In connection with this treatment it has been assumed that the position at issue commands greater salience over others. Such a special status of the third lift may be attributed to the privileged function it carries, namely that of marking the caesura.

The same explanation applies to the place of alliteration with respect to the longer schemes. Alliteration always involves the fifth or sixth positions. Under the assumption of [4 | 4] and [5 | 3] as proposed above, the very same positions bear the caesura-marking function. By virtue of this special function, which is unknown to the remaining positions, the two places in question receive a privileged treatment as regards alliteration.

2.4 Resolution. Since as briefly noted above and discussed in detail in section 3 the shorter scheme is associated with a structure which is equivalent to a long stressed syllable or a sequence of a short stressed syllable plus another syllable, resolution can be understood to be a direct

4 See Snorri's characterization (Möbius 1881: 1-2).
consequence of the way association is implemented. Furthermore, this account has an empirically correct implication: resolution is far from a marked phenomenon; it should occur as frequently as a long stressed syllable occupies a lift.

2.5. Five metrical types (Types A, B, C, D, and E). Five metrical types may be derived on the basis of the particular way the longer and the shorter schemes are associated with each other:

(12) a. Type A: e.g. Grendles mōdor; (Beowulf 1538b; Klaeber 1950)
   | x  x  
   |   |  
   | x  x  x  x

b. Type B: e.g. þæt hē lange hēold, (Beowulf 1748b)
   | x  x  | x  x
   |   | >  |   |  
   | x  x  x  | x  x  x

c. Type C: e.g. fore fæder dædum (Beowulf 2059b)
   | x  x  | x  x
   |   | >  |   |  
   | x  x  x  | x  x  x

d. Type D: e.g. sunu Ecgēēowes, (Beowulf 2367b)
   | x  x  
   |   |  
   | x  x  x

e. Type E: e.g. Hond up ābræd (Beowulf 2575b)
   | x  x  
   |   |  
   | x  x  x

2.6. Anacrusis (Types aA and aD). As Bliss 1967 and Cable 1974 among others have demonstrated, what may be attached as anacrusis is virtually limited to preverbs, or inseparable verbal prefixes: ā-, be-, for-, ge-, on-, etc. Given such a close relation between anacrusis and preverbs, it may be naturally assumed that the emergence of the structure, preverb +

5 For the shift of the caesura to the left, see section 1.2.
6 The following explanation supersedes the one provided in Suzuki 1988a, which cannot explain why only preverbs provide an anacrusis.
stem, was responsible for anacrusis. An important question in need of explanation then is: why was anacrusis virtually confined to the a-verse (cf. Cable 1974: 32ff., Suzuki 1988a: (25))?

The structural asymmetry between the a- and the b-verse may be brought to bear on this issue. The establishment of anacrusis would increase the variability of metrical structure in that the thus far unknown structure of five positions beginning with drop newly arose. The resulting increased range of metrical variability, however, may have been at variance with the restricted nature of the b-verse, while the a-verse, free as it was, was tolerant of the introduction of such a new structure.

2.7. Type D*. Consider the following examples:

(13) a. side sænæssas;  
    b. aldres orwëna.  
    c. fródan fyrnwitan

The metrical structure represented by 13 is irreducible to any of the five basic types given above. It constitutes another distinct subtype, called Type D*, as schematized in the following:

(14) / x / x x

Of particular importance is that the type in question consists of five positions rather than four. Furthermore, curiously enough, Type D* is attested only in the a-verse (cf. Bliss 1967, Suzuki 1988a: 18).

These peculiarities readily find principled explanation in our framework. Type D* may be understood to be a reflex of the original initial with five positions, namely [5 l], which was of the following configuration (=11b):

(15) x x  
    |   |  
    x x x x x

It should be pointed out with emphasis that of the logically possible patterns of the two-to-five association (cf. 11) only the above configuration cannot be made equivalent to any of the five types. This irreducibility then may have led to the establishment of the structure at issue as an independent metrical type.

Moreover, under the assumption of the regularization of the initial on the basis of the cadence, the cadence was unlikely to follow the initial by introducing anew the structure of five positions, i.e. the proto-form of Type D*. Thus, the type remains unknown to the b-verse.
2.8. Bliss' Types B- and C-. In *Beowulf*, there are several instances of half-line with three positions, as exemplified in the following:

(16) a. secg betsta, \( (Beowulf \ 947a, \ 1759a) \)
     b. ðegn betstan \( (Beowulf \ 1871b) \)
     c. bord wið rond, \( (Beowulf \ 2673a) \)

Bliss 1967 subsumes these instances under Type B (16c), or Type C (16a and b). Pope 1966, on the other hand, treats them as separate from the five basic types by classifying them as of a distinct type, i.e. Type F. What is of greatest interest here is not so much the particular way of analysis as the existence of the half-line with three positions. Of further significance is that the examples all begin with a lift.

