

## Chapter 9

### Timing, Structure, Musical Key

#### *Time and Rhythm*

This chapter is devoted to the investigation of a problematic relationship between poetic rhythm and music. Two aspects will be considered: proportional time relationships and perceived pitch intervals. While proportional timing will be rejected all in all, it will be found, paradoxically enough, that musical intervals may have a significant contribution to the rhythmic organization of verse. There is a long-standing dispute between two theoretical traditions in metrics. There is a tradition of prosodists called “equal timers” who tried to prove that there are equal or proportional time periods between stresses or (when these attempts failed), between regions of strength (their work was summarized by Schramm, 1936). Some of them even offered musical notations for the rhythm of specific verse lines.<sup>1</sup> The rival tradition claims that poetic rhythm is based on an abstract structure which is confirmed or violated and re-confirmed by the sequence of linguistic stresses. It will be obvious by now that the present study is firmly committed to the latter view. As has been pointed out time and again throughout the present study, certain duration differences in poetry *are* significant; but they are acoustic cues for such local events as stress, over-articulation, and discontinuation, and should not be mistaken for an over-all organization consisting of equal or proportional time periods. One should have thought that after Wimsatt and Beardsley’s (1959) paper and the ensuing controversy in *PMLA* the equal-timing approach be extinct by now; but there are signs that it is

<sup>1</sup> Wellek and Warren (1956: 156) object that with such a system it is possible to arrive at the notation of any English text, e.g., an ordinary English pentameter line like Pope’s can be written as 3/8. They quote M.C. Croll’s notation:



In a footnote they comment: “It seems a highly artificial reading to substitute a rest for a primary accent” (287). Elsewhere, Wellek (1960: 414) recalls in a more informal tone that when, as a student, he studied “musical metrics” with Croll at Princeton, he could not understand why, for instance, this line should be scored 3/8, and why *mind* and *in* should be the only half-notes in the line. “It seems high time that we got over a theory which ignores the metrical pattern and reduces verse to a few types of monotonous beats”, he concludes.

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here to stay for a long time (e.g., Thomas Cable's "Pause" entry in *The New Princeton Encyclopedia for Poetry and Poetics*—see below).

Readers of poetry have strong intuitions that poetic rhythm arises from equal or proportional time periods. This intuition is so strong that the equal timers' tradition persists in spite of an ever-growing amount of measurements that fail to confirm it. The equal timing approach to rhythm seems to be simplistic even with reference to music. Even there there appear to be some other structural organizational principles as well, as the Gestalt principles of perception (Cooper and Meyer, 1960), or a hierarchical organization as suggested by theorists of the Gestalt persuasion (Cooper and Meyer, 1960) and generative theorists (Lerdahl and Jackendoff, 1983). In what follows, I shall discuss some of the weaknesses of the equal timers' approach, and argue for a structural view of poetic rhythm based on a perceptual structure from which, perhaps, the *illusion* of equal time periods arises. One of the test cases for my approach will be the question of how a pause of considerable duration affects the rhythmicity of a verse line.

Hendren (1961) said in a controversy following the publication of Wimsatt and Beardsley's (1959) paper: "Rhythm, in verse or elsewhere, is neither performable nor conceivable without measured time" (300). From this, however, it does not follow that measured time illuminates, in any way, the nature of rhythm; a series of arhythmic events are also not conceivable without measured (or measurable) time. Furthermore, as such theorists as Wimsatt and Beardsley (1959) have rightly insisted, proportional timing may be a property of a particular performance; various performances of the same poem may differ in their measured times and proportions. Assigning a certain "musical notation", as proposed by Hendren and some of his predecessors, to a text (rather than to a performance) may exclude many other, no less legitimate, options. A theory of metre (or, for that matter, a theory of performance) must be such as to make room for all the legitimate alternative options. Some of the standard experiments that refute the theory of equal timing go back to the beginning of the century. I wish to mention two of them as quoted by Wimsatt and Beardsley (1959: 589n). Wallin began with E.W. Scripture's concept of strong stresses, or "regions of strength", which Scripture called centroids; "the longest observed was seven times the shortest when there was no intervening pause, and fourteen times the shortest when pauses occurred". Ada F. Snell in "An Objective Study of Syllabic Quantity in English Verse" presents experimental evidence against the assumption that readers of English verse observe any kind of "equal time intervals".

In response to such measurements, Hendren puts his theory beyond refutation (and, by the same token, beyond proof): "Machines can only tell us what sort of material the mind classes as rhythmic. Sensory tests, supported by mechanical tests, show that a line of verse is divided into a number of rhythmically (not mathematically) equal time periods marked by stress..." (1961: 302).

This, in the final resort, amounts to saying that "rhythmically (not mathematically) equal time periods are those which the mind classes as rhythmic". This is not very helpful when confronted with a rhythmically complex line. We may come,

then, to the interim conclusion that proportional timing as an attribute of rhythmical performances of poems may be, in a great many instances, an illusion rather than a measurable fact. “Equal timing” exists, in relation to the reading of poems, only as a statistical average that may, perhaps, account for some over-all rhythmic impression, but gives precious little insight into the structure of a complex verse line or its rhythmical performance. In short, the illusion of proportional timing may be a perceptual concomitant of certain structural properties. It may be well worth one’s while to search out the roots of this illusion of proportional timing; it may also give some insight into the nature of the rhythmical quality of a reading. At any rate, the measured time-ratios quoted from Wallin suggest that if there is some correlation between proportional timing and rhythm, it is in a reverse order of priority. Rather than perceiving as rhythmical those performances in which there are equal time-intervals, one tends to *attribute* equal time intervals to performances which are *perceived* as rhythmical. I shall bring some experimental evidence for this possibility. And this brings us back to the structural description of lines and their rhythmical performance.

This confusion of rhythm with equal or proportional timing is, perhaps, reinforced in metrical theory by the puzzling discrepancy between what syllabo-tonic verse is and what it “ought to be”. As I have time and again emphasized throughout the present study, verse lines in which stressed syllables occur only in even-numbered positions and in all even-numbered positions are very rare in English poetry. In the first 165 lines of *Paradise Lost* there are two such lines. What is more natural in these circumstances for desperate prosodists than to assume “rhythmically equal time-periods marked by stress”?

Now what are those groups of stresses which “the mind classes as rhythmical”? The first truism that comes to mind is “the mind classes as rhythmical those groups of stresses which confirm an internal standard”. This internal standard is, apparently, independent (or nearly so) of clock-time. This truism may become quite meaningful, if we can give a structural description of this internal standard. I submit, then, that this internal standard is what Chatman (1965: 121) and Fowler (1968: 293–294) call the reader’s metrical set. For our present purposes, metrical set can be defined as an expectation of regularly recurring sequences of weak and strong positions. This expectation arises, as I have suggested, from the mind’s tendency to perpetuate any initial pattern and to impose on the patterns perceived the simplest structure that the prevailing conditions allow. Iambic metre, for instance, consists of regularly alternating weak and strong positions. Every even-numbered position is strong, every odd-numbered position weak, irrespective of whether it is occupied by a stressed or an unstressed syllable. Metre is confirmed in a strong position and disconfirmed in a weak position by a syllable that bears lexical stress; lexical stress is assigned, following the definition of Halle and Keyser, to the fully stressed syllable of a lexical word; lexical words are nouns, verbs, adjectives and adverbs (as opposed to prepositions, conjunctions, pronouns, articles and auxiliary verbs). Lexical stress is as-

signed to a syllable irrespective of the metrical position (weak or strong) which it occupies.

Equipped with this battery of observations and distinctions, I would like to suggest that, in order to understand the nature of rhythm in poetry, a principle, different from equal time-measures, may be borrowed from music, namely, “what has been called the *law of return*, the law that, other things being equal, it is better to return to any starting point whatsoever than not to return” (Meyer, 1956: 151).

The law of return depends for its operation upon “recurrence”, a form of repetition which must be distinguished from “reiteration”. Recurrence is repetition which takes place after there has been a departure from whatever has been established as given in the particular piece. There can be a return to a pattern only after there has been something different which was understood as a departure from the pattern. Because there is departure and return, *recurrence always involves a delay of expectation and a subsequent fulfilment* [my italics]. [...] Reiteration does not necessarily give rise to expectations of further repetition. On the contrary, if repetition is fairly exact and persistent, change rather than further repetition is expected i.e., saturation sets in (Meyer, 1956: 151–152).

The words *delay* and *subsequent* obviously indicate temporal notions but different ones from “equal periods”. When the reader’s metrical expectations are unfulfilled, when the metrical set is disconfirmed, strong cravings for fulfilment arise. When, finally, metrical set is reaffirmed, the resulting satisfaction is stronger than in the undisturbed reiteration of regular metre.

This analysis implies that in order to understand the rhythmical nature of any metre, whether quantitative or syllabo-tonic, one must borrow from Gestalt psychology the assumption that metric organization is a system that determines the character of its parts or, more precisely, a system in which the whole and its parts determine each other’s character. The sequence of the verse lines divides the auditory field into larger perceptual units; the line segments divide the line into two equal (or almost equal) parts. One precondition for poetic rhythm to have psychological reality requires the reader to perceive not only a sequence of more or less regularly alternating stressed and unstressed syllables, but also a higher unit, obtaining a larger unit divided by a sequence of smaller units. “The perception of that which divides is as necessary to the fact of division as is the thing divided” (Chatman, 1965: 23–24). In our case, this minimum requirement for rhythmicality is satisfied by the verse line (the higher unit) and the regularly alternating weak and strong positions (the lower unit). I submit that one of the many reasons why proportional or equal timing cannot work is this: if the higher unit (the line) is strongly established in perception, it tolerates a great number of deviations at the lower levels. Such deviations are experienced as tension—provided that the higher unit eventually emerges as a strong perceptual entity. In the above terms, the delay of expectation and the belief in subse-

quent fulfilment involved in “recurrence” may work only if there is a larger perceptual unit whose emergence can be trusted.

I have suggested above that “equal timing” exists, in relation to the reading of poems, only as a statistical average. We should add here that it exists as different statistical averages at different levels of organization. Jakobson (1958: 362) speaks of a stratified arrangement of three undulatory curves in rhythm: 1. alternation of syllabic nuclei and margins; 2. division of syllabic nuclei into alternating downbeats and upbeats; and 3. alternation of strong and weak downbeats. There is some indication that this stratified system reaches up, syntactically, to stress groups and breath groups (cf. Pike, 1967: Chapter 8 and *passim*); and metrically—to the line or even to the couplet. Recent generative theories go as far as the whole poem (e.g. Cureton, 1992). The following account by Schramm is illuminating (showing, also, the only respect in which proportional timing seems to be relevant to the understanding of the nature of poetic rhythm):

1. There is, really, no simple *rhythm* of verse, but a hierarchy of *rhythms*.
2. There is little physical counterpart of the rhythmical regularity we perceive or imagine in verse.

We have seen enough, also, to be able to say something about the organization of this complicated pattern of verse rhythm. The pattern is woven out of rhythms—the line within the stanza, the phrase within the line, the stress interval within the phrase, the syllable within the interval. The larger the unit, if we are to judge from this reading, the more regular it is. In the poem we examined, the couplet lengths showed an average deviation of 4 per cent; the lines, 11 per cent; the stress intervals, 30 per cent; and we made no effort to figure the deviation of the syllables. A very keen ear hears several of these rhythms. Probably no ear hears all of them at once. The average ear hears only the impression of pleasant rhythmical movement (Schramm, 1935: 67).

The statistical averages, as presented by Schramm, support our structural assumption that deviations on lower architectonic levels may be tolerated as long as regularity is preserved on higher levels, especially on the line level. We should add, however, that the “pleasant rhythmic movement” of parallel rhythmic levels which “the average ear hears” is still *focused* on one (or, at most, two) level(s). The perception of this level is more available for consciousness than that of the other, concurrent levels (“because consciousness is intrinsically single”, in Neisser’s phrase; see above, Chapter 2). Attention is usually focused on the (regular) alternation of “downbeats” and “upbeats”, while one is unaware of the details of several concurrent levels. It will be found that the suspension of the regular beat (by deviation from metric pattern) is frequently handled by temporarily shifting the focus of attention to another “architectonic level”, where regularity is patent, while “metrical set” becomes, temporarily, an “off-sequence” process.

