Appendix I

The Interdisciplinary Perspective: Impressionism, Reductionism, Cognitive Poetics

Preliminary

This study has been navigating between the Scylla of Impressionism and the Charybdis of Reductionism, trying to escape the perils of both. On the one hand, it insisted that certain crucial aspects of metre and rhythm in poetry can be accounted for only with reference to a human perceiver; on the other hand, it attempted to account for those perceptions in terms of information derived from more basic sciences, more exact than literary theory: psychology, phonetics, acoustics. The former approach is suspect of critical impressionism, the latter of reductionism. Cognitive Poetics, when successful, passes between them unharmed. This appendix will explore some of the theoretical and methodological issues involved in these approaches. It will do this with reference to two aspects of the sound affects of poetry: the emotional symbolism of speech sounds, and poetic rhythm.

A review of the twentieth-century critical scene may reveal that there are, on the one hand, impressionist critics who indulge in the effects of literary texts, but have difficulties in relating them to their structures. On the other hand, there are analytic and structuralist critics who excel in the description of the structure of literary texts, but it is not always clear what the human significance is of these texts, or how their perceived effects can be accounted for. Cognitive Poetics offers cognitive theories that systematically account for the relationship between the structure of literary texts and their perceived effects. By the same token, it discriminates which reported effects may legitimately be related to the structures in question, and which may not. By appealing to cognitive theories, the critic ensures that the relating of perceived qualities to literary structures is not arbitrary. But, at the same time, he must ensure that his appeal to cognitive theories is not reductionist. Aesthetic qualities cannot be inferred, with the help of rules, from non-aesthetic elements. They must be perceived directly; rules, conditions and principles can be used only after the event, to account for the qualities perceived. Of special interest is the following passage from Sibley concerning aesthetic concepts.

If we are not following rules and there are no conditions to appeal to, how are we to know when they [the aesthetic concepts] are applicable? One very natural way to counter this question is to point out that some other sorts of concepts also are not condition-governed. We do not apply simple color-words by following rules or in accordance with principles. We see that the
book is red by looking, just as we tell that the tea is sweet by tasting it. So too, it might be said, we just see (or fail to see) that things are delicate, balanced, and the like (Sibley, 1962: 77).\(^1\)

Likewise, we hear that a speech sound is “low” or “high”, or “dark” or “bright”, and we also hear that a verse line has been performed rhythmically or not. That is our only way to know this.

A cognitive approach to literature is bound to be interdisciplinary. As I conceive it, “interdisciplinary” does not mean that you bring together everything that two or more disciplines have to say on one topic, but that in order to elucidate or solve some problem in one discipline, one attempts to obtain all the help one can get from other disciplines. This chapter will discuss six paradigmatic issues, in which the problems to be elucidated arise within the disciplines of literary theory and criticism. It raises, among other things, the question of what can legitimately be used from the various cognitive sciences to illuminate problems of literature. Thus, for instance, any instance of poetic rhythm or emotional symbolism of speech sounds has a true description in the vocabulary of acoustics, of phonetics, of psychology, or of literary criticism. But the question is whether an acoustic or psychological description of poetic rhythm or of the emotional symbolism of speech sounds may illuminate them in any way, or merely multiplies information, or even obscures issues. Eventually, the question becomes: do we use issues in literature to illuminate psychology, or issues in psychology to illuminate literature? In other words, what is at stake here is “constraints”. This involves us in a host of methodological problems. In what follows, it will be assumed that it is the needs of literary studies that determine what kind or amount of information should be used from other disciplines, if at all. As for “the needs of literary studies”, the relationship between poetic structure and its perceived effects will be explored.

This chapter comprises, then, six miniature case studies in the sound stratum of poetry\(^2\), and attempts to map the boundaries between what is legitimate and illegitimate with reference to two problematic attitudes in literary research: critical impressionism, and reductionism. Impressionism indulges in subjective impressions received from poems, but has difficulties in relating them systematically to verbal structures. Reductionism assumes that all the “special sciences” can be reduced to “more basic sciences” and, eventually, to physics. Cognitive Poetics, by contrast, attempts systematically to relate perceived affects to verbal structures, and does this by going out from the domain of the critic’s “special” sciences to a “more basic” one, namely, from literature to psychology, or from metrics and phonetics to acoustics. In what follows, it will be assumed that the aim of phonetics is to stay in phonetics: phonetic categories remain the same, even when they are produced by different acoustic cues. The description of acoustic cues merely multiplies information.

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\(^1\) The above presentation is extracted from my book, Tsur, 1992a: 1, 80.

\(^2\) The first and second issues are adopted here from Tsur, 1992b (Chapter 1; see also 1992a, Chapter 7). The rest are based on issues discussed in the present work.
when the phonetic categories as phonetic categories are discussed. Nonetheless, I shall argue that much of the emotional affect regularly attributed to speech sounds is due to the intrusion of acoustic information to consciousness, acoustic information that is usually excluded. In the same way, the aim of metrics is to stay in metrics, and much acoustic information about the vocal performance of poetry is irrelevant with respect to the poem’s rhythm. Nonetheless, there are a few but significant instances in which going outside metrics to the acoustic information may account for the rhythmical performance of a metrically deviant line.

