

Chapter 6

Stress Maxima in Weak Positions

Preliminary

In Chapter 2, I presented the cognitive assumptions of the present research. Poetic rhythm has a strong auditory ingredient, though also affected by syntax and semantics. Its auditory qualities may be accounted for if we assume that it is processed in short-term memory, which functions in the acoustic mode, and is constrained by the memory's limitations. The contents span of short-term memory is limited to seven monosyllabic words plus or minus two. That is why the longest verse line that can be perceived as a rhythmic unit without an obligatory break is ten syllables long. Its time span is roughly the period we can remember, e.g., a telephone number without rehearsal. During this period short-term memory functions like an echo box. To render a verse line perceptible as a rhythmic whole, the reciter must manipulate his vocal resources in such a way that the verse line can be completed before its beginning fades out in short-term memory. When the immediately observable string of syllables deviates from metric regularity, the metric pattern may be perceived as reverberating in the background, provided that sufficient mental processing space is available. Training cannot expand these spans of short-term memory. The only thing one can do is to recode the verbal material in such a way that it occupies less mental processing space. Recoding seems hardly possible in poetry, where the actual words may not be changed. Still, some mental processing space may be saved by two kinds of vocal manipulations: grouping and clear-cut articulation. Gestalt theory has laid down fairly rigorous rules of what facilitates perception: these include grouping and parsing (which is one kind of articulation). Accordingly, we may expect reciters to over-articulate, on the one hand, word and syllable boundaries (parsing) and, on the other hand, to group syllables and words in certain ways. Speech research of the past thirty years has established that in the flow of everyday speech we tend to rather careless articulation, and in the course of decoding the listener has to do much subliminal guesswork. In conversational speech, words are normally run one into the other in English, and it takes a special decoding effort to determine the word endings. "Word boundaries are anything but fixed. Without boundaries words are hard to recognize". Thus, much decoding effort can be saved by clear articulation of word endings. Clear-cut articulation of phonemes and of syllable and word boundaries may save much mental processing space. Intonation is a typical means of over-articulating syllable and word boundaries; but the over-articulation of the syllable (or word) final consonants too contributes to the over-articulation of boundaries. The phrase "rhythmical performance" refers to the vocal and/or mental conditions in which the

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conflicting patterns of stress and metre are simultaneously accessible to the perceiving consciousness. These vocal manipulations that effect grouping and clear-cut articulation in the recital of poetry are meant to save mental processing space, so as to render the two conflicting patterns perceptible at one and the same time.

In Chapter 1, I stated at great length my position with reference to the Halle-Keyser theory of generative metrics. Morris Halle and Samuel Jay Keyser (1971) proposed in their generative theory an exceptionally parsimonious criterion for distinguishing all “metrical” lines from all “unmetrical” ones, assuming that this criterion is internalized by the reader. The iambic pentameter line consists of an abstract pattern of regularly alternating weak and strong positions, upon which the sequences of linguistic stresses are “mapped”. The “stress maximum” is a theoretical construct, defined as “a stressed syllable between two unstressed ones, within the same line and the same syntactic constituent”. The phrase “a gárden” contains a stress maximum; “a bíg gárden” contains no stress maximum, because neither of the two stressed syllables occurs between two unstressed ones—they “neutralize” each other. All mappings are “allowable”, except one: a stress maximum in a weak position, which renders the line unmetrical, as in the following line:

- 7
1. Burnt after them to the bottomless pit
Milton, *Paradise Lost*, VI. 865–866

Halle and Keyser and their critics in the sixties found 11 unmetrical lines under the stress maximum theory. In an appendix to my 1977 book I provided a list of over forty further instances in major English poems (and there appear to be many more; see Appendix II below). What is more, the distribution of the violating stress maxima seems far from random. Nearly sixty instances of stress maxima in weak positions have been recorded in iambic pentameter lines, in major English poetry. Two thirds of them occurred in the seventh position (out of four positions available for violation). This suggests that the distribution is not random, and that poets like Milton, Shelley and Keats assumed that their readers can perform such lines rhythmically. I predicted that experienced readers will tend to agree that a verse line with a stress maximum in the seventh position can be performed rhythmically. The solution to the perceptual problem will arise not with reference to the isolated stress maximum, but within a larger group. Such groupings are the performance patterns available to the reciter. If a reader is asked to read the line *rhythmically*, so as to preserve the stress pattern of the words and as much of the metre as possible, he is likely to group together, emphatically, the last four syllables and segregate the group from the preceding context. In other words, he will foreground in his performance a unitary perceptual group called “stress valley”. A stress valley is a cluster of four syllables; in terms of Gestalt theory it has a closed symmetrical (that is, “good”) shape: two stressed syllables embrace two unstressed ones, as in “Píty the wórld” or “bóttomless pí”. Such a perceptual organization may save mental processing space. A stress valley beginning in the seventh position ends in the tenth

position, imposing upon the line an exceptionally strong closure. A non-instrumental experiment reported in Chapter 1 suggested that experienced readers of poetry did indeed tend to foreground such a stress valley. As I reported there, performers were surprised to discover that rather than playing down the violating stress, they all tended to over-emphasize it. This chapter will explore, in an empirical study of recorded readings, issues related to the stress valley and its contribution to the rhythmical performance of a stress maximum in the seventh position in iambic pentameter lines.

The Halle-Keyser theory has been criticized for circular reasoning. If we define a “metrical line” as one in which no stress maximum occurs in a weak position, and a stress maximum as a syllable that bears lexical stress between two unstressed syllables with no intervening syntactic or prosodic junctures, then we may not, in addition, claim that our theory is able to explain the fact that a stressed syllable may occur in the first (weak) position of an iambic line, or in a weak position after a major syntactic juncture, and thus credit it with special explanatory powers.¹ All that the stress maximum theory says—thus goes the argument—is that stressed syllables may occur in weak positions either at line onset, or after a major syntactic juncture, or when preceded or followed by another stressed syllable; all this was well known to prosodists long before Halle and Keyser came along.

Justified as this criticism may be in its essentials, one is hard put to explain the fact that in spite of all, the Halle-Keyser theory has been one of the most influential metrical theories in our century, and the source of innumerable exciting insights for prosodists all over the world. The “secret” of the stress maxima theory lies in its mental economy. The notion of metrical ictus (and all its synonyms) was a very fuzzy notion, even in the minds of experienced prosodists; it consisted of an indiscriminate mixture of metrical and linguistic stress. The first achievement of the Halle-Keyser theory was to separate and clearly define the notions of stress pattern and metric pattern, with clearly articulated correspondence rules. Its second great achievement was the theoretical construct “stress maximum”, which coded all the conditions for the acceptance of stressed syllables in weak positions (which had been well known to prosodists for centuries) into one well-articulated, easily manipulable concept.² The third great achievement of the theory concerns the “modularity” of the

¹ “If we define the fish course as that which comes after the soup, then if a hostess serves fish first, it cannot be the fish course” (Wimsatt, 1971: 208).

² The mental economy involved in such a process has been described by George Miller as follows:

The input is given in a code that contains many chunks with few bits per chunk. The operator recodes the input into another code that contains fewer chunks with more bits per chunk. There are many ways to do this recoding, but probably the simplest is to group the input events, apply a new name to the group, and then remember the new name rather than the original input events (Miller, 1970: 44).

This is exactly what is obtained by using the term “stress maximum”.

notion. One can make up one's mind whether a given syllable is a stress maximum or not, by checking the various relevant criteria; it takes a *separate* step to decide whether the line is metrical or not. In this way, fuzziness is dispelled, and the critic may make decisions in clear-cut steps. Given a well-established practice, the critic performs these steps with the speed of intuitive processes.

One great virtue of the term "stress maximum" is that it bestows articulation and structural organization upon the whole field of stress. As the name indicates, its core concept is the notion of a maximal contrast to unstressed syllables. By the same token, the term constitutes a partial contrast of varying degrees to stress that is "neutralized", partially or wholly, by adjacent junctures or stresses. And consequently, as an extra bonus, stress maximum suggests the notion of a contrast that can be sharpened or levelled, opening up the possibility of connecting the term with Gestalt theory. That the Halle-Keyser theory became the source of so many insights was due to the clear-cut articulation of its concepts and the efficient coding of its notion of stress maximum; in terms of information processing, this saved mental processing space, allowing for a flexible manipulation of metrical entities and for the creation of unexpected connections, both within the domain of metrics and between the domain of metrics and other domains of literary studies.³ At any rate, and despite my criticism of it, the trend of thought that led up to the present chapter could not have taken place without the Halle-Keyser theory.

Perceptual Dynamics

As I mentioned above, performers were surprised to discover that rather than playing down the violating stress, they all tended to over-emphasize it. At first sight it may seem somewhat strange that a rhythmical performance should demand some extra accent precisely upon the violating stress maximum in a weak position. One may explain this by analogy with performance patterns in music, as well as by an experiment in the perception of intonation.