It is important to notice that this stratified system of rhythms in poetry is analogous, to a large extent, to “architectonic levels” in music as described by Cooper and Meyer (1960: 2): “As a piece of music unfolds, its rhythmic structure is perceived not as a series of discrete independent units strung together in a mechanical, additive way like beads, but as an organic process in which smaller rhythmic motives, while possessing a shape and structure of their own, also function as integral parts of a larger rhythmic organization”. According to generative theorists (Lerdahl and Jackendoff, 1983) this hierarchy may reach the level of the entire work.

Meyer (1956) has some illuminating observations concerning the way in which these larger-scale groupings come into being; it is anything but projective. “It is this creation of a larger unit that gives the total phrase its over-all rhythmic form. For just as a series of beats which are equal both in accent and duration will not give rise to an impression of rhythm (except in so far as the mind imposes its own arbitrary differentiation upon the stimuli) so, too, the smaller rhythmic groups will not give rise to larger patterns unless differentiation of accent or duration is present” (111). In what follows, we shall try to avoid the imposition of arbitrary groupings on the stress patterns of poems. Our concern will be, as a rule, the grouping of stresses *demand*ed by some deviation from the “smaller-scale rhythmic units”, the metric pattern; we shall attempt to follow the inherent dynamism of such grouping processes.

It follows from the foregoing model that conflicting patterns of stress and metre may demand clear-cut articulation and/or emphatic grouping of stress (giving rise to “higher architectonic levels”). Articulation may occur on various levels (phonemes, or at the boundaries of syllables, stress groups, phrases, etc.), directing attention to one or another architectonic level. This offers a means for handling rhythmic disturbances in poetry, as in music, by focusing attention upon levels in which disturbances are less conspicuous: “If the tempo is too slow or if the performer over-articulates lower metric levels, the effect of syncopated notes may be weakened” (Cooper and Meyer, 1960: 100). And conversely, fast tempo and less careful articulation may shift attention from the “primary metric pattern” to higher architectonic levels. It will be found that this observation is most useful for the performance of poetry, owing, in particular, to its utilization of the articulatory gestures inherent in ordinary speech.

One reason why proportional timing *cannot* work in poetry is that, as the title of a paper in press by Al Liberman suggests, “In speech perception, time is not what it seems”. I would like to illustrate this assertion through a series of brilliant experiments by C. I. Darwin and A. Donovan of Sussex University (1979, two papers and demo tape), who have shown that in sentences like “He turned up by ten talking of terrorism”, subjects tend to hear equal time intervals between the /t/ sounds in the stressed syllables, although they are objectively unequal. However, when they listen to a sequence of mechanical clicks that are acoustically similar, the same time intervals as between the /t/ sounds are perceived, as they should be, as unequal. When, finally, the clicks and the /t/ sounds in the text are carefully synchronized and

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sounded simultaneously, the intervals between the /t/ sounds are perceived as equal, whereas the intervals between the clicks are perceived as unequal.<sup>2</sup> The tendency for perceptual isochrony works *within* intonation contours, but not *across* contour boundaries. Many of the effects discussed below crucially depend on whether the contour boundaries are clearly articulated or not.

Moreover, there is good experimental evidence that outside verbal perception too “time is not what it seems”. In his brilliant study of the subjective experiencing of time, Robert Ornstein (1969) found that we experience time periods as longer or shorter according to the amount of mental storage space required by the information processed during that period. The same amount of information takes up less mental storage space (that is, is experienced as of shorter duration) if it is more efficiently coded. When we look at a meaningless and irregular visual design, it takes up a relatively large quantity of mental storage space. When it is assigned a referential meaning, verbal or iconic, the duration of the period experienced is drastically reduced. Ornstein found this to hold true when meaning was assigned to the visual design both before and after the period of observation. Thus, the same time period may seem different before and after categorization of the stimulus design.

#### *Stress, Duration and Articulation in Hodge’s Reading of Keats’s Sonnet*

In what follows I shall discuss at great length the first two lines of Keats’s Elgin Marbles sonnet, as performed by Douglas Hodge.<sup>3</sup> I shall describe the effect of an exceptionally long intruding pause; and the elements that count toward the perception of a coherent whole in spite of this intrusion. I shall also point out the cognitive mechanisms that underlie the handling of pauses as well as those that impose coherence upon a line. Since I am treating the line as a system that determines the character of its parts, I shall have to dwell on many elements that are irrelevant to the problem of the pause.

1. My spirit is too weak; mortality  
Weighs heavily on me like unwilling sleep.

<sup>2</sup> This difference between *ts* and clicks, amazing as may seem, should not be too much surprising. It is in perfect harmony with the difference between the “speech mode” and the “non-speech mode” of aural perception, which I have elsewhere discussed at great length (Tsur, 1992b).

<sup>3</sup> Many of my crucial distinctions—not only those concerning large-scale and small-scale pauses—can be focussed on this reading of these two lines. Accordingly, the enjambment in these lines is discussed at length in Chapter 7; the bisyllabic occupancy of metrical position in line 2 is discussed in Chapter 8; the stress maximum in the seventh position, resulting from the stress displaced to the first syllable of “unwilling”, is discussed in Chapter 6. The discussion of the stress grade recapitulates my argument in Chapter 5.

The first line is segmented by a caesura into 6+4 metrical positions; the second line into 5+5 positions. If the integrity of the line is preserved, the second hemistich of the first line is relatively “required”—relative to the 4+6 division. I say “if” because in this line the last strong position is occupied by an unstressed syllable of a polysyllabic and thus it is not properly “closed”; what is more, the line is enjambed. From syntactic point of view, the following aspects in the first line stand out. The first six syllables, “My spirit is too weak”, constitute a self-sufficient independent clause that arouses no further expectations. The next rather long word, “mortality,” starts another independent clause (running on to the next line).

Douglas Hodge’s performance of these two lines poses a serious problem both to the inexperienced listener and to the trained theoretician. At the same time, however, it is quite transparent to the experienced listener.

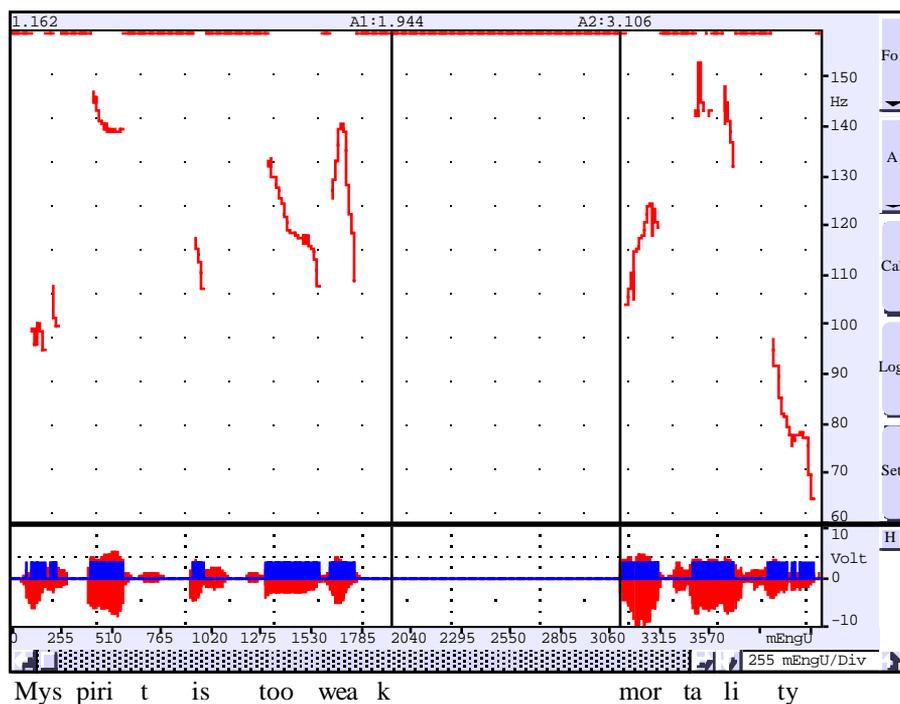


Figure 1 Wave plot and F<sub>0</sub> extract of “My spirit is too weak; mortality”

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The first, most conspicuous observation that occurs to the listener is the exceptionally long, 1162 msec pause in midline, between “weak” and “mortality.” To be sure, there is a major syntactic boundary that does warrant this pause; still the pause is long enough to make the listener despair of ever completing the perceptual unit that might constitute an iambic pentameter line. The second observation is that there is no measurable pause between “mortality” and “weighs” at the transition from the first to the second line of the sonnet. Consequently, there is a real danger

that the lineation may be lost, so that the perceptual segmentation reflects only the syntactic structure, not the versification structure.

The third observation concerns articulation of syllables by intonation. Consider “too weak”: *too* is a stressed syllable in a weak position, and is assigned a “terminal” intonation contour, falling from 133.636 to 107.561 Hz. Being 384 msec long, it is perceived as strongly stressed. *Weak* is only 359 msec long. This small difference looms large if we compare the duration of the vowels only. The duration of the vowel of *weak* is 116 msec long; that of *too* is 284 msec long, that is, almost two-and-a-half times longer. There is, however, a 147 msec long pause between the vowel of *weak* and the release of the [k], which is perceived as the over-articulation of the voiceless stop. This 169 msec long sequence of pause plus release renders the voiceless stop 1.45 times longer than the preceding vowel. There is, then, a strongly stressed syllable in the fifth (weak) position, the stress of which is cued both by duration and a long-falling intonation curve. Such a stress in a weak position threatens to overthrow the metric integrity of the line, unless meter is emphatically reinstated in the next (strong) position. The duration of the vowel of *weak* alone would hardly warrant such a reinstatement. Still, this word bears exceptional perceptual prominence, owing to the steeply rising and falling intonation contour assigned to it: it moves from 126.724 to 140.446 to 109.158 Hz, amply compensating for the short duration of the vowel, and reinstating meter. This “equal prominence” poses a problem for the equal timers, which I shall discuss later.

The essential problem we face with Hodge’s performance of this verse line is as follows. Assuming that the line’s integrity is preserved, what is the status of the long silence after the sixth position? Two opposite views can be suggested: the silence either is or is not a structural part of the perceived whole. Some scholars with a generative inclination tend to suggest that the silence indicates unoccupied metrical positions in the deep structure (smuggling back, through the back door, the equal-timing conception). Other scholars with a generative inclination who assume no unoccupied positions would insist that the long silence destroys the verse line as a perceptual whole. According to the present conception, by contrast, the perceptual integrity of the verse line must first be submitted to direct experiencing of listeners, and the theoretical explanation must account for conflicting intuitions (my intuition, for instance, is that the integrity of the verse line is preserved in this performance, whereas my research assistant insists that it isn’t; ideally, one should collect responses from a great number of professors of literature and of professional actors, but the methodology outlined below would be the same).