As an instance of impressionism, consider the following statements by Henri Peyre about some French Symbolist poems: In Baudelaire’s “Harmonie du Soir”, “the three initial v sounds in line 1 are like piercing arrows of pain” (Burnshaw, 1964: 15); in line 4, nonetheless, “the v and l sounds are subtly blended” (ibid.). In Verlaine’s “Clair de Lune,” “the first stanza is filled with broad, calm, doleful a sounds” (ibid., 37), whereas in the sonnet “Le Vierge et le Vivace et le Bel Aujourd’hui,” “Mallarmé’s art stands at its highest. . . . All the rimes are in i or ui, a sound which has something of the angular sharpness of ice itself” (ibid., 55). Thus, Peyre can “account for” the interaction of the rhyme sounds in Mallarmé’s poem with the wintry landscape described, and is not troubled by the possibility that such statements may be utterly subjective and may not hold in a test of consistency. Nor does Henri Peyre tell us whether all [a] sounds are “doleful” or, perhaps, there is some way to distinguish between “doleful” [a] sounds and, say, “happy” [a] sounds. Or, suppose we provide subjects with a list of specific descriptions from the sensory and the emotional domains, and ask them to pick out the proper descriptions to characterize the various speech sounds, there is little chance of achieving unanimity in characterizing precisely [i] as “angular” and [a] as “doleful”, or [v] as “piercing arrows of pain”.

**Interaction of Speech Sounds with Meaning**

**Vowels and Spatial Features**

My position is that no such specific properties can be attributed to speech sounds. The relationship between speech sounds and meaning works in a different way. According to Benjamin Hrushovski’s definition, in expressive sound patterns “not the sounds themselves, but rather a certain tone or expressive quality abstracted from the sounds or from the sound combination is perceived to represent a certain mood or tone of content abstracted from the domain of meaning” (1980: 49). Cognitive Poetics goes one step further, and asks the following question: assuming that we know how to abstract a certain mood or tone of content from the domain of meaning, “how can we abstract ‘a certain tone or expressive quality from the sounds or from the sound combination’?”

Using structuralist techniques, Cognitive Poetics claims that one may contrast pairs of speech sounds along such spectra of opposite highly-generalized qualities as
high vs. low, long vs. short, or bright vs. dark. Such attributes may account for the “combinational potential” of speech sounds; and when in a specific context the sounds encounter some relevant meaning component, one or the other combination potential is realized. My first case study concerns a “minimal pair” of phrases thought up by Richards (1929: 220) for a different purpose.

Compare:

1. Deep into a gloomy grot
2. Peep into a roomy cot.

“Gloomy grot” and “roomy cot” are contrasted by, roughly, such semantic features as CONFINED vs. SPACIOUS; ILL-LIGHTED vs. BROAD DAYLIGHT; DISMAL vs. LIGHTSOME; SUBTERRANEAN vs. ON-THE-SURFACE; UNEARTHLY vs. EARTHLY; SERIOUS vs. EVERYDAY; SOMBRE vs. LIGHT. Deep and peep are contrasted by such semantic features as (FAR) DOWNWARD vs. UPWARD (“to peep over”); GRAVE vs. FURTIVE; HEAVY vs. NIMBLE. Owing largely to the act of contrasting, one becomes aware, in the back of one’s mind, of some interaction between semantic and phonetic features. Consider the stressed vowels shared by the contrasted words:

\[
\begin{array}{ccc}
-\text{eep} & -\text{oomy} & -\text{ot} \\
\text{long} & \text{long} & \text{short} \\
\text{high} & \text{high} & \text{middle} \\
\text{bright} & \text{dark} & \text{dark} \\
\end{array}
\]

In each of the two phrases, different vowel features may be utilized to enhance meaning; this is the source of the double-edgedness of the sounds. In peep, one tends to foreground the features [BRIGHT, HIGH], in deep, the feature [LONG] is interpreted perhaps as “(far) down”. In gloomy, the feature [DARK] is emphasized, whereas in roomy, the features [LONG, HIGH] (i.e. spacious) are likely to be foregrounded.

Vowels and Relative Darkness

Our second case study will take us one step behind the level illuminated by the first one. Why do we perceive certain speech sounds as high and bright, some others as low and dark? As I argued at length in my 1992 book on the poetic mode of speech perception, this concerns the relationship between abstract phonetic categories, and the non-phonetic acoustic information that carries it. When we hear speech sounds, only the abstract phonetic category reaches consciousness; the sound signal that carries it is usually shut out. What is more, there is little resemblance between the shape of the sound signal, and the perceived phonetic category. Consider the hand-painted spectrograms of the syllables [di] and [du] in Figure 1. The encircled parts of the signal convey information both about the consonant and the respective vowels.
The perceived phoneme [d] is similar in the two syllables, whereas the acoustic signals that convey it are very different. In my book I claim that such synaesthetic affects as “high” or “dark” speech sounds are generated when some of the acoustic information does reach consciousness subliminally, despite everything. Consider the widespread, curiously conflicting intuitions, that the vowels /u/ and /i/ are equally high and, at the same time, that the step from /u/ to /i/ is more like an upward step than a downward step. What is more, this seems to be the case irrespective of fundamental frequency: each of these two vowels can be uttered on any fundamental pitch. What we are up against is what Wittgenstein would call aspect-switching which, in the present case, can be explained by looking again at Figure 1. The spectrograms present no fundamental frequency, only the first two formants, that is, two concentrations of overtones, which determine the unique vowel. The first formants of the two vowels are of exactly the same frequency (250 cps). If, on the other hand, we look at the frequency of the second formants, we find that the second formant of /i/ is of a much higher frequency than that of /u/ (2900 vs. 700 cps). By switching attention from the second to the first formant, we switch from an intuition that /i/ is higher than /u/ to an intuition that they are equally high.