In musical performance, the placing of some extra accent may affect the grouping of sounds. Since there is a tendency for accents to *begin* a group, the placing of accent on a strong beat, tends to articulate the sequence in beginning-stressed groups; an accent on a weak beat presents the group as end-stressed (Cooper and Meyer, 1960: 8). The extra accent in the seventh (weak) position of the line creates a drive to focus the stress valley on the last syllable, enhancing the feeling of strong closure, which is—as I have said—its inherent effect. Another relevant aspect of grouping is illuminated by the following passage: "The performer will also articulate the desired grouping by making a slight crescendo on the upbeat [...] Such crescendos [...] indicate the tendency, the leading toward a goal, of a tone or a group of tones. That is, the crescendo creates an expectation that an accent will follow, and the tone

³ As far as I know, none of the adherents—let alone critics—of the "stress-maximum" theory has shown awareness of this aspect of the term.

bearing the crescendo is heard as leading toward, and grouping with, the expected accent” (Cooper and Meyer, 1960:15). A similar effect occurs in groups beginning with rising sequences of sounds.

The tendency to heighten the prominence of the stress maximum in the seventh position may also be accounted for by an experiment concerning the perception of intonation, described by Lieberman (1967: 48–61). In this experiment it was found that the earlier portion of the intonation contour influences the perception of its final portion. When there is a rise of fundamental frequency at the beginning of a breath group, both Swedish and American English listeners perceive, also, a rise of intonation at its end and tend to interpret it as a rising intonation of question. “The same terminal contour is interpreted as a rising contour 80 percent of the time when it is preceded by a 370 cps high-point and as a falling contour 80 percent of the time when it is preceded by a 310 cps high-point” (57–58). Now, after having pronounced a stress maximum in the seventh position with a momentary increase of air pressure, a “not falling terminal contour” at the end of the line is perceived by the listener as a rising terminal. If there seems to be no semantic justification for such a change of contour, it is most likely that the listener will decode such a final “rise” of intonation, as the clear articulation of the line ending (or, for that matter, of any prosodic unit).

As I have mentioned above, in the “classical” papers on generative metrics from the years 1966–1971, a total of some eleven instances of stress maxima in weak positions are listed. Nine of them occur in the seventh position, two in the third. Some of them are “legitimized” by assigning “emphatic stress”; some are explained away by postulating an Italian influence of “double trochee”, and one as a “metric pun”. The number of the remaining instances is negligible indeed. This, however, changed with the addition of over forty instances of stress maxima in weak positions from major English texts. There are four positions in a pentameter line available for violation: 3, 5, 7, and 9 (in the first weak position of the line no stress maximum may occur, by definition). An even distribution of violations in weak positions would allocate between 11 and 12 in each available position. There are, however, some 27 or 28 in the seventh position. It would be somewhat unreasonable to suppose that well over half the instances of “scribal errors”, “poetic oversights”, and “metric puns” should have occurred precisely in this position. About one third of the violations occur in the third position; and only a few, rather doubtful instances in positions V and IX. In Chapter 1, I attempted to show that this distribution is significant not only in statistical, but also in structural terms.

Patterns vs. Cues

I argued in Chapter 3 that a distinction must be made between performance patterns and their acoustic and phonetic correlates. The relationship between, e.g., a stress valley and its acoustic correlates is similar to the relationship between a phoneme

and its acoustic correlates. We are interested in the phoneme as an abstract category, and ignore the specific acoustic cues that are its exponents. Consequently, there is usually a trade-off between the possible acoustic correlates that may cue a certain phoneme. Thus, for instance, a voiced stop may be cued by the straightforward activation of the vocal folds, or by a lengthening of the preceding sonorant, or by reducing voice-onset time, or by aspiration. Most language users would not distinguish between the various vocal devices; they merely perceive a unified abstract category, such as [b, d, g].

The same is true of the perceptual organizations required by the rhythmical performance of a deviant verse line. Consider the case of a stress valley, produced to accommodate a stress maximum in a weak position. Since a stress maximum occurs, by definition, in mid-phrase, or even in mid-word, the performer will face the following conflicting tasks: he must segregate the stress valley from the preceding context, but must preserve the continuity of the phrase, or even more so, of the word. The listener, or even the reciter himself, will be aware at best that the perceptual problem has been solved. On closer inspection, they might discern that a stress valley has been applied. On still closer inspection, they might even discern the opposite tendencies of continuity and discontinuity between the stress valley and the rest of the phrase or word. But it is impossible for them to discern by what phonetic means this has been accomplished. And, in fact, what matters for the solution is the abstract category “stress valley”, and it is immaterial what trade-off between the various acoustic cues may take place.

The acoustic cue for continuity is usually quite straightforward: there is no measurable pause before the stress valley. Quite frequently also “an internally defined intonation pattern” (in Gerry Knowles’s 1991 term) is assigned to the sequence of four syllables. It is more difficult to discover the cues for discontinuity. I contend that there is an open list of possible acoustic cues. Reciters display an astonishing degree of creativity; new performances provide acoustic cues some of which are quite expected, but some are entirely unforeseen. But as long as they generate a unitary perceptual category and indicate the required segregation, listeners exposed to them for the first time immediately recognize them as appropriate (assuming that continuity is taken care of).

Test Case: Stress Maximum in a Weak Position

Consider the following verse line:

- 7
2. Buffet and scoffe, scorge, and crucifie mee!
(Donne, Holy Sonnet XI. 2)

This line would be “unmetrical” under at least two different criteria, propounded by the various kinds of generative metrics. According to Halle and Keyser, a stress

maximum in a weak position renders a verse line unmetrical, even if no polysyllabic is involved; according to Kiparsky, the stressed syllable of a polysyllabic in a weak position renders the line unmetrical, even if it is not a stress maximum (cf. Barsch, 1987). Now *cru-* in the seventh position is both. Nonetheless, experienced performers seem to be in agreement as for the performance pattern that may render such a line rhythmical: a stress valley comprising the last four syllables. The two performers whose performances are to be discussed are Ph.D. candidates at the Department of Linguistics at Lancaster University.

Intuitively, in many performances it is an exceptionally high pitch that sets the syllable *cru-* apart from *and*, pushed forward, as it were, by the perceived leap to the high pitch. Indeed, in TB's reading the intonation contour on *and* rises from 120.492 to 121.823 Hz, then it resets to 156.383 Hz; then it falls to 117.287 Hz on *-ci-*.

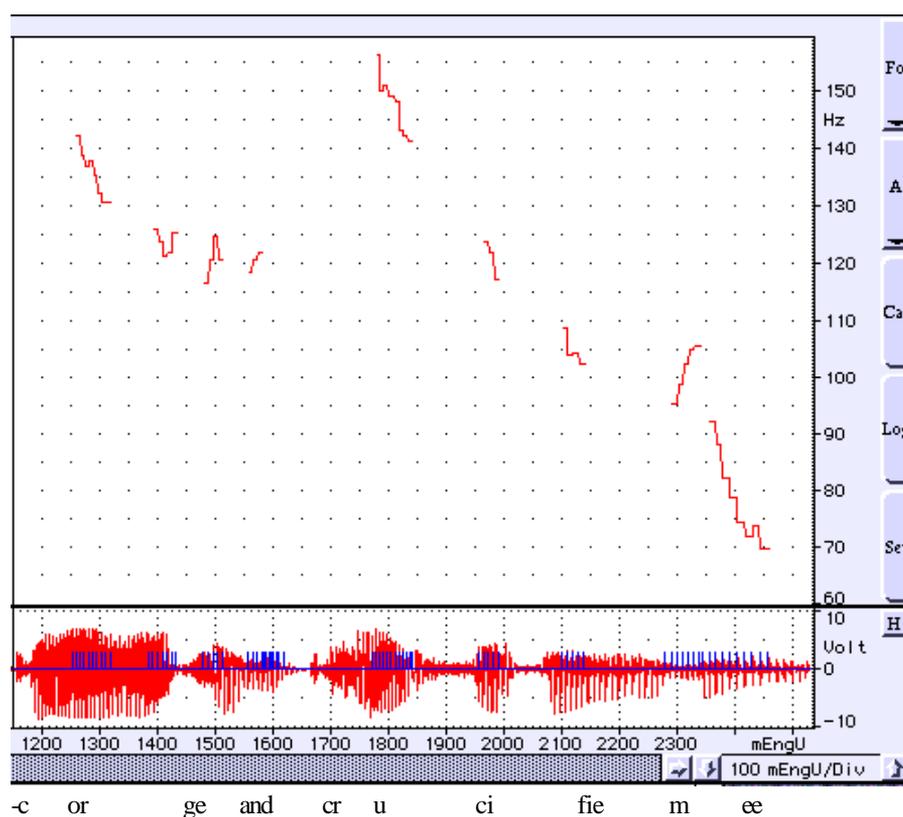


Figure 1 Wave plot and F_0 extract of “-corge and crucifie mee” in TB's reading

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In another delivery instance (by JH), exactly the same sort of stress valley is discerned (“crucifie mee”); again, it is segregated from the preceding conjunction by a conspicuous instance of pitch discontinuity (the jump to /u/, from which the intona-

tion pattern descends gradually). The contour of *and* falls from 87.849 to 79.603 Hz; on *-u-* pitch resets to 117.287 Hz; then, after some curling, returns to the same peak (117.129 H), persisting until slightly after the middle of the vowel (this is what Knowles 1992 calls late peak, and according to Gestalt theory may be expected to exert a “forward-pushing *perceptual force*”; see above, Chapter 3). This seems to be just enough to suggest pitch discontinuity and some forward grouping of *cru-*.

