Rhyme and Cognitive Poetics

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Abstract In this essay I provide a comprehensive cognitive view of rhyme, one of the most powerful resources of poetic language. Readers and critics have strong intuitions on the matter of rhyme but find it difficult systematically to address its manifestations and the construction of its overall affect in the poetic passage. Hence critics all too frequently discuss rhymes impressionistically, in sporadic, ad hoc semantic analyses, and rely on readers to work out how these account for a poem's perceived affect(s). At other times critics ground their arguments in intertextuality, recasting rhyme as an enigma displaced from one text to another. Here I attempt to uncover the sources of possible affects of rhyme, suggesting critical tools for addressing it in a meaningful way in the hope of systematically relating its affects to its structure. Speech sounds are abstract categories, from which rich precategorical sensory information is typically stripped away. Nevertheless, some of this information does reach the cognitive system, reverberating briefly in short-term memory and facilitating, by way of certain cognitive tasks, the processing of verbal material. Rhyme exploits and enhances this sensory information. There is some experimental evidence that memory traces of two words that appear consecutively, that is, spread out in time, may be fused and perceived as if they were simultaneously present. Basing some of my findings on adaptations of gestalt psychology, I suggest that similar processes may occur in the interaction between phonetic categories and the underlying acoustic information, enhancing them or toning them down. Further, I consider the possible interaction of semantic or thematic features with acoustic information underlying speech sounds, as well as some conditions that maximize our tendency to respond to groups of individual stimuli as unified "percepts," which may account for the perceived qualities regularly associated with certain rhyme patterns, and I examine the relatively rare dactylic rhyme in an attempt to account for some contradictions regularly ascribed to it.

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One of the most fascinating things that can happen to a researcher is to discover that his pieces of research, originally independent from one another, have begun to cohere into a field of research. My own work, which began with sporadic close readings of a wide variety of poems, has gradually grown into a systematic theory of cognitive poetics (Tsur 1992b). In this cognitive framework I have reflected on and made a range of observations and remarks on rhyme in a variety of contexts, with little or no connection between them: from the point of view of phonetic and acoustic representation, its effect on short-term and long-term memory, the gestalt rules of grouping, semantic information processing, and the generation of witty, emotional, and hypnotic qualities of poetry. The present essay, prompted by Uzi Shavit's (1993) illuminating little book *Rhyme and Reason: Studies in the Historical Poetics of Hebrew Poetry*, proposes to collect some of these observations and integrate them into a comprehensive cognitive account of rhyme. It will fill in gaps here and there and add an entirely new section on dactylic rhyme.

In the introductory section of his book, Shavit proffers an overview of research on rhyme and points out that there are, roughly, two kinds of approaches to rhyme: those that focus on the similar and the conflicting elements in rhyme and those that treat rhyme as an organizing principle in the prosodic domain. Shavit regards these approaches as complementary rather than mutually exclusive. As a case in point he cites my work on the semantics of grammatical and antigrammatical rhyme (Tsur 1976; 1983a; 1983b: 53–70), on the compositional role of rhyme in relation to the sonnet (Tsur 1988b: 84–91), as well as to the quatrain (Tsur 1988a: 27–32), and on the euphonic character of rhyme (Tsur 1983a; 1983b: 78–82; 1987). "Thus the distinction between the various kinds of approaches is mainly methodological" (Shavit 1993: 14). Later, at a symposium on cognitive poetics at Tel Aviv University in 1993, he made a twofold suggestion: that these and other scattered observations on rhyme should be integrated into a single comprehensive view and that the relationship between a cognitive approach to rhyme and a historical approach through intertextuality should be explored in order to establish whether they are unrelated or in some way complementary. Here I attempt to take up these two challenges.

The bulk of the essay approaches rhyme from the directions enumerated above, attempting to account for some of the more significant intuitions readers have about rhyme. As for the relationship between cognitive and historical explanations of poetic affects, the essay argues the following: Alternative intuitions concerning poetic affects are determined by alternative cognitive processings of individual poems; intertextuality can reinforce or tone down such intuitions.