![Figure 1](image)

Figure 1  Simplified spectrographic patterns sufficient to produce the syllables [di] and [du]

Now why is [u] perceived as darker than [i]? Delattre and his colleagues (1952) produced good experimental evidence that vowels whose first and second formants are closer together are perceived in a different manner from those whose formants are wider apart. Roughly, we might say, the human ear effectively fuses the two formants when they are close enough, whereas it seems to perceive them as fairly differentiated when they are sufficiently apart. The ear averages the first and second formant frequencies of the back vowels, whereas the first two formants of the front vowels stand out clearly in our subliminal perception. For the vowels where the first two formants are relatively close together, one can find reasonably good one-formant equivalents that occupy an intermediate position between the first and second
formant of the two-formant vowel. No one-formant equivalents can be found for the
front vowels, in which the two formants are rather far apart. In other words, the
acoustic signal of the back vowels is of relatively low differentiation. The ear re-
cieves from the two formants an impression that is sufficiently indistinguishable
from that which would be heard from one formant placed somewhere in between. I
submit, then, that relatively low differentiation and relative darkness are similar
phenomenally to a sufficient degree to warrant the matching of the back vowel ex-
treme of the vowel continuum with the dark extreme of the brightness continuum.
Indistinguishable is the key word. It is, then, some perceptual quality of the acoustic
signal that sometimes intrudes, so to speak, into the phonetic categories, generating
synaesthetic affects. My colleagues and I have obtained some experimental support
for this explanation. Psychologically speaking, then, the combinational potential of
speech sounds derives in this instance from the intrusion of information from the
domain of the more basic science to the domain of the specific science.

Metric, Phonetic, and Acoustic Information

Our next issues take us from sound symbolism to poetic rhythm. They will explore
the use of information obtained from a more basic science (i.e., acoustics, phonet-
ics) in order to illuminate issues in a specific science (i.e., prosody). A description
of a vocal performance of a poem may be significant with respect to the rhythmic
structure of the poem, or merely with respect to the rhythmic structure of an acci-
dental performance. Going outside the rhythmic structure of a performance to its
acoustic correlates may merely multiply evidence, or may yield insight into the
rhythmic nature of the performance. In what follows, I shall explore these alterna-
tives.

Late Peaking

The following issue too concerns the intrusion of information from the domain of
the more basic science to the domain of the specific science. As I indicated above, it
is assumed in the present study that the aim of phonetics is to stay in phonetics:
phonetic categories remain the same, even when they are produced by different acous-
tic cues. The description of acoustic cues merely multiplies information when the
phonetic categories as phonetic categories are discussed. Nonetheless, I have been ar-
ning that much of the emotional affect regularly attributed to speech sounds is due
to the intrusion of acoustic information to consciousness, acoustic information that
is usually excluded. A similar case in point is “late peaking”, one of the most pow-
erful tools in our explorations. As quoted in Chapter 3, Knowles (1992) explores the
alignment of the F0 contour with vowels and consonants. “Although the effect of a
tone might be to highlight a whole word or phrase, its focus is on a single syllable. Within the syllable it focuses on the vowel, and if the vowel is a diphthong, on one of the elements of the diphthong. Ultimately within the relevant vowel there is a single point which appears to be the focus of accentuation”. Such points may be located in various places in the vowel. Accordingly, Knowles speaks of early-peaking and late-peaking, as the case may be. When I first encountered the notion in Gerry Knowles’s paper, I was very suspicious about it. It matters very little, I thought, exactly how the phonemes and the intonation peaks are aligned on the sub-phonemic level. What matters is, which phonological unit, phoneme or syllable, coincides with the intonation peak. This is true, doubtless, from the phonological point of view. Knowles’s paper, however, already gives some hints that this notion might be useful for the present inquiry. The typical placement of early and late peak in speech suggests that the former has a closing quality, whereas the latter has an opening quality. The corpus of recorded readings investigated in the present study strongly suggests that late peaking is quite consistently perceived as having an impetuous forward push, contributing to the solution of a variety of problems arising from the conflict between the linguistic and versification units. I attempted to show in Chapter 3 that such instances display what Gestalt theorists would call “perceptual forces”: when an intruding event hits a perceptual entity at a point that is not a point of balance, it is perceived as pressing toward the nearest point of balance. At the same time, the perceptual unit displays “resistance” to the intruding event, and strives to enhance itself in perception. Such sub-phonemic perceptual processes do affect the perceived rhythmical quality of the whole, especially where grouping or run-on lines are concerned, even though they make no difference from the phonological point of view.

Stress Displaced to the Left

Another illuminating case concerns what many prosodists call “inverted first foot”. The present work assumes that a foot cannot be “inverted”, only a stress may be displaced to the left. We find in the iambic pentameter in many languages that stress may be displaced to the left, into the adjacent weak position. Such displacement is most conspicuously allowed in the first two positions of the line but, as we shall see, they may occur in other positions as well. Consider:

3. Baffet and scoffe, scorge, and crucifie mee
   (Donne, *Holy Sonnets* 11.2)
4. slight is the Subject, but not so the Praise
   (Pope, *The Rape of the Lock*, I.5)
5. Born but to die, and reas’ning but to err
   (Pope, *An Essay on Man*, II.10)
6. Adieu, Adieu! Hamlet, remember me!
7. What can it then avail though yet we feel
Stréngth undiminished, or eternal being (Paradise Lost, I.153–154)