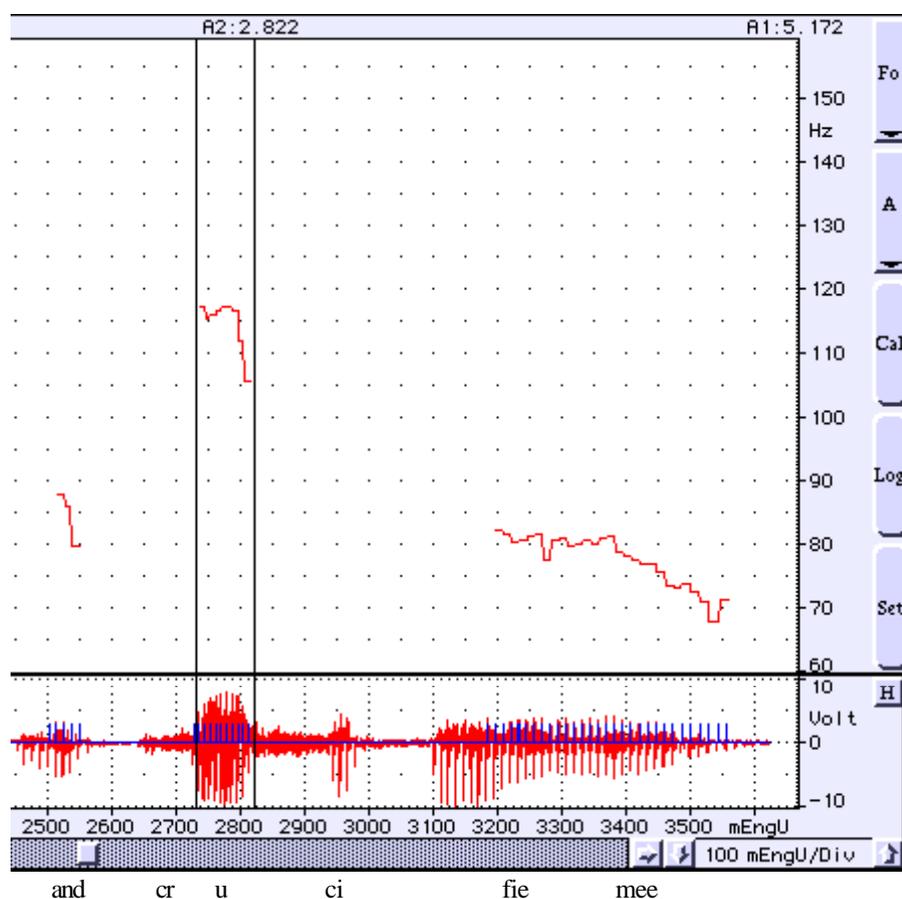


Figure 2 Wave plot and F₀ extract of JH's first recording of “and crucifie mee”

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JH recorded the verse lines twice: once in context, and once in isolation. In the latter recording, with reference to *cru-*, the peak is quite early in the vowel; but he creates a marked pitch discontinuity, by a big upward leap between the two words (the pitch of *and* swerves between 90.000–84.160 Hz, ending at 88.200 Hz, from which it leaps to 123.184 Hz, where a downward movement begins, falling to 92.259 Hz on *ci*).

In Figures 1 and 3 one may notice another important point. Not only is *and* discontinuous with *cru-*, but it is also conspicuously continuous with *scorge*: the release of the affricate is run into the vowel of *and*; and the intonation of *and* is in the pitch region to which the long intonation contour of *scorge* falls (still, they are perceptually segregated by the long terminal contour articulating the boundary of *scorge*).

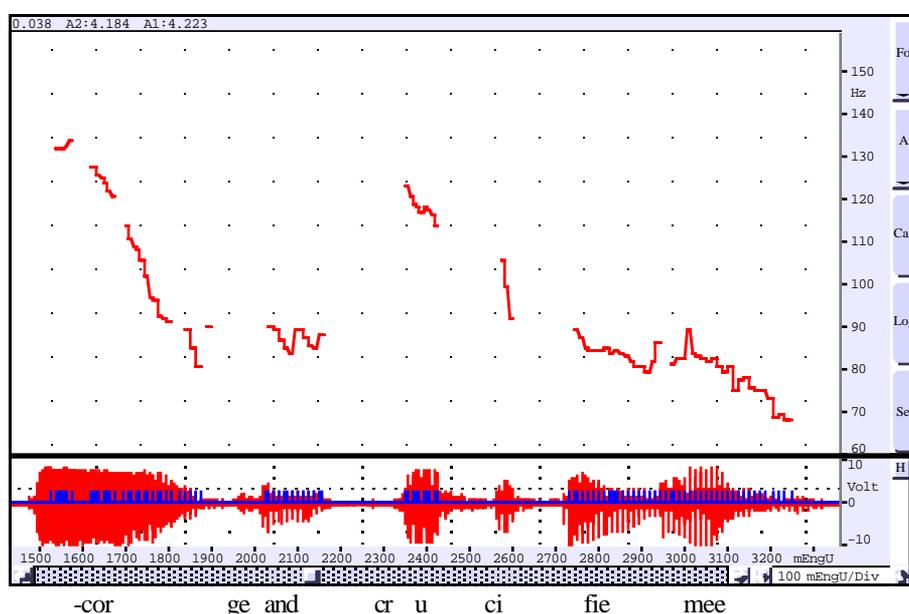


Figure 3 Wave plot and F_0 extract of JH's second recording of "and crucifie mee"

[Listen to sound file](#)

The reciter has another problem here: the last syllable of this line bears no content-word stress. The last position requires confirmation by stress; the stress valley demands that this stress be prominent indeed. Both TB and JH made a remarkable effort to face this challenge by a compromise between stressing and not stressing, but in different ways. In a reading in which *mee* is unstressed, one might expect the intonation curve fall on or immediately after *cru-* of *crucifie*, and keep the rest of the pitch sequence level at the base line. In a reading in which *mee* is stressed, one might expect the intonation curve rise on *mee*. In TB's reading neither of the two happens: the tone falls throughout *crucifie*, to 102.558 Hz; then, on *mee* it slightly moves up from 98.879 to 105.502 Hz, and then falls down to 69.778 Hz, and is perceived as an "allophonic" stress. In JH's first reading, pitch falls moderately on *-fie mee* and then, contrary to expectation, it rises again a few Hzs. Such a small rise usually goes unnoticed; here it is clearly perceptible, probably because a fall is expected. In his second reading there is a downward jump of intonation from *cru-* to *-cifie*. Normal expectation would be for a downward continuation on *mee*. Contrary

to expectation, pitch falls on *-fie* from 89.271 to 79.603 Hz, and then rises again to 86.133 Hz; and then rises on *mee* from 81.667 to 89.271 Hz from where it has a long fall to 68.056 Hz.

In the first reading, this is reinforced by an uncommon manipulation of articulation (consistent with a similar manipulation in the next example). When isolated, the first vowel of the diphthong in *crucif*e** is perceived as reduced; the vowel of *mee*, by contrast, is turned into a diphthong, with a released /j/ at the end. In the flow of reading this is not perceived. Together with the minute rise of pitch, it is merely sufficient to indicate that *mee* is more prominent than *-fie*, without being perceived as a stressed syllable. In the second reading, only the vowel of *mee* is turned into a diphthong.

Stress Maximum in Midword

Now consider the stress maximum in the seventh position of the second line of the following excerpt:

- (3) Only the importune Tempter still remained,
7
 And with these words his temptation pursued
 (Milton, *Paradise Regained*, II. 404–405)

All the difficulties observed in the preceding example are present here, ruled as unmetrical both by Halle and Keyser, and Kiparsky: there is a polysyllabic here the most prominent syllable of which constitutes a stress maximum in a weak position. But these difficulties are heightened here to a considerable degree: the stress maximum occurs not in mid-phrase, but in mid-word. And if the preferred solution is to apply a stress valley that demands, among other things, segregation from the preceding portion of the line, the reciter is in real trouble: he must segregate the stress valley, but also see to it that the word is not disrupted.

Mere listening to JH's performance of this line reveals both opposite tendencies. It is clearly felt that the word is continuous, with no break after *tempt-*; indeed, there is no measurable pause there. But there is also a very strong feeling that the last four syllables are segregated and performed as a cohesive unit. Intuitively, there is a sustained arrest on *tempt-*, and then a sudden upward leap on *-ation*. First, a marginal observation: there is no acoustic trace of /p/, but this should be considered perfectly normal. The pitch contours in Figure 4 may suggest some explanation for both the sustained arrest and the upward leap: the pitch contours of both *his* and *tempt-* are roughly in the same frequency region—hence the feeling of arrest; and pitch leaps from 77.098 Hz at the end of *tempt-* to 91.494 Hz at the onset of *-a-*, which then falls and rises to 78.750 and 83.840 Hz. Now a 14-Hz leap is not very big; but its significance also depends on the surrounding pitch ranges. In this hemistich, for instance, the longest contour is the last one, indicating the termination of the syntac-

tic and the prosodic unit, and it falls from 89.634 to 70.447 Hz, that is, a span of 19 Hz in all. The longest span in this line belongs to the contour of *words*, falling from 101.613 to 77.098 Hz (that is, 24 Hz); but here it has the function of compensating for the stressed *these* in the preceding weak position. But the impression of “sustained arrest” on *tempt-* has more to it. Intuitively, again, this syllable is unnaturally lengthened. Such lengthening is usually regarded as a powerful means of segmentation: it is usually felt that the following segment constitutes a “new start”, even though there is no measurable break there. The trouble with such claims concerning lengthening is that it is almost impossible to substantiate them. They are only intuitive judgments. Although the length of the syllable can be measured, but how can we know whether it is longer or shorter than it ought to be? There is no standard to which it can be compared.

