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On Stress and Meter and on English Iambics in Particular

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[–] Abstract and Keywords

This chapter discusses meter and word stress in language, with an emphasis on English iambic verse. It assumes that feet are computed by a kind of paraphonology which alters the phonological derivations of the language and gives rise to at least one alternative representation that may be different from phonetic representations. The chapter describes the metrically relevant properties of the line in the context of the prosodic theory of William Idsardi and shows that this innovation offers important insights into all kinds of metrical phenomena in poetry. It focuses on elision, ancipitia, and loose meters in English.

Keywords: meter, word stress, language, iambic verse, feet, prosodic theory, William Idsardi, poetry, elision, ancipitia

2.1 Introduction

An important difference between poetry and prose is that all poetry is composed of lines, whereas prose has sentences, clauses, and phrases but no lines. In metrical poetry, the length of the lines is governed by a set of principles and rules in a manner detailed below; in free verse—as far as is known—no such principles or rules determine line length, yet poems in free verse are invariably made up of lines. The line must thus serve essential poetic purposes in all kinds of verse, even though in free verse the principles that govern lineation—and motivate its being printed without justification at the right margin—remain to be discovered (see Smith 1968; Steele 1990 for some discussion). In what follows we shall be concerned with metrical verse exclusively.

A central proposition of this chapter is that every known type of meter is based on an iterative footing rule of the kind encountered in the assignment of word stress in many languages. As in Kiparsky (1977, 190), it is assumed here that feet are computed “by a kind of paraphonology

that modifies the phonological derivations of the language and produces as output one or (more commonly) several alternative representations that may differ from phonetic representations.” In Kiparsky 1977 the metrically relevant properties of the line were characterized by means of the prosodic theory of Liberman 1975. The main innovation of the present study is that it characterizes the metrically relevant properties of the line—that is, it scans the lines—with the help of the prosodic theory of Idsardi 1992. My aim is to show that this innovation provides important insights into metrical phenomena of all kinds.

2.2 On Word Stress

An important advance in the understanding of the prosody of words was Liberman’s (1975) study of the English intonational system. Liberman’s key insight was that unlike [back], or [round], or [continuant], stress is not a phonetic feature. Instead, he **(p.6)** argued, stress is a reflex of the tendency of languages to group syllables—more precisely, stressable phonemes—into feet. Stress, on this view, is the phonetic reflex of the foot structure of words. This implies that the computation of stress involves two separate steps. As illustrated below, we first compute the foot structure of the word and use it to assign stress—that is, high tone or some other phonetic mark—to phonemes that occupy special (head) positions in the feet so constructed. There have been a number of attempts to implement Liberman’s insight formally, for example, Liberman and Prince 1977, Hayes 1981, Prince 1983, Halle and Vergnaud 1987, and Idsardi 1992 (see also Halle and Idsardi 1995). It is the latter formalization that is adopted below.

An obvious fact about stress is that not all phonemes are capable of bearing stress. In most languages all and only vowels are stressable; other phonemes are unstressable. This, however, is not true in all languages. For example, in Indonesian the schwa vowel may never bear stress (see, e.g., Halle and Idsardi 1994 and references therein). On the other hand, in Lithuanian, not only vowels but also glides, nasals, and liquids that are part of the syllable nucleus are stressable (Halle and Vergnaud 1987). A minimal requirement for an adequate stress notation is therefore that it include a means for indicating which phonemes in a sequence can bear stress. This requirement is implemented here formally by projecting stressable phonemes on a separate autosegmental plane, and it is sequences of the projected— that is, stressable—phonemes represented by asterisks in (1) and elsewhere that are grouped into feet.

Since on the account adopted here stress is a reflex of foot structure, we need a formal device for grouping the stressable phonemes into feet. As illustrated in (1), the grouping of stressable phonemes into feet is accomplished by foot boundary markers or junctures, represented here by ordinary parentheses. A left parenthesis (foot boundary) foots the stressable elements on its right, whereas a right parenthesis foots those on its left; elements that are neither to the left of a right parenthesis nor to the right of a left parenthesis are unfooted. Thus, in the first and third example in (1b) the last asterisk (=stressable phoneme) is not footed, but in the examples in (1a) and (1c) all asterisks are footed. The crucial difference between this formalization and earlier ones (such as those of Liberman 1975; Hayes 1981; or of Halle and Vergnaud 1987) is that in the earlier notations, feet, like syntactic constituents, had two ends and therefore were delimited by a pair of matched parentheses, whereas in the present notation a single, unmatched parenthesis defines a foot.