Notice in these excerpts the syllables marked as stressed, all displaced to the weak position at the left. In most instances they occur at the line-onset, at the beginning of a sentence. In excerpt 6, it occurs in mid-line, at the beginning of a sentence and a vocative phrase. In the second line of excerpt 7, it occurs at the line-onset, in mid-sentence. One explanation of the phenomenon is offered by no lesser theoreticians than Jespersen, Jakobson, and Zhirmunsky. Zhirmunsky (1966: 66) observes that “the majority of examples with a supplementary stress on an odd syllable show such stressing on the first syllable in an iambic line; within the line this phenomenon is limited to a few scattered examples. Besides, the first foot of the most diverse metres — not only in Russian verse but also in German, English and others — plays a special role, being to a certain degree ‘ambiguous’: the movement of the rhythm has not yet been unequivocally laid down, since it is only from the second foot that a regular repetition of a definite movement can be said to have begun”. And he concludes: “In any case, at the beginning of the line the rhythmical stressing of a metrically weak syllable and even the shift of stress is much less perceptible than in the body of the line”. I agree with this conclusion, but for a very different reason. That the “movement of the rhythm has not yet been unequivocally laid down” may possibly apply to the first line of a poem, but after having read a few hundred or a thousand lines of, say, Paradise Lost, the reader begins every new line with a fairly strong iambic hypothesis. Consider excerpts 3, 4, 5 and 7. The beginning of such lines arouses no feeling of indistinctness; on the contrary, it arouses a distinct feeling of a definite falling movement, followed by a rising one. We don’t perceive isolated syllables; we straightaway perceive them as parts of the movement they initiate. Fry (1958) found experimentally that the acoustic correlate of linguistic stress is a mixture of voice-inflection, pitch, duration and amplitude, in this order of relative effectivity. Normally, it would be of no metric consequence, how the performer cues linguistic stress. In the present instance, however, I would suggest that the acceptability of stress displacement in the first foot may be explained with reference to acoustic information, to the relationship between stress and intonation, via voice-inflection and pitch. Consider excerpt 5. Suppose we “cue” the stress on Bôrn by pitch obtrusion; this pitch obtrusion coincides with the initial high pitch of the intonation contour. Thus, the high pitch is overdetermined: it is motivated by (a) “cuing the ictus”, (b) the initial high pitch of the sentence intonation, and (c) the initial high pitch of the line intonation. In 7, Whát is similarly motivated. Another high pitch in a first position, of Stréngth, is motivated only by the first and third reasons. In 6, high pitch on Hümlet is motivated by the first and second reasons. Thus it is usually “over-determination” of high pitch that facilitates — if not accounts for — the acceptance of stress displacement at the beginning of lines or syntactic units. And when it is overdetermined by three elements, it is more acceptable than when only by two. This would explain Zhirmunsky’s finding that the majority of examples
with such stressing is on the first syllable, while within the line this phenomenon is limited to a few scattered examples.

**Multiplying Information**

In Chapter 3 I mentioned Chatman’s (1965) study, in which he explored eleven commercially available readings of Shakespeare’s Sonnet XVIII. A panel of twenty-one professors of English were asked which one of two consecutive syllables was more prominent, throughout the sonnet, in all eleven readings. The results were not very surprising. Chatman marked, one atop the other, sometimes as many as four different actualizations of one foot, as in line 2 (excerpt 8):

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∪∪
∪∪
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8. Thou art

The only constraint in this instance appears to be the number of possible combinations. When two heavily stressed syllables occurred together, there were only three possibilities: the panel found that in four out of eleven performances, Rough and winds were performed with level stress; in six, winds was performed as slightly more prominent; in one performance, Rough was slightly more prominent. In other words, only a little more than half of the performances follow the iambic lilt. This is the kind of problem about which I wrote above, in the first paragraph: “in order to elucidate or solve some problem in one discipline, one attempts to obtain all the help one may get from other disciplines”. In Chatman’s discussion, however, there is no attempt to elucidate, let alone solve this problem; there is no indication of why a level or an inverted actualization of the iambic foot should be acceptable to an audience expecting an iambic line, or whether it is acceptable at all. Instead, Chatman tells us how some of the greatest British and American actors produced the stresses: “Marlowe Society’s inflection on Rough is even steeper than Quayle’s and the time spans were almost equal; but the inflection on winds is sufficiently pronounced to overcome a trochaic bias. … In Evans’ recitation, however, extreme length of winds manages to overcome the very steep rise on rough, even though winds is practically level” (ibid., 174–175). There is no attempt to suggest how these acoustic manipulations might or might not solve the problem. I suggest that the kind of trade-off between acoustic cues provided here for the perceived stress pattern of Rough winds can be predicted from what we know from Fry about the acoustic correlates of linguistic stress, and it merely multiplies information at best; at worst, it obscures the fact that we don’t know why deviating actualizations of metre should be acceptable to an audience expecting an iambic line. Here, the special science gains very little from the abundant information in the domain of the more basic science. To be sure, Chatman provides important information about the acoustic and
phonetic correlates of linguistic stress outside the controlled manipulations of the laboratory; but it makes little difference whether the measurements were done on plain conversational prose, or a rhythmical performance of a poem of some aesthetic interest. Chatman should have put a different (or at least an additional) question to his panel of professors: in which performances is this string of syllables acceptable as part of an iambic pentameter line, and in which it is not? And then perhaps made wider generalizations as for “which structural qualities form the basis for definite effects” (Bierwisch, 1970: 108); in our case, “structural qualities” refer to the correspondence between the versification units and the linguistic units, as well as to properties of the acoustic and phonetic information, used to reconcile them; “definite effects” concern rhythmicality. The present study has addressed, all along, precisely this question, though without having recourse to a distinguished panel.

Expressive Metre?

My final issue takes up my suggestion in the first paragraph, namely, that Cognitive Poetics offers cognitive theories that systematically account for the relationship between the structure of literary texts and their perceived effects. By the same token, it discriminates which reported effects may legitimately be related to the structures in question, and which may not. By appealing to cognitive theories, the critic ensures that the relating of perceived qualities to literary structures is not arbitrary. I have suggested how Benjamin Hrushovski’s definition of expressive sound patterns can be applied to specific stretches of speech. In the first two examples above, I have explored how a “tone” or “quality” can be abstracted from speech sounds, and how it can be parallel to an abstraction from the meaning of the words (tone, mood, etc.). This approach could be extended to metric configurations as well. In what follows, I shall compare two attempts to elucidate the putative expressive use of stress maxima in the seventh position, S.J. Keyser’s and my own; and then I shall compare my handling of the relationship between meaning and metric figures to that of Marina Tarlinskaja. In Chapter One I quoted the following line from one of Keats’s sonnets:

