A Grammar of Prosody

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In their recent study of Chaucerian meter, Morris Halle and Samuel Jay Keyser propose a theory of prosody which they hope may serve as a framework for the study of "a major portion of English poets."1 The rules of stress assignment and meter they have discovered for Chaucer's iambic pentameter appear to me quite convincing (with some minor reservations to be discussed later), and metrical rules of this sort should be of considerable help in stylistic analysis, whether for individual poets or for different periods of poetry. But I think the major role of the Halle-Keyser rules (or, ultimately, more refined rules of this kind) will be to constitute essentially a grammar of meter, comparable to the generative grammarian's "rules of competence," which will determine (i.e., provide a metrical description of) what are metric and what are unmetrical lines. And in this role, in addition to providing a basic framework for stylistic analysis, which may have to be supplemented with something comparable to "rules of performance,"2 such rules should be useful in providing explanations for metrical phenomena, and in determining various prosodic questions, some of major importance. For example, why has the deca-syllabic line (iambic pentameter) been the overwhelmingly predominant vehicle for English verse? Or, alternatively, in what way does it provide the freedom and flexibility the poet obviously finds there? Why do shorter line lengths (tetrameter, trimeter) in duple meter appear to be so much more "rhythmic" than pentameter, exhibiting always a more insistent beat or accent? Why does trochaic meter appear more inflexible than iambic (i.e., why does it seem peculiarly beat-insistent, or, why does it show such a low tolerance for "irregular feet")? The purpose of the present article is to explore, in a preliminary way, some of these questions, to examine possible extensions of the rules Halle and Keyser have proposed, to suggest a different set of stress rules to use in conjunction with the Halle-Keyser principles of meter (for purposes of analysis of English poetry of the past three centuries), and to provide a critical commentary on the new prosodic system.

Two sets of rules are essential to the system: rules of stress, and rules (Halle and Keyser use the word "principles") of meter. It is the rules of meter Halle and Keyser think may have provided the system of prosody for a major portion of English poets, and I reproduce them here.

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2For those unfamiliar with generative terminology, Chomsky has distinguished between rules of competence (in effect, these are the grammar of the language; they are the rules which will generate grammatical sentences), and rules of performance (stylistic rules, which will allow grammatically deviant sentences, or place certain restrictions upon the use of what would be, technically, grammatical sentences). See Noam Chomsky, Aspects of the Theory of Syntax (Cambridge, Mass., 1965), pp. 8-15, and passim.
Principle 1.

The iambic pentameter verse consists of ten positions to which may be appended one or two extra-metrical syllables.

Principle 2.

A position is normally occupied by a single syllable, but under certain conditions it may be occupied by more than one syllable, or by none.

Condition 1.

Two vowels may constitute a single position provided that they adjoin, or are separated by a liquid or nasal or by a word boundary which may be followed by $b$, and provided that one of them is a weakly stressed or unstressed vowel.

Condition 2.

An unstressed or weakly stressed mono-syllabic word may constitute a single metrical position with a preceding stressed or unstressed syllable.

Principle 3.

A stress maximum may only occupy even positions within a verse, but not every even position need be so occupied.

Definition.

A stress maximum is constituted by a syllable bearing linguistically determined stress that is greater than that of the two syllables adjacent to it in the same verse.¹

For purposes of this article, I assume that these three principles are in fact the principles of all English regular-metered verse, and extend them, as Halle and Keyser suggest, to embrace different kinds of meter in obvious ways:

1A. a tetrameter iambic or trochaic line consists of 8 positions, a trimeter line of 6, etc.

3A. for trochaic verse, stress maxima may occupy only odd positions, though not every odd position need be occupied.

Turning now to rules of stress (which are needed to determine stress maxima—see "Definition" under 3), it could be argued that a different set would be needed for every period of verse (and every dialect). But I think that a set can be constructed—perhaps somewhat primitive, but adequate to our purpose—sufficient to provide a working tool for most English verse of the last three centuries. We adopt Seymour Chatman's distinction of five types of syllables for purposes of arriving at linguistically determined "lexical stress," and we identify stress maxima from certain configurations of these syllable types.² The five kinds of syllables are:

¹Halle and Keyser, p. 197. The stress maximum is reminiscent of Jesperson, who, in "Notes on Meter," points out that the initial syllable of a verse can not be judged to bear ictus until the second syllable occurs—because there is nothing preceding the first syllable for purposes of comparison. For this reason, an initial trochee in iambic verse disappoints only in the second syllable, not in the first. If this is the only disappointment in a decasyllabic line, and if the third syllable carries even less stress than the second (Jesperson uses four degrees of stress), the line will show only 10% disappointment, as compared to a 20% occasioned by an initial trochee in a trochaic line. The recognition of stress relationship to adjacent syllables and the concomitant notion that stress next to nothing can not be optimum stress are key elements of the Halle-Keyser rules. See Otto Jesperson, "Notes on Metre," in Essays in the Language of Literature, ed. Seymour Chatman and Samuel R. Levin (New York 1967), pp. 71-90.