Exploiting the Phonetic Code

Cognitive poetics assumes that for aesthetic purposes poetry exploits cognitive (including linguistic) processes that were initially evolved for nonaesthetic purposes, just as in evolving linguistic ability, old cognitive and physiological mechanisms are turned to new ends. The exploitation of the phonetic coding for rhyme is a case in point.[1]

Speech researchers distinguish a speech mode and a nonspeech mode. In the latter, the shape of the perceived sound is similar to the shape of the auditory information. In the former, only an abstract phonetic category (such as [a] [b] [i]) is perceived; the sound information that carries it is shut out of consciousness. I have suggested that there may be a third, poetic mode, in which some of the rich precategorical auditory information may reach consciousness, strongly affecting the emotional or poetic qualities of the speech sounds. Speech consists of several parallel streams of information. At the listener's end, we translate a stream of acoustic information into a stream of phonetic representations, which in turn we translate into a stream of semantic representations, and so forth. A series of conversions or recodings takes place from one stream to the other. Conversion from the acoustic to the phonetic stream involves a complete restructuring of the information, resulting in a string of abstract phonetic categories, so that very little sensory information reaches consciousness subliminally. Some speech sounds are more thoroughly restructured (more encoded) than others. In the voiceless plosives /p, t, k/ almost no precategorical auditory information is perceived, only the abstract phonetic category, whereas in periodic continuous sounds like vowels or sonorant consonants, or in such sibilants as [s, š] some rich precategorical sensory information is subliminally perceived and may become accessible even to conscious introspection. This sensory information reverberates in short-term memory for a very short period of time. We must, however, assume that even in the case of voiceless plosives auditory memory is active, albeit in an impoverished form. As Conrad (1964) found out, there is evidence for acoustic confusion even with visually presented speech sounds. A syntactic unit can be perceived as a unit only if we can hold its beginning in echoic memory while new information is still coming in.

In the poetic mode of auditory perception, the precategorical sensory information that reaches consciousness somehow becomes significant. Liberman, Mattingly, and Turvey (1972) describe a series of experiments by Crowder and Morton, who in 1969 found that in auditory (but not visual) presentation, vowels produce a recency effect (whereby performance on the last items is better than on the preceding ones) in certain

1. To a large extent the present section is based on Tsur 1992a: chaps. 1–2.

cognitive tasks, but stops do not. Part of the explanation seems to be as follows:

> The special process that decodes the stops strips away all auditory information and presents to immediate perception a categorical linguistic event the listener can be aware of only as /b, d, g, p, t, or k/. Thus, there is for these segments no auditory, precategorical form that is available to consciousness for a time long enough to produce a recency effect. The relatively unencoded vowels, on the other hand, are capable of being perceived in a different way. . . . The listener can make relatively fine discriminations within phonetic classes because the auditory characteristics of the signal can be preserved for a while. . . . In the experiment by Crowder, we may suppose that these same auditory characteristics of the vowel, held for several seconds in an echoic sensory register, provide the subject with rich, precategorical information that enables him to recall the most recently presented items with relative ease. (Ibid.)

Crowder (1982) later found that this recency effect could be drastically reduced by a "verbal suffix," that is, when a nonsense syllable such as /ba/ was used to indicate when the recall attempt was started, but not when a pure tone was used. The explanation he offered was that each later arrival exerted "lateral inhibition" on earlier arrivals in the neurological system, so that only the abstract phonetic category lingered on, not the precategorical sensory information. In terms of the above, rhyme delays the special process that strips away all auditory information in the course of decoding the stops, presenting to immediate perception a categorical linguistic event that the listener can be aware of only as /b, d, g, p, t, or k/; by the same token, it exploits the "echoic sensory register" for aesthetic ends. Occasionally, rhyme may also cause confusion in acoustic memory.

Consider the following stanza:

Example 1

Some for the Glories of this World; and some
Sigh for the Prophet's Paradise to come;
Ah, take the Cash and let the Credit go,
Nor heed the rumble of a distant Drum!
(FitzGerald, *The Rubáiyát of Omar Khayyám*)

Elsewhere (Tsur 1992a: 35–37) I have pointed out that this quatrain is rich in euphonic sound patterns, some of which are neutral, such as *the **Prophet's Paradise*** in line 2 or *Cash-Credit* in line 3 (where they are focused on words of symbolic significance). One is conspicuously onomatopoeic: *rumble-Drum.* Let us dwell on this sound pattern briefly. All the sounds of *rumble* (except for the /b/) are continuous, periodic, and relatively unencoded. The first three are repeated in the same order in *Drum,* in which the /d/ too is heralded by ***d**istant,* and less conspicuously by ***heed*** (in this kind of periodic context, the periodicity of the voicing in the

stops /b, d/ is also foregrounded). Moreover, there is something rather remarkable about the sound pattern of the last line: the reader or listener is quite likely to become aware of the rich precategorical, periodic acoustic information and relate it to the *rumble* of the *Drum.* In this way the sound becomes "an echo of the sense," or, rather, the meaning and the acoustic structure reinforce the effect of similar features in each other. This phenomenon becomes even more striking when contrasted with another sound pattern *Drum* is affiliated with; it rhymes with *some* and *come.* Most readers who claim to be aware of the rich precategorical auditory information in *Drum* report that they are not aware of a similar richness in its preceding rhyme fellows. In the *rumble-Drum* sound pattern the auditory trace may be enhanced rather than inhibited with the convergence of several conditions: (1) when the sounds involved are continuous and periodic; (2) when massive sound clusters are repeated; (3) when semantic features of the words tend to draw attention *to,* rather than *away from,* the acoustic and articulatory features of sound patterns; and (4) when one of the syllables concerned is the last one in a perceptual unit (that is, is not followed by a "verbal suffix").