7. How many bards gild the lapses of time

The first syllable of lapses in this line constitutes a stress maximum in a weak position; according to the Halle-Keyser theory, this renders the line unmetrical. I mention there that Keyser attempts to “save” this line as a “metrical lapse”, a kind of onomatopoeia, a metric pun. According to the conception of performance outlined in the present work, confirmed by a great number of readings, such configurations as the four syllables of lapses of time can be performed rhythmically, by grouping them together. This renders the line acceptable, and the ad hoc explanation of “metric pun” becomes superfluous. On various occasions I argued that Keats and Keyser use
“lapses” in different senses and the “metric pun” construal of the deviation is far-fetched. Though I disagree with the way Derek Attridge defends the metricalness of this line, we seem to be in perfect agreement on the different senses of “lapses”:

[Halle and Keyser] try to explain the occurrence of this “unmetrical” line by arguing that “lapses of time” is a reference to unacceptable metres, and that the line therefore enacts its meaning. As the rest of the poem makes clear, the phrase refers to the passage of centuries, and the line, though exhibiting a high degree of deviation from the metrical norm, is recognizable as an iambic pentameter — that is to say, it has five clear beats, and the omission of the unstressed syllable after “bards” is made good in “lapses of” [...] (Attridge, 1982: 42).3

In Chapter 6 I make a short excursus on the expressive potential of the stress valley initiated by the stress maximum in the seventh position: using L.B. Meyer’s phrases, this infringement inspires the reader with “awe, apprehension, and anxiety” that the utterance may escape back to chaos, “arousing powerful desires for, and expectations of, clarification and improvement”. These desires and expectations are fulfilled, precisely, in the last position of the line, generating a strong feeling of closure. The line becomes well shaped and, paradoxically, at the same time, near-chaotic. Hence its strong emotional impact. The feeling of uncertainty, of “anxiety”, as it were, is particularly felt in the unstressed syllables of such polysyllabics as crucifie or bottomless, where they must lean back on that broken reed of a stress maximum in the seventh position, or one must wait until regularity is reasserted again, in the tenth position. In Chapter 6 I quote several lines ending in “bottomless pit”, “bottomless void”, or “bottomless deep”, as in

10. Burnt after them to the bottomless pit
(Milton, Paradise Lost, VI. 865–866)

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

3 The statement “the omission of the unstressed syllable after ‘bards’ is made good in ‘lapses of’” is a conspicuous example of the conception against which I have been arguing throughout the present work, namely, that one should attempt to settle deviances rather than sharpen them on the metric and linguistic level and then accommodate them in a rhythmical performance.
with “bottomless pit” and its near-synonyms, the feeling of insecurity and anxiety and the craving for stability may combine with the content of the line, reinforcing each other. In Keyser’s handling of “the lapses of time”, the parallel between metric structure and contents crucially depends on the words by which we describe the metric figure: if we describe it as a “metric lapse”, the parallel exists; if we describe it as a “metric deviance”, it does not exist. Moreover, it also depends on assigning to the word “lapses” a meaning that is different from the one suggested by the context. My discussion of “the bottomless pit”, by contrast, concerns an atmosphere of anxiety generated by the loss of control caused by the extreme metric deviation, “arousing powerful desires for, and expectations of, clarification and improvement”. This is a possible source of a sense of “momentum” seeking “focal stability”.

I have assumed throughout the present study that poetic constructions have not only structures, and not only meanings, but also perceived effects. As I have elsewhere argued at length (e.g., 1992a: 511–517, 522–525, 533–535, see also ibid., 92–100), an abrupt shift from first-order language to meta-language “splits the focus” of the utterance and generates a witty effect in the poem. Such intellectual exercises as Keyser’s handling of “the lapses of time” may or may not have “psychological reality”. One way to find this out might be to ask competent readers of poetry whether Keats’s line (or sonnet) has an emotional or a witty quality. If a competent reader votes for a witty quality in this line, it may strongly suggest that for him Keyser’s analysis has psychological reality.

The only way Halle and Keyser can handle a verse line with a stress maximum in the seventh position is to put it into a pigeonhole labelled “unmetrical lines”. As Odette de Mourgues suggested, pigeonholing gives certainty but no insight. They make no suggestion as to what happens when we encounter such a verse line in a sequence of metered lines. Do we treat it as a piece of prose interrupting the sequence of poetry, or is there some way to integrate it into a rhythmic whole? They defend Keats’s line by suggesting that it is a statement about bad metres in verse, and that the line enacts its statement. Supposing this is true, do we treat such a sonnet as if it began with a prose statement and then proceed in verse, or do we handle it in some other way? The approach propounded here can claim at least that it gives a consistent and significant answer to that question. Furthermore, Halle and Keyser defend the verse line by saying that it enacts its contents; but this still does not solve the problem of its integration into the rhythmic whole. They connect the “meaning” with the structure in a pre-theoretical manner, by offering a pun. The present approach, by contrast, speaks here of an emotional atmosphere rather than a conceptual statement, and relates it to the versification structure in the manner required by Cognitive Poetics: by offering a hypothesis drawn from Gestalt theory. Moreover, it insists that the afore-said perceptual dynamics may exist only when the verse line is rhythmically performed.