²Seymour Chatman, A Theory of Meter, (The Hague, 1965), pp. 123 ff. Note that one could also evolve a theory of phrase and clause accent to supplement lexical stress. One could for example postulate that in prepositional phrases the head word bears phrase accent, that in determiner-adjective-noun phrases the noun bears phrase accent (in American English, if not in British English), that in NV-terminal juncture clauses, the V bears clausal accent, that in NV-adverb clauses, the adverb bears clausal accent, and so forth.

The supplementing of rules of lexical stress with accent rules of this kind would yield some additional stress maxima, specifically where two back to back lexically stressed syllables would otherwise cancel each other out. Halle and Keyser do propose to include rules of this
a) full-voweled monosyllabic words with non-reducible vowels (e.g., "straight," "bright," etc.)
b) reducible full-voweled monosyllabic words ("a," "to," "shall," "you," "it," "can," etc. In general, most non-lexical monosyllabic words can reduce the vowel coloring to /i/.
c) stressed syllables of polysyllabic words
d) full-voweled unstressed syllables in polysyllabic words
e) unstressed syllables in polysyllabic words with reduced vowels

We now assume that a syllable of type a or c, preceded and followed by syllables of types b, d, or e will constitute a stress maximum, unless a syntactic juncture intervenes—for, following Halle-Keyser, we will maintain that if a major syntactic boundary intervenes between two metrical positions, neutralization occurs, which is to say, the adjacent positions cannot carry stress maxima.6

The center syllable, then, of any sequence of three syllables which meets this description is a stress maximum:

\[
\begin{array}{ccc}
\text{Syll.} & \text{Syll.} & \text{Syll.} \\
\{b\} & \{a\} & \{b\} \\
\{d\} & \{c\} & \{d\} \\
\{e\} & \{\} & \{e\}
\end{array}
\]

In essence, what is proposed for the determination of stress maxima is a rule which is lexically based, but which operates as a determinant of underlying stress in any phrase segment of three sequential syllables.

Since it is capacity for reduction that determines the membership of "b," rather than whether the monosyllable is in fact reduced in a given instance, and since the rule deals with only two stresses (stress and unstress), the system proposed here will find a somewhat different set of stress maxima than any alternative system that assigns four (or even three) degrees of stress, or that assigns phrasal and clausal stress on a basis of syntactic order.

* * * * * *

To briefly illustrate the use of the Halle-Keyser rules of prosody in combination with the rules of stress I propose consider the familiar lines from Hamlet:

\[
\begin{array}{cccccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10
\end{array}
\]

Oh that this too too solid flesh would melt,

\[
\begin{array}{cccccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10
\end{array}
\]

Thaw, and resolve itself into a dew.

Both lines have ten positions occupied with syllables, and there are no problems of extra-metrical syllables. The lines are iambic pentameter, and our rules call for stress maxima, if there are any, to fall only on even-numbered positions.

The syllables that could, by virtue of their linguistically determined stress, conceivably carry stress maxima are: "Oh," the first syllable of "solid," "flesh," "melt," "thaw," the second syllables of "resolve" and "itself," and "dew." These are either the accented syllables of polysyllabic words (solid), or else they are non-reducible full-voweled monosyllables (melt):

\[
\begin{array}{cccccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10
\end{array}
\]

Oh that this too too solid flesh would melt,

\[
\begin{array}{cccccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10
\end{array}
\]

Thaw, and resolve itself into a dew.

The unitalicized syllables are of types b, d, or e. Most of them are type b, reducible full-voweled monosyllables. For example, "too" is a full-voweled syllable

6Halle and Keyser, pp. 203, 204. Notice that for the same reason (incapacity for stress sub-ordination) a syllable at the beginning of a line cannot bear stress maximum, no matter what the meter; nor can the syllable at the end of a line, unless there is appended an extra-metrical syllable.
(\(\text{tuw/}\)) but it frequently reduces to a neutralized vowel (\(\text{ti/}\)), as in “too much” said rapidly, with stress on “much.” It is important to note that it is this capacity for reduction, rather than how the word may actually be said in a particular instance, which determines its classification.