(1)

such syllables. Parenthesis insertion of this type is the main stress mechanism in languages such as Koya, Selkup, Khalkha Mongolian, and Komi. (For some discussion, see Idsardi 1992 and, from a different theoretical perspective, Hayes 1995:296ff.) In the Indo-European languages with free stress, such as Russian, Serbo-Croatian, Sanskrit, and Lithuanian, parentheses are supplied to some morphemes in their underlying representation. (For additional discussion, see Halle 1997 and Kiparsky and Halle 1977.)

Of particular interest for present purposes are languages that make use both of Accent rules and of Iterative Footing. In such languages, Iterative Footing respects the partial footing imposed by the Accent rules. This is illustrated by the Finnish examples in (2), where right parentheses are inserted by Accent rules and left parentheses are inserted by Iterative Footing.

(2) *Finnish* (Hanson and Kiparsky 1996, 301)

In Finnish, according to Hanson and Kiparsky (1996, 301), “[s]econdary stress is subject to phonological and morphological conditioning (with variability in some contexts).” The formal reflex of this conditioning here is the Accent rule (3a), which inserts a left parenthesis before the syllables in question. (See the underlined paren **(p.**

The diagram shows the following words with their stress markers:

- ómena, ómenàt, lúmottùihin
- lúmosivàt, kóskemàttomàn, óppettamàsta
- vóimistelùttele m àsta, ómenat, lúmosivat
- kóskemàttoman

9) theses in (2)). Binary feet are then constructed by a rule of Iterative Footing (3b), which inserts right parentheses left to right at binary intervals. Stresses are assigned by positing that feet in Finnish are left-headed, that is, trochaic, and that stress (high tone) is assigned to the heads.

As noted, Iterative Footing respects the rudimentary foot structure assigned to the word by the Accent rule. Formally, this is implemented by ordering the Accent rule before Iterative Footing. It is to be noted that Iterative Footing applies only to sequences of unfooted syllables; it does not foot a pair of asterisks separated by a (previously inserted) foot boundary. Thus, in *óppettamàsta* and *voimistelùttele m àsta* in (2), Iterative Footing inserts a right parenthesis after the fifth—and not after the fourth—syllable. It is the latter fact that is reflected in the rather complex part (italicized below) of Hanson and Kiparsky’s formulation of the distribution of secondary stresses: “Secondary stress falls on every second syllable after the initial one, *skipping an additional light syllable if the syllable after that is heavy*” (p. 301).

There are two exceptions to the preceding. (i) According to Hanson and Kiparsky, “[f]inal syllables not preceded by stressed syllables are optionally stressed.” In the formalism adopted here, this means that in word-final position the Finnish Accent rule (3a) is optional. Such alternative stressings without a left parenthesis before the word-final syllable are exemplified in the last line of (2). (ii) The second, that is, pen-initial, syllable of a word is never stressed, even if heavy. This fact is taken into account in the formulation of the Accent rule in (3a).²

The basic footing rules for Finnish stress are given in (3).

(3)

a. *Accent rule*

In postpeninitial position, insert left parentheses before heavy syllables and before specially marked syllables. (This rule applies optionally before word-final syllables.)

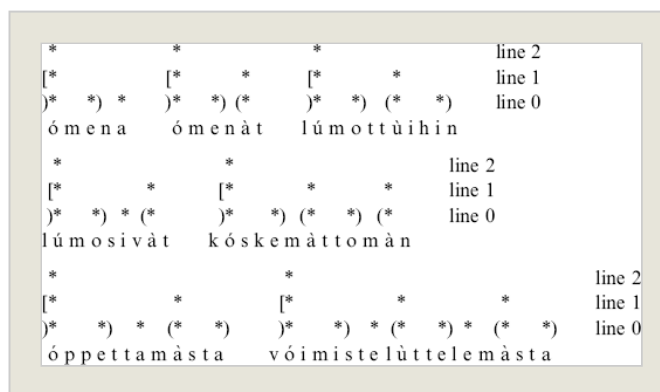
b. *Iterative Footing rule*

Insert right parentheses iteratively from left to right starting at the left edge of the string and skipping over two consecutive syllables at each step. Heads: left

Since in Finnish the main stress of the word is distinguished from its secondary stresses, additional machinery is needed that will allow us to distinguish among stressed syllables—that is, among heads of feet. In the Idsardi notation each head of a foot is projected onto the next higher line in the metrical grid. This property of the notation also provides a straightforward way of distinguishing among heads of feet. We need only posit that the sequence of heads of feet projected onto line 1 is footed by an Accent rule that inserts a left parenthesis at the left edge of line 1 and that line 1 feet are left-headed. This is illustrated in (4), where the left parenthesis inserted by the Accent rule on line 1 is represented by a square bracket rather than a parenthesis.