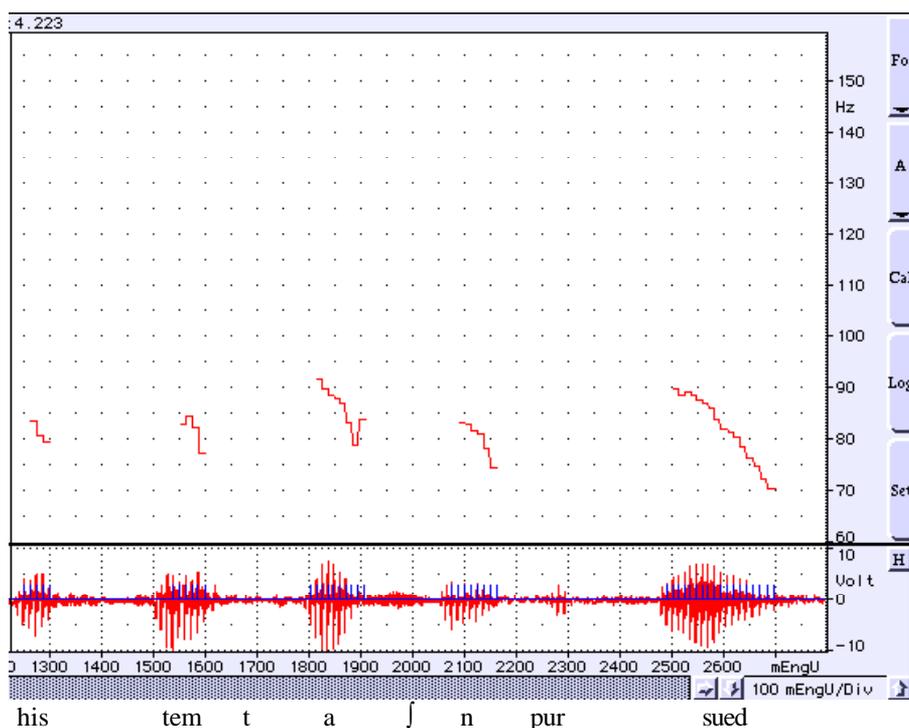


Figure 4 Wave plot and F_0 extract of JH's recording in context of “and with these words his temptation pursued”

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In the present instance, however, an obvious measure for comparison is offered in the preceding verse line, the first syllable of *Tempter*. It is clear that the same sequence of sounds must be considerably longer in the stressed syllable than in the unstressed one. Here, however, the reverse is the case: *tempt-* in *temptation* is marginally longer (0.5376 sec), whereas in *Tempter* it is 0.5320 sec long. This is

odd according to any standard. There is another oddity here. In both words, one would expect a short but unreduced vowel. In *temptation*, however, when *tem-* is isolated on the computer, its vowel is heard, clearly, as reduced. There is no linguistic justification for this, and is very odd indeed. In the present context it may be interpreted as part of an ingenious combination of vocal devices for generating discontinuity without a pause. Lengthening, as we have said, is an effective means to arouse a strong sense of discontinuity (required here by the need to segregate the stress valley).⁴ Duration, however, is also an effective acoustic cue for stress. By reducing the vowel, the reciter indicated that this cannot be a stressed syllable. And, indeed, it is perceived as unstressed.

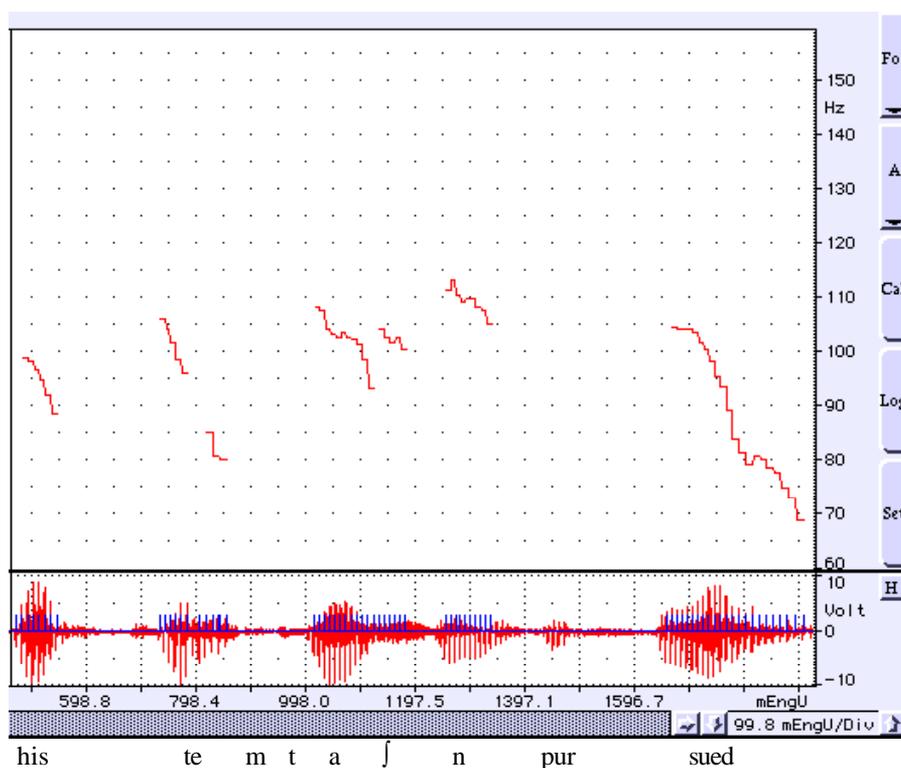


Figure 5 Wave plot and F_0 extract of JH's recording of the same verse line in isolation

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The reciter seems to have invented here a unique combination of phonetic devices, to which he may never have been exposed before; at least, no other use of it has ever been recorded. He had not the slightest idea to what vocal resources he had

⁴ Alternatively, one may regard this lengthened portion as creating a filled pause between the two syllables, generating continuity and discontinuity at one and the same time in mid-word.

recourse; he only knew that he was trying to solve the perceptual problem posed by a stress maximum in a weak position, and, perhaps, that this demanded some conspicuous discontinuity after *tem-*, without disrupting the word. The reciter himself was most surprised when next day he was shown what he had done: he said he had thought he was doing something different, that he was trying to make *tempt-* comparable in stress to the preceding *his*. Now this reciter recorded the verse lines with the stress maxima in weak position twice: once in context, and once in isolation. In isolation, of course, we could not compare the length of *tempt-* to its counterpart in *tempter*. The isolated syllable is shorter here than in the other performance. In other respects, however, this reading was consistent with his earlier reading: the vowel in *tem-* was reduced so much that it was not even certain that there was a vowel there at all. We did not expect a reciter to be as consistent as that. As for the pitch contour, two significant things should be pointed out in this reading. There is a relatively long terminal contour after the first syllable, falling from 106.010 to 79.891 Hz, and there is the reset of pitch from there to 108.088 Hz at the onset of *-ta-*, then falling again to 93.038 Hz. Thus, again, there is continuity and discontinuity at one and the same time in the middle of this word: there is no measurable pause between *temp-* and *-ta-*; but the terminal contour after the first syllable followed by a leap of pitch, and reinforced by segmental discontinuity, perceptually segregate the last four syllables from the rest of the line.

For the same reason the verse line in excerpt 4 was chosen. The seventh position in it is occupied by a stress maximum in the middle of a polysyllabic:

- 7
4. Enduring thus, the retributive hour . . .
(Shelley, *Prometheus Unbound*, Act I: 406)

For some reason, reciters had a bigger problem with this line than with excerpt 3. They tended to stress *rétributive*, that is, to succumb to metre. So, some of the readings of this verse line are irrelevant to the present inquiry. But one of JH's readings stressed *retributive*. Intuitively, his solution here was very similar to that in 3. He appears to linger on *ret-*, more specifically on the /t/, as if to gather strength, and then by a sudden release, to leap to a relatively high *-rib-*. As for the sustained arrest on *ret-*, one can only rely on the intuitive judgment that it is lengthened beyond what would be natural. The /t/ is co-articulated with the subsequent /r/; but is also released. This is quite normal; still, it contributes both to continuity and segregation. The syllable *re-* is conspicuously continuous with the preceding *the*, and conspicuously discontinuous with *-trib-*. Its pitch rises from 90.000 to 98.438 Hz; then pitch resets to 122.500 Hz, generating discontinuity between the two syllables in the middle of the word. This discontinuity is reinforced by the artificial lengthening of /t/. Stops are abrupt, and obviously cannot be lengthened; but the release of the /t/ is preceded by an 81 msec pause, which is construed by the listener as an articulatory gesture, during which the tip of the tongue is pressed against the ridge, ending with the release. The release, in turn, is continuous with the /r/. Thus, the word *re-*

tributive is uninterrupted but, at the same time, the segment *-ributive hour* is perceptually segregated from the rest of the line.

A closer scrutiny of the spectrogram reveals something that is quite unexpected: a double pulse, a “column” superimposed on the formants between the *schwa* and the /t/. This is clearly not an artefact of the machine, but produced by the speaker. Gerry Knowles comments that it appears to be a glottal constriction, of the sort that recently has been observed in some London dialects to replace /t/. In the flow of speech it is not recognizable; it is merely perceived as a lingering on the /t/, without disrupting the continuity of the word. Such a lingering is usually perceived as a terminal feature, heralding a new beginning. Thus, again, the new beginning of a stress valley is foregrounded here, without disrupting the continuity of the word *re-tributive*. The lack of a pause reinforced by the co-articulation of /t/ and /r/ takes care of continuity; and the unexplained lingering on the /t/ and the pitch step-up takes care of the segregation of the beginning of the stress valley.