It may be assumed that the instances under consideration are relics of the original cadence with three positions, i.e. \( | \ x \ x \ x \), or \( | \ x \ x \ x \), which in the process of the regularization of the initial on analogy with the cadence may have been introduced into the initial as well.

3. Foot and Accent Typology—Germanic and Old Irish—. As noted in section 1, Germanic and Old Irish show remarkable similarities in terms of metrical structure. They both employed \( [2 \mid 2] \) as the shorter scheme in opposition to the longer scheme, while other Indo-European languages continued to use the formal equivalents of the latter as the shorter verse in accordance with Indo-European tradition. This apparently innovative treatment, furthermore, has been suggested to have a phonological motivation (cf. p. 227). This section then is designed to elucidate the phonological basis of the Germanic metrical innovation with special reference to Old Irish, which, despite the phonological similarity on the surface, remained unaffected by such a metrical change.

3.1. Germanic. As argued in section 1, by innovation the shorter scheme \( [2 \mid 2] \) came to be associated with a structure higher than the level of syllable concatenation. This restructuring, it has been claimed, was responsible for resolution, whereby a short stressed syllable followed by another syllable counts as equivalent to a long stressed syllable for constituting a lift. This section explores the phonological basis underlying the alleged metrical innovation by identifying the structure under consideration with Foot as defined by Keyser and O'Neil 1985.

Keyser and O'Neil isolated the level of Foot as a phonologically significant level of generalization with reference to high vowel deletion in Old English. The phonological process in question involves the deletion of a
high vowel, i.e. /i/ or /u/, in the contexts illustrated below (Campbell 1959: §§345, 346):\footnote{7}

\begin{equation}
(17) \$-:
\begin{align*}
a. &\ -i > \phi: \text{wyrm} < *\text{wurmi} \ '\text{worm}' \\
b. &\ -u > \phi: \text{word} < *\text{wordu} \ '\text{word}'
\end{align*}
\end{equation}

\begin{equation}
(18) $$-:
\begin{align*}
a. &\ -i > \phi: \text{relevant examples are unattested.} \\
b. &\ -u > \phi: \text{werod} < *\text{werodu} \ '\text{troop}'
\end{align*}
\end{equation}

That is, a high vowel dropped when it was preceded by a long syllable (cf. 17), or a sequence of two syllables, the first of which is short (cf. 18). In the other contexts, however, the vowel was retained: after a short syllable, or a sequence of a long syllable followed by a short syllable (cf. 19):

\begin{equation}
(19) \$-:
\begin{align*}
a. &\ -i > -i: \text{wine} < *\text{wini} \ '\text{friend}' \\
b. &\ -u > -u: \text{fatu} \ '\text{vessel}'
\end{align*}
\end{equation}

\begin{equation}
$$-:
\begin{align*}
a. &\ -i > -i: \text{relevant examples are unattested.} \\
b. &\ -u > -u: \text{heafodu} \ '\text{head}'
\end{align*}
\end{equation}

This process of deletion, however, was not unique to Old English. Other Germanic languages retain traces of the process, if not in such an extensive degree as in Old English (cf. Krahe and Meid 1969: §121). Consider the following examples:

\begin{equation}
(20) \$-:
\begin{align*}
\text{Gmc.} \ &*\text{gasti-} > \text{OE giest}, \text{OS, OHG gast} \ '\text{guest}' \\
\text{Gmc.} \ &*\text{flōdu-} > \text{OE, OFris., OS flōd, OHG fluot} \ '\text{flood}'
\end{align*}
\end{equation}

\begin{equation}
$$-:
\begin{align*}
\text{Gmc.} \ &*\text{wini-} > \text{OE, OFris. wine, OS, OHG wini} \ '\text{friend}' \\
\text{Gmc.} \ &*\text{sunu-} > \text{OE, OFris., OS, OHG sunu, RN sunuR} \ '\text{son}'
\end{align*}
\end{equation}

The above description, however, does not take us far in the way of proper understanding of the phenomenon. It remains unclarified why the deletion took place the way it did. Specifically, why did a long syllable on the one hand and a concatenation of a short syllable plus another syllable ‘conspire’ to induce the deletion of the following high vowel?

In order to provide a principled explanation for this question, Keyser and O’Neil 1985: 6 introduce a level of Foot as a significant structure,
which, as they characterize it, is constructed by the following rule (Foot Construction):

(21) Gather rimes from left to right into binary, quantity-sensitive, right-headed trees.