My explanation assumes that poetic rhythm cannot be accounted for by direct appeal to temporal relationships and to proportional time periods. Duration *is* significant, but only as an acoustic cue for perceptual prominence or discontinuation. Perceptual prominence, in turn, affects the perception of stress and of bisyllabic occupancy of one metrical position. In the present instance, far from confirming some hidden metrical positions, and also far from interfering with temporal relationships of the performance, it intrudes, rather, upon the integrity of the iambic pentameter

line in the listener's perception. The rhythmicity of the delivery instance will depend on whether, in the final resort, the versification unit can or cannot reassert itself in the listener's perception, despite the intruding pause. The longer the pause, the greater the tension, provided that the versification unit can reassert itself in the listener's perception. If the versification unit cannot reassert itself, tension abruptly ceases. Some of the integrating factors will be discussed below; issues involved in the perceptual closure of this line have been discussed at great length in Chapter 7.<sup>4</sup>

In light of the foregoing generalizations let us have a close look at line 1 again: first at the structure and performance of the two hemistiches and then at the nature of the pause between them:

2. My spírít is tóo wéak; mortáality  
           w s w s w s           w s w s

The metric grid consists in a sequence of regularly alternating weak and strong positions. Confirming this sequence, the stress pattern begins with an unstressed and a stressed syllable. This, however, is followed by a sequence of two unstressed and two stressed syllables. In Chapter 5 I have called such a sequence a "stress grade". Wimsatt and Beardsley recommend performing such a sequence as follows: each later syllable in the sequence "-rit is too weak" is more strongly stressed than the preceding one; thus, conforming with the stress pattern of language, the iambic

<sup>4</sup> I have mentioned in Chapters 3 and 7 the Gestalt assumption that a perceptual unit tends "to preserve its integrity by resisting interruption". As I suggested in Chapter 1, Milton and Shelley push metric deviance to the brink of chaos to secure the greatest musicality; Donne in his *Satyres* goes beyond it. The definition of "brinkmanship" may be useful here: "the technique of maneuvering a dangerous situation to the limits of tolerance or safety in order to secure the greatest advantage" (*The Random House College Dictionary*). In our case, "greatest advantage" consists in tension, musicality, or the enhancement of the verse line in perception; the crossing of the limit leads to disintegration of the line in perception. Milton and Shelley reach the limits of tolerance by metric deviance; Hodge in this verse line by an exceptionally long pause. In both instances, one key for integrity lies in the effective closure of the line. This principle of "brinkmanship" is manifest in a variety of perceptual phenomena. Consider the following two figures:



Both figures suggest two congruent planes, slightly set off. In the first figure, they "resist interruption" and are reconciled in a continuous three-dimensional object. Here "greatest advantage" consists in "three-dimensionality". The further they are set off, the "deeper" the three-dimensional object, provided that the area is closed—up to a certain point. When this point is exceeded, or the area is not closed, as in the second figure, the three-dimensional object "disintegrates" into two partially overlapping planes.

lilt is preserved by stressing the even-numbered syllables more strongly than the preceding odd-numbered syllable. I call this pattern a “stress slope.” Wimsatt and Beardsley seem to believe that this is *the* performance (or even the *structure*) of such a verse line. The present assumption is that this is *one* possible performance of such iambic lines that contain a sequence of two unstressed syllables followed by two stressed ones. I predicted that such verse lines would be performed in a rather different way. The first two unstressed syllables will be equally unstressed; the next two syllables will bear an equally heavy stress; the phonemes as well as the boundaries of the stressed syllables will be exceptionally well-articulated. The heavily stressed syllable in the weak position will be grouped forward with the following heavily stressed syllable in the strong position, seeking “focal stability.” The boundary of such a stress grade will tend to coincide with the caesura or with the line ending. As will be seen below, Thomas Cable, for instance, mistakes such exceptionally good articulation of syllable boundaries as evidence for “unrealized beats” and equal timing.

Contrary to Wimsatt and Beardsley’s predictions, all my predictions have been amply fulfilled in Hodge’s performance. The syllables “-rit is” are equally unstressed; the syllables “too weak” are both over-stressed. As Figure 1 and my discussion of it suggest, their boundaries are over-articulated by intonation; the great prominence of “too” is enhanced by duration; that of “weak” by the rising-and-falling intonation contour. The heavily stressed “too” occurs in a weak position and threatens the perceptual integrity of the metre. The extremely prominent syllable “weak” occurring in a strong position reinstates metre; by the same token, it bestows exceptionally great stability and strong articulation on the (marked) caesura. As suggested above, the deviating stress on “too” pushes as it were against the coinciding boundaries of the wider versification units: those of the metric foot and of the hemistich which, in turn, “put up” a vigorous resistance. The articulation of the boundary of “too” is effected by the long-falling intonation contour, separating it from “weak.” At the same time, its forward grouping to “weak” is effected by the absence of measurable pause after it, and the linguistically unwarranted 87 msec pause *preceding* it. Characteristically enough, this is not perceived as a straightforward pause, but rather as an indication of the over-articulation of the /s/ preceding it and the forward-grouping of the adverb following it. The unstressed syllables “-rit is” must likewise be perceptually grouped forward, since the nearest point where focal stability can be achieved is at “weak” in a strong position.

#### *Pauses, Back-Structuring, and Integration*

To understand the nature of the huge 1162 msec pause in midline we must make two important considerations: first, the handling of pauses in speech perception in general; and, second, the nature of back-structuring in perceptual processes in general and in speech perception in particular. In Hodge’s readings we find a relatively large

number of pauses between words as well as within words. Other reciters are rather sparing with this device. In the sequence “My spirit is too weak”, for instance, there is in Hodge a 66 msec long pause after the [s] in “spirit”; a 131 msec long pause after “spirit”; an 84 msec long pause after “is,” and a 147 msec long pause between the vowel of *weak* and the release of the [k]. Now if you play “wea-” *until* the release of the [k], you hear what you see on the screen: [wi:] plus a pause; but if you include in the sequence the release of the [k] as well, you hear no pause, but an over-articulated [k]: the pause is re-interpreted as the time period when the articulatory organs are closed before the release. This renders the voiceless stop (pause + release) 169 msec long, 1.45 times longer than the preceding vowel (cf. Figure 1). Thus, the perception of the pause is changed after the event; that is what I call “back-structuring”. Exactly the same process takes place in the middle of the word “spirit”. If we play on the computer the phoneme sequence [majs] and the pause, we hear what we see on the screen: a phoneme sequence and a pause; but if we add the release of [p] to the sequence, we hear no pause at all but, instead, an over-articulated [s] and an over-articulated [p]. Curiously enough, even the pause between the words “is too” isn’t heard as a pause, but as the over-articulation of the word boundaries between which it is enclosed; it also effects, perhaps, the forward-grouping of “too.” The only pause heard as a proper pause is the one between the words “spirit is.” It would appear that there is a tendency in the course of ordinary speech to perceive pauses as parts of articulatory gestures whenever possible, even if acoustically they do not differ from pauses proper. This is the case even if such a perception requires back-structuring, that is, changing one’s perception after the event.

I wish to make an additional observation. I had a very strong intuition that “weak” arouses some powerful expectations of continuity (across the pause). But I could not find here any of the devices regularly associated with such expectations: no late peaking and no rising intonation. Now there seems to be precedent indicating that this intuition may have to do with the relatively long pause preceding the release of the /k/. There is a similar, even longer, 297 msec pause followed by a release of /k/ (75 msec) in “ache” in Gielgud’s reading of “the heart-ache” in Hamlet’s soliloquy “To be or not to be”. This sequence of a salient release of /k/ inseparably run into the next word (“and”) and preceded by an exceptionally long pause fulfils here two opposite functions. On the one hand, the long pause is perceived as the over-articulation of the word-final stop, separating it from the next word; by the same token, the resulting excessive duration of the word also indicates a break. On the other hand, the release follows an exceptionally long pause, and is inseparably run into the vowel beginning the next word. Listening to the line confirms that this starts an impetuous forward movement toward the end of the line.

Let us consider now the long pause after “weak”, and its effect on the integrity of the verse line. It would be rather unsophisticated to regard it as the only factor that effects integrity. Gestalt psychologists have explored the conditions that maximize our tendency to perceive a stimulus pattern as an integrated whole, as parts that belong together. These include, among other things, similarities. I have redrawn

here four of Arnheim's (1957: 66–72) illustrations (figures 2–5): grouping by similarity of size, by proximity (similarity of location), by similarity of shape, and by similarity of colour. To this Arnheim adds similarity of orientation, of direction of movement, of speed, and the like. To this one might add *closure* (in the drawings below, each one of the geometrical designs is perceived as one whole because, among other things, it is a closed area); *good continuation* (when there is a choice between several possible continuations there will be a spontaneous preference for the one that carries on the intrinsic structure most consistently; Arnheim, 71), and so forth.

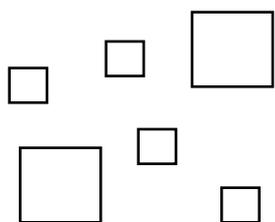


Figure 2 Grouping by similarity of size

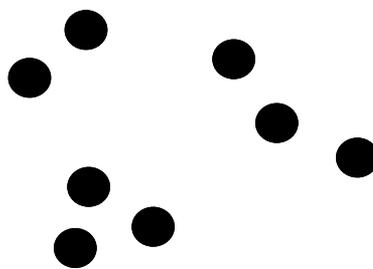


Figure 3 Grouping by proximity

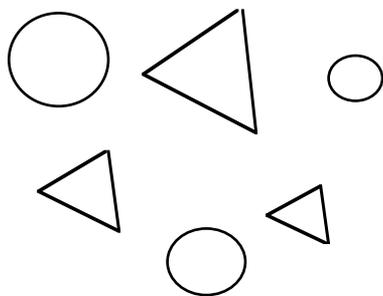


Figure 4 Grouping by similarity of shape

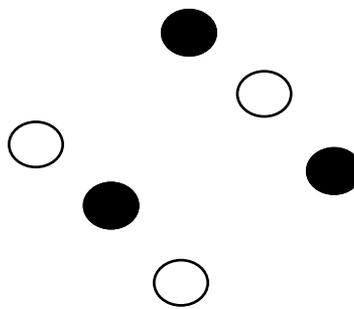


Figure 5 Grouping by similarity of colour

In Hodge's performance of the verse line under discussion, the long pause threatens integrity by violating "proximity"; but there may be elements that counteract this violation. There is, for instance, a principle formulated by the Gestalt psychologists, that every given whole tends to break up into similar parts, if the prevailing conditions allow. Similar parts tend to stand out at the expense of the whole (this is yet another way in which similarity affects integrity). In the case of this sonnet (and, in fact, in much English poetry) the smallest unit that recurs consistently in the whole poem is the iambic pentameter line. Thus, the longer the sequence of iambic pentameter lines, the more it tends to impose perceptual unity upon consecutive fragments that *might* constitute such a line. The verse line is divided into two

“hemistiches” by a “caesura”, which occurs in midline, governed by the dynamics of perception: in the iambic tetrameter and hexameter exactly in the middle, after the fourth and sixth positions, respectively, without regard to the linguistic boundaries. The pentameter line is divided into two segments, after the fourth, the fifth or the sixth position. The mere fact that in various lines the division occurs at different points ensures that the smallest recurring unit is the decasyllabic one. This similarity of structure tends to group the two segments of this line together, but also to foreground their segregation. Intonation also contributes to the unity of the line in a variety of ways. We have already noted that intonation generates an effective closure at the end of the line, in spite of the continuity in many respects. But there is also the factor of “good continuation.”

The intonation contours on “weak” and on the last syllable of “mortality” or, perhaps, on its last three syllables (see Figure 1) indicate that the former is a minor versification boundary, the latter a major one. The contour of “-ty” may be perceived as a good continuation of either the contour of “weak” or of the contour of “mortali”. The contour of “weak” falls from 140.446 to 109.158 Hz, that of “-ty” from 97.137 to 65.044 Hz. Half-way is at 102.745 Hz, between the top of the former and the bottom of the latter contour. There is also similarity of location: both contours occur at the end of a segment. This creates an “iconic” suggestion that the two segments constitute one whole. Thus, the end of the verse line is confirmed and clearly articulated, in spite of the continuity of syntax and in spite of the absence of a stressed syllable in the last strong position. Now in Hodge’s performance, an exceptionally long pause is inserted between the two segments. In view of the foregoing analysis, if the various indications that the two segments constitute a cohesive whole are strong enough, the intruding pause only enhances the whole’s tendency to reassert its integrity in the listener’s perception. If they are not sufficiently strong, the versification unit will fall into pieces. The analyst can only point out the structure of this delicate balance; individual responses may vary as a result of shifting emphasis from the cohesive to the fragmenting factors and back.

The perception-oriented theory of meter predicts that the rhythmical performance of poetry requires clearer articulation than ordinary speech. All the reciters whose readings we have examined so far, do over-articulate the speech sounds and syllable or word boundaries. But Douglas Hodge does so to a greater extent than the others and has recourse to pauses as a means for over-articulation more frequently than any other of the readers in our sample. Consider the word sequence “spirit is.” In ordinary speech we would expect the speaker to run the first word into the next one; in this reading there is a very conspicuous release of the [t], then a longish pause, and then a glottal stop before the vowel; we would encounter none of these in the stream of ordinary speech. In fact, it appears to me that in this specific instance over-articulation exceeds the requirements of the rhythmical performance of poetry.