I wish to complement this discussion by contrasting my approach also to a very different linguistic approach to poetic rhythm, represented by Marina Tarlinskaja, who brings the methods of the Russian school to the study of English poetry. Her work is descriptive and not normative as that of the generative linguists.
some of the prosodists mentioned in the preface with whom I had only a dialogue in my mind, I had some written correspondence with Professor Tarlinskaja. I hope that some day we shall jointly publish a controversy on matters that go far beyond metrics, confronting cognitive and historical poetics. In our earlier correspondence she was rather sceptical of my cognitive approach. Her approach is based “not so much on insight and intuition as on wide quantitative analyses of observable facts”. Her enormous erudition and keen analyses of her quantitative findings are always illuminating. I have no quarrel with her over that. In fact, there appears to be some overlapping between her very large-scale quantitative work and my own, more modest quantitative work examined in light of intuitions and cognitive hypotheses. If I were to state my position with reference to hers, I would begin with Tarlinskaja’s 1987 paper “Rhythm and Meaning: ‘Rhythmical Figures’ in English Iambic Pentameter, Their Grammar, and Their Links with Semantics”; and would perhaps compare it to my 1985 paper “Contrast, Ambiguity, Double-Edgedness” where, too, I point out relationships between metrical structures and meanings.

Consider the first two examples from a group of lines quoted by Tarlinskaja (1987, 20), in the metric notation of the present study: “To stand in thy affairs, fall by thy side” (Sh. Son. 151.12); “Fall like amazing thunder on the casque” (Sh. R2 1.3.81), and so forth. I have marked in these lines the linguistic stresses and the underlying weak and strong positions in a stretch of four syllables. In the terminology of the present study these are “stress valleys” beginning in the first or seventh (weak) position and ending in the fourth or tenth (strong) position. While in my work the group of four constitutes the unit of analysis, Professor Tarlinskaja refers only to the first two syllables of these groups as a metric figure, labelling it as WS, that is, a stressed syllable in a weak position and an unstressed syllable in a strong position. It would appear that Professor Tarlinskaja was interested here in the deviating portion of the line. Rhythmical figures may stretch for her over as many as five, and more syllables; but in these instances she focuses on the two deviating syllables only. By contrast, I was interested in the perceptual unit in which the deviance is accommodated. This is in perfect harmony with her statistical, as well as with my cognitive approach. Professor Tarlinskaja found by statistical means what are the

4 Since in this discussion I am relying on personal correspondence too, I sent this section of my book to Professor Tarlinskaja and asked her to comment on it. In a communication of 19 September 1997 she wrote: “I am NOT against cognitive poetics, or your interest in recitation, or psychology of response. Simply, I am not a psychologist. How do I know what is going on in the ‘black box’? Also, if anything would be allowable, any kind of line, there would be no noticeable tradition, no difference by the period, by the poet—and by different poetic traditions in different literatures. Therefore I stick to the perceptual unit in which the deviance is accommodated. This is in perfect harmony with her statistical, as well as with my cognitive approach. Professor Tarlinskaja found by statistical means what are the
meanings typically associated with this figure. One of them is, she says, “motion downward”. All the examples she quotes in this group contain the word “fall” or “fell” in a weak position. But “motion” and “falling” is just one of the most frequent semantic areas coupled with this rhythmic figure; the verb is frequent, but not obligatory; other parts of speech may appear, but the context may still be “motion”, and the verb of motion may be absent, or placed outside the figure. Professor Tarlinskaja offers the following explanation for this association of “downward motion, falling” with this metrical figure: “The semantic component ‘falling’, so frequent in the figure WS-1, probably has something to do with the accentual-syllabic structure of the figure itself, which usually begins a verse line or a phrase within the line: it is a stressed syllable followed by two unstressed ones; possibly this arrangement does produce a physical impression of a heavy weight falling down”. Now consider such phrases and metric figures as “bottomless pit” and its near-synonyms in lines by Milton and by Shelley (quoted above in Chapter 6): “Burnt after them to the bottomless pit” (Milton, *Paradise Lost*, VI. 865–866); “With them from bliss to the bottomless deep” (P.R. I. 361); and “And whelm on them to the bottomless void” (Prometheus Unbound, III. i. 76). The word “fall” does not occur in these lines, but the violent downward motion is there. It is rather the adjective “bottomless” that occupies the critical metrical positions.

The main difference between Professor Tarlinskaja’s and my own approach seems to be, in this respect, that Cognitive Poetics would try to clarify how this arrangement of a stressed syllable followed by two unstressed ones can produce a physical impression of “a heavy weight falling down”; and if it failed, it would try some other explanation. The present conception assumes that no amount of “observable facts” in the text may suggest an answer to that question. For this, one must assume the responses of a human perceiver. It is also obvious that the answer should be sought in the structure of signs that have no predetermined semantic meaning. Consequently, Leonard B. Meyer’s discussion of emotion and meaning in music (1956) might prove illuminating for our purpose. Emotion or affect is aroused, Meyer says, when a tendency to respond is arrested or inhibited (14). The pleasantness of an emotion seems to lie not so much in the fact of resolution itself as in the belief of resolution—the knowledge, whether true or false, that there will be a resolution (19). That is why we can know whether an emotion is pleasant or unpleasant before it is actually over (that is, before apprehension is dispelled, or stability is achieved). “The sensation of falling through space, unconditioned by any belief or knowledge as to the ultimate outcome, will, for instance, arouse highly unpleasant emotions. Yet a similar fall experienced as a parachute jump in an amusement park may, because of our belief in the presence of control and in the nature of the resolution, prove most pleasurable” (20). Now a stress valley beginning with a stressed syllable in a weak position and ending in a strong position at precisely the most
stable points of the pentameter line (in the tenth or the fourth positions\(^5\)—see Chapters 1, 4), may initiate an experience of such a "pleasurable apprehension". Loss of control is experienced during three syllables; but one also "knows" that control and stability will be regained at the fourth unit, where the stress pattern and the metric pattern have a coinciding downbeat, and the metre becomes again fresh and new.\(^6\) In the verse lines in which the first syllable of "bottomless" occurs in the seventh position, anxiety is much stronger, there is a greater danger that the line will return to chaos, because it involves a stress maximum in a weak position; thus, everything said about the other examples is much more forcefully valid here.