Bruno Repp (pers. com.) suggests that if a subsequent stimulus is very similar to a preceding one, an enhanced response may well be generated as a result of their integration. Robert G. Crowder (pers. com.) notes that we may assume that the total effect will be greater thanks to the repetition of sound. This is implied in his earlier assumption whereby both inhibitory and enhancing interaction takes place within the formant energy of the words, even though they may be spoken at different pitches. Thus it would appear that sound patterns such as rhyme and alliteration not only "exploit" the working of the auditory short-term memory but actually enhance it.

When we emit strings of speech sounds, we obviously have recourse to phonetic coding. Far less obvious is the major role played by phonetic coding in the performance of a wide range of cognitive operations. We have already mentioned the Crowder and Morton experiments. Researchers at the Haskins Laboratories inquiring into the possible causes of difficulties experienced by children learning to read have revealed that poor readers manifest a deficient use of phonetic coding, while good readers appear to make excellent use of it (e.g. Liberman and Mann 1981: 128–29; Brady, Shankweiler, and Mann 1983: 349–55; Mann 1984: 1–10). In one experimental task, poor readers showed greater difficulty than good readers in tapping once or three times in response to the number of syllables in spoken words such as *pig* and *elephant,* or once, twice, or three times in response to the number of phonemes in words such as *eye, pie,* and *spy.* This has been interpreted as a deficiency in the use of phonetic coding. In another task, subjects had to memorize groups of words either rhymed or unrhymed, as in the following:

Example 2

chain	train	brain	rain	pain
cat	fly	score	meat	scale

Good readers were consistently better than poor readers at memorizing both rhymed and unrhymed groups of words. However, there was a significant deterioration in their performance when they were asked to memorize rhymed words. While their reliance on phonetic representation appeared to improve their overall performance, the similar sounds of the rhyming words seemed to create some confusion in their acoustic memories. This experiment thus revealed a close connection between rhyme and the cognitive mechanisms involved in certain memory tasks. There was no difference in IQ between the two groups (in fact, in one of the experiments the average IQ of the poor or less competent readers was insignificantly higher). In nonverbal memory tasks the poor or less competent readers proved to be as good as the more competent readers (in fact, they were insignificantly better). The main difference was that the good or more competent readers made efficient use of phonetic coding. Since the poor or less competent readers made inefficient use of the acoustic information in short-term memory, they were not burdened by the similar sounds of the rhyming words. Virginia Mann (1984: 8) advances two plausible explanations for these experimental results: "On the one hand, poor readers might not resort to phonetic representation at all, relying instead on semantic or some other modes of representation. On the other hand, they may attempt to employ phonetic representation but for some reason their representations are less effective."

Crowder and Wagner (1992: 228–30) summarize an experiment undertaken by Byrne and Shea in which subjects were asked to read out lists of words and then were suddenly given a memory test. They were presented with the words they had read earlier, interspersed with additional words, and were asked to identify every word as either "old" or "new." The new words were either phonetically or semantically related to the old words. "Assume the prior items were *home* and *carpet*: *house* and *rug* would be the semantically similar foils and *comb* and *market* would be the phonetically similar foils" (ibid.: 228). Good readers tended to confuse both phonetically and semantically related words, while poor readers tended to confuse semantically related words. Crowder and Wagner insist: "The fact that poor readers seem to be using 'too much' meaningful processing does not imply that they are *better* at top-down processing than good readers. It is just that they may be so deficient in bottom-up processing [that] they have no other recourse" (ibid.: 229).