By this rule, binary trees are built over the concatenation of rimes with a proviso that the binary rime may not appear as a left branch of the resultant foot. The following examples may illustrate the point: (F= Foot; R=Rime)

(22) a. Given R R F F Cf. *F
   \[ \wedge \]  \[ \wedge \]
   R R \[ \wedge \]
   R R \[ \wedge \]

b. Given R R, F Cf. *F F
   | \[ \wedge \]  | \[ \wedge \]
   R R \[ \wedge \]
   R R \[ \wedge \]

With the level of Foot thus defined, Keyser and O'Neil 1985: 10 characterize high vowel deletion as follows:

(23) R
    | \[ \wedge \]
    V \[ \rightarrow \] \phi / F [____]
    \[ [+high] \]

That is, a high vowel becomes nil if it is immediately preceded by a Foot and it constitutes the rime on its own, or put differently, it is contained in an open syllable.

Of particular interest here is the fact that exactly the same information is referred to in high vowel deletion and lift-formation. For the first case, a long syllable, or a sequence of a short syllable plus another syllable induced the deletion process. For the second instance, the same entities are chosen as a lift-constituting unit. On the basis of the isomorphism, then, it may be justified to conclude that the shorter scheme is associated with the level of Foot, as defined in 21.

The noted parallelism goes beyond the formal dimension. As noted earlier, traces of high vowel deletion are observed in other Germanic languages. This leads us to assume that the level of Foot as a significant representation goes back to the common Germanic period, at which time Germanic metrics began to take shape. Thus, in the temporal dimension as well it is plausible to ascribe the innovative association of the
shorter scheme to the independent availability of Foot in phonological terms.

In this way, the apparently drastic metrical transformation, whereby the longer and the shorter schemes received hierarchical organization, had a phonological basis. The metrical innovation in question proceeded in a way dependent on the phonological structure of the language concerned.

3.2. OLD IRISH. In section 1 it was noted in passing that the sharing of the shorter scheme [2 | 2] in Germanic and Old Irish is due to the commonality in terms of phonological properties. Specifically, in both languages the original variable pitch accent evolved into stress accent fixed in word initial position, with subsequent loss and weakening of unstressed syllables.

A question now arises: why did the two languages behave differently with respect to the treatment of the shorter scheme in spite of the alleged phonological commonality? That is, why did only Germanic introduce the metrical innovation involving association?

According to my account in the previous section, the independent availability of Foot in Germanic provided a necessary condition for the innovation in Germanic metrics. This line of reasoning may offer an explanation for the absence of a comparable metrical innovation in Old Irish. Specifically, by looking at relevant phonological processes, we may approach the phonological characterization of Old Irish, which then can be held responsible for the lack of innovation.

In Old Irish, unstressed /i/ and /u/, along with other vowels, disappeared even when the immediately preceding stressed syllable was short (Thurneysen 1975: §91ff.):

(24) IE *mori > OIr. muir ‘sea’. Cf. Gmc. *mari > OE mere, OS, OHG meri
    IE *gweru > OIr. biur, bir ‘spit’. Cf. Go. qairu

The failure to discriminate between long and short syllables for the realization of the process comparable to Germanic high vowel deletion rules out the possibility of postulating Foot in Old Irish with regard to the working of the deletion at issue. In view of the critical role of high vowel deletion for positing Foot in Germanic, furthermore, it may be assumed that in Old Irish Foot did not play a vital role in phonological structuring in general.

Consideration of other phonological processes in Old Irish lends plau-
sibility to this assumption. Of greatest interest are initial mutations characteristic of Celtic languages in general (cf. Thurneysen 1975: §229ff.). By these processes, the initial segment of a word is subject to modification depending on the final segment of the preceding word. That is, the changes under consideration took place across a word boundary. Three distinct processes are subsumed under initial mutations:

(a) Lenition, caused by the final vowel of the preceding word.
(b) Nasalization, caused by the final nasal of the preceding word.
(c) Gemination, caused by assimilation of the final consonant of the preceding word to the initial counterpart of the following word.

Here we need not enter into specifics of each process. The important point to be noted is that the processes at issue are not blocked by the existence of a word boundary; rather they operate beyond it. They may have been brought about by continuous articulation of semantically close related word groups (cf. Lehmann and Lehmann 1975: 129).

The working of the above-noted processes across a word boundary contributes to emphasizing in phonological terms the syntactically/semantically close relatedness of the words involved at the expense of the segmentability or identifiability of each word. In this way, the autonomy of a word in terms of phonological demarcation is diminished. This decreased salience for delimiting the shape of a word in isolation in turn may lead to an unfavorable consequence for establishing Foot as a significant level. The blurring of the boundary creates a difficulty in locating a starting point for applying Foot Construction.