Back-structuring in speech perception is a commonplace observation among speech researchers. Anybody involved in speech research, phonetics, or phonology knows that when we play minute segments of the speech signal, we hear noises that

barely resemble speech at all. When we hear a sufficiently long segment that allows us to form and test a hypothesis concerning the string of phonemes, the noises abruptly become intelligible speech; what is more, the listener cannot attend at will to the noises any more. It is much less well-known, however, that back-structuring occurs not only in speech perception but, sometimes quite dramatically, in other cognitive processes also. Ornstein's experiment reported above may be a case in point, which would enable us to throw some light on the way we seem to handle the long, 1162 msec pause after "weak" in Figure 1. It is differently experienced in the course of the reading and in retrospect. The listener is looking forward to see whether a familiar versification unit such as an iambic pentameter line will eventually emerge; the over-articulation of phonemes and word boundaries seems to encourage such expectations (this is perhaps one reason for some unwarranted over-articulations in this reading). On the other hand, the pause is long enough to have the listener expect no sequel. If, however, the versification unit is effectively closed by a variety of perceptual means, the emerging structure (that is, the emerging "meaning" of the perceptual sequence) causes the listener to reinterpret the nature of the pause. It should be noted, first, that during the silent period some information-processing activity (such as forming and discarding expectations) may take place, but no information is stored, so that when the verse line is completed the silent period may shrink in memory to minimal size; moreover, as Ornstein's experiments indicate, subjective duration is determined not by the amount of information processed during that period, but by the amount of information stored. It should also be noted that in the present reading a period slightly longer than one second has to be back-structured, whereas in Ornstein's experiment a one-minute (that is, an almost sixty times longer) period was back-structured. Thus, one need not assume that the pause is too long for back-structuring. Furthermore, according to my conception the pause is not part of the structure of the line, but is rather an event intruding upon it, against which the structure strives to reassert itself in the listener's perception.

As we have seen, there is a long-standing dispute between the structuralist conception represented here, and a conception that there are equal or proportional time periods measurable in a rhythmical performance. But in the final account, all versions of equal or proportional timing broke down in face of measurements. There are many reasons why the structuralist conception should be preferred (which, I believe, I have presented in the foregoing discussion). But there are also some very good reasons why the proportional or equal timing conception *cannot* work; I have already presented a few of them, and shall mention one more. We have discussed "too weak" in Hodge's performance. We have seen (Figure 1) that Hodge cues the stress on "too," among other things, by excessive vowel length; the vowel of "weak" is much shorter, but the prominence of this syllable is rendered equal to that of the preceding one by a rising-and-falling intonation contour. So, what we have here is not equal time periods, but equal perceived prominence. What is more, these prominent events do not alternate with non-prominent ones, but rather two prominent events follow two non-prominent ones. A much better account would be that the irregular succes-

sion of prominent and non-prominent events disturbs and confirms successively an underlying sequence of regularly alternating weak and strong positions that exists as a mental set and results in a set of frustrations and gratifications in the reader or the listener. Occasional pauses are parts of the irregularly alternating less and more prominent events, but not of the underlying structure of regularly alternating weak and strong positions, refuted and confirmed by them.

We have discussed the versification structure of the first line of Keats's sonnet "On Seeing the Elgin Marbles for the First Time", and Douglas Hodge's performance of it. In this performance there is a very long pause in the middle of the line, and a tense enjambment threatening the perceptual integrity of the verse line. According to the present assumption, the period of silence is not part of the line structure, but an event intruding upon it. According to a principle formulated by Gestalt psychologists, entities tend to reassert themselves in perception in front of intruding events, up to a certain point; when the strength of the intruding event passes a certain point, the perceptual entity falls to pieces. We have pointed out the processes that contribute to the integration of the verse line and to the shrinking of the pause in memory. In all events, this reading remains a boundary case, balancing the cohesive and the fragmenting factors one against the other; and the integrity or lack of integrity of the line may rest on the relative weight assigned to these factors by the listener's cognitive system. Only at this point of the argument, by no means earlier, should one mention past experience: the listener's familiarity with iambic pentameter verse may be the last straw that tilts the balance in favour of integrity. This is the point, too, where the effect of possible theoretical predilections may be considered.

Less extreme but no less interesting instances may be found in readings of Hamlet's soliloquy, "To be or not to be". I have suggested that poetic rhythm in general, and blank verse in particular, crucially depend on the reader's or listener's ability to establish and preserve the verse line as a perceptual whole, not only in the instances in which it is end-stopped, but also when its syntax is run on. In rhymed verse, rhyme may effectively signal line terminal; but in blank verse the performer must rely on some other vocal devices. Let us consider lines 2 and 3 of the soliloquy as read by three leading British actors, John Gielgud, Simon Russel Beale and Kenneth Branagh.

3. Whether 'tis nobler in the mind to suffer  
The slings and arrows of outrageous fortune.

Two things are very conspicuous in Gielgud's reading. First, there is a considerable pause in mid-line (after "mind"); and second, there is no measurable pause between "suffer" and "the". It would appear that Dr. Johnson and his present-day followers are right, that blank verse is often poetry for the eye only, not for the ear. When, however, one listens to this reading, one is forced to make a different judgment. The word "suffer" is assigned a steeply-falling intonation contour, from

151.027 to 82.584 Hz, a fall of 68.443 Hz which, in this frequency range, is something like three-quarters of an octave. At any rate, intonation falls from the highest to the lowest pitch in this line; this steeply-falling intonation contour is perceived as a powerful terminal device. The word sequence “whether ’tis nobler in the mind” is assigned what Gerry Knowles (1991) calls an “internally defined prosodic pattern”, enhancing the coherence of this part of the verse line. Regrettably, there is no pitch information about “to”; but measurements by an alternative, less reliable, method (autocorrelation) suggest that the pitch of “to” is at about 89–99 Hz. This places the pitch of the preposition at around the bottom of the “internally defined prosodic pattern”, from where pitch resets high, foregrounding the terminal quality of the ensuing steeply-falling intonation contour.

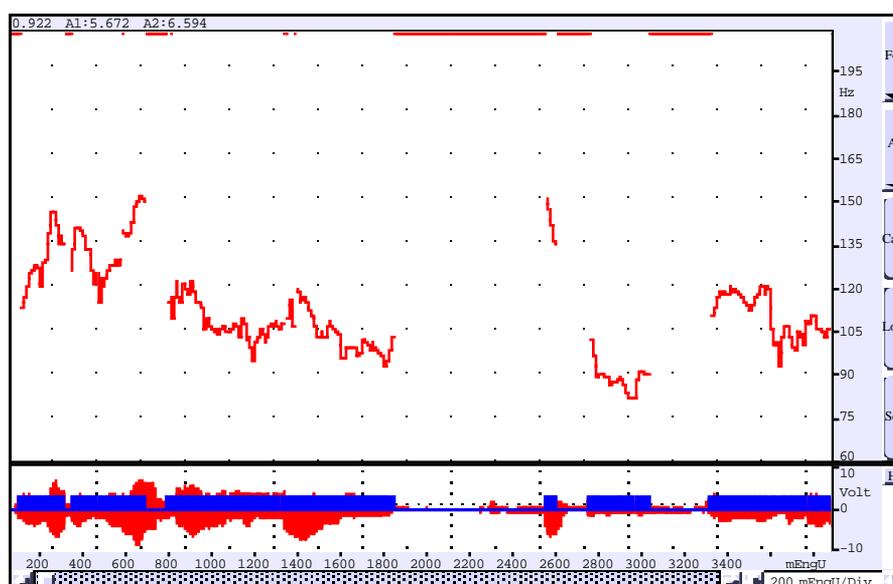


Figure 6 Wave plot and  $F_0$  extract of “whether ’tis nobler in the mind to suffer the slings ’n a” in Gielgud’s reading

[Listen to sound file](#)

Now consider the longish, 338 msec pause after “mind”. Such a pause, as we have seen, is “double-edged”, that is, may have in different circumstances one of two opposite effects. If the verse line is insufficiently closed, it may cause it to disintegrate; if it is effectively closed, the perceptual unit resists interruption and strives, according to a well-known Gestalt principle, to preserve its integrity in our perception. The stronger the interruption, the more is its integrity enhanced—provided that its closure is preserved. If the closure is overridden, the interruption causes the verse line to return to chaos. As I hope to have shown, the steeply-falling intonation contour of “suffer” serves here as an effective closure. By the same token, the line-end-

ing indicated by the falling pitch contour intrudes upon the run-on syntactic unit, strongly punctuating it after “suffer”, and causing it to reassert itself in the reader’s perception.

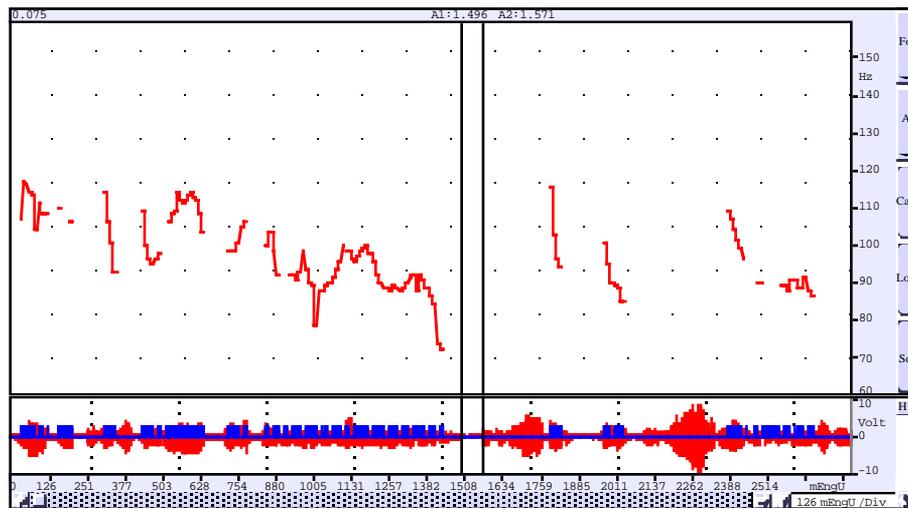


Figure 7 Wave plot and  $F_0$  extract of “whether ’tis nobler in the mind to suffer the slings and a” in Beale’s reading (the markers indicate a pause)

[Listen to sound file](#)

It is illuminating to compare this performance with one by Simon Russel Beale (Figure 7). Here too the words “suffer the” are run one into the other. The intonation contour of “suffer” has a much shorter fall, from 115.445 to 85.465 Hz (moreover, the upper portion of the contour of “suf-” in the graph may be the machine’s artefact, and the genuine contour may be falling only from 102.558 Hz). Thus, the line ending is much less vigorously indicated. At the same time, the pause after “mind” too is only 75-msec-long. The effect of this break, however, is greatly enhanced by the falling intonation contour at the end of “mind”. As a result, a new movement is initiated after “mind”, and no line ending is indicated after “suffer”; there is no perceptual punctuation at this point. A fluid, continuous stream of speech is generated, but the lineation is lost.

In a star-laden production of *Hamlet* (in which illustrious past Hamlets, John Gielgud and Derek Jacobi, play the Ghost and Polonius), Kenneth Branagh plays the role of Hamlet. Unfortunately, however, the recording quality is singularly bad. So I had to contrive a rather poor-quality graph (by changing the settings). But Figure 8 shows some interesting data. Here too “the slings” is inseparably attached to the preceding “suffer”. And no steep terminal contour is assigned to this word. Nevertheless, there is a marked feeling that the verse line is effectively closed as a perceptual unit. Here too there is a minute 75 msec pause, reinforced by a prominent release of the /d/ (in “mind”), followed by aspiration. Unlike in the previous two readings, in

Figure 8 “mind” has a conspicuously rising intonation contour; the sketchy intonation curves of “to” and “suf-” continue, so to speak, the rising line of this contour, on the other side of the break. On “suf-” the curve changes direction and slightly falls to the pitch of “-fer” (that is exactly what one hears, even though the graph is incomplete and rather erratic here). It is this change of direction that renders the word “suffer” exceptionally prominent, so as to serve as an effective punctuation at the line ending. The slight prolongation of the /f/ and of the second syllable reinforce this closural quality. The short break reinforced by the release of the /d/ interrupts not only the verse line, but also the rising intonation curve leading toward the “pivotal point” on “suffer”, which thus exerts an impetuous forward push across the break. This forward push is reinforced by late peaking. In the present case, the peak in “mind” is near the end of /n/. It has been found throughout the present project that such a “late peak” may have, perceptually, an impetuous forward drive; this finding is in harmony with the principles of Gestalt theory.