Performance Patterns and Phonetic Competence

Now consider this. In our visual imagination, a stress valley takes the following shape: . It consists of two stressed syllables enclosing two unstressed ones. The stress and intonation contours of speech never look like that. They consist of rising and falling curves, sometimes slopes. When subglottal air pressure builds up, the pitch sets up, or intonation begins on an initial high pitch. Subsequent pitch curves reflect a more or less gradual loss of air pressure. These are what Gerry Knowles calls “internally defined” intonation contours. In the present instance, our default expectations concerning the phrase “retributive hour” would be for a gradual fall from *-tri-*, and then a rapid fall on *hour*. In such a reading, the reset from *ret-* and then the change of direction on *-tri-* presents this syllable as strongly stressed. The rapid fall on *hour* presents it as stressed. In JH’s actual reading, by contrast, there is a *rapid* fall from *-tri-*;⁵ then a step up at the beginning of *hour*, and a gradual fall on it. It is this deviation from the default pattern that renders the first and last stressed syllables exceptionally prominent, causing the group to stand out as a perceptual unit, and serving as an effective closure to the stress valley and the verse line. Consider again the following verse line from Milton:

7

1. Burnt after them to the bottomless pit

⁵ The upper part of the pitch contour assigned to /ju/ represents the inherent frequency of the glide /j/, and does not belong to the perceived intonation contour. The peak of *-trib-* is at 126.446 Hz, from which the pitch falls to that of /u/ at 111.832 Hz.

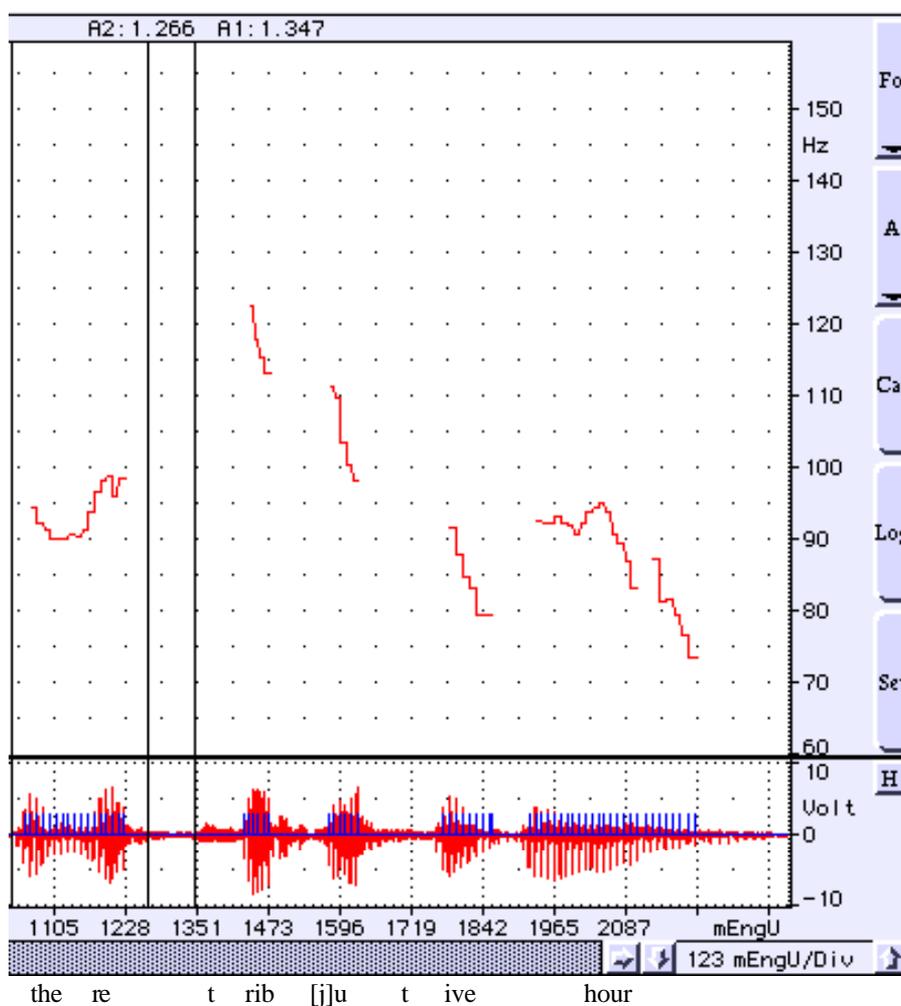


Figure 6 Wave plot and F_0 extract of “Enduring thus, the retributive hour” The markers indicate an 81 msec pause before the release of /t/

[Listen to sound file](#)

This too is unmetrical under both Halle and Keyser’s and Kiparsky’s generative theories; and, again, it is predicted that the rhythmical performance will consist in the foregrounding of the last four syllables “bottomless pit” as a stress valley, isolating it, in mid-phrase, from the preceding chunk of the line. Indeed, that is exactly what JH does in his performance. While there is no detectable pause between *to the* and *bottomless*, the isolation of the stress valley is indicated by a moderate pitch discontinuity, which is reinforced by a fairly late peak. The latter effects a moderate forward grouping of the syllable. The pitch on *to the* falls from 93.830 to 88.554 Hz, and then steps up to 101.613–105.502–101.147–102.558 Hz on *bot-*. From

here, an internally defined intonation contour descends, quite moderately, wavering around 96.288–99.324–90.741 Hz on *-tom-*, and around 94.231–89.271 on *-less*. A terminal contour is assigned to *pit*, resetting to 107.561 and falling to 91.875. Thus, the stress valley even approaches to some degree the visual image  mentioned earlier.

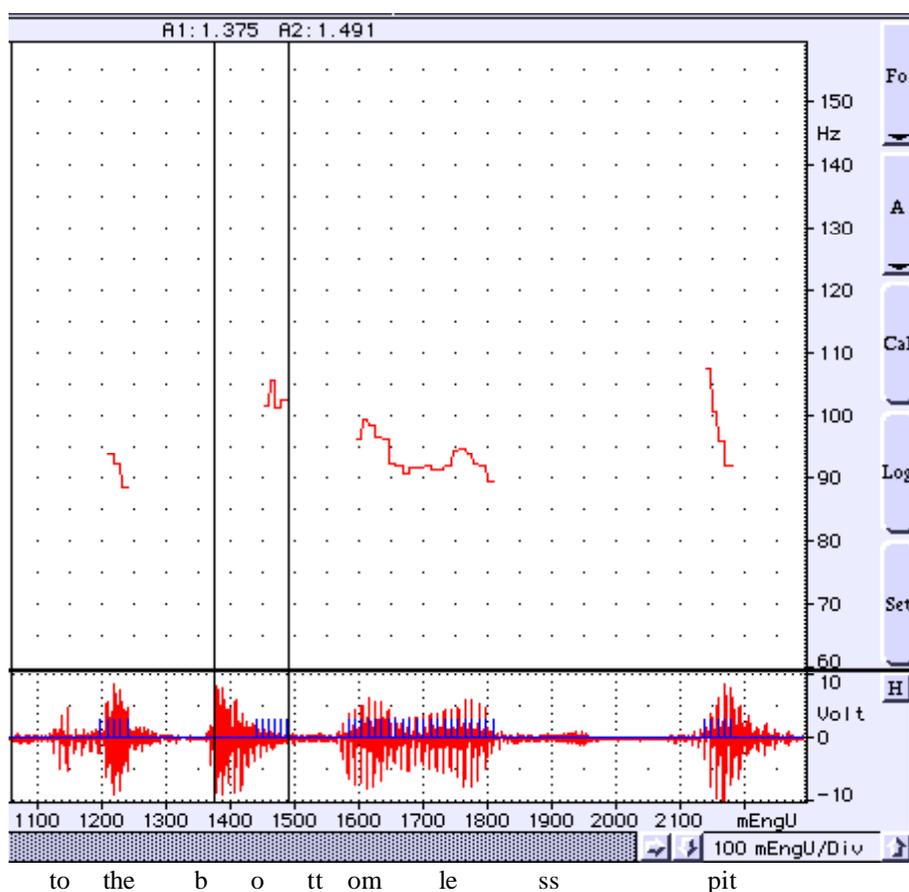


Figure 7 Wave plot and F_0 extract of “to the bottomless pit” in JH’s reading; the markers indicate the boundaries of /o/. The peak occurs quite late.

[Listen to sound file](#)

Two important theoretical questions arise about JH’s rhythmic solutions. How does the listener know what the “meaning” of a certain vocal manipulation is, and how does the reciter know what manipulations of his speech organs would achieve a specific effect. I propose to give here some tentative answers, derived from analogies with some better understood phonetic and phonological processes.