(p.10)

(4)



2.3 The Strict Meters of English Verse

The formal machinery sketched in the preceding section accounts also for the different types of metrical verse encountered in the languages of the world. It is not the case that the stress rules of a language are the same as those that account for its metrical verse. For example, English word stress is trochaic (see Halle 1998 for some discussion), but English metrical poetry is, of course, not restricted to trochaic meters. Though not identical, the rules governing word stress and the rules of meter are of the same kind. Underlying both English word stress and the main meters of English is a rule of Iterative Footing (cf. (3b), (9a), and (15a)). Iterative Footing is supplemented by an Accent rule both in the assignment of stress to Finnish words discussed (cf. sec. 2) and in the computation of the loose meters of English discussed in section 2.4 (cf. (3a) and (15b)).

When examined in detail, the rule of Iterative Footing involves the setting of the four binary parameters in (5).

(5)

- a. The type of parenthesis inserted: left or right
- b. The direction of insertion: (left to right) L)R or (right to left) R)L
- c. The number consecutive asterisks skipped after each insertion: two or three
- d. Head placement: left- or rightmost

There are thus, in principle, $2^4 = 16$ distinct ways of footing a string of asterisks. Not all of these 16 footings appear to be used equally in metrical verse. In English poetry from Chaucer to the end of the nineteenth century, the overwhelming majority of lines are composed in one of the four meters (feet) in (6). In these meters, which are referred to here as the strict meters of English, head placement (5d) determines both the type of parenthesis inserted (5a) and the direction of insertion (5b): **(p.11)** when left-headed feet are constructed, left parentheses are inserted from left to right; when right-headed feet are constructed right parentheses are inserted from right to left.

- (6)
- a. *Trochees*
Insert (, left to right, heads: left, binary
 - b. *Dactyls*
Insert (, left to right, heads: left, ternary
 - c. *Iambes*
Insert), right to left, heads: right, binary
 - d. *Anapests*
Insert), right to left, heads: right, ternary

Examples of these four meters are given in (7).

(7)

In (7) like in (4) the consecutive syllables of each line are represented by asterisks underneath the words, and parentheses are inserted into this sequence of asterisks by **(p.12)** the rule of Iterative Footing given in bold type at the right. For example, in (7d) right parentheses are inserted from right to left skipping three syllables after each insertion. Since (7d) is an instance of a strict meter, head placement determines both the direction of insertion and the kind of parenthesis inserted. As shown in (7d), the result of this procedure is to construct four anapests on both lines.

a. *Trochees (6a)*
Life is real! Life is earnest!
(* * (** (* * (* * (*
And the grave is not its goal:
(* * (* * (* * (*
(Longfellow, "A Psalm of Life")

b. *Dactyls (6b)*
Half a league, half a league,
(* * * (* * (*
Half a league onward,
(* * * (* *
(Tennyson, "The Charge of the Light Brigade")

c. *Iambes (6c)*
Let me not to the marriage of true minds
) * *) * *) * *) * *)
Admit impediments. Love is not love
) * *) * *) * *) * *) * *)
(Shakespeare, Sonnet 116)

d. *Anapests (6d)*
'Twas moonset at starting; but, while we drew near
* *) * *) * *) * *) * *)
L o k e r e n , t h e c o c k s c r e w , a n d t w i l g h t d a w n e d c l e a r .
) * *) * *) * *) * *) * *) * *)
(Browning, "How They Brought the Good News from Ghent to Aix")

Footings other than those in (7) can be imposed on the lines. For example, in (8) I have footed one of the iambic lines in (7c) into anapests by means of rule (6d) and one of the anapestic lines in (7d) into trochees by rule (6a).