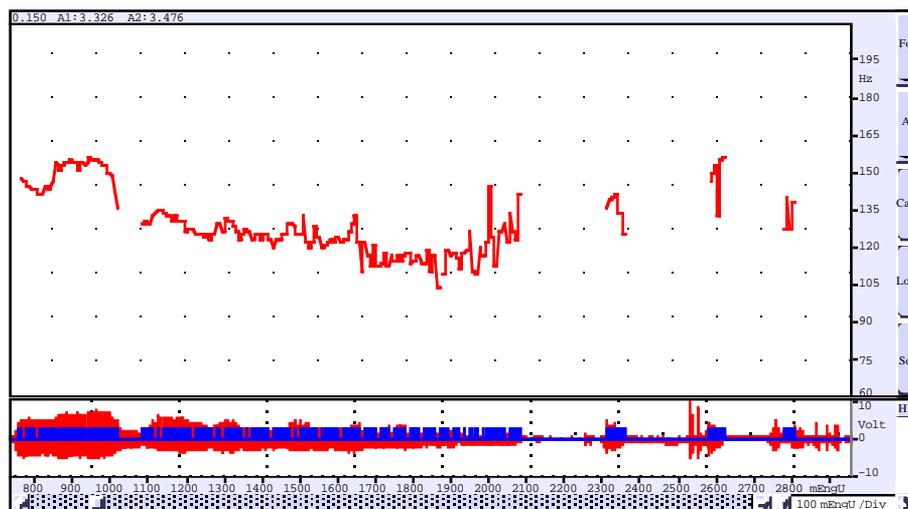


Figure 8 Wave plot and  $F_0$  extract of “nobler in the mind to suffer the” in Branagh’s reading

[Listen to sound file](#)

In a paper on articulateness and requiredness in iambic verse (Tsur, 1972) I argued that the closer an intruding syntactic break is to the line ending, the greater the requiredness of its remaining portion (requiredness is the demand that one part of a perceptual field may have upon another part). If such a line is “run-on” (as in the present instance), an impetuous forward drive is generated. In this line, all three performers insert a considerable break after the eighth position (“mind”), between the caesura and the line ending. This break is quite gratuitous from the linguistic point of view, and its only justification appears to be to “intrude” upon the line and generate tension and an impetuous drive toward the end of the next line. In Gielgud’s

and in Branagh's reading, this stream must overcome the "obstacle" of the line ending; in Beale's reading it flows undisturbed to the next line. At the end of the next line, the stream is arrested.

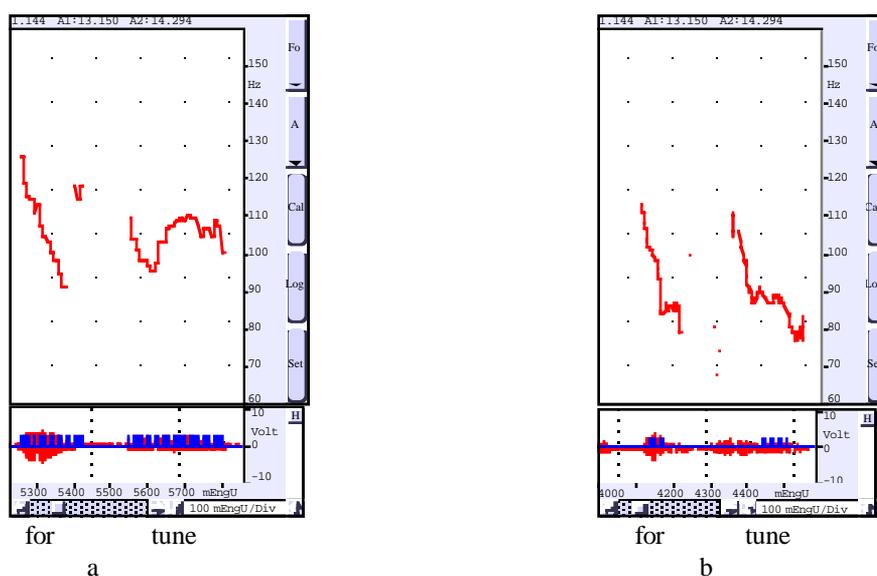


Figure 9 Wave plot and  $F_0$  extract of "fortune" in Gielgud's (a) and Beale's (b) reading

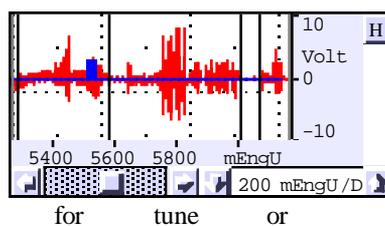


Figure 10 Wave plot of "fortune or" in Branagh's reading

All three readings end with a pause—Beale: 1144 msec; Gielgud: 963 msec; Branagh: only 70 msec. Intonation clearly has to do with this arrest. In Beale's reading pitch falls on "for-" from 103 to 86 Hz; on "-tune" from 98 to 78 Hz, all in all, from 103 to 78 Hz, that is, 25 Hz. In Gielgud's reading pitch movement is more sophisticated. On "for-" it falls from 126 to 82.584 Hz, almost 44 Hz; on "-tune" one sees a complex curling curve, but one hears only a falling curve on the first syllable, and a slightly rising curve on the second. Thus, Gielgud indicates by intonation a firm closure and, at the same time, that something still is to come, after the long pause. Indeed, there is a single syntactic movement from the

beginning of the second line to the middle of the fifth line; and Gielgud manages effectively to punctuate the movement at line endings, and still indicate “to be continued”. Branagh whispers the greater part of “fortune”, and so no meaningful pitch plot is available from his reading; by listening, one has a feeling that he firmly closes the line by terminal intonation; the relatively short pause is perceived, at most, as a clear-cut articulation of the line ending, and speech is felt to be run-on.

### *Unrealized Beats*

I propose to wind up my confrontation between the “structuralist” and the “timer” conceptions of poetic rhythm by way of scrutinizing Thomas Cable’s “Pause” entry in *The New Princeton Encyclopedia of Poetry and Poetics*. I came across it after having already completed the present chapter. It is a startling illustration of how persistent the notion of equal timing is, and what price the “timers” are willing to pay in order to persist. “One group of metrical theorists”, Cable says, “those who scan by syllables and stresses rather than by measuring timing, usually deny that the metrical pause actually exists in meter *per se*, assigning it instead to the corollary domain of ‘performance’. [...] The question is whether a unit of time can replace a missing syllable or syllables in a *metrical* structure. This narrow question is the key to understanding one of the central disputes in metrical theory, that between ‘timers’ and ‘stressers’”.

A metrical pause can coincide with a syntactic pause:

x / x / (x) / x / x /  
Pull off my boots: harder, harder: so  
(*King Lear* 4.6.177).

But a metrical pause, in temporal analyses, may also occur where we do not normally think of pauses occurring:

/ x / (x) / x / x / x /  
As a huge stone is sometimes seen to lie  
(Wordsworth, “Resolution and Independence” 57).

Recent phonological studies have confirmed what timers such as Coventry Patmore and Egerton Smith always maintained—that two adjacent stresses, even in prose, require either a separating beat or subordination of one of these stresses (Lieberman and Prince; Selkirk).

I agree with Cable on two points. First, there *is* an “unrealized beat” in the *King Lear* quote where “a unit of time can replace a missing syllable”; but here, then, a syllable *is* missing. Second, I do believe that this question may be the key to

understanding the dispute between “timers” and “stressers”. But, I suggest, it settles the dispute in the direction opposite to the one Cable intends. In order to understand this, I propose to consider the issue in light of the Halle-Keyser theory on the one hand, and in a wider aesthetic perspective on the other.

According to the present theory, a poem is not merely a linguistic, but also an aesthetic object; aesthetic objects, in turn, can be analysed in terms of materials and structures (Wellek and Warren, 1956: 128–129). The materials conflict with one another, but the structures “reconcile these opposite or discordant qualities”, accommodating them in a coherent whole. In this sense, the aesthetic object offers an elegant solution to a problem. The materials constitute a bundle of stringencies that pose the problem, while aesthetic structure is the solution. Thus, the materials enter into a solid unity, while preserving their warring identity. Though they never explicitly related their theory with this aesthetic conception, one of the great achievements of Halle and Keyser is that they proffer a methodology for handling the warring identity of the elements of poetic rhythm. While in pre-Halle-Keyser prosody the key term was “ictus”, a fuzzy mixture of linguistic and metrical elements, Halle and Keyser propose to determine the string of regularly alternating strong and weak positions and the string of irregularly alternating stressed and unstressed syllables irrespective of each other, on independent grounds; and then they offer correspondence rules. In this way one may do justice to the warring identities of the linguistic and the conventional elements. It is easier to think about metrics after Halle and Keyser than before. My criticism of them does not concern this aspect of their theory.

Halle and Keyser discuss these issues in a generative context. There is an immediately observable string of irregularly alternating linguistic stresses. The reader *does*, nevertheless, experience some regular recurrence without which there is no rhythm, owing to an underlying abstract structure in which strong and weak positions alternate in rigorous regularity. If the two can be reconciled by the perceiving consciousness, while still preserving their warring identity, tension arises. When I say “reconciled” I mean “but still preserving their warring identity”.

In Wordsworth’s “Resolution and Independence” the sequence of stressed and unstressed syllables is more than usually irregular. Still, one *can* maintain a complex rhythm based on recurrence, because all along the twenty stanzas of the poem there is a fixed rhyme scheme, a fixed number of verse lines, and a fixed structure of lines. Each line consists of a fixed structure of regularly alternating weak and strong positions (in this order); six lines are iambic pentameter, the seventh line in each stanza is iambic hexameter. Now consider this: in order to save the notion of “regular” proportional timing in the sequence “huge stones” by inserting an “unrealized beat”, Cable has to sacrifice two of the principles propounded here. First, he drastically loosens the aesthetic stringency of relentlessly recurring abstract patterns: he substitutes a trochaic hexameter line for an iambic pentameter line. Moreover, it is most likely that such a line can exist only on paper, can hardly have psychological reality (but this lies outside the scope of my present discussion). Secondly, he abandons Halle and Keyser’s principle that the linguistic stress pattern and the abstract pattern

of versification must be determined independently from each other: he clearly invents the trochaic hexameter with an unrealized beat in order to account ad hoc for a certain stress pattern or, rather, for a certain performance thereof. In this way, metre becomes a tautology: instead of serving as an opposing element, it will always be tailor-made to support whatever is said to happen in the stress pattern. In the final resort, the aesthetic constraints of poetic rhythm are sacrificed for the sake of the supposed regularity of the sequence “huge stones”. Ironically, however, enough has been said throughout the present chapter to understand that even after sacrificing the aesthetic constraints in the wider perspective, the small-scale temporal regularity of the sequence “huge stones” still cannot be established.

What we have here, in fact, is a classical instance of “stress grade”, widely discussed in this chapter and throughout the present study. The present theory predicts that such a sequence would tend to end, as it does here, precisely at the “unmarked” caesura of the iambic pentameter line; and that readers of poetry will be strongly inclined to overstress the two stressed words, and to over-articulate the boundary between them.

Cable seems to mistake here over-articulation of word boundaries for a pause indicating an unrealized beat. But, as we have seen throughout the present study, such over-articulation can be (and most frequently *is*) effected by no measurable pause between the words, but by a falling intonation contour, or some such “segmental discontinuities” as the lack of coarticulation, the insertion of a glottal stop before a word-initial vowel, or the insertion of a word-final stop release, and many more. To make himself invulnerable to such an argument, Cable adds: “*Silence* is probably misleading for both types of pause, because no metrist insists on a complete absence of phonation after a preceding syllable of either type, and no one wants to specify as a relevant feature the point at which phonation stops”. Though this claim does make sense, Cable uses it to imply much more than what is said: that no amount of measurements can refute his claim.<sup>5</sup> We have seen in great detail that rather than equal time periods, there are equal prominences; and even such equal prominences are not necessarily separated by some intervening less prominent event. What is more, we have seen many silent periods in which phonation *is* absent; and had they been perceived as such, they would have perfectly obscured in perception the underlying metric pattern. Luckily, they are not perceived as silent periods, but as parts of articulatory gestures, usually serving as “refractory periods” in over-articulation (cf. Chapter 3, note 3, above).