As for the first question, the distinction between the default and the actual intonation patterns assigned to the phrase “retributive hour” does have precedent in spoken

English: Gerry Knowles suggests that the default pattern would be used by RP speakers, the other by Northern speakers (JH is clearly an RP speaker, but of Lancashire origin). So, the distinction is usually regional. However, Knowles played to his students, in a class-room situation, natural speech stretches, containing the afore-mentioned contrasting intonation contours. Native speakers of English identified the former intonation with a power position, the latter with a submissive position. So, how does the listener know that in the present instance the non-default intonation pattern indicates a stress valley rather than some regional distinction or some power relationship? Here an analogy with suprasegmental phonemes may prove illuminating. As pointed out by Lieberman (1967) and others, suprasegmental phonemes may be used to disambiguate utterances such as (They decorated the girl) (with the flowers) and (They decorated) (the girl with the flowers); or (light) (house keeper) and (light house) (keeper). Lieberman brings good experimental evidence to the effect that suprasegmental phonemes have no meanings of their own. At most, they may indicate which of two possible phrase markers is meant, *if* the listener is aware of two alternative phrase markers. In the present instance, no contrast between phrase markers is involved. When one is aware of regional dialects in the context, the two intonation patterns indicate the respective pronunciations; when power relations are involved, the intonation patterns may indicate a distinction between power attitudes; when the rhythmical performance of poetry is concerned, the respective intonation contours may indicate a distinction between phonemic and non-phonemic aspects of suprasegmental patterns.

This brings us to our answer to the second question: how does the reciter know what manipulations of his speech organs would achieve a specific effect? That seems to be, precisely, what our phonetic competence is about. When people produce speech sounds, suprasegmentals and paralinguistic features, they are unaware of the combination of their muscle movements; in Polányi's (1967) term, they "attend away" from them, to their joint purpose, the phoneme /b, d, k/ or the suprasegmental phoneme (stress or intonation), or the emotive sound gestures. This is why we have only a "tacit knowledge" of our speech production. When confronted with the problem of a metrically deviant verse line, speakers mobilize the articulatory devices which they have acquired for phonological or paralinguistic purposes, and exploit them for the production of performance categories, such as stress valley.⁶ Fónagy

⁶ Things are, in fact, less simple than this. These rhythmical solutions require quite experienced readers. Furthermore, they require two different kinds of experience. Professors of literature may have the relevant kind of experience with poetry and metric deviance, but lack the command of their vocal resources; whereas professional actors may have the command of vocal resources, but not a sufficient understanding of metric complexities. That is why the Marlowe Society on the one hand, and JH on the other, are such rare informants for the purposes of the present research. They have both an intuition for metrical subtleties and a mastery of their vocal resources, to carry out their solutions of the perceptual problem posed by conflicting patterns of stress and metre.

(1971) gives some illuminating examples of the paralinguistic distortion of articulation for emotive purposes. Thus, for instance, a French mother may say “mais su” to her baby instead of “mais si”, rounding her lips, indicating love. Such knowledge is unlearned and untaught (in Morris Halle’s 1978 phrase), and human beings demonstrate considerable creativity in the invention of such vocal devices. I suggest, tentatively, that similar inventiveness may be active in the reciters’ attempt to solve rhythmic problems.

Combinational Potential and the Devil’s Counter Example

At this point I wish to use excerpt 5 to introduce two issues of great importance: it may be used to point up a possible expressive function of a stress maximum in the seventh position; and its performance may serve as a counter example to my foregoing argument. Let us have another look at excerpt 2. It begins and ends with a stress valley, that is, two groups of four are superimposed upon the groups of two. The divergent groups of stresses and the abstract metric groups of twos do have coinciding downbeats. It is at these points that the metric pattern may be emphatically reinstated. Between them, rhythm “trembles on the brink of chaos”, “arousing powerful desires for, and expectations of, clarification and improvement”—in Meyer’s words (quoted in Chapter 2). Thus, the points where the two patterns have coinciding downbeats, that is, in positions IV and X (this, as we have seen in Chapter 1, is no accident), become points of relief, so to speak, where metre is reconditioned, refreshed and renewed. In position IV, this is less conspicuous than in position X, first because “violation” of metre in the first position is relatively tame, and second because metre—far from being reconditioned in position IV—demands the anticipation of (and compensation for) a violation in the next position before such a violation can actually take place. Hence the high tension and complexity at this point. Conversely, the clear reinstatement of metre, after a long series of infringements, occurs in the very last position of the line. The third and fourth stresses occur, precisely, in the “wrong” place. The third is “compensated” backward, the fourth, as I have said, is a stress maximum in the seventh (weak) position. This infringement inspires the reader with “awe, apprehension, and anxiety” that the utterance may escape back to chaos, “arousing powerful desires for, and expectations of, clarification and improvement”. These desires and expectations are fulfilled, precisely, in the last position of the line, generating a strong feeling of closure. The line becomes well shaped and, paradoxically, at the same time, near-chaotic. Hence its strong emotional impact.

Such a system, one that determines the character of its parts, takes up less “mental space” than do its components when unorganized in a *whole*. It is the additional grouping, then, that “makes room” for the perception of two or more rival patterns in counterpoint rather than in an unstructured “jumble”. Furthermore, the

character of any sequence of syllables in a line is determined by the system of groupings that constitute the line.

The feeling of uncertainty, of “anxiety”, as it were, is particularly felt in the unstressed syllables of *crucifie*. For their support, these syllables lean on that broken reed of a stress maximum in a weak position. They impart—on a miniature scale—something of the feeling of insecurity of a falling mountaineer who is uncertain whether his safety-rope has been properly secured. The last syllable of the group, however, coinciding with the metric downbeat, brings a feeling of stability and relief. In the light of this analysis, the rhythmic pattern may appear to have an iconic impact in an essentially deviant use of *bottomless* by Milton and Shelley. In

- 2
5. To bottomless perdition, there to dwell (*PL*, I. 47).

bót- occurs in a strong position, followed by a sequence of three unstressed syllables before metre is reasserted. This, in itself, should not be regarded as very much out of the ordinary; it indicates, at any rate, that Milton, too, assigned stress to the first syllable of *bottomless*. Nevertheless, what can be described as the perceptual quality of “falling” and “anxiety” is there. By contrast, in excerpt 1 above, *bót-* is a stress maximum in a weak position, adding momentum to the feeling of “anxiety”. Considering the relative scarcity of stress maxima in weak positions, the following two examples—whether independently arrived at, or imitated by Shelley from Milton—cannot be dismissed as insignificant. They are the more remarkable since the poets could easily have avoided the stress maximum in a weak position (in excerpts 1, 6 and 7)—by using “to bottomless abyss”, for example.

- 7
6. With them from bliss to the bottomless deep (*PR*, I. 361)

- 7
7. And whelm on them to the bottomless void
(*Prometheus Unbound*, III. i. 76)

I have emphasized above that the pattern illustrated here may *appear* to have an iconic impact, because what we have is not exactly iconic; it is more accurately handled in terms of “combinational potential”. The “falling” analogue is not part of the metric pattern; it is merely a metaphor to suggest a peculiar psychological atmosphere of insecurity and anxiety, which are perceptual qualities of the metric shape under discussion. This metric shape is associated with a feeling of momentum and craving for stability that may combine with any content and lend impetus to such expressions as “crucifie mee”, or almost any other instance quoted here.

Now I cannot leave this section without trying to play Devil’s advocate to my own argument. I included excerpt 5 in my battery of problematic verse line to be performed by my informants, hoping that there would be a significant difference between the performance of “bottomless” beginning in a strong position and its tokens

beginning in a weak position. Figure 8 shows that this hope was frustrated. Pitch discontinuation in this instance (jumping from 107.561 Hz at the end of “to” to 144.118 Hz at the onset of *bo-* further rising to 157.500 Hz) is more drastic than in any of the instances when “bottomless” begins in a weak position. Apparently, this example undermines the whole conception presented here. Nonetheless, there appear to be four reasons why the threat is not as great as it seems to be. First, as I have already suggested, subglottal air pressure builds up at the beginning of a stretch of speech, and the pitch sets up, or intonation begins on an initial high pitch. Subsequent pitch curves reflect a more or less gradual loss of air pressure. Hence, breath groups at the line-ending should display lower intonation peaks than at its beginning. Second, it has been assumed throughout the present research that for the solution of rhythmic problems reciters will have recourse, whenever possible, to ordinary prosodic patterns from the stock of their linguistic competence. Thus, we should not be surprised that for “bottomless” beginning in the seventh position of a pentameter line a reciter will utilize the same intonation pattern as for when beginning in a strong position. Third, though not for metrical but rather for rhetorical reasons, “bottomless” in excerpt 5 is overstressed anyway. Finally, also in excerpt 5, just as in excerpts 1, 6 and 7, the two unstressed syllables of “bottomless” must be grouped backward, with its stressed syllable. As a result, “bottomless” beginning in the second (strong) position and in the seventh (weak) position may have rather similar perceived affects, but in the latter case this affect may be perceived as somewhat more “urgent”.