Thus, the operation of initial mutations in Old Irish, in conjunction with the absence of favorable crucial processes, makes it highly implausible that the level of Foot was available as a significant representation in Old Irish. The necessary condition for restructuring the shorter scheme [2 | 2] as in Germanic, then, did not materialize in Old Irish.

3.3. TOWARDS A TYPOLOGY. As shown in the previous section, in Old Irish word boundaries were not of sufficient strength to delimit a domain for the working of certain phonological processes, thereby reducing the identifiability of a word. Germanic, by contrast, did not undergo such penetrating changes that, by overriding word boundaries, seriously affected the segmentability of a word. How can such a difference in terms of the strength of word boundaries be related to overall typological characterization? This section attempts to place the above-disclosed phonol-
logical difference between Germanic and Old Irish in the context of accent typology, with special reference to the framework advanced by Van Coetsem, Hendricks, and McCormick 1981.

Van Coetsem et al. 1981 propose a theory of accent typology and sound change on a gradient scale, or on a prototypical basis. They introduce a prototypical distinction between dominating (D) type languages and nondominating (ND) type languages according to the degree of dominance or salience that prominent (=accented) syllables command over nonprominent counterparts. In the structural dimension, D type languages are characterized by a greater extent of syllable hierarchy. Prominent syllables in D type languages dominate nonprominent counterparts in terms of hierarchical structuring. As typical examples of D and ND type languages, Van Coetsem et al. cite Germanic and Finnish, respectively.

Each accent type thus characterized in turn is associated with sound changes of specific type. (Further categorization of sound changes need not concern us here.) Taking examples from the history of Germanic, the Germanic consonant shift (Grimm’s Law), which operated equally irrespective of the place of accentuation, is a sound change dependent on ND type prominence. The Old High German consonant shift, by contrast, applied discriminately according to word-internal position (which in turn is based on accentual differentiation), and therefore is a sound change characteristic of D type prominence.

Moreover, Van Coetsem et al. note the divergent roles that boundaries in general and word boundaries in particular play with respect to sound change in each accent type:

'We can see that in ND type languages syllable or morpheme boundaries do not play an essential role in language change; sometimes even word boundaries proper (depending on register, e.g. formal and informal speech) are not overriding factors. In D type languages, on the other hand, boundaries may be directly involved as distributional factors in language change. A word has a definite syllable hierarchy which gives it a characteristic prominence pattern. This structure tends to demarcate the word as a unit whose boundaries are more likely to serve as environments.'

(Van Coetsem, Hendricks, and McCormick 1981: 307, note 12.)

Following Van Coetsem et al.’s theory of accent typology, then, we may assume on the basis of the findings in sections 3.1. and 3.2. that Germanic is more typical of D type languages than Old Irish, or put differently, Old
Irish is somehow deviant from the prototype of D type languages, although it still may be broadly classifiable as a D type language. Therefore, it proves to be a natural consequence of the uncovered typological difference that Germanic had a hierarchical structure identifiable as Foot, while Old Irish did not.

4. CONCLUSION. In this paper I have shown that the normal line in Germanic alliterative verse originated from the interaction of the longer schemes, i.e. [4 | 4] and [5 | 3] on the one hand, and the shorter scheme, i.e. [2 | 2] on the other. The longer schemes are assumed to be of Indo-European inheritance, while the shorter counterpart may be an innovation common to Germanic and Old Irish.

The assumption of Indo-European metrics underlying Germanic metrics has been demonstrated to provide principled explanations for fundamental features of Germanic metrics: (1) the dichotomy of the line into two half-verses, i.e. the a-verse and the b-verse, and their structural asymmetry, (2) obligatory use of alliteration as a structural device, (3) the place and pattern of alliteration, (4) the mechanism of resolution, (5) the origin of five metrical types (Sievers’ Types A, B, C, D, and E), (6) the skewed distribution of anacrusis, (7) some peculiarities of Type D* half-lines, and (8) the existence of half-lines with three metrical positions (Bliss’ Types B- and C-).

The major Germanic innovation, whereby the inherited longer scheme and the shorter counterpart came to be organized into a hierarchical structure, has been shown to have a phonological basis: the shorter scheme was associated with a higher structure, which is identified with the independently motivated Foot as characterized by Keyser and O’Neil 1985.

Finally, drawing on accent typology proposed by Van Coetsem, Hendricks, and McCormick 1981, the availability of a hierarchical structure of Foot in Germanic and its absence in Old Irish has been claimed to be ascribable to the typological difference between the two languages. Germanic is a prototype of dominating (D) type languages with syllable hierarchy, while Old Irish is an atypical or peripheral instantiation of that type.
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