In the foregoing discussion I scrutinized the equal-timing conception of poetic rhythm. I argued that it is based on an illusion refuted by all available measurements. I proposed, instead, a structural conception. An illuminating test case in this controversy is the insertion of pause in mid-line. In music, when pauses are in-

<sup>5</sup> Significantly enough, Ada F. Snell—whose measurements, according to Wimsatt and Beardsley, provide ample evidence against the equal-timing hypothesis—is listed in Cable’s bibliography, but her measurements do not seem to have affected his argument.

serted, they occur at the expense of sounds; whereas in poetry reading, the reciter may insert pauses without qualifying the duration of syllables, provided that the line ending and the caesura are effectively articulated. What is more, if they *are* effectively articulated, the verse line tends to reassert itself in perception, rather than disintegrate in face of such an intrusion.

### *Musical Key*

As I have argued throughout the present chapter, musical notation of rhythm can be of little use in handling poetry. Surprisingly, however, musical key and intervals may be quite effective in the enhancement of lines and segments as perceptual units, and as such instrumental in the realization of poetic rhythm. The possible influence of musical key upon intonation and rhythm has not been widely realized. I had very strong intuitions about this. Over the years I have found scattered references to musical key and intervals in the writings of Wilbur Schramm, D.B. Fry, and Mark Liberman, which formed the basis for my attempts to account for my intuitions. In Liberman and Fry, these references are relatively marginal to their own work.<sup>6</sup>

One reference to musical intervals I found in Mark Liberman's doctoral dissertation (1978: 19), referring to a particular kind of intonation pattern somewhere between speech and music: it is a chanted intonation which is used to call to people with whom the speaker is not in eye contact. He calls it "the vocative chant". The "tune" of the vocative chant consists of three pitches, of which the first is optional, while the second and third are obligatory. The third pitch is fixed: a minor third below the second. "This interval is prominent in English chants, and apparently in those of other languages as well. It seems to be a natural interval for people to sing [...]. I've been told by music teachers that it's the one interval that everyone knows how to sing without working at it". The relation of the first, optional pitch to the others is not so precisely fixed, although it is always lower than either of those that follow. Liberman thinks that intervals of either a fourth or a fifth below the following tone are fairly natural. To quote just a few of his examples:

Alonzo	Aloysius	Sandy	John	Pamela
	/		\	/
L H M	L H M	H M	H M	H M

The vocative chant, along with what Liberman calls "children's chant"<sup>7</sup> are clearly identifiable as a series of distinct notes, each clearly associated with a distinct

<sup>6</sup> As will be obvious, I have not adopted Mark Liberman's conception of metric patterns, which is much more central to his endeavour.

<sup>7</sup> In the children's chant we have two pairs of notes located a minor third apart, as in the vocative chant, with the higher note of each pair on the downbeat of its measure, while the lower note is on the second, weaker beat. Between these two there is a third,

portion of the text. “These chants can apparently be used, without training, by all native speakers of English, including those who are otherwise considered hopelessly unmusical”. I have assumed that the reading of poetry is one step away from ordinary speech toward the vocative chant, in two important respects. First, the pitch interval may be more significant in poetry reading than in ordinary speech between two syllables at certain crucial, terminal, points of phrases or versification units. Second, in poetry reading there may be a stronger tendency than in ordinary speech for focusing the intonation pattern around distinct notes clearly associated with a distinct portion of the text (moreover, this distinct pattern of Low→High→Middle, and even Low→High→Low, seems to be much more in evidence in poetry reading than in ordinary speech).

Three casual remarks of Fry (1958: 140–141), by way of describing the preparations for an experiment in stress perception, may illuminate the role of musical key in speech and poetry reading. “In English speech, the perception of a rhythmic pattern is very closely bound up with the perception of intonation”. “In English speech there is a strong tendency for a sense group to be spoken in one key and for musical modulation to take place between groups. This effect of key depends largely upon the occurrence in the group of some reference pitch, of which the speaker is unaware, but which regulates the pitch of all the syllables in the group”.

The relation between the reference frequency and that of the other syllables was found to be important for the naturalness of the stimulus. Each syllable was on one tone, that is of constant frequency, and if the relation between the syllables was such as to make the impression of an exact musical interval, the test word appeared to be sung and listeners found it difficult to make a stress judgment. In preliminary experiments a reference frequency of 100 c.p.s. with frequency intervals of multiples of 5 c.p.s. was used. Many of the stimuli then had much too musical an effect which was eliminated by the change of the reference frequency to 97 c.p.s.

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“grace note”. Liberman explores the well-formedness rules in which taunting or exulting text can be attached to this ditty:

or

Sue has a boy friend

Joey Davies stinks

It is remarkable that, in this particular respect, as in so many others, precisely those features which make bad prose are readily utilized for the making of poetry. We owe this discovery to Schramm. The discovery was made when Edwin Ford Piper's reading of "To Dianeme" was under examination. Extending this investigation, Schramm came to the conclusion that in more than sixty percent of the cases, the fundamental pitches of rhyming syllables bear a musical relationship to each other, either *similar* or *cadential*. After presenting graphs of the relevant intonational curves and a table of mean fundamental pitches in Piper's reading, Schramm observes:

When all the melodic patterns are examined, the correspondence seems still more remarkable. The patterns look more alike than their means would make them seem to be. In some cases the reader jumped as much as two thirds of an octave in order to pronounce a rime at the pitch which he intended for that particular pair of sounds. Furthermore, the pattern of riming words bore a considerable resemblance. Both "hair" and "air" consisted of waves extending upward about one-fourth tone, followed by a sharp glide upward, "Wear" and "ear" were double hump-backed curves followed by a short upward movement, "Stone" and "gone" were glides (Schramm, 1935: 45).

These observations bring an important articulatory instrument of oral delivery into focus. We shall here consider briefly three of its implications. In the first place, when choosing a "delivery style"—when, for instance, deciding whether the performance should emphasize or suppress the musical quality of the poem much depends on the "reference pitch" chosen, the pitch interval between syllables and the pitch on which the lines end. If they tend to point to an underlying musical scale, they will enhance the over-all rhythmical quality; a difference of 3 c.p.s. between "reference frequencies" may, as we have seen, eliminate the "unnatural", musical quality. The musicality of the performance may be enhanced by ending the lines—or only some crucial lines—on the keynote of the scale adopted, or on notes in cadential relation to it. Conversely, the "unnatural" poetic quality of a performance may be suppressed by uttering the rhyming word-pairs on notes which are neither similar nor cadential to each other.

In the second place, the phenomenon observed by Schramm may be one way to indicate both phonemic continuity and prosodic juncture with a single voice at an enjambment. Suppose the performer extends the intonation curve of the phonemic phrase from one line to another and, at the same time, emphasizes the line terminal where there is no temporal stop by uttering the rhyming syllable on the same pitch with a similar intonation curve to its preceding "rhyme fellow", or by ending a blank verse line on a cadential tone to the keynote, running on the phonemic phrase to the next line, which he ends on the keynote, at a full stop.

In the third place, reference frequency and musical cadence may be the cue to the rhythmical performance of such lines as:

4. Bright Star! would I were steadfast as *thou* art!
5. Cannot be damn'd, Alas! Why should *I* be...

Assigning emphatic stress to the pronouns in the ninth position creates a stress maximum in a weak position. Of all the odd-numbered positions, the ninth is the only one in which a stress maximum cannot be compensated for in a later strong position (if it is followed by a stress in the tenth position, it is not a stress maximum). The outright violation of metre in the ninth position leaves the reader or listener with a feeling of incompleteness; the copulae *be* and *art* bear no stress, lexical or emphatic (notwithstanding Halle and Keyser, 1966: 215n). The line is not ended, so to speak. The stress in the ninth position arouses strong cravings for the reinstatement of metre which cannot be fulfilled by the auxiliary verb in the tenth position. The question is whether or not there is a possibility of performing the stress on the pronoun in position IX and of articulating clearly the line juncture without imposing an unnatural stress on the copula in the last position. Suppose the performer cues the stress on “thou” or “I”, respectively, by a pitch obtrusion which reaches up to the musical third or fifth; then, in the tenth position, pitch falls in a “musical cadence” to the tonic—the reference frequency. The return to the keynote is very likely to form a powerful closure and override the feeling of incompleteness: it will constitute a stable terminal (cf. the reading of Keats’s Sonnet by Gary Watson on *Argo*, PLP 1043).<sup>8</sup>

In my early empirical work I attempted to substantiate these assumptions (cf. Tsur, 1992: 177–179). Later, however, I realised that a discussion in terms of continuities and discontinuities is far more rewarding; mainly because the computer can give significant answers in these terms but no information whatever about perceived pitch or perceived musical intervals. Judgments of pitch and interval must be made by persons trained in music. And this is not an easy task because, as the pitch contours presented in the present work may show, there is no such thing as a steady pitch in speech. Still, there are strong intuitions about pitches and intervals, and fairly consistent judgments may be obtained from trained informants. To add a caveat, however, there is convincing experimental evidence that professional musicians tend to distort interval judgments (even with pure tones) in a systematic way: their perception of musical chords is categorical (Blechner, 1977). Thus, for instance, major chords and their minor counterparts differ only in their middle note. Professional musicians are more prone than educated laymen to judge two chords as “the same”, when the difference between the frequencies of their middle note is small, somewhere between those of the standard major and minor chords.<sup>9</sup> All the ensuing discussions on musical key must be taken, therefore, with a grain of salt.

<sup>8</sup> I listened to this record in the early 1970s; unfortunately, it is not available now.

<sup>9</sup> Odd as this may seem, it should not surprise us, after the event. All human beings perceive speech sounds categorically: categorical perception is a privilege of experts, and all of us are expert speech users just as they are expert musicians.

In my early work I had professors of literature record such verse lines as excerpts 4 and 5, both in a rhythmical and a nonrhythmical way. It soon became clear that they had difficulties in performing the lines prosaically. So I asked native speakers of American English trained in phonetics to read in a variety of styles such prose sentences as

6. I am ready to leave whenever *you* are.
7. How many times have I *told* you!

Then I asked musically trained persons to judge the musical intervals between the last two words, both in isolation and in context. Though there were occasional differences in judgment, none of these musicians said, significantly enough, that they didn't know what I was talking about when I asked them to make interval judgments. When preparing the present book, however, there arose a need to elicit new interval judgments, under improved conditions.<sup>10</sup> My only "informant" who could provide rhythmical and reasonably prosaic readings of the same lines was GH, an eminent professor of comparative literature. Figure 11 presents the music notations of the intonation contours of his "rhythmical" and "prosaic" readings of excerpt 4, as taken down by a professional musician (duration is omitted from the formula).

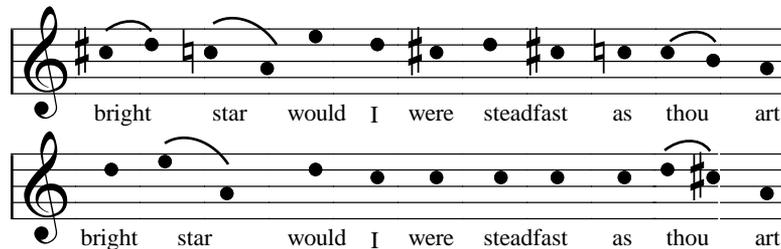


Figure 11 Musical notation of the intonation contours of GH's readings of excerpt 4. The upper line represents the "rhythmical" performance, the lower part represents the "prosaic" one.