- (8)
- a. *By rule (6d)*
Admit impediments. Love is not love
) * *) * *) * *) * *) * *)

b. *By rule (6a)*

'Twas moonset at starting; but, while we drew near

(* * (* * (* *(* (* * (*

The availability of the alternative footings in (8) raises the question as to how these patently wrong footings are eliminated in favor of the correct ones in (7). The obvious answer is that in the English verses under discussion here, the choice of the correct footings is determined by the position of the stressed syllables in the line. While traditional approaches have treated all stressed syllables as equal in determining the well-formedness of a line, it is assumed here—following Halle and Keyser 1999—that only the main stresses of polysyllabic words determine whether a particular footing is a valid instantiation of a given meter. We call such stressed syllables *Maxima* and require that *Maxima* be placed only in head positions of feet. This requirement is violated by the footings in (8), where the respective *Maxima* of *Admit* in (8a) and of *moonset* in (8b) occur in nonhead positions of the feet, and it is these violations that rule out the footing in (8). By contrast, none of the footings in (7) violates the requirement just proposed. The fact that stressed monosyllables play no role in determining the well-formedness of lines is illustrated by the clause *Love is not love* in (7c). As shown there, the first word *Love* is in a nonhead position, even though this word has greater stress than either of the two syllables adjoining it. Being in a monosyllabic word, however, this stress is not a *Maximum* and does not violate the requirement above.

We have now reviewed all the main ingredients involved in the scansion of the lines in (7). The rules and conditions that define the strict meters of English are stated in (9). These consist of a definition of *Maximum*, a rule of *Iterative Footing* (9a), and two conditions (9b).

(9) *Definition*

A *Maximum* is the syllable bearing main stress in a polysyllabic word. (To be modified below cf. (15).)

(p.13) a. *Iterative Footing rule*

Select one of the four parameter settings in (6).

b. *Conditions*

- i. *Maxima* can be placed only in head positions of feet.
- ii. Incomplete feet are allowed to terminate the iterative footing procedure. (Incomplete feet may therefore appear at the beginning of iambic and anapestic lines and at the end of trochaic and dactylic lines.)

Condition (9bii) accounts for the variation in line length found in the examples in (7). For example, in (7a) the first line is eight syllables long, whereas the second line has only seven syllables. The difference in line length is a consequence of the manner in which foot boundaries are inserted by the rule of *Iterative Footing*. As stated in (6a), trochees are generated by a rule of *Iterative Footing* that inserts left parentheses L(left)R(right), skipping two consecutive asterisks after each insertion. This rule will obviously foot a sequence of eight syllables into four feet. However, since a foot may consist of a single asterisk, this rule will also foot a sequence of seven syllables into four feet.

Since in (7a) *Iterative Footing* proceeds L)R, the incomplete foot appears at the end of the line. Where *Iterative Footing* applies R(right)L(left) the incomplete foot appears at the beginning of the line. We see an example of this in (7d), where the first line begins with a disyllabic foot and

the second line with a monosyllabic foot. Since in anapests Iterative Footing skips three syllables after each insertion, it may generate incomplete feet that are either monosyllabic or disyllabic.

2.3.1 Elision

As illustrated in the even-numbered lines of (10), extra syllables may appear in some lines.

(10)

Traditionally the second line in (10a) is said to end with a “feminine” rime, and the extra syllable is not counted for purposes of determining the meter. This same procedure is followed here and such metrically “omitted” syllables are signalled by **(p.14)** representing them not with an asterisk but with a bullet (•), as shown in (10). In (10a) the “omitted” syllable is located at the end of the line, that is, at the starting point of Iterative Footing (cf. (6c)). The symmetrical

a. O, no, it is an ever fixed mark,
) * *) * *) * *) * *) * *
 That looks on tempests and is never shaken;
) * *) * *) * *) * *) * * •
 (Shakespeare, Sonnet 116)

b. All the buds and bells of May,
 (* * (* * (* * (* * (* *
 From dewy sward or thorny spray;
 • (* * (* * (* * (* * (* *
 (Keats, “Fancy”)

situation obtains in the second line in (10b), where the Iterative Footing rule applies L)R. In this case, the metrically omitted syllable begins the line. The status of the omitted syllable resembles that of incomplete feet (see (9bii)). The two cases differ in that incomplete feet are admitted as the last iteration of a rule of Iterative Footing, whereas the metrically omitted syllables under discussion here occur at the beginning of Iterative Footing.

Metrically omitted syllables occur also line medially, but their occurrence there is more highly marked and therefore used only sparingly. A few examples are given in(11).