While I do not wish to arbitrate between the two possibilities advanced by Mann (1984), this line of investigation may indeed have tapped some

kind of individual difference in verbal strategies that may also be characteristic of extremely competent readers, such as literary scholars. Poor readers who at kindergarten or during the first three grades of elementary school are unable to respond appropriately to the number of phonemes or syllables in a word may well learn to do so in due course. Such measures as those applied to first graders would be insufficient to measure a student of literature's relative reliance on phonetic coding. However, some students of literature studying prosody in their mother tongue are unable to identify the stressed syllable in a bisyllabic word, even though they can pronounce it correctly. It would appear that even at the level of literary scholars and critics there are individual differences in this respect, for some seem ill at ease with phonetic representation and more often than not fall back on semantic coding. This is most conspicuous in the responses of various readers to what Snyder (1930) has called "hypnotic poetry." In a number of poems by Poe, Coleridge, and others, many readers are inclined to "attend away" from the meaning of the words and to become "spell-bound" by their sound(s). Swept up in the reverberation of sound in these poems, these readers tend to regard meaning as relatively marginal. Other readers respond quite differently, finding the same sound effects in these poems uninspiring, if not boring. Readers' responses to sound depend on whether their personality variable "absorption" ranks high or low (Glicksohn, Tsur, and Goodblatt 1991). Still other readers may entirely disregard the production of sound in these poems and account for their significance solely in terms of their content matter or meaning. More often than not, this kind of interpretation also overlooks the latent hypnotic effect in these poems. The inclination to account for a poem's significance solely in terms of its meaning may also indicate a basic preference for semantic rather than phonetic coding.[2]

Speech, then, consists of strings of abstract phonetic categories. The precategorical acoustic information that carries these categories is normally disregarded or shut out of consciousness. Still, the perceived poetic affects, on the one hand, and the facilitation of certain cognitive tasks, on the other, indicate that some of this information is present and active at the subliminal level. Rhyme typically exploits this precategorical acoustic information and, in actual fact, enhances its memory traces. In nonaesthetic memory experiments, this reliance on phonetic representation typically reveals two effects. On the one hand, it enables verbal material to linger in short-term memory for more efficient processing; on the other hand, it tends to cause acoustic confusion. In poetic language, the verbal material is subjected to much more sophis-

2. At present it is not at all clear that there is any correlation between low absorption and a preference for semantic rather than phonetic codes.

ticated processing than in other uses of language. But in at least some instances, rhyme reverberates in echoic memory more intensely and for even longer than most other aspects of poetic language.[3]

What is referred to as acoustic confusion in nonaesthetic memory experiments may be perceived as "harmonious fusion" or "musicality" in an aesthetic context (by its very nature, musicality is more intimately associated with the sensory aspects of speech sounds than with their abstract phonetic categories). As a result, rhyming units are perceived as closely knit together, even though they may be rather spread out in time; alternatively, rhyme can be said to cast some sort of inarticulate sensory net over a sizable portion of poetry.

In light of the above discussion, I would like to consider how in some instances there appears to be a far fuller body of rhyming words than in others. Suppose we randomly collect pieces of rhymed verse whose rhymes we ask a randomly collected group of readers to characterize by way of paired adjectives such as *compact-diffuse, lean-plump, clicking-reverberating, tight-spacious, flat-plastic,* and the like. We might expect a welter of judgments, suggesting—wrongly, I believe—that such judgments are decided on a purely arbitrary, subjective basis. But if we take into account that these judgments involve three kinds of variables, they no longer appear to be arbitrary. These variables concern the phoneme structure of the rhymes, the judge's cognitive style, and the relative strength of the gestalts present in the poem, on both the prosodic and the semantic levels. It is difficult, though not impossible, to gauge the relative share of each variable in the judgments.

As for the phoneme structure of the rhymes, we may expect the relatively unencoded speech sounds (that is, those that are not thoroughly restructured in perception, and some of the rich precategorical sensory information does reach consciousness) to more frequently elicit judgments using the second member of each pair of the above adjectives. These rhymes may be perceived to constitute the fuller body of rhymes. The phoneme structure of the rhymes may affect their perceived quality in another way, too (Tsur 1992a: 52–88). Speech sounds that infants acquire later rather than earlier have greater emotional and aesthetic potential than their earlier acquisitions; among the later acquisitions, continuous and periodic sounds tend to have a highly musical or pleas-

3. There is another versification device that depends even more crucially on this characteristic of short-term memory, namely, the verse line, which typically is experienced as a simultaneously presented unified percept. However, we know that in a verse line, words are presented not simultaneously but consecutively. As I have argued at great length elsewhere (see Tsur 1977), an indispensable feature of the rhythmic performance of a verse line is that it requires the performer to manipulate the verbal material so that the unit is completed before its initial memory traces fade out of echoic memory.