Let us now examine the italicized syllables, those with linguistically determined stress. The first syllables in both lines carry linguistic stress (they are type a: non-reducible full-vowelled monosyllables). However, neither “Oh” nor “Thaw” is a stress maximum, and for two reasons. First, no syllable precedes them in their respective lines, and they thus cannot be thrown into relief by unaccented syllables on each side. For this reason, neither the first, nor the last syllable of a line (unless an extra-metrical syllable follows) may be a stress maximum. So “melt” and “dew,” though both are linguistically stressed (they are non-reducible full-vowelled monosyllables), also do not constitute stress maxima.

But there is a second reason why neither “Oh” nor “thaw” can be a stress maximum, namely, that these syllables are followed by major syntactic junctures, which have the effect of neutralization: neither the syllable before, nor the syllable after major syntactic juncture, may carry stress maxima.

This leaves five candidates for stress maxima, positions 6 and 8 in line one (\textit{solid flesh}) and positions 4, 6, and 7 in line two (\textit{resolve itself into}). The second syllable of “itself” and the first of “into” have linguistically determined stress (they are type c—accented syllables of polysyllabic words), but they are back to back. Thus each keeps the other from being a stress maximum: neither can be bordered on both sides by non-stressed syllables.

This leaves then only three linguistically stressed syllables to consider: “flesh,” the first of “solid,” and the second of “resolve.” In each of these cases, unstressed syllables are to be found on both sides, without intervening juncture. These three syllables, then, do constitute stress maxima. Further, they fall on even positions, so the two lines are metrical by our rules, the first showing positions 6 and 8 occupied, and the second showing only position 4 occupied (not every even position need be occupied):

\[
\text{Oh that this too too } \textit{solid flesh} \text{ would melt,}
\]
\[
\text{Thaw and resolve itself into a dew.}
\]

These metrical rules, or principles, may be regarded as claims about the metrical competence of the poet.\(^6\) It could be said that it is claimed the poet internalizes, not a poetic foot (some recurring pattern of stress and unstress), but a sequence of positions to be occupied by syllables; it is claimed that he is aware somehow of whether a given syllable \(Y\) occurs in an arithmetically even or arithmetically odd position; it is claimed further that the poet is metrically conscious only of stress maxima (linguistically determined lexical stress sandwiched by unstressed syllables, without intervening major syntactic boundary); it is claimed that he allows these to occur, or accepts their occurrence, only in even positions for iambic meter and only in odd positions for trochaic meter.\(^7\) His grammar, \textit{per se}, is not concerned with

\(^6\) It would be useful to have a word comparable, in this metrical context, to “native speaker” in the more general linguistic situation. The claims in any event are of the competence of the poet and of those attuned to poetry in some metrical sense, but I shall use the word “poet,” in this situation, to refer to both. By “competence” is meant what the poet and the attuned reader know (though not necessarily what they can articulate) about the rules of meter.

\(^7\) Or, obviously, some other pattern of position occupancy in the cases of dactylic or anapestic verse.
mere “accent” (though possibly his rules of performance might register cognition of these and other refinements).

Let us turn now to such matters as the greater rhythmic regularity of short-line verse (tetrameter and trimeter), and the long noted and frequently debated difference in character between iambic and trochaic verse. Otto Jespersen, for example, contends that trochaic meter is characterized by a “falling” rhythm, and iambic meter by a “rising” rhythm; in the former, there is a tendency to “linger” on the stressed syllable.\(^8\) This suggests that the trochaic “foot” might be quantitatively longer than the iambic. No measurements of performance that I know of have established this,\(^8\) but even

By way of comparison, it could be said that traditional “school-room” prosody also may be reduced to a set of claims: namely that the poet internalizes a recurring group of stressed and unstressed syllables in a certain sequence—this is essentially the claim of the “foot” concept.


\(^9\) One, in fact, shows the iambic foot as longer: Ada Snell, “An Objective Study of Syllabic Quantity in English Verse,” PMLA XXXIII (1918), 396-408; XXXIV (1919), 416-435. Though this was not her principle objective, her measurements did show the average iambic foot to be of .69 seconds duration, and the average trochaic foot to be .55 (XXXIV, p. 433).

However, her tabulations on p. 432 show the average short syllable (unstressed) of the trochaic foot to be .35 seconds, and the average long syllable (stressed) as .20! Obviously, from an examination of the other figures, the two columns were accidentally reversed in the printing, a fact which may possibly have contributed to what seems to me Chatman’s misleading conclusion that her figures “demonstrated clearly that syllable length was not necessarily an indication of metric cactus, that indeed unstressed syllables could last longer than adjacent stressed syllables” (Chatman, p. 80). On the contrary, Snell’s figures, to me, suggest that there is a clear general correspondence between the classical prosodist’s length and cactus, so far as performance is concerned. those who do not accept the foot (Chatman, and Jespersen himself, in part—p. 74) unite in finding a more regular and insistent beat to trochaic verse.