The stress valley has no semantic meaning, only a perceptual dynamics. But this dynamics may generate a combinational potential, that is, a potential to combine with semantic elements that are relevant in one way or other to that dynamics. "Downward movement, falling", for instance, has an element of loss of control; but in the present instances, this loss of control may be pleasurable, because the reader believes that the stress valley and the pairs of iambic feet will have a coinciding downbeat, where stability and control will be regained—even though the "pit", the "void", the "deep" are "bottomless"; that is, control can be regained in the stress valley only, not in the endless fall. Now this dynamics may be reinforced by another element pointed out by Cooper and Meyer in musical performance: the placing of some extra accent may affect the grouping of sounds. Since there is a tendency for accents to begin a group, the placing of accent on a strong beat (as in Milton’s “To bottomless perdition, there to dwell”, where the first syllable of bottomless occurs in a strong position) tends to articulate the sequence in beginning-stressed groups; an accent on a weak beat (as in “bottomless pit” above) presents the group as end-stressed (Cooper and Meyer, 1960: 8). The overstressing of the stress maximum in the seventh (weak) position exerts a pressure to reach as fast as possible the accent at the end of the group. One of Kenneth Burke’s favourite ideas concerns "the principle whereby the scene is a fit 'container' for the act, expressing in fixed proper-

\(^5\) Tarlinskaja quotes 17 lines that contain such figures, with “fall” or “fell” in the critical weak position, by poets ranging from Shakespeare through Pope, Swift, Byron, Shelley, Wordsworth to Arnold. Thirteen of the resulting stress valleys end in the fourth position, four in the tenth. One of the latter does not belong to this discussion, because it occurs in an iambic hexameter line, beginning immediately after the caesura. In another group, with the verbs “fly”, “run”, “rush” (that is, indicating vehement movement away) Tarlinskaja quotes eight lines, by Shakespeare and Shelley; in five of them the stress valley ends in the fourth position, in two in the tenth position, and only in one in the eighth position. Thus, out of 24 pentameter lines quoted in these two groups, only in one line (by Shelley) the stress valley ends in a position other than fourth or tenth.

\(^6\) As I suggest in Chapter 2, such verse lines as Yeats’s “Mónuments of unáging intellect” are extremely rare in English iambic verse, displacing the first stress from the second to the first position, while neither the fourth nor the tenth position is confirmed by a stressed syllable.
ties the same quality that the action expresses in terms of development” (1962: 3). Unlike in the Shakespeare excerpts above, where the motion verb “fall” occurred in the crucial weak position, the perceptual dynamics initiated by the metric figure in the Milton and Shelley excerpts bestows an impetuous perceptual drive upon the adjective “bottomless”, expressing in scene terms the same quality that the action, the vigorous endless fall, expresses in terms of development.7

I believe, then, that Professor Tarlinskaja and myself may benefit from each other’s methods. Her large-scale investigations are always of great importance. Her findings are never casual or marginal. What is more, her findings can always be viewed in proportion to the whole corpus. Here I could learn a lot from her. But when she is looking for explanations for, e.g., the frequent combination of certain metric figures with certain meanings, she must take interest in what happens in that black box, the human brain; no amount of “observable facts” can help her in this respect. Here, Cognitive Poetics could serve her well. A more thorough investigation would perhaps consider the other meanings that are frequently associated with this metric figure, and see whether or not its perceptual dynamics has something to contribute to them as well. And then, a similar investigation could be carried out regarding the other associations of meanings and metric figures. My above quotation from her suggests that she does acknowledge the need for explanations; but this could be made more systematic, more controlled, through the insights yielded by cognitive science.

A further comment might be illuminating here. Professor Tarlinskaja prefers explanations based on “influence” where I prefer explanations based on cognitive processes. I wish to make two observations on “influence”. First, contrary to what is suggested by the transitive verb “influence”, it is the person influenced who is active in the process. Second, even if we grant that Shelley deliberately imitated Milton in placing “bottomless” so as to generate a stress maximum in a weak position, I assume that he did so because he realized the perceptual dynamics of the resulting figure. After all, he may have written “to bottomless abyss” as well.

In a personal communication of the September 1997, Professor Tarlinskaja points out that “ternaries are associated with speed and lighter themes in the English poetic tradition, but with slow motion, sad subjects and death in the Russian tradition”. This is, certainly, a serious challenge to the foregoing theory. Since I don’t know Russian, it will be difficult for me to give a credible answer. But the theory propounded here makes provisions for such problems, though not discussed above. Thus, for instance, as I have argued in some of my publications (Tsur, 1985; 1987; 1992a: 431–454), more than usually regular metres, convergent structures, may have, in different well-defined circumstances, three different kinds of effects: (1) a simplifying effect, indicating a childish or simplified view of the world; (2) a witty quality, and (3) a hypnotic or ecstatic quality. They exploit different potentials of

7 The perceptual dynamics involved in these three verse lines is further discussed in Chapter 6.
regular metre. In my discussion of dactylic rhyme (Tsur, 1996: 78–84), I had some observations on the source of the “double-edgedness” of ternary metres in general and the dactyl in particular, based both on cognitive considerations and on the relative word-length frequencies. I also attempted to account there for the pathetic effect of the dactylic rhyme in Goethe and Thomas Hood, as opposed to its “burlesque” effect in Byron. Here, however, the difference is not between languages, but between underlying metre, line length and stanza structure. As for explaining systematic differences between languages or national literatures, the present theory cannot go beyond what, I suppose, Professor Tarlinskaja would do, that is, pointing at relative word-length frequencies as the basis for the relative naturalness of ternary metres in the respective languages; this relative naturalness, in turn, may affect the themes with which the ternary metres are typically associated.