ant emotional quality, whereas abrupt or aperiodic sounds may have an unpleasant or unmusical quality. In French, the nasal vowels and the sound cluster *-eur* consist of late acquisitions that are acoustically continuous and periodic and relatively unencoded from the phonetic point of view. Highly emotional and musical (e.g., symbolist) poetry in French may be expected to more frequently introduce into its rhymes nasal vowels and the sound cluster *-eur* than rationalist poetry, or poetry that sets great store by the content of its ideas. A simple count has revealed that this is indeed so (ibid.: 66–67): in the opening poem of *Les Fleurs du mal,* Baudelaire used two and a half times as many nasal vowels and sound clusters *-eur* in his rhymes than did Boileau in the first one hundred lines of his *Art Poétique.* Or, consider the following stanza, where the rhymes comprise nasal consonants and vowels and the sound cluster *-eur*:

Example 3

Les sanglots longs
Des violons
De l'automne
Blessent mon coeur
D'une langueur
Monotone.
(Verlaine, "Chanson d'automne," 1–6)

As for the judge's cognitive style, the less readers tend to rely on phonetic coding in the course of language processing, the more they will be inclined to characterize their perceived affect by using the first member of the pairs of adjectives mentioned above. And this might well be the case, albeit for different reasons, with persons who have a low tolerance for delayed categorization. Phonetic coding consists in substituting an abstract phonetic category for the acoustic information that transmitted it from the speaker to the hearer. The longer the delay in categorization, the richer the precategorical sensory information that becomes available to a person and the fuller the body of sound patterns perceived. By the same token, however, the cognitive load of information to be handled will be greater, and the period of uncertainty resulting from the exposure to uncategorized sensory information will be longer. This is why so many people are unable to tolerate delayed categorization.

As for the relative strength of the gestalts present in the poem, it should be noted that there are degrees of gestalt organization. There is a spectrum of stronger and weaker gestalts, with inarticulate, gestalt-free information at the weak end. In visual perception the presence of a gestalt-free ground—say, shading—lends "plasticity" or "depth dimension" to a strong visual shape. The same principle seems to apply to phonetic perception in a poetic context. Here, too, the presence of inarticulate, precategorical, sensory percepts seems to lend plasticity or

depth dimension to a well-articulated abstract phonetic category. However, the inarticulate, precategorical, sensory percepts gain greater or lesser relative weight, depending on the contexts in which they occur. This would seem to be the case at all levels, from the smallest-scale phonetic context to the widest poetic context. Rakerd (1984) adduces carefully controlled experimental evidence that vowels in consonantal context are perceived more linguistically than are isolated vowels. In plain English this means that in isolated vowels one may perceive more precategorical auditory percepts than in consonantal contexts. One possible explanation may be that vowels in consonantal context are subject to what speech researchers call "parallel transmission"; in other words, "the talker often coarticulates the neighboring segments of an utterance (that is, overlaps their productions) so that the acoustic signal is jointly influenced by those segments" (ibid.: 123). This finding is corroborated by Repp (1984: 252), who discovered that certain cognitive strategies enable listeners at will to attend to the abstract phonetic categories of the fricative sibilants [s, š] or to switch to the underlying precategorical auditory information: "The skill involved lay in perceptually segregating the noise from its vocalic context, which then made it possible to attend to its 'pitch.' Without this segregation, the phonetic percept was dominant."

In some poems the rich precategorical auditory information seems to have an especially strong impact on the emotional, sometimes uncanny, atmosphere of the poems, as well as on their musicality. Let us return to the first stanza of Verlaine's "Chanson d'automne" (example 3). When performing this kind of poem, we choose at the outset a delivery style that gives us a sufficient margin of freedom to manipulate the nasal back vowels. We subliminally prolong and segregate their crucial portions to enable ourselves to perceive and register their "dark" quality, as well as their rich sonorous quality, before late arrivals induce "lateral inhibition." We also do so in order to proactivate and enhance the sound trace of similar sound patterns that may arrive later or, at least, to make sure when pronouncing the nasal vowels that a sufficiently perceptible portion of their acoustic signal is not jointly influenced by its adjacent segments. This margin of freedom is not easy to achieve; it seems to be possible only in a frame of mind that encourages parallel cognitive processing, whereas in connected speech there is a tendency to proceed linearly rather than in different directions from the central sequence. As suggested below, in poetry one may distinguish a convergent from a divergent style; in the latter, perceptual and conceptual gestalts are considerably weaker than in the former. To allow for the disruption, albeit subliminal, of the linear sequencing of speech sounds (i.e., for the segregation of the relevant portions of the auditory stream), the whole message must be less thoroughly organized, on all levels, as in

divergent style, where the linguistic stress pattern diverges from the conventional metric pattern, as does the syntactic unit (clause, sentence) from the prosodic unit (line). In the world stratum of divergent poems we frequently find diffuse shape-free (and sometimes thing-free) entities rather than things that have stable characteristic visual shapes. In short, the freedom to adopt the cognitive strategy of segregating or integrating the crucial portions of the sound stream, which enables us to move back and forth between auditory and phonetic modes of listening, is at its fullest when the cognitive system is not under the control of some strong shape, definite direction, or patent purpose at any level of the poem. In the context of such relaxed shapes on all levels of the poem, the greater the divergence of the repeated sound clusters from strings of arbitrary verbal signs, the more they assume the emotive effects of nonreferential sound gestures (cf. Tsur 1992a: 72–73).