If we assume, however, that the difference attributed to trochaic verse is in fact a difference to be found generally in all short-lined verse whether trochaic or iambic, there can be found an explanation for the assumed difference. Since most trochaic verse in English is in short-lines, and since our impressions of iambic verse are derived almost entirely from pentameter, it would seem entirely possible that the issue has been falsely formulated—that the differences of rhythm encountered are attributed not to the type of foot, but to the length of line in which the foot characteristically appears. And it will be argued below that the more regular beat of short-lined verse is accounted for by the fact that a much higher percentage of positions available for stress maxima are occupied than is the case in decasyllabic verse.

In English, most trochaic poems are in tetrameter, or trimeter.\(^10\) Here, for example are two 10 line passages from Longfellow’s “The Song of Hiawatha,” the syllables carrying stress maxima, in accordance with rules here adopted, printed in italics.

{Till at length a small green feather From the earth shot slowly upward, Then another and another, And before the Summer ended}

\(^10\) Poe claimed that he wrote “The Raven” in trochaic “octameter catalectic” alternating with “heptametre catalectic” but the heavy internal junctures after the fourth foot in most lines, and the internal rhyme, clearly suggest that the poem is in fact tetrameter.

Once upon a midnight dreary While I pondered weak and weary Over many a quaint and curious Volume of forgotten lore.

Note in the four lines (as I have rearranged them) that ten of the eleven available positions carry stress maxima, which are indicated by italics. The position not occupied is enclosed in parentheses.
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Stood the maize in all its beauty, With its shining robes about it, And its long, soft, yellow tresses: And in rapture Hiawatha Cried aloud, “It is Mondamin! Yes, the friend of man, Mondamin!”
—“The Song of Hiawatha,” Section V.

Straight between them ran the pathway, Never grew the grass upon it; Singing birds, that utter falsehoods, Story-tellers, mischief-makers, Found no eager ear to listen, Could not breed ill-will between them, For they kept each other’s counsel, Spake with naked hearts together, Pondering much and much contriving How the tribes of men might prosper.
—“The Song of Hiawatha.” Section VI.

A tetrameter line has available only three positions (2, 4, and 6 for iambic; 3, 5, and 7 for trochaic) for occupancy by stress maxima—a trimeter line only two. Pentameter has four. In the lines quoted from “The Song of Hiawatha,” 46 of 60 available positions are occupied by stress maxima, for a 77% occupancy. Various randomly selected passages in “Hiawatha” show an average 75% occupancy. 11
By contrast, an analysis of 10 of Shakespeare’s sonnets (where there are four available positions per line, or 56 per sonnet) show an average of only 27.7 stress maxima per sonnet, or 49% occupancy. 12
But the high occupancy ratio in Longfellow’s trochaic verse is matched by that in various randomly sampled short-lined iambic poems. A. E. Housman’s ballad stanzas show about 75% occupancy; even so varied a poem, metrically, as “Loveliest of trees, the cherry now” (the first line with only one stress maximum) shows 27 out of 35 positions occupied, or 77%.

Nor does the type of poet, or the type of verse (e.g., sonnet, or blank verse) seem ordinarily to affect the density of stress maxima. Edwin Arlington Robinson’s blank verse dramatic monologues show about the same occupancy as Shakespeare’s sonnets, and so do Robert Frost’s blank verse and e. e. cummings’ sonnets and other pentameter poems. 13
(The condition indeed appears so general that when we find poetry departing significantly from the pattern, the occupancy ratio and distribution provide a basic tool for initial stylistic analysis, as we shall see a little later.)

It appears then that the often noticed difference between trochaic and iambic verse, if understood as actually a perceived difference between poems of different line length, may be correlated with the much greater density of stress maxima in short-lined verse: about 75% occupancy for short lined verse, contrasted to 50% occupancy for decasyllabic verse. Put another way, there is 50% greater density of occupancy in short line verse.