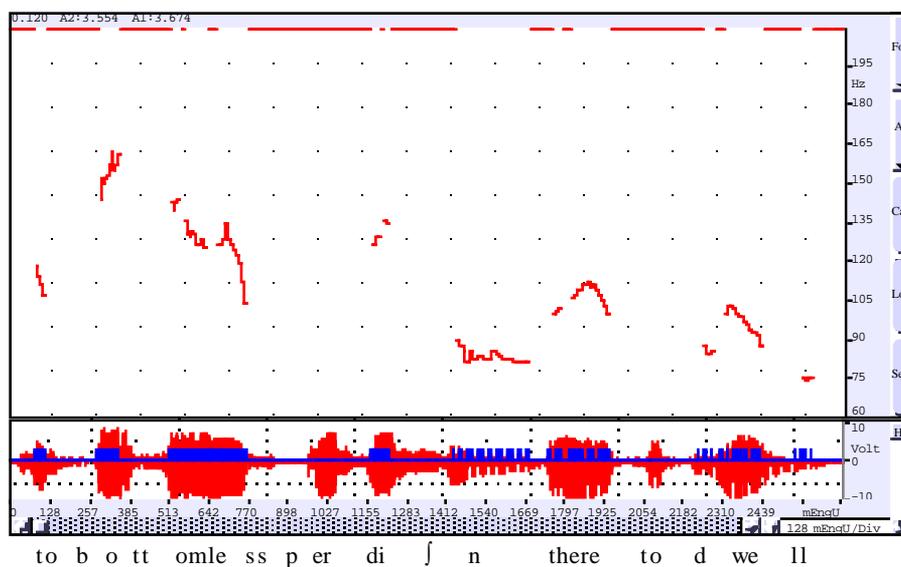


Figure 8 Wave plot and F_0 extract of JH's recording of “to bottomless perdition there to dwell”

[Listen to sound file](#)

Alternative Mappings and Stress Maxima in Weak Positions

One may summarize my foregoing argument as follows. The notion of stress maximum in a weak position is a powerful tool to describe a very high degree of deviance in versification; but it does not necessarily render a verse line unmetrical. Rather than in verse structure, the constraint for acceptability is placed in the reader's "rhythmic competence", his ability or willingness to perform the verse line rhythmically, that is, in a way that metric pattern as well as the linguistic stress pattern should be accessible to awareness at one and the same time. I have suggested a cognitive mechanism that may render this feasible, and have pointed out the principles of the vocal manipulations required. If the reader succeeds in such a performance, increased tension is perceived; if not—the verse line disintegrates and tension ceases. The very existence of a corpus of about 60 verse lines with a stress maximum in a weak position in major English poetry suggests that such verse lines may be acceptable on *some* grounds. The fact that about two-thirds of the instances occur in precisely one (the seventh) position out of four positions available for "violation" suggests that these deviances are not random. The approach advocated here claims to have explained the cognitive rationale of this distribution. I claim to have demonstrated two further points: that experienced readers tend to agree upon the kind of performance demanded by such verse lines; and that these performances are in harmony with the expectations of the theory propounded here. What is more, as we shall see, when alternative mappings of stress pattern to metric pattern are possible in a verse line, some highly experienced readers may prefer a mapping that involves a stress maximum in the seventh position to some other, perfectly "metrical" mapping under the Halle-Keyser theory. We shall now turn to such instances.

One important stage in metrical analysis is the establishing of the correspondence of syllables to metrical positions. This may grant the metrist or the reciter some flexibility in allowing or avoiding a stress maximum in a weak position in certain verse lines. Thus, for instance, there are verse lines in which there are more syllables than metrical positions available. In such verse lines two syllables may be assigned to one metrical position. In Chapter 8 I shall discuss at great length the conditions formulated by Halle and Keyser (1966) in which two syllables can be assigned to one position. When there are several instances of such conditions in a verse line, alternative mappings of syllables to metrical positions are possible. When one of the alternatives results in a stress maximum in a weak position, it might be quite reasonable to expect with Halle and Keyser that the other alternative(s) be preferred. But there are some illuminating precedents in which unquestionably competent readers prefer a mapping that results in a stress maximum in the seventh position, and apply to the line the performance strategies discussed above, with compelling results. Consider excerpt 8. In this line there are eleven syllables, but only ten positions available. A parsing like the one presented here seems quite reasonable.

8. Wáisting of óld Tíme, with a bíllowy máin

w s w s w s w s w s

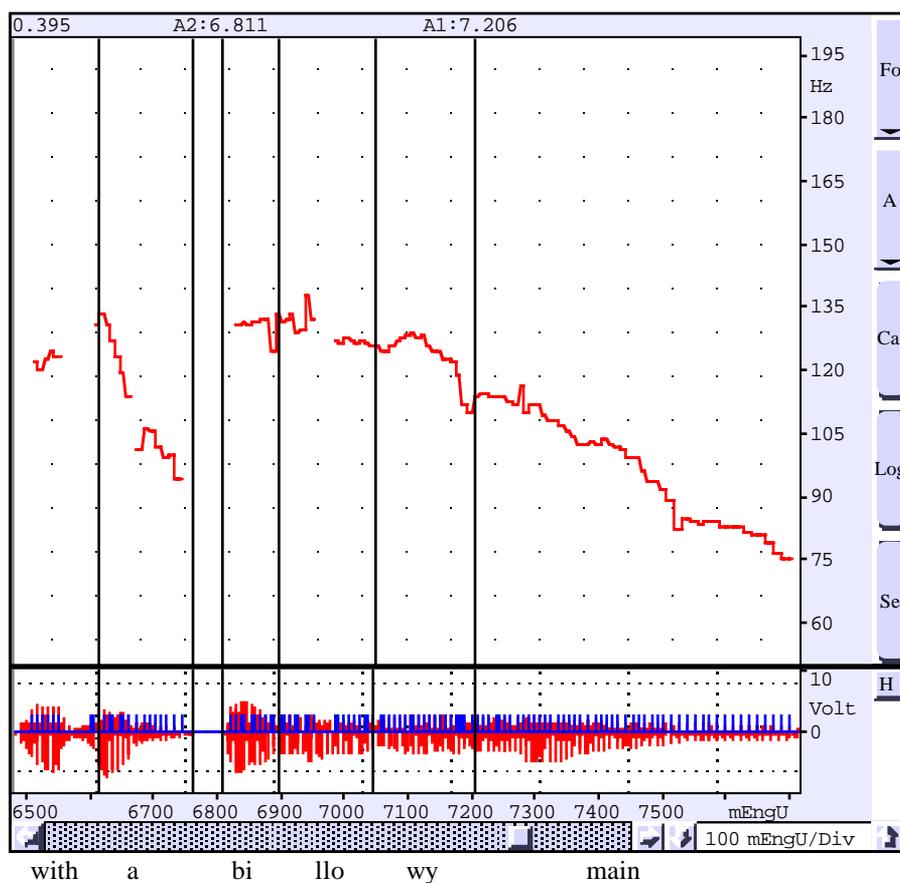


Figure 9 Wave plot and F_0 extract of “with a billowy main” read by Hodge

[Listen to sound file](#)

In Chapter 8 I shall discuss the considerations involved in deciding which two syllables should be assigned to one position in excerpts 8 and 9. For the present I wish to point out only this: in excerpt 8 there are several candidates for bisyllabic occupancy of one metrical position under the Halle-Keyser theory. Some of them would result in a “metrical” line, manipulating the first syllable of “billowy” into the eighth (strong) position. Notwithstanding the stress maxima theory, Douglas Hodge prefers to assign the syllables “with a” to one position; consequently, the first (stressed) syllable of “billowy” is manipulated into the seventh (weak) position, resulting in an “unmetrical” line both under Halle and Keyser’s and Kiparsky’s theories of generative metrics. The present theory predicts that when a stress

maximum occurs in the seventh position, it may be rendered, nevertheless, rhythmical, by certain vocal manipulations: if the last four syllables are emphatically grouped together, and are perceptually segregated (in mid-phrase or in mid-word) from the preceding unstressed syllable. One might also expect an over-stressing rather than playing down of the deviant stress, with a late peak on its vowel or on the following sonorant, suggesting forward grouping. In the present instance this syllable is stressed, but not over-stressed; and is segregated from the preceding article by a 48 msec pause (perceived as over-articulation rather than a straightforward pause) and by a conspicuous pitch discontinuity (resetting from 93.830 Hz at the end of a falling contour to 130.473 Hz at the onset of the next contour, peaking late, after the vowel, on the /l/; see Figure 9). This pause is totally unwarranted from a linguistic point of view, and its only justification appears to be to satisfy the demands of two rhythmical solutions: the segregation of the “stress valley” beginning with a stress maximum in a weak position; and the over-articulation of the position boundary where two syllables are squeezed into one position (see Chapter 8).