[Listen to "rhythmical reading"](#)

[Listen to "prosaic reading"](#)

I expected poetry readings to differ from prose readings in four respects. (1) Poetry reading should be slower; (2) it should be more clearly articulated; (3) pitch contours in poetry reading should aim at more defined pitches; (4) in excerpts 4 and 5, readers should aim at a cadential relationship between the last two words of the verse line; in prose, I expected some more casual relationship between them, hoping for some radical difference. At the end of Chapter 2 I compared in some detail the

<sup>10</sup> My present equipment affords much better-controlled conditions for interval judgments than what I used in 1980, and also yields far more sensitive pitch extracts. This led to a drastic revision of everything I had published earlier based on excerpts 4–5. I wish to express my deepest gratitude to Netta Ladar for her exceptionally sensitive and highly professional diatonic judgments.

words “Bright Star” in these two readings, and found ample evidence for expectations 1 and 2. In 1980 the computer provided some misleading evidence for expectation 3; in light of the more accurate output of the equipment used now, this expectation must be dropped (what is more, even the opposite may be the case). Figure 11 provides some convincing evidence for expectation 4.

As for expectations 2 and 4, I was told that the machine cannot provide reliable information on these matters. In Chapter 2 I claimed that the present research has identified certain parameters that may indicate clear articulation. As for the interval judgments collected in 1980, they indicated that generally there was no significant difference between the intervals in prose and poetry. In this respect, today I would have different expectations. I would expect the reciters of poetry to adopt in such cases as in excerpts 4 and 5 some deep-falling terminal intonation contour prevalent in ordinary conversation such as the one in excerpts 6–7 (in which, for that matter, the last significant interval *may* but need not be cadential). The main point would be that the other kinds of difference between prose and poetry would allow the perceiving consciousness leisure to become aware of this cadential interval (if present) and render it significant in the solution of the rhythmic problem (i.e., in presenting the verse line as a closed perceptual unit, in spite of the stress maximum in the ninth position). As the evidence presented here suggests, such a possibility cannot be ruled out. And as our ensuing discussion will indicate, reciters of poetry occasionally do make significant use of musical intervals.

It would appear that the length of the falling intonation contour is as important in the solution of the problem as the exact musical interval; or, at any rate, there may be a trade-off between them. Consider the reading of excerpt 5 shown in Figure 12. Listening to this performance arouses a strong intuition that the verse line is perceptually closed, that there is a strong feeling of “home-coming” at the end, and that this closure has to do with the falling intonation contour. One of the professional musicians judging certain diatonic aspects of such a rhythmical reading of this excerpt took down in 1980 the notes of an intonation contour the analysis of which suited extremely well my theoretical expectations. Now, eighteen years later, under the better-controlled conditions afforded by my present equipment, I came to the conclusion that there is not sufficient information to specify the tonal character of this performance, and the professional musician may have adjusted what he heard to certain musical models he entertained. So, eventually, I had to dismiss the “musical key” hypothesis with reference to this example. Thus, the perceived structural integrity of this line rests on over-articulation of metric boundaries by terminal contours typically adapted from spoken language. In this line there are two metric boundaries, over-articulated by falling terminal contours: the caesura after “damn’d”, and the line terminal after “I be”. I would like to make three comments on the intonation pattern of the performance of this line. First, it displays relatively “good continuation”. The steeply falling contour on “damn’d” ends a mildly descending sequence; and the rising-and-falling contour on “I” ends a moderately ascending sequence. As a result, the intonation contour is perceived as being well “under con-

trol". Second, such falling contours can be assigned, in spoken language, to one or more syllables. In Mark Liberman's examples above, the "vocative chant" can be assigned to "Jo<sup>o</sup>hn" or "San<sup>dy</sup>". In the corpus of readings considered in the present study, terminal contours are usually assigned to single syllables. In Figure 12 one terminal contour is assigned to "damn'd", another to "I be". In this respect, the latter is somewhat exceptional. Third, far from playing down the violating stress in the ninth position, it is grossly overstressed by the rising-and-falling contour; and the deep-falling terminal contour is perceived as if its long duration "broke even" with the violent violation. Indeed, it is the longest terminal contour I have encountered so far in my corpus.

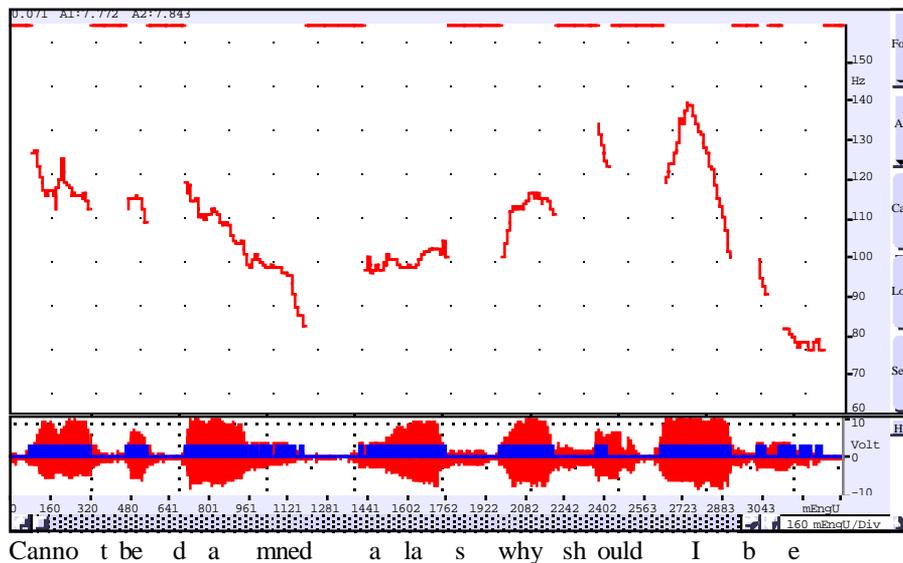


Figure 12 Wave plot and F<sub>0</sub> extract of excerpt 5 in DF's reading.

[Listen to sound file](#)

Turning now to the two readings reflected in Figure 11, there is a big and consistent difference between them, which may be accounted for at a variety of levels. It would appear that GH had a clear intuitive notion of the difference between a "rhythmical" and a "prosaic" performance of a verse line, and had masterful command of his voice to carry out his conceptions. In Chapter 2 I already pointed out several conspicuous differences between the respective performances of the words "Bright star". In the rhythmical performance the deviant stress is overstressed and over-articulated; the intonation contour is smoother and the duration of words longer. Now we may add that the boundary between "as" and "thou" sounds much more clearly articulated in the "rhythmical" than in the "prosaic" reading. The /s/ is run into the /ð/ in both readings. But in the "rhythmical" reading, the /s/ is disproportionately longer: 198 vs 70 msec. The whole utterance is only 1.27 times longer, but this /s/ is 2.82

times longer. This perceptual segregation may have some effect on the perception of the closing interval too.

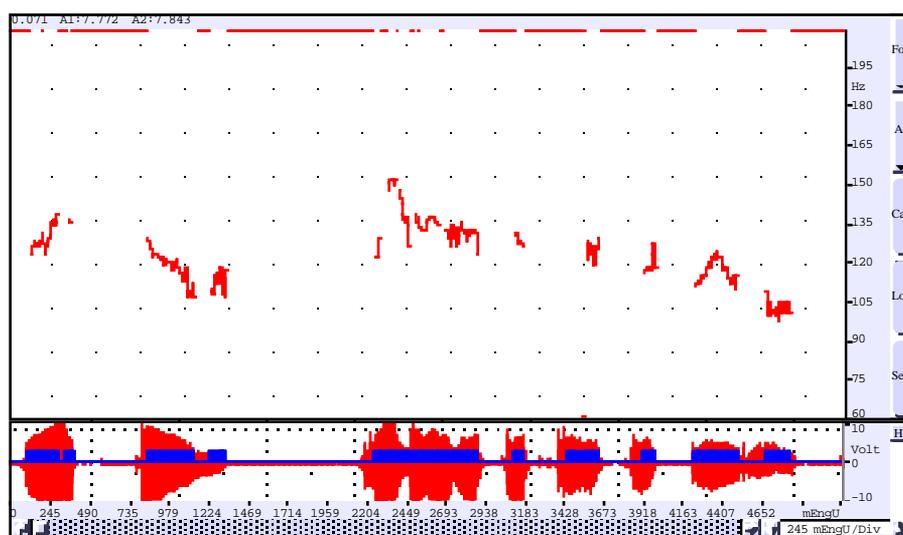


Figure 13 Wave plot and F<sub>0</sub> extract of excerpt 5 in GH's "rhythmical" reading.

[Listen to sound file](#)

As Figures 11, 13 and 14 show, "good continuation" is preserved throughout this reading, whereas in the "prosaic" reading the initial pitch of the words "Star" and "thou" juts out of the sequence and is perceived as disruption of "good continuation". The deviant stress on "thou" is perceived as overstressed, though not jutting out, in the rhythmical performance. This stress is cued by a small inverted-v-shaped pitch curve, moving from 110.804 to 121.154 and then to 114.844 Hz, "jumping" down finally to 105.000 Hz on "art", by a musical minor third with an intervening "passing note". This is a surprisingly short fall (as compared, for instance, to the minor sixth of "I be" in Figure 12); but achieves focal stability by virtue of the cadential interval.<sup>11</sup> In the "prosaic" performance, by contrast, intonation on "thou" juts out, disrupting "good continuation", and then falls in a rather smooth curve to "art", yielding a musical interval of a fourth. This is perceived as less stable than either the minor third, or the long (minor sixth) fall in the reading reflected in Figure 12. Both readings of excerpt 4 display a distinct tonal character, that of a minor scale, and both end on the "tonic", that is, the reference tone. And, as Figure 11 shows, in both readings an intervening "passing note" is perceived in the transition from "thou" to "art". But, as I have suggested, the closing minor third achieves greater stability than the musical fourth. I assume that the average listener makes no

<sup>11</sup> What Liberman said of the musical interval of a minor third regarding the "vocative chant" is perhaps applicable here too.

interval judgments; he only judges that the verse line has been or has not been properly performed. It is the theoretician's task to establish the principles on which these judgments rest.

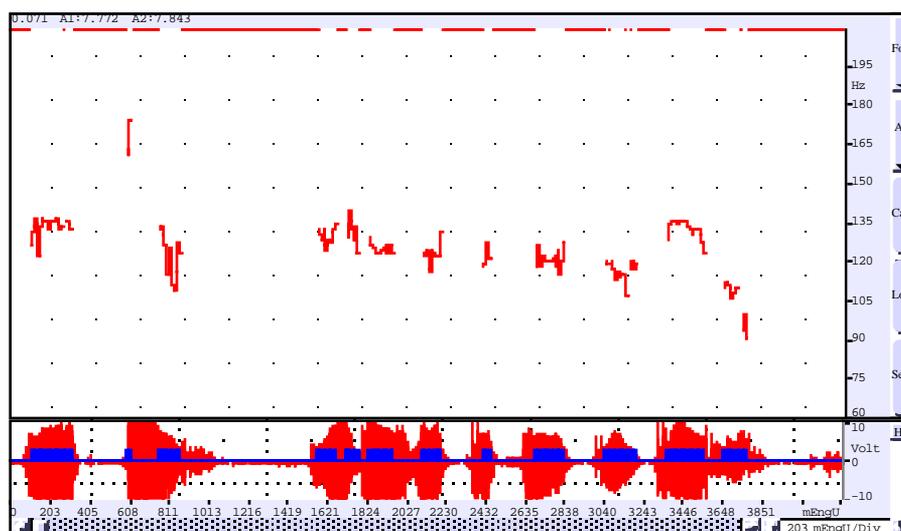


Figure 14 Wave plot and  $F_0$  extract of excerpt 5 in GH's "prosaic" reading.

[Listen to sound file](#)

There is an additional, unexpected, factor that enhances the closure of the "rhythmical" reading. My music adviser pointed out its "chromatic richness" as compared to the other reading. This has obvious expressive merits; and, I believe, that was GH's main reason for having recourse to it. But once introduced, chromaticism has structural effects on the whole. In the first place, it renders the tonal character of the whole ambiguous to some extent: the C#s tend to indicate a major rather than a minor scale. And then, the concluding minor third not only generates a stable return to the reference tone, but also "disambiguates" the tonal character of the scale, enhancing the feeling of "coming home". In the "prosaic" reading, the sequence of natural Cs sounds rather flat, dull; the only C# occurs at the "passing note" that fills the concluding interval of musical fourth, obstructing the tonal clarification of the passage.