Such an explanation follows naturally upon the concepts of positions and stress maxima. But the concept of feet does not explain it, for in fact just as high a percentage of iambs is found in pentameter as in shorter lines (or trochees in trochaic lines). Shakespeare’s sonnet LXXXIX, for example, which shows only 27 stress maxima in 56 available positions, shows 66 iambic feet out of a possible 70 (defining an iambic foot for this purpose as one which can be read, by any reasonable stretch of performance rules, as a lesser stressed syllable followed by a more

11The lowest percentage of occupancy I found in Hiawatha was 64%, in a thirteen line passage, also from section V. Four of the thirteen lines contain only one stress maximum each: “Sorrowing for her Hiawatha,” “He meanwhile sat weary waitring,” “Till the sun dropped from the heaven,” and “As a red leaf in the autumn.”
12The following sonnets were analyzed; I, II, XXIX, LV, LVIII, LXXIII, LXXXIX, XC, XCI, CVII.
13I am indebted to Helen Tuisky for work with e. e. cummings’ poetry.
greatly stressed syllable). For purposes of
direct comparison, here is Sonnet
LXXXIX, with stress maxima italicized,
and with only those "feet" which do not
seem, to me, susceptible to an iambic
reading printed in capital letters:

SAY THAT thou didst forsake me for
some fault,
And I will comMENt UPon that
offense.
SPEAK OF my lameness, and I straight
will halt,
Against thy reasons making no defence.
Thou canst not, love, disgrace me h alf
so ill,
To set a form upon desired change,
As I'll myself disgrace, KNOWING thy
will.
I will acquaintance strangle, and look
strange,
Be absent from thy walks, and in thy
tongue
Thy sweet beloved name no more shall
dwell,
Lest I, too much profane, should do it
wrong
And haply of our old acquaintance tell.
For thee, against myself I'll vow
debate,
For I must ne'er love him whom
thou dost hate.

I have designated 28 stress maxima here,
but count only 27 that fall in an even
position, since the stress on the second
syllable of "upon" in line 2 falls on posi-
tion 7, thus making that line unmetrical.
The point is that there are 66 syllables
in even position capable of some kind of
stress, but only 27 of these are stress
maxima.

Glancing now at English triple meters,
anapestic and dactylic, it might at first
appear that the insistent beat in these
meters is at odds with our assumption
that the phenomenon is associated with
"short line verse," for most triple meters
are in lines longer than decasyllabic. In-
deed, the percentage of occupancy of
available positions by stress maxima in
anapestic verse appears to run higher than
for the short line verse examined earlier.
Byron's "Destruction of Sennacherib"
and "On the Day of the Destruction of
Jerusalem by Titus" show 96 stress maxi-
ma out of a possible 117 positions, for
somewhat over 80% occupancy.

But in this case I think we must look
for a different explanation of the rhyth-
mic insistency. If the phenomenon in
short line duple meters is to be accounted
for—as I think it must—by a relative
numerical scarcity of available positions
as these relate to the syntactic units that
normally comprise a line, in triple meter
verse I think it is to be explained by
the fact that the poet has to rely exces-
sively on preposition-determiner-noun
sequences, and other set syntactic pat-
terns of English, to throw the stress al-
ways on the third syllable. It is worth
noting, however, that complete lines
without any stress maxima are possible in
triple meter, as witness Byron's "When
the blue wave rolls nightly on deep
Galilee," where each potential stress
maximum is cancelled by an adjacent
non-reducible full-vowelled monosyllab-
ic or accented syllable of a polysyllabic.14

Certain aspects of the Halle-Keyser
principles of meter may provoke attack,
and there remain some formal problems
to be solved. For one thing, there is the
claim—if I am right in postulating that
their first principle in effect makes a
claim—having to do with internalizing in

14 These comments on triple meter are based
on the assumption of a set of rules that would
provide, in anapestic tetrameter, for a 12 posi-
tion verse, with stress maxima allowed to
occupy only positions 3, 6, or 9, and with
provisions for empty initial positions, and for
extra-metrical syllables. In actuality, I think the
framing of rules for triple meters in English
poses difficulties not encountered in duple
meters. Conditions for empty medial positions
where there are terminal junctures would have
to be set, for most poets who employ the
medium.
some manner a sequence of positions (up to 10, in the case of decasyllabic verse) and identifying within this chain those positions which may be legitimately occupied with stress maxima. At first consideration, this might appear counterintuitive. The claim asks nothing of rhythmic or temporal considerations. It is quasi-arithmetic, and on the face of it seems harder to believe than what amounts to the traditional claim that what is internalized is a recurring rhythmic pattern consisting of stronger and weaker pulses (which claim, of course, has support from psychological research).