(11)

Such metrically omitted syllables are especially common in Donne's poetry, where they occur most frequently in hiatus, that is, word finally before a vowel-initial word.³ Like Donne's line (11d), the line from Shakespeare (11b) includes two line-internal omitted syllables. (This and two additional lines are cited by Hanson and Kiparsky 1996, 298.)

a. He st~~ar~~ed at the Pa~~ci~~fic—and all his men
) * *) * *) * *) • * *) * *)
 (Keats, "On First Looking into Chapman's Homer")

b. This fortification, gentlemen, shall we see it?
) * *) •••*) * *) • * *) * *) •
 (Shakespeare, *Othello* III, 2, 5)

c. But as I past, I worshi~~p~~t: if those you seek.
) * *) * *) * *) • * *) * *)
 (Milton, *Comus*, 302)

d. Yet dearly I love you and would be lovèd faine,
) * *) •••*) • * *) * *) * *) * *)
 (Donne, Holy Sonnet XIV)

Both types of omission have traditionally been referred to as "elision," which Merriam-Webster's unabridged dictionary (1961) defines as a "deliberate syllable-reducing suppression ... of a ... vowel in poetry for the sake of the meter." The present theory treats all such vowels by not projecting them onto line 0 of the metrical grid. Special note is to be taken of the fact that metrical omission says nothing about the pronunciation of these syllables. While the meter and the pronunciation of a line are related, neither determines the other completely.

2.3.2 Ancipitia

A well-known peculiarity of English iambic verse is illustrated in (12), where every line begins with a stressed syllable of a polysyllabic word.

(p.15)

(12)

Treating the line-initial stressed syllable in (12) as a Maximum results in all examples in a violation of condition (9bi). Since lines of this kind are readily found in the works of the best poets, it is necessary to modify the definition of the Maximum so as to exclude line-initial stresses. The restated definition is given in (13).

(13) A Maximum is a syllable bearing main stress in a polysyllabic word provided that it is preceded and followed by a syllable with less stress.

a. Mighty and dreadful for thou art not so:
)* *)* *) * *) * *) * *)
 (Donne, Holy Sonnet X)

b. Kissing with golden face the meadows green
)* *) * *)* *) * *) * *)
 (Shakespeare, Sonnet 33)

c. Mindless of its just honours; with this key
)* *) * *) * *)* *) * *)
 Shakespeare unlock'd his heart; the melody
)* *) * *) * *) * *) * *)***)
 (Wordsworth, Sonnet)

d. Silent upon a peak in Darien.
)* *) * *) * *) * *) * *)***)
 (Keats, "On First Looking into Chapman's Homer")

The effect of (13) is to limit further the contexts where the stressed syllable of a polysyllabic word is counted as a Maximum. Since line-initial stresses are not preceded by a syllable without stress, they are also not Maxima, according to (13). The lines in (12), therefore, do not violate condition (9biii). The insight captured by this redefinition is that of *anceps* in classical metrics, which, according to Marouzeau 1943, 30 is "a syllable counted freely as short or as long (Lat. *anceps* = "ambiguous")". For the role of *ancipitia* in Latin verse, see Embick and Halle in prep.

The special treatment of line-initial stress is a peculiarity of English verse, which is not shared by the syllabotonic verse of Russian and German. This has been noted for Russian by Žirmunskij 1925/Eng. translation 1966, p. 53, and Bjorklund (1989, 156) for German. The definition of Maximum in Russian and German verse must therefore differ from that in English. Whether this difference is connected with the difference in phonetic stress pattern of the words in these two languages and how this connection is to be expressed formally is at present an open question. (For some discussion, see Hanson and Kiparsky 1996.)

In view of the redefinition of Maximum in (13), we expect to find examples where the stressed syllable in a polysyllabic word is not counted as a Maximum in verse-medial position. Such examples are given in (14).

(p.16)

- (14)
- a. A maid of grace and complete majesty
 (Shakespeare, *Love's Labour's Lost* I, 1, 137)
 - b. His means of death, his obscure funeral
 (Shakespeare, *Hamlet* IV, 5, 213)
 - c. Sir, in good sooth, in sincere verity.
 (Shakespeare, *King Lear* II, 2, 111)
 - d. The divine property of her first being
 (Milton, *Comus*, 469)
 - e. In profuse strains of unpremeditated art.