Rhyme and Gestalt

Example 4

The curfew tolls the knell of parting day,
  The lowing herd wind slowly o'er the lea,
The plowman homeward plods his weary way,
  And leaves the world to darkness and to me.
(Gray, "Elegy Written in a Country Churchyard," 1–4)

Example 5

The curfew tolls the knell of parting day,
  The plowman homeward plods his weary way,
The lowing herd wind slowly o'er the lea,
  And leaves the world to darkness and to me.

Example 4 is the first stanza of Gray's elegy, and example 5 is a version of the same stanza in which the rhyme pattern has been rearranged. Semantically and thematically, the information conveyed in both stanzas is quite similar (although the rearrangement of lines interferes with certain subject-predicate relationships, this has no bearing on my argument). However, a comparison of them reveals some differences, for the second version seems to be considerably simplified and more straightforward in tone. If we ask readers to apply one member of the adjective pair *emotional-witty* to one version and one to the other, more likely than not, *emotional* will be applied to the original version and *witty* to the rearranged one. Gestalt theory provides the most convenient means of systematically relating such perceived affects to the structure of the texts. The fundamental law of perception, the law of *Prägnanz*, is commonly defined by gestalt psychologists as follows: "The psychological organization of any stimulus pattern will always be as good as the prevailing conditions allow," followed as a rule by a list of conditions determining

"good." "The 'laws of organization,' as formulated by Max Wertheimer, designate the conditions which maximize our tendency to respond to groups of individual stimuli as unified 'percepts.' These conditions include proximity and similarity" (see Smith 1968: 41). In example 5 the similar endings *day-way* and *lea-me* appear in greater proximity than the endings in example 4; in example 5, therefore, the prevailing conditions allow a better psychological organization of the stimulus pattern than in example 4.

The regional quality of rhymes such as those in example 5 is typically perceived as "witty," or characterized by cleverness and quickness of apprehension. This quickness can easily be accounted for if we consider the following description of the two versions. In example 5 the second *a* rhyme (*way*) immediately follows the first *a* rhyme (*day*); the same is true of the *b* rhymes. Each couplet is quickly completed and left off. By contrast, in example 4 the first member of each rhyme pair must be kept in mind longer before it can be completed, and hence it is perceived as somewhat slower. That is why the *abab* rhyme pattern is more suited to descriptions such as "The lowing herd wind *slowly* o'er the lea, / The plowman homeward *plods* his *weary* way," whereas the *aabb* rhyme pattern would be more suited, for example, to Pope's witty arguments (cf. examples 10–13 below). The *aabb* rhyme pattern has a simple, "good" shape, since it groups together by similarity two verse lines in close proximity. The *abab* rhyme pattern has a less simple shape, since the rhyme endings grouped together by similarity are less close together. In fact, in order to obtain two similar parts on a higher level, two dissimilar lines must be grouped together on a lower level: if on a lower level the *a* + *b* lines are grouped together, the whole stanza divides into two symmetrical parts whose structure is identical, *ab*. It should be observed that the *abab* rhyme pattern is relatively complex when compared to the *aabb* rhyme pattern but quite simple when compared to other rhyme patterns (compare, for instance, examples 6 and 7 below). Consequently, example 5 is apt to break up into two rapidly alternating couplets, whereas example 4 constitutes a stable, single whole. Example 4, then, requires longer and more complex processing before a complete, closed whole can be achieved. That is why it is perceived as slower, less witty, and perhaps more emotional.[4]

When addressing poetry, it is sometimes more convenient to discuss strong and weak gestalts in terms of *convergent* and *divergent* structures. When a line ending converges with a sentence ending, a stronger shape is yielded than when they diverge. Likewise, when metrical strong positions converge with linguistically stressed syllables and with patterns of