To this objection, it might be answered that counting is the basis of all rhythm, musical as well as poetic. But how much counting (up to what number, without assistance of metrical grouping) is another question. In music, for example, one does not "count" higher than four in most cases—indeed, it can be argued that one does not have to internalize a count higher than three, since the various quadruple meters lend themselves to subdivision so easily. Herein lies the strength of the foot concept, since it hypothesizes only a recurring pattern of stress and unstress that never exceeds three (in English). The stress maximum concept on the other hand (at least in its unsupported version) implies that we can internalize 10 positions and be satisfied—to use Jespersen's word—by an event in the 8th position (which may not have occurred in 2, 4, or 6); or dissatisfied by an event in the 7th, even though we have no other occurrences anywhere in the line to use as an interval or distance estimate. Such observations suggest that rules for stress maxima should be supplemented by rules perhaps of another sort.

A quite minor detail is the fact that the rules of meter indicate that a position may under certain conditions be unoccupied, though the conditions are not specified in the rules. In fact, the only position which may be unoccupied appears to be the first position in iambic pentameter, though as I have suggested (footnote 14) provision for other empty positions would probably have to be made in other meters.

On this point, note that if we postulate a set of rules governing trochaic verse exactly parallel to those generating iambic verse (including the conditions of position occupancy by more than one syllable, and the possibility of zero occupancy), we have no way to distinguish consistently beheaded iambic verse (zero initial position) from consistently catalectic trochaic verse (zero final position). Thus, Tennyson's "Locksley Hall" and many others of this form:

Comrades, leave me here a little, while
   as yet 'tis early morn;
Leave me here, and when you want me,
   sound upon the bugle horn.

Tennyson's poem continues in a precisely similarmetrical manner for 194 lines, with stress on the first and last syllables of each line. An obvious solution to this problem is to view such poems or portions of poems as metrically ambiguous in their surface structure, and postulate that they are, in their deep structure, either iambic with initial position always unoccupied, or trochaic, with final position always unoccupied. As a matter of fact, many poets have capitalized on this ambiguity. In "To a Skylark," Shelley chooses a stanza form which maintains the ambiguity through the first four lines of each stanza, resolving it in the iambic hexameter fifth line. And much of the charm of John Donne's "Go and catch a...

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15"Locksley Hall," like "The Raven," seems to me misleadingly arranged with respect to line length. A major syntactic break occurs in the middle of each line; instead of rhyming octameter couplets (as Tennyson arranged it), these seem to me to be tetrameter quatrains, with lines 2 and 4 rhyming, and—as Poe would have put it—tetrameter trochaic catalectic alternating with tetrameter trochaic catalectic.
falling star” consists in precisely this ambiguity, which he maintains unresolved throughout the three stanzas.

Finally, it might be argued that the principles appear to offer no way of dealing with the reality of run-on lines—that is, if a line is in fact run on (proceeds without major juncture into the next), why then can not the tenth syllable of the first line (or the first syllable of the second line, in trochaic verse) be considered occupied by stress maximum? The major difficulty is that if this be admitted, we will be forced in some cases to find stress maxima in initial position in iambic verse, thus losing the strength of our position (see next paragraph) that an initial stress does not make an irregular or unmetrical line. However, it must be remembered that our principles postulate a verse line as a sequence of positions only: the verse line is taken as a primitive, so to speak, and in this light, the foregoing objection loses some of its force.

Far more than offsetting these present possible inadequacies is the explanatory power of the principles. Initial “trochees” in iambic verse pose no problem at all: to say a line begins with a trochee is to say that the first position contains a stress greater than the second position, but no more: in our view, the first position cannot contain a stress maximum. And in fact, more of the lines in Shakespeare’s sonnets begin on accented than on unaccented syllables: in the ten sonnets studied, only 52 of 140 lines had stress maxima in position 2. More common are lines like this one from Sonnet II:

“As I’ll myself disgrace, knowing thy will”—Sonnet LXXXIX

We readily accept also special intonations which might appear to violate the meter, if meter is taken to be based on performance. But our principles and our stress rules say nothing at all about how lines may happen to be read. Stress maxima are defined in terms of linguistically determined stress (i.e., not performance determined). In the present study, a syllable is one of the five kinds distinguished by Chatman, and it belongs in that class regardless of how it is performed. The following lines may be performed with unusual stress on the italicized syllables in odd positions, but it does not make the lines unmetrical:

1. Say that thou didst forsake me for some fault—Sonnet LXXXIX

2. As he would add a shilling to more shillings—Robinson, “Ben Jonson Entertains a Visitor from Stratford."

3. Oh, that this too too solid flesh would melt—Hamlet

In 1, “sake” is the stressed syllable of a polysyllabic word, and “me” is a reducible full-vowelled monosyllabic (as are