This discussion of the readings presented in Figure 11 points to factors that increase the distinct tonal character of the intonation contour in the rhythmical performance; by the same token, they increase the unity of the longer perceptual unit (the line). As long as the line is perceived as a closed whole, there is a tendency to perceive the smaller units as rhythmical. This is true in spite of occasional irregularities, and even if the latter are quite excessive.

Despite the choice of a discussion in terms of continuities and discontinuities than in terms of perceived pitch and musical intervals my recent research forced me

to return to this thread, when I examined three readings of Hamlet's "To be or not to be" soliloquy. Consider its first line:

8. To be, or not to be,—that is the question;—

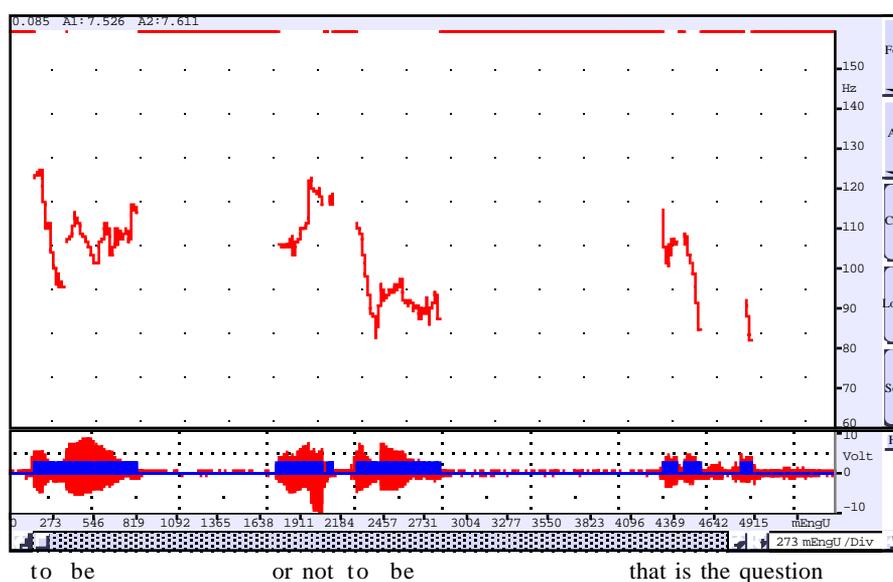


Figure 15 Wave plot and F<sub>0</sub> extract of "To be or not to be that is the question" in Gielgud's reading

[Listen to sound file](#)

This line consists of three syntactic units. All the performers considered here separate them by exceedingly long paralinguistic pauses, indicating hesitancy, melancholy, pensiveness. When I listened to Gielgud's reading, I had a strong feeling that on the two tokens of "to be" he struck something like an "incorrect pitch". This had an obvious expressive function, reinforcing the mood of melancholy and pensiveness. But I soon realized that it had a conspicuous rhythmic function too. By contrast, Beale strikes precisely the "correct pitch", and this has a very different effect on rhythm. Curiously enough, Branagh's reading is very similar to Gielgud's on "to be", and similar to Beale's on "not to be".

No useable pitch contour is available on "that is the question" in Beale's and in Branagh's reading; and in the latter's, voicing fades out on the second "to be". There is a sustained melancholy, pensive tone in Gielgud's and Branagh's reading; Beale's reading switches to a sudden tone of vigorous determination on "that is the question", after the earlier melancholy, pensive tone, which is why the last phrase is so much shorter in his reading than in the other two.

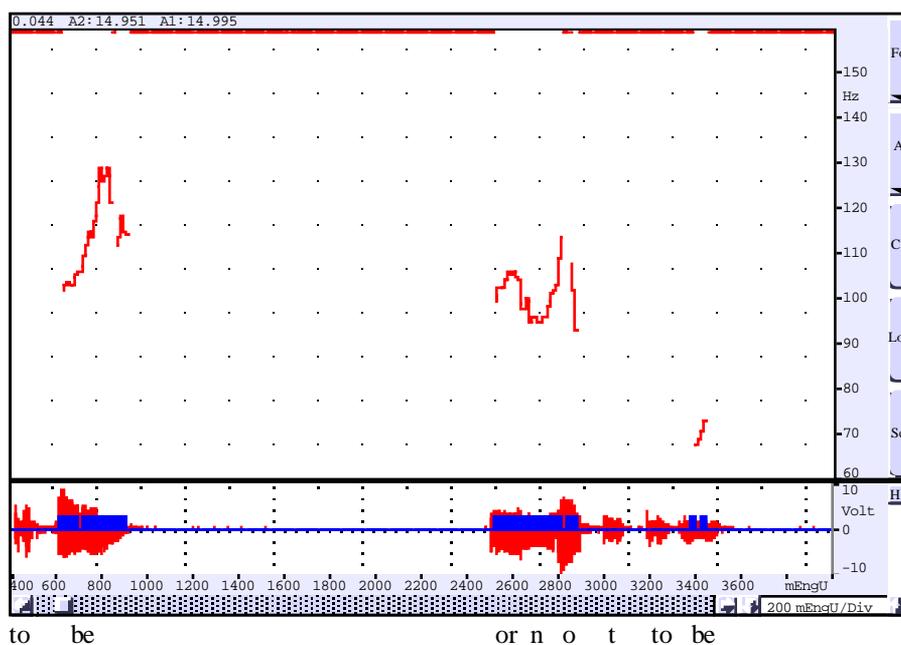


Figure 16 Wave plot and  $F_0$  extract of “To be or not to be” in Beale’s reading

[Listen to sound file](#)

Before explaining these impressions, let me present a few duration measurements and pitch interval judgments.

	To be	pause	or not to be	pause	that is the question
Gielgud	78	5 887	1160	1365	1153
Beale	550	1537	1069	2112	922
Branagh	866	1263	1513	1544	1188

Table 1 Durations in msec in readings by Gielgud, Beale and Branagh

In Gielgud’s reading the pauses, although extremely long, are considerably shorter than in the other two readings. I hope to show that this is no accident. While Beale indicates the hesitant mood mainly by lengthy pauses, Gielgud indicates it by pauses and by “incorrect pitch”. Now the main problem with such enormous pauses is how to impose perceptual coherence on such lines. And here, I suggest, musical key and interval come in. In order to find out more about this, I excised the two tokens of “be” from each reading and pasted them one after the other with a short pause between them. In this way, the intervals became much more discernible. I asked a professional musician to make certain interval judgments. She had no knowledge of the hypotheses to be tested. In Gielgud’s reading, the interval between the two tokens of “be” was judged as a major second (which is a dissonant interval) or perhaps a minor third (which is an imperfect consonant interval). The interval be-

tween “to” and “be” in both phrases was a major second—quite remarkable consistency, speaking of dissonant intervals. In Beale’s reading, by contrast, the corresponding intervals tend to be cadential. The interval between the two tokens of “be” is a descending perfect fifth or a minor sixth; the interval between “to” and “be” in the first phrase is an ascending minor third. It was impossible to judge the interval in the second phrase, owing to insufficient voicing. It is quite amazing to listen to this phrase in isolation: one cannot even tell with any confidence whether it is ascending or descending; but it is quite certain that the interval tends to be cadential—there is a feeling of “coming home”. We may be hearing overtones that specify the unheard fundamental frequency, and also its multiples.

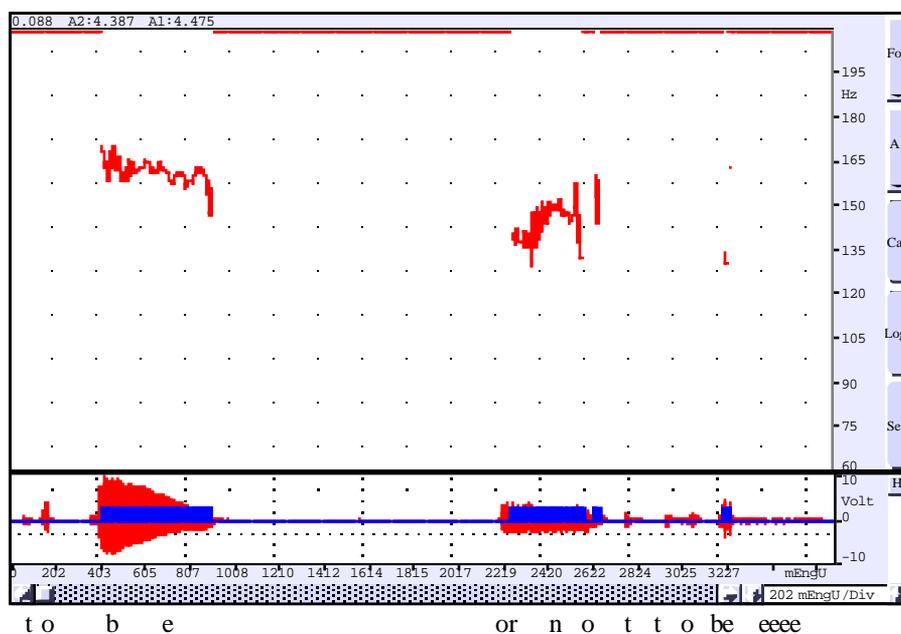


Figure 17 Wave plot and  $F_0$  extract of “To be or not to be” in Branagh’s reading

[Listen to sound file](#)

How can we interpret these findings? As I have already suggested, these intervals and pauses have to do with expressiveness and perceptual coherence. Beale indicates hesitant mood by excessively long pauses; but this may be devastating to the perceptual coherence of the line. The cadential relationships impose a sense of completeness and stability upon the sequence of the first two phrases. This completeness, however, tends to isolate, perceptually, the third phrase, and thus impair the integrity of the line. Gielgud, by contrast, arouses a sense of incompleteness with his major seconds which, by the same token, indicate the melancholy, pensive mood. As a result, he can afford shorter pauses but which, too, indicate a hesitant mood. However, stability is eventually reached, again by musical intervals. The pitch interval between the two syllables of “question” is perceived as a descending

fourth but, most remarkably, the first syllable of “question” is the tonal centre of the whole utterance and by reaching it, the line achieves a firm closure—effecting back-structuring upon the coherence of the whole. The expectation of resolution generated by the “incorrect” pitch is reinforced by a forward drive arising from the slight rise and late peak at the end of the first token of “be”. We may sum up the rhythmic effect of musical key in these two readings thus: Beale achieves rapid, stable closure with the help of the cadential intervals in the first two phrases—but excludes the last phrase from the unit. Gielgud achieves delayed closure by arousing craving for resolution by a dissonant interval (reinforced by other means) and by offering a resolution at the very end of the line, by reaching the tonal centre of the utterance. This closure effects back-structuring, imposing coherence across the pauses.

In the first token of “to be” Branagh too has precisely a major second, arousing craving for resolution; in this he resembles Gielgud (however, while Gielgud’s major second is descending, Branagh’s is ascending). In the second token voicing is insufficient, and no interval judgment can be made. But there is an unsubstantiated feeling that the resolution occurs there, achieving rapid closure like Beale (we may be hearing, again, overtones that specify the unheard fundamental frequency).

### *To Conclude*

Musical notation of poetic rhythm or the assumption of equal timing can yield precious little insight into the rhythmic organization of a verse instance or a delivery instance thereof. Poetic rhythm is determined by an internal standard, an abstract pattern which can successively be confirmed, disconfirmed and reasserted by language. In this process, duration can be utilized as an acoustic cue for, e.g., perceived prominence or discontinuity. Fairly long pauses do not necessarily destroy the rhythm of a verse instance, but have a “double-edged” effect. If the verse line is well-established as a coherent perceptual whole, it tends to reassert itself in perception against the interruption; if not, it tends to fall into pieces. Certain diatonic features of intonation, by contrast, may be quite illuminating. Musical intervals have no direct bearing on poetic rhythm; but some dissonant interval, for instance, may affect the perceptual integrity of the abstract pattern: it may arouse precarious, unsettled feelings and craving for resolution at crucial points in the line or the stanza, generating an urge to achieve stability, whereas a cadential relationship, or reaching the “tonal centre” at the end of a unit *may* achieve stability, may arouse a feeling of coming to a rest, of “having come home”, enhancing the perceptual articulation of a versification boundary. Such a perceptual articulation, in turn, strengthens the higher versification unit in perception, allowing greater irregularities and imperfect closures at the lower levels.