4. For further discussions of rhyme patterns and gestalts see Tsur, Glicksohn, and Goodblatt 1991; Tsur 1992b: 111–31.

alliteration, they yield stronger shapes than when they diverge in one way or another. Other observations concerning line structure are worth noting in this context. An eight-position-long or twelve-position-long iambic line may be divided into two segments of equal length (four or six positions long) and of equal structure (each beginning with a weak position and ending with a strong position).[5] A ten-position-long iambic line, too, can be divided into two segments of equal length (5 + 5); the structure of these segments, however, will be unequal (one beginning and ending with a weak position, the other beginning and ending with a strong position). Alternatively, the line can be divided into two segments of unequal length (4 + 6 or 6 + 4) but of similar structures (each beginning with a weak position and ending with a strong position). Consequently, while the iambic tetrameter and hexameter can be balanced by a caesura at the middle, the iambic pentameter has only a vague region of balance, where a caesura may occur after the fourth, fifth, or sixth position (after the fourth position it is unmarked; after the sixth, marked). Consequently, the tetrameter and the hexameter tend to fall into two symmetrical halves, whereas the pentameter tends to be perceived as more integrated.

Let us examine two somewhat more complex examples:

Example 6

Farewell, farewell! but this I tell
To thee, thou Wedding Guest!
He prayeth well, who loveth well
Both man and bird and beast.

He prayeth best, who loveth best
All things both great and small;
For the dear God who loveth us,
He made and loveth all.
(Coleridge, "The Rime of the Ancient Mariner," 610–17)

Example 7

but Patience to prevent
That murmur, soon replies, "God doth not need
Either man's work or his own gifts; *who best*
Bear his mild yoke, they serve him best. His state
Is kingly. Thousands at his bidding speed
And post o'er land and ocean without rest:
They also serve who only stand and wait."
(Milton, "When I Consider How My Light Is Spent," 8–14)

5. While the linguistic units of syllabotonic meter comprise unstressed and stressed syllables, the abstract verse line consists of regularly alternating weak and strong positions.

Consider the italicized sentences in examples 6 and 7. They have at least three things in common: they convey a similar "moral"; in both, the word *best* is repeated; and they have a similar syntactic structure, namely, a complex sentence in which the subject is a rank-shifted relative clause. In both, the word *best* receives unusually strong emphasis at the end of the line: in example 6, because the word converges with the caesura and the line ending, yielding a very well articulated, symmetrical, stable whole; in example 7, because such emphasis and prolongation on the word is required in order to indicate the line ending behind the "fluid" run-on sentence. The italicized run-on sentence in example 7 has exactly the length and structure of a pentameter line, "straddled" by two pentameter lines. Its "movement" is exceptionally "impetuous," because it drastically upsets the formal line's balance: it begins and ends not in the regions of balance but very near the ends of the two lines concerned, leaving in each case a mere two-syllable chunk, which has, consequently, high "requiredness," that is, satisfies a strong need for completion. As I have compared these two passages in considerable detail elsewhere (see Tsur 1977: 203–7), here I shall address only the differences between the italicized sentences, adding one new point.

The placement of the rank-shifted clause in the sentence has a decisive effect on each passage. "When a prediction remains unfulfilled for too long, the sentence becomes excessively laboured" (Johnson-Laird 1970: 263). "Laboured" sentences and weak gestalts have one thing in common: both take up a relatively large amount of mental space. The gestalt of Milton's sentence is rendered fuzzier than Coleridge's. In Milton's sentence, *who* predicts a relative clause that, in turn, predicts a main clause in which it fulfills the function of a noun; secondly, within the relative clause, *who* predicts the advent of a verb connected by way of a subject-predicate relationship. This expectation is prolonged by the interpolation of *best.* In Coleridge's sentence, the two clauses appear in reverse order: an independent clause followed by a relative clause; syntactically, the former does not predict the latter. All this increases the respective convergent and divergent natures of these passages. The transitionary quality of Milton's sentence is all the more conspicuous because it can be contrasted to a similar (yet different) structure manifested in the last line of the same sonnet: "They also serve who only stand and wait." This sentence, like Coleridge's sentence, converges with the line, and the relative clause follows the independent clause (expectations are "released"). When the sentences are compared, then, the transitionary quality of the earlier sentence and the firm closural quality of the later sentence are reinforced.