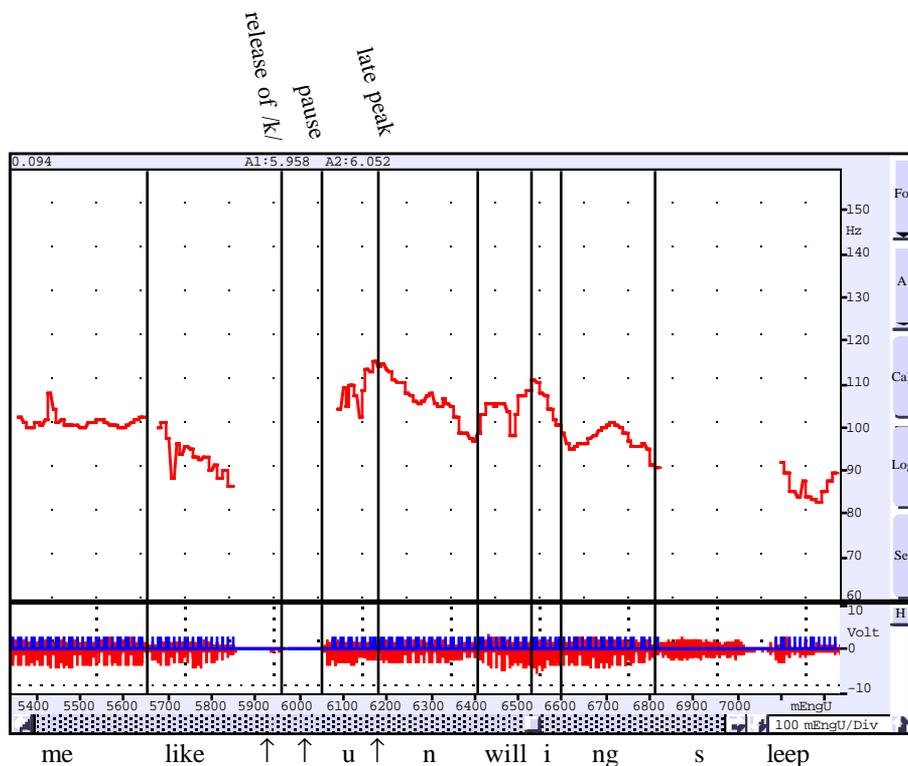


Figure 10 Wave plot and F_0 extract of “me like unwilling sleep” read by Hodge

[Listen to sound file](#)

There is another curious instance in Hodge's reading of this sonnet and, again, precisely in the seventh position. In line 2 stress is displaced from the second to the first syllable of "unwilling". Semantically, this may be construed as an emphatic stress. Metrically, however, this means that the only regular part of the line is made irregular. A stress on "wil-" confirms metre in a strong position; a stress on "un-" infringes upon it in a weak position.

9. Wéighs héavily on me like unwílling sléep
 w s w s w s w s w s

What is more, it becomes an artificial "stress maximum in a weak position". A stress maximum in the seventh position constitutes an infringement upon metre, and there arises an urge to achieve again focal stability in the next stressed syllable in a strong position. This happens in the tenth position, achieving stability (and powerful closure) in precisely the last position of the line. The regular alternation of weak and strong positions is suspended during these four syllables; but by a series of vocal manipulations mental processing space can be saved such that the metrical set becomes available to consciousness. We have accumulated an ever-increasing number of instances in which this performance pattern is followed. In fact, this is precisely what Hodge too is doing here. In the present instance, "un-" is over-articulated by its excessive duration (relative to the other syllables), and by the elaborate intonation contour assigned to it, which includes the highest pitch peak in the phrase. Syntactically, the preposition "like" ought to be grouped with "unwilling sleep"; here, however, it is emphatically grouped with the preceding phrase: there is no measurable pause between them, and they have one continuous intonation contour. On the other hand, it is separated from its sequel, quite unusually, by a rather long, 94 msec pause; and the release of the /k/ preceded by a longish pause is construed as an over-articulation of the phoneme as well as of the word boundary, suggesting what Knowles calls "segmental discontinuity" before the stress valley. There is a jump from the falling intonation contour of "like" to the rising beginning of the high onset of the next intonation contour, indicating a new start, and forward grouping. Furthermore, this is one of the two places where we have encountered so far a "late peak" in Hodge's readings (that is, where the intonation peak occurs after the middle of the vowel), and a very late peak at that; this is usually perceived as a strong forward drive (see Chapter 3). It should be noted that in most instances of our corpus there is no measurable pause before a stress maximum in the seventh position, because it occurs by definition in the middle of a phrase or a word, and separation is indicated merely by pitch discontinuity, late peaking, and sometimes segmental discontinuity. In this instance, a syntactically unwarranted pause further enhances discontinuity (but it is perceived as over-articulation of the preceding stop consonant). Hodge did not necessarily "know" what he was doing here; but, obviously, he seems to have had a very strong intuition as to how such a verse line can be rendered rhythmical.

The displacement of stress to the prefix “un-” is not uncommon in the performance of poetry. Consider line 5 of Shakespeare’s Sonnet 3:

10. For *whére* is *shé* *só fáir* whose *unéar’d wómb*
 w s w s w s w s w s

Both Gielgud and the Marlowe Society displace the stress from the second to the first syllable of “unheard.” Gielgud also adds a rather strong secondary stress to the second syllable (reflected by the intonation contour). But, by this displacement, metre becomes here more regular: the main stress is transferred from a weak position to a strong one. In excerpt 10, by contrast, the stress displacement substitutes a violating stress maximum in a weak position for a regular metric sequence. Here the syllable following “un-” is more like in Figure 11a, unstressed, than in 11b, stressed.

Hodge’s performance, as reflected in the above analysis, strongly suggests that some performers may prefer to generate a stress maximum in the seventh (weak) position, even where more “legitimate” solutions are available—provided the vocal material is manipulated in such a way that the metric pattern becomes perceptible in spite of the deviant pattern of linguistic stresses. What is more, Hodge, like many other performers, uses for this end precisely the vocal manipulations predicted by my study.

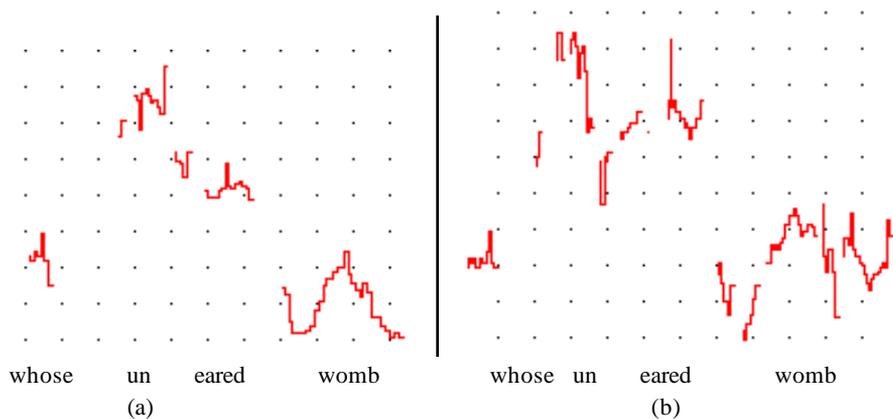


Figure 11 Pitch extracts of “whose unear’d womb” in (a) The Marlowe Society’s and (b) Gielgud’s readings

[Listen to sound file: Marlowe Society](#)

Such instances as excerpt 8, where a stress maximum in the seventh (weak) position can be avoided or generated according to which of the two alternative pairs of syllables is assigned to one metrical position, are not without precedence in our corpus. Consider the first line of the following excerpt from *Hamlet*:

[Listen to sound file: Gielgud](#)

11. May be the devil; and the devil hath power
 To assume a pleasing shape; yea, and perhaps

In the first line there are twelve syllables, in the second one eleven. The pairs of syllables marked by a horizontal bracket in excerpt 11 satisfy the phonetic conditions laid down by Halle and Keyser for disyllabic occupancy, and the line may be ruled as “metrical”. Nonetheless, as will be seen in Chapter 8, at least one perfectly acceptable performance of the first line can be better accounted for if the first token of “devil” is treated as containing an extra-metric syllable at the caesura (alternatively, if the function words “and the” are assigned to one position), and the first syllable of the second token of “devil” is treated as a stress maximum in the seventh (weak) position. Here too, the reciter preferred to “violate” metre, and then to render the performance rhythmical by resorting to strategies predicted by the present study.

Conclusions

As I suggested (Tsur 1977: 3), the patterns of performance include some phonological categories, *and* are analogous to them in an important respect. In phonology, a great variety of phonetic features may be categorized as *the same phoneme*. Likewise, a great variety of phonetic and/or paralinguistic features (which constitute open sets) may be categorized as a limited set of *patterns of performance*. It is not yet clear whether they constitute a closed set, like grammatical categories. What is significant for metrical analysis is the category of performance rather than the features categorized. There is one important difference, however. In metrical analysis there may be good reasons for going outside the limited set of performance categories; the same noises (e.g., pitch-obtrusion) may be categorized as two distinct categories, stress and intonation, at one and the same time; this gives rise to important perceptual facts of metrical significance (cf. Appendix I).⁷

According to the present conception there is no fixed limit of metricality: the utmost limit of acceptability is the reader’s ability or willingness to perform the verse line rhythmically. Jay Keyser suggested to me, back in the early seventies, that such a conception requires a systematic theory of the rhythmical performance of poetry. I attempted to propound, speculatively, such a theory (Tsur, 1977). The present study has provided some empirical evidence for this conception.

The stress maximum in a weak position is an interesting test case. According to the Halle-Keyser theory, it renders a verse line unmetrical. As I have demonstrated above, various reciters tend to have recourse to the same performance patterns, when confronted with this kind of metre violation. It is noteworthy that with the help of

⁷ This theoretical distinction between performance categories and acoustic cues is one central respect in which I differ from some other empirical researchers.

these performance patterns they feel they can perform rhythmically verse instances that are ruled unmetrical by various branches of generative metrics. Usually they do not know what they are doing and why, and are quite surprised to discover that, for instance, in stead of playing down a deviant stress, they over-emphasise it. These patterns have been predicted by the perception-oriented theory of metre, based on the hypothesis of limited channel capacity of human information processing, and on the hypotheses of Gestalt theory. Such a conception grants the performer a great degree of creativity in his attempts to solve the perceptual problems arising from the conflicting patterns of stress and metre, while the dynamics of human perception provide the constraints that govern the solution. That is why experienced readers of poetry tend to agree on the performance patterns applicable to verse instances ruled unmetrical by some experts. And that is why listeners exposed to those solutions for the first time tend to recognize them as appropriate solutions to the perceptual problem concerned.