16In fact four kinds, for in this analysis I do not distinguish between his types d and e: between full-vowelled unstressed syllables in polysyllabic words and unstressed syllables in polysyllabic words with neutralized vowels.
most pronouns). The fact that "me" may be said louder (perhaps to indicate that in the past the reverse had been true) or higher than "sake" does not alter the linguistic fact. In 2, which has an extra-metrical syllable after the 10th position, "more" is a prenominal adjective and subject to reduction (even though it may not be so performed in this instance), and therefore is not a stress maximum. In each case, the performance can not alter what as native speakers we know, and our knowledge of inherent linguistic stress overrides performance. Ictus in our sense is not synonymous with what is phonetically higher or louder or with what is more carefully enunciated. Therefore we need no performance records to determine the meter of the poem—though we need a knowledge of "performance" i.e., a corpus) from which to derive our rules of stress in the first place.

And, as Halle and Keyser have demonstrated, our principles explain the otherwise unexplainable phenomenon that while iambic lines can accept initial trochees, trochaic lines frequently cannot accept initial iambs. In "Proving his beauty by succession thine," the initial accent on "Proving" cannot be a stress maximum, and thus its occurrence on an odd position in iambic verse does not alter the meter. But if, to parallel Jesperson's illustration, we change Longfellow's trochaic line

"Straight between them ran the pathway" to read

"Between them straight ran the pathway" we have created a stress maximum in an even position, thus violating the rule of trochaic meter.

So the Halle-Keyser prosodic system is first of all a grammar of verse: it is a set of rules which enables us to say that certain lines are metrical, and certain lines are not metrical. Beyond this lies the question of whether the rules can be used significantly for stylistic analysis. This article has not for the most part concerned itself with this question. The distinction drawn between short-line and long-line verse (75% density of stress maxima in the former, 50% in the latter) is not fundamentally a stylistic distinction. Rather, it would appear that the language mechanics of verse lines shorter than decasyllabic linguistically requires the higher percentage of occupancy because of the relatively fewer available positions for stress maxima in each line to correlate with normal syntactic units.

Perhaps we should look for stylistic devices to emanate from something corresponding to rules of performance, rather than to metrical competence. In effect performance—but in an oral production sense—is what earlier structuralist analyses of metrical stress dealt with. If efforts are made to supplement rules for determination of stress maxima with rules showing how phrase accent and clause accent, etc., may be appended, these might have more to do with metrical performance (not oral-production) than with metrical competence.18

17 Though Seymour Chatman has now shifted his position substantially, A Theory of Meter is still performance-oriented in this sense.

18 See footnote 4. For a full "grammar of prosody," further refinements might be needed, but I think their necessity would have to be demonstrated. For example, I have not used secondary stress in polysyllabic words as stress maxima. Thus, Poe's line

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

To the tintinnabulation that so musically wells would show stress maxima in positions 7 and 11, but not in 3 or 5 or 13, all of which are occupied by syllables that possibly have secondary stress of some kind. A glance at several dictionaries will show how divided opinion is on the question of secondary stress. And the fact that secondary stress can be subordinated to primary stress seems to me to eliminate it from stress maximum status. Observe the behavior of the third syllable of "refugee" in the following triple meter:

The refugee came to the village he knew. Additional conditions for occupancy of a position by more than one syllable might be needed, though I have so far encountered few situations that are not encompassed by those in the Halle-Keyser principles.
However, certain basic stylistic determinations may be derived from the rules. Relative density of stress maxima occupancy comes first to mind as a stylistic determinant. I have said that most of the decasyllabic verse examined shows about 50% occupancy, and have suggested that this ordinarily obtains, irrespective of poet or period. But individual poems may show significant variance; and individual efforts in different verse forms may exhibit differences. An analysis of the first ten of John Donne's "Holy Sonnets" shows 236 of 560 positions occupied, for 42% density of occupancy, as compared to the 49% found for ten of Shakespeare's sonnets.

Predilection for placing stress maxima in certain positions would appear to be, potentially, a more telling stylistic determinant. My study of the sonnets of Shakespeare and Donne shows distribution of stress maxima in the four available positions (140 possibilities for each position) as follows:

<table>
<thead>
<tr>
<th>Stress Maxima</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S.</td>
<td>D.</td>
</tr>
<tr>
<td>Position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>52</td>
<td>65</td>
</tr>
<tr>
<td>4</td>
<td>76</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>65</td>
<td>47</td>
</tr>
<tr>
<td>8</td>
<td>83</td>
<td>74</td>
</tr>
</tbody>
</table>