(Shelley, "To a Skylark," 6)

The examples in (14), which have been copied from Bridges 1921, are frequently cited in discussions of English meter. Bridges attributed these to "recession of accent...not now heard" (p. 67). As the main (sole?) evidence for the accent recession is the scansion of the lines, Bridges's proposal is not compelling, especially since accent movement has not been adduced by Bridges or anybody else as an explanation for the similar line-initial examples in (12); for example, nobody has suggested that *Shakespeare* in (12c) is subject to accent advance. In view of this there is reason to question accent recession as an explanation for the facts in (14). This is yet another instance of the indirect relationship between metrical pattern and its instantiation in verse. The definition of Maximum in (13) accounts for both classes of exceptions: those in (12) as well as those in (14).⁴

2.4 Loose Meters in English

In addition to the "strict" iambics discussed above, English poets, as well as poets writing in German and Russian, have employed what Robert Frost has called "loose" iambics. In addition to Frost, whose practice has been studied in Halle and Keyser 1999, loose iambics were employed by many other English poets, for example, Blake, Tennyson, Yeats, and Auden.⁵

The main difference between strict and loose iambics involves the relationship between the footing and placement of Maxima. In strict iambics, placement of the Maxima is determined by the footing of the line: because of condition (9bi), Maxima can be placed only in head positions of the feet—that is, in even-numbered positions in iambic lines. In loose iambics it is the other way around—that is, the Maxima determine the location of the heads of the feet. Formally, we capture this difference by replacing (9) with (15). This change includes the Accent rule (15b) which places a right parenthesis after each Maximum. Once the Maxima have been marked, the rule of Iterative Footing (15c) applies and inserts left parentheses from right to left, skipping two consecutive asterisks after each insertion. Since Iterative Footing is **(p.17)** ordered after the Accent rule, Iterative Footing respects the parentheses placed by Maximum marking. In sum, in loose iambics—and in loose meters, in general—footing of the line is governed by the placement of the Maxima, whereas in strict iambics, the placement of Heads is determined by Iterative Footing and the words must be chosen so that their Maxima coincide with the heads of the feet.⁶

The definitions and rules for English loose iambics are given in (15).

(15)

a. *Definition*

A Maximum is

- i. the syllable bearing main stress in a polysyllabic word
- ii. a stressed monosyllabic word when followed by two syllables with less stress
- iii. a stressed monosyllabic word at the end of a major syntactic constituent

b. *Accent rule*

Insert a right parenthesis after a Maximum.

c. *Iterative Footing rule*

Insert left parentheses from right to left starting at the right edge of the line and skipping two asterisks in each iteration. Heads: right

d. *Condition*

Unfooted syllables and nonmaximal feet are admitted in all positions in the line.

It is to be noted that the definition of Maximum for loose iambs in (15a) differs from that of the Maxima in the strict meters in (13). The inclusion among Maxima of stressed monosyllabic words followed by two unstressed syllables expresses formally the fact noted, for example, by Tarlinskaja (1993, 57) that two consecutive stressed syllables in the line are separated by no more than two syllables.

An example of loose iambs is Blake's "The Sick Rose" in (16).

(16)
(p.18)

In (16) the left parentheses are inserted by the Accent rule (15b), and the right parentheses are inserted by the Iterative Footing rule (15c).

In lines 1, 3, and 5 of (16), monosyllabic words are treated as Maxima, for they are followed by two syllables with less stress. The lines vary in length from four to six syllables, but in terms of feet there is no variation: each line has exactly two feet. The footing of the line explains the variations in syllable number on the assumption that the poem is subject to restrictions beyond those in (15). In particular, since the poem has only masculine rimes, unfooted syllables are not authorized in line-final position, nor are unary feet admitted anywhere in the poem. This admits five- and six-syllable lines into the poem in addition to four-syllable lines.

O Rose, thou art sick.	1
(* *) * (* *(
The invisible worm	2
() * (* *(
That flies in the night	3
(* *) * (* *(
In the howling storm	4
* (* *) (* *(
Has found out thy bed	5
(* *) * (* *(
Of crimson joy,	6
(* *) (* *(

And his dark secret love	7
* (* *) * (* *(
Does thy life destroy.	8
* (* * (* *) (

Metrically the most interesting is line 7, for that line would have three feet if the lines were scanned as having no stress Maximum. The metric irregularity is removed by treating *dark* as a stress Maximum. This scansion is supported by the reading of *dark secret* as a compound adjective, like *bright yellow (screen)* or *fair feathered (friend)*. (For some discussion of the metrical treatment of such structures, see Kiparsky 1975b, section 2.2, and Kiparsky 1977, section 6.)