In the present context, I wish to highlight yet another curious phenomenon. Certain readers have noted that the word *best* is somehow perceived as fuzzier or less sharp at the end of line 3 in example 7 than

at the end of line 5 in example 6. I used to believe that this impression was primarily due to the sharpness or fuzziness, the convergence or divergence, of the gestalts in which the word *best* occurred. Although I still contend that this is often the case, it now seems highly unlikely that the impression of sharpness or fuzziness is simply displaced from the wider gestalt to the keyword *best.*

As I have suggested above, there may be an actual difference in our articulation of the word *best*: a sharper articulation in example 6 and a more prolonged one in example 7. This would, perhaps, afford easier access to the inarticulate precategorical sensory information in example 7 than in example 6. In the preceding section I addressed the relationship between abstract phonetic categories and the abundance of precategorical auditory information, suggesting that we may influence this relationship unknowingly by adopting one or another cognitive strategy in our performance. In other words, the freedom to take up the cognitive strategy of segregating or integrating the crucial portions of the sound stream, in order to be able to freely move back and forth between auditory and phonetic modes of listening, is at its fullest when the cognitive system is not determined by the shape, definite direction, or patent purpose of any level of the poem. The conclusive tone of the great religious truths, enhanced by the repeated superlatives, does arouse in both passages a psychological atmosphere of definite direction and patent purpose. However, while this psychological atmosphere is reinforced by extraordinarily strong prosodic shapes in example 6, it is considerably mitigated by the exceptionally fluid and weak prosodic shapes in example 7.

In addressing figure-ground relationships, gestalt psychology has discovered that colors interact according to certain principles that might be extended to sound if "gestalt-free elements" are substituted for "color." The interaction of colors or gestalt-free elements does not work across the boundaries of strong gestalts. The weaker the gestalts, the stronger the interaction of colors or gestalt-free elements across their boundaries. As Ehrenzweig (1970: 172) has noted, "The ambiguity of a weak figure on a strong ground immensely increases colour interaction." Furthermore, "as in all relationships between form and colour the reverse effect can also happen. Strong colour interaction tends to make sharp outlines seem much softer than they are; it levels down differences in tone" (ibid.: 171). If my suggested analogy between color and gestalt-free elements is valid, the ambiguity of the weak figures resulting from the syntactic and prosodic shapes blurring each other in example 7 may greatly increase the interaction of gestalt-free, inarticulate precategorical auditory information underlying the word *best.* This, in turn, may work the other way, too, making the outlines seem even softer than they are. Such increased interaction of gestalt-free elements may be respon-

sible for the fact that the impression of *best* in example 7 is fuzzier, plumper, and fuller than it is in example 6.

The grouping of lines by rhyme and the relative strength of gestalts generated by such groupings may also be decisive in another issue that I shall touch on briefly. I have already alluded to what Snyder (1930) referred to as "hypnotic" or "spell-weaving" poetry. Regular meter seems to give security to what John Crowe Ransom calls the "Platonic Censor in us" (quoted in Chatman 1965: 212). A witty quality is generated when this security is genuine, a hypnotic quality when it is false. Meter gives security because it is predictable; security is genuine when other aspects of the poetic text also provide predictable orders or do not radically undermine the reader's rationality or sense of reality. In Coleridge's "Kubla Khan," in Poe's "Ulalume," and throughout Pope's work, meter is more than usually regular. Disregarding matters of content, it may be argued that Pope's work is perceived as witty, among other things, because his rhymes are in close proximity and yield perfectly predictable and symmetrical patterns; hence his versification arouses genuine security. But in the first stanzas of "Kubla Khan" (cf. Tsur 1987) and "Ulalume" (cf. Tsur 1992b: 434–45), the versification evokes a false sense of security: regular meter is coupled with unpredictable rhyme patterns (and at times, in Coleridge's verse, with unpredictable line lengths), and symmetries, even when established, are frequently disturbed or even overturned by later or intervening lines; hence their strong hypnotic effect.

In some instances we may find, to the contrary, that too much predictability in the rhyme pattern arouses a feeling of uncertainty that, coupled with the certainty of predictable rhythm, generates the "spell-weaving" or "trance-inducing" effect of hypnotic poetry. Elsewhere (Tsur 1988a) I have discussed a poem in Hebrew that produces this kind of effect, "Bircat Shoshanim" (Rose greeting), by Jonathan Ratosh. On the metric level, Ratosh's poem has an obtrusive, more than usually regular, ternary meter. The length of lines is regular and thus strictly predictable. On the grouping level, however, this poem is far less predictable than, say, "Kubla Khan." But its state of uncertainty is achieved with a device very different from that used in "Kubla Khan": all twenty-four lines rhyme on one group of two speech sounds [et]. This succession of lines, with their undifferentiated rhyme pattern, has no self-generated grouping principle, and their formal division into eight-line stanzas is purely external and arbitrary. Such perceptual grouping is likely to arouse a feeling of saturation and strong cravings for change. Thus we may refer to two opposing aspects in the prosodic organization of Ratosh's poem. On the metric level and on the level of the line, it induces a marked feeling of security, whereas on the level of line grouping it induces an unusually strong, almost chaotic, sense of insecurity (cf. Glicksohn, Tsur,

and