We have considered three approaches to the relationship between metric figures and meaning. One approach is *ad hoc*: first, it is meant to “save” the acceptability of a verse line that is judged “unmetrical” under the Halle-Keyser theory; second, it makes a “second order” statement about the metric structure using a word that occurs in the “object language” of the text, not necessarily in the same sense. Another approach is statistical and factual, establishing frequencies: what meanings go frequently with what metric figures. A third approach, in harmony with the overall conception of the present study, assesses the perceptual dynamics of the metric figure in light of certain cognitive assumptions. This dynamics may be perceived as some vague mood or emotional quality, which may or may not combine with the specific meanings of the text.

**Winding up**

Pieces of poetry may be used to illustrate psychological theories about the aesthetic event; or, conversely, psychological theories may be used to yield insight into the aesthetic nature of pieces of poetry. This chapter claims to have done the latter. It has focused on the methodological issues involved in foregrounding the possible aesthetic significance of the transitions from one level of description to another. In doing this, it attempted to navigate carefully between two theoretical extremes: a reductionist view of literary theory according to which all the “special sciences” can be reduced to “more basic sciences” and, eventually, to physics; and the one formulated by Wellek and Warren (1956: 135) as follows: “The psychology of the reader, however interesting in itself and useful for pedagogical purposes, will always re-
main outside the object of literary study. [...] Anarchy, scepticism, a complete confusion of values is the result of every psychological theory, as it must be unrelated either to the structure or the quality of a poem”. When theorists speak of “pragmatic aesthetic theories”, or of the “affective fallacy”, they usually think of what the text does to the reader. Cognitive Poetics, by contrast, is interested in what the reader does to the text, in order to render it aesthetically significant. In this sense, I claim, “the psychology of the reader” is relevant to literary studies. It does precisely what, according to Wellek and Warren it can’t do: relate the quality of a poem to its structure. The critic notes the structure of speech sounds, of metric units, or of entire poems, and collects the perceptual qualities regularly associated with them; then he proceeds to account for such regular associations by offering some psychological hypothesis. The critic seems to have three ways of handling such an association: he may simply declare that “this poem (or this poetic structure) displays such and such an emotional quality”; or he may make readers, experimental subjects, or panels of experts take a vote; or he may offer some psychological hypothesis (derived, e.g., from Gestalt theory or from speech research) to account for such an association. In practice, one need not choose among them: the process involves at least two, or sometimes all three possibilities: it usually begins with an unreasoned intuitive judgment which, in turn, may be submitted to experimental testing, the results of which, in turn, must be validated against some psychological explanation. The experimental stage is practiceable only in a small number of rather elementary cases; so the process must rely mainly on the first and last stages. Contrary to Wellek and Warren’s view, it is precisely when avoiding the stage of psychological validation that “anarchy, scepticism, a complete confusion of values” must be faced. This, however, does not imply that the aesthetic event can be reduced to psychology. It is, rather, that the application of psychological hypotheses is constrained by poetic structure on the one hand, and perceived effects on the other; it is these that determine how much psychology should be used, and in what ways. The same holds true of going out to physics from, e.g., metrics. It is only in rare cases when, e.g., some acoustic correlate is over-determined by two or more dimensions of poetic rhythm that the acoustic information may have explanatory power. And it is the interaction of prose rhythm and metre, as well as the reader’s judgment of rhythmicality, that determine how much acoustics should be used, and in what ways.

Using the processes in the domains of the lower sciences one cannot predict, or explain, the nature of processes in the domains of the higher sciences (for example, explain from acoustic processes the nature of linguistic stress and of poetic rhythm; or, from chemical processes the nature of physiological processes; from physiological processes the nature of psychological processes; or from psychological processes the nature of poetic processes). What we have here is not a mere chain of subordinations; it is controlled by what Polányi (1967: 40) calls “the principle of marginal control”, that is, “the control exercised by the organizational principle of a higher level on the particulars forming its lower level”. Amplifying Polányi, the principles of literature may be said to govern the boundary conditions of a cognitive system—a set of conditions that is explicitly left undetermined by the laws of lower
processes, physical, cognitive, and linguistic. If one knows what is the set of boundary conditions left undetermined, and by what laws of what “lower” processes, one may get a better understanding of the principles of literature that govern those boundary conditions.

The Russian Formalists maintain that poetry is organized violence against language. My theory of Cognitive Poetics maintains that the reading of poetry is organized violence against cognitive processes. Polányi would say that “each lower level imposes restrictions on the one above it, even as the laws of nature restrict the practicability of conceivable machines; and again, we may observe that a higher operation may fail when the next lower operation escapes from its control” (ibid., 41). In normal understanding of speech, for instance, a stream of acoustic information is re-coded as fast as possible into a stream of phonetic information, and excluded from consciousness. When in the poetic mode of speech perception we perceive a speech sound as high, or dark, we must assume that this recoding process has been disturbed or delayed, and some of the acoustic information does reach consciousness, albeit subliminally. It is in this way that the speech sounds’ combinational potential is generated, which enables it to combine with certain meaning components. Likewise, in ordinary speech we usually attend only to the meanings conveyed. The quality of articulation matters only to the extent that the listener can discern those meanings; we “attend away” from them. In the rhythmical performance of poetry, the listener attends back from meanings to poetic rhythms; and these crucially depend, as we have seen throughout the present study, on “over-articulation”. During the past fifty years or so I have been haunted by an intuition that reciters, while uttering some versification segment as a stable perceptual unit, they generate, in some “mysterious” way, an impetuous forward drive. Having acquired some familiarity with the phonetic and acoustic dimensions of poetry, I know now that the source of this mysterious drive is in most cases in “late peaking”. In this way one may suggest that “late peaking” typically counts toward a perceived quality of forward drive; and justify it by appealing to the Gestalt assumptions concerning “perceptual forces”.