2.5 In Conclusion

In the preceding I have attempted to show that a single grouping mechanism underlies both the assignment of stresses to words in different languages and the computations of meters in poetry. In section 2.2 the stress systems of a number of languages (Pintupi, Maranungku, Weri, and Finnish) was examined, and it was shown that the stress contours of the words in these languages were accounted for by grouping the syllables into pairs or triplets. In sections 2.3 and 2.4 I showed that the same kind of grouping of syllables into pairs or triplets accounts also for the main meters of English poetry.

Both in stressing words and in computing meters, the grouping of the syllables is formally implemented by inserting diacritic markers—parentheses—among the syllables in the sequence. A left parenthesis groups the syllables on its right, a right parenthesis groups the syllables on its left. The grouping is carried out by a version of the rule of Iterative Footing (cf. (3b) and (9a)). The grouping operation, moreover, designates as head the left-, resp. right-most syllable in each of the groups.

In the strict meters, the grouping of the syllables (footing) is determined exclusively by the Iterative Footing rule. In loose meters, grouping is determined by the interaction of Iterative Footing with an Accent rule such as (15b). We encounter a parallel difference in stress systems: in Maranungku and the other languages illustrated in (1), stress distribution is determined entirely by a rule of Iterative Footing; in Finnish, by contrast, stress assignment involves the Accent rule (3a) in addition to the Iterative Footing rule (3b).

An important difference between stress systems and meters is that in stress systems a phonetic mark—often a special pitch—is assigned to the heads of the feet, but no phonetic mark is supplied to the heads in meters; the heads of the different feet are rather subject to special conditions, such as (9bi), requiring maxima to appear in head position exclusively. Both stress and meter require information about head placement, which can be computed only by grouping the syllables in the sequence. It is therefore the grouping of syllables into feet (and into higher order groups) that underlies the parallels between stress and meter first noted by Liberman 1975.

In the seven years that have elapsed since the original version of this paper was sent to the editors, Nigel Fabb and I have studied meters in many languages including, among others, French, classical Greek, Spanish, Italian, Arabic, Vietnamese, and Sanskrit. These studies have shown that with the notable exception of the metrical poetry of the Old Testament, all meters of all languages involve grouping of syllables into pairs or triplets of the same kinds as that met with in the English examples in this chapter. For details interested readers are referred to Nigel Fabb and Morris Halle (to appear in 2008) *Meter in Poetry: A New Theory*, Cambridge University Press.

Notes

I am grateful to Sylvain Bromberger, David Embick, John Frampton, Kristin Hanson, Jay Keyser, Michael Kenstowicz, Bert Vaux, as well as to an anonymous reviewer for helpful comments.

(1.) Hayes 1995, chapter 8 discusses additional instances of ternary stress patterns and offers an alternative account of these as special cases of binary footing. I am not altogether persuaded by Hayes's proposals, but because of the complexity of the issues involved, a discussion of these proposals must be deferred to another occasion.

(2.) I am indebted to Michael Kenstowicz for drawing my attention to this fact.

(3.) The word *lovèd* in (11d) is counted as disyllabic for purposes of the meter. This is another deviation from the syllabification of normal speech that is common in English poetry (see Major 1901 for some discussion). Like the omission of word-medial syllables, this type of syllable epenthesis, is employed only sparingly. We take formal account of these facts by adding appropriate stipulations to the list of conditions (9b), noting in particular their marked status.

(4.) The treatment discussed here is along the lines of Halle and Keyser 1971.

(5.) Extensive use of loose meters is found in German poetry. Among poems in these meters are such “war-horses” as Goethe’s *Der Erlkönig* and Heine’s *Die Grenadiere* and *Lorelei*. In an unpublished lecture (Harvard, February, 1997), I have shown that loose meters of all kinds—trochees, dactyls, and anapests in addition to iambs—are widely employed in Russian poetry, where they are referred to by the term *dol’nik*.

(6.) A parallel difference is found in stress systems. As shown in section 2.2, Finnish word stress parallels the loose meters, whereas the stress systems of Maranungku, Pintupi, and Weri parallel the strict meters.

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