Shakespeare uses position 8 most, followed by 4, then 6, then 2. Donne also uses 8 most, but favors next position 2 (last with Shakespeare), then 4, then 6. This suggests, in Donne, a metrical structure tending to support stability at the extremities of the lines, somewhat like a suspension bridge, perhaps at the expense of medial stability. Shakespeare, on the other hand, tends to provide anchors at half way points. This possibly subjective interpretation might be represented in this manner:

\[
\begin{array}{c|c|c|c|c|c|c}
\text{John Donne} & & & & & & \\
\text{William Shakespeare} & & & & & & \\
\end{array}
\]

Distribution of the stress maxima does appear to provide the richest source for stylistic analysis. Many more possibilities suggest themselves. For example, if a poet has employed positions 6 and 8 in one or two lines, how long will it be till he balances by placing maxima in 2 and 4? What overall distributional patterns of occupancy present themselves, and what is their significance? What lines show total occupancy? What show none? In the ten sonnets of Shakespeare, there were 10 lines with no stress maxima; in the sonnets of Donne, there were 11. The following are typical:

"Some glory in their birth, some in their skill"—Shakespeare, Sonnet XCI.
"My worlds both parts, and (oh) both parts must die"—Donne, Holy Sonnet 5.

The particular uses—and the frequency—of unmetrical lines is another potential stylistic consideration. There is always the possibility of a lapse on the part of the poet, and occasionally a poet may be a poor metrist (see footnote 14), but some lines unmetrical by the rules seem calculated for effect. In the ten sonnets of Shakespeare I found only one clearly unmetrical line (which, incidentally, is about \( \frac{1}{3} \) of 1%, as compared to the 1% of unmetrical lines Halle and Keyser found in Chaucer), but four in Donne. The unmetrical line of Shakespeare's occurs in sonnet LXXXIX:

"And I will comment upon that offense."

As pointed out earlier, a stress maximum falls on position 7, rendering the line unmetrical. This would seem to be merely a lapse.

John Donne's unmetrical lines, however, occur with sufficient frequency to suggest deliberation. He appears to seek the device which will capture attention, by departing from the usual (note that he does not attempt to achieve novelty—which would not have been novelty—
by low frequency use of position 2, and the attendant stress in initial position). One of the ways of doing this is by deliberately placing stress maxima in off positions. In sonnet 1, we find:

"Thou hast made me, and shall thy worke decay?"

where the very first stress maximum occurs in position 3, perhaps underscoring the conflict, the contradiction in the two thoughts Donne contemplates. An unmetrical line in a passage that interests because of its use of double position occupancy occurs in sonnet IV:

line 5 Or like a thiefe, which till deaths doome be read,
6 Wisheth himselfe delivered from prison;
7 But damn'd and bal'd to execution,
8 Wisheth that still he might be imprisoned.

Here "wisheth" is used in positions 1 and 2 of line 6, and the line is metrical (but the extra-metrical syllable at the end, the second of "prison," is made to carry the rhyme). Then in line 8, the two syllables of "wisheth" both occupy position one, which places the stress maximum in position 3 for an unmetrical line. Alternatively, if "wisheth" occupies two positions, "still" carries stress maximum in position 4, but now the stress maximum in "imprisoned" falls in position 9, for an unmetrical line. One could assign "be" and "im-" to the same position by condition one of the rules, and, with other adjustments, argue that the line is metric.

The other two unmetrical lines are printed without comment:

To where they're bred, and would press me, to hell—sonnet VI.
Make sines, else equall, in mee more beinous?—sonnet IX.

It may be noted in passing that Donne's experiments in position occupancy by more than one syllable are most interesting, and is another aspect which lends his verse its rough-hewn effect.

In summary, the Halle-Keyser principles of prosody appear to bear a relationship to traditional prosody somewhat akin to that which transformational grammar bears to traditional grammar. Their approach represents an attempt to make explicit what had been only implicit. Pursuing the analogy, the principles appear also to represent certain claims about the nature of metrical competence, and though the claims may at first pose something of a credibility gap, in fact they stretch the credibility no more than the failure of implicit claims in traditional prosody to account for what would otherwise be an intolerable percentage of unmetrical lines. The principles, together with the stress rules here suggested, offer a unified explanation for the fact that the majority of iambic lines begin with trochaic feet; for the absence of regular feet at various other positions in the line; for our acceptance of strong stress before or after juncture, even in odd-numbered positions; for the fact that special intonation features do not appear to violate the acceptability of metrical lines; for the rejection of iambics in trochaic verse; for the fact that poetry in duple meter in verse lines shorter than decasyllabic appears to be more irresistibly metrical. Finally, they offer a well-defined procedure for basic metrical-stylistic analysis.20

20I would like to acknowledge the valuable assistance of Don Seigel, who read two versions of this paper and whose criticism has been most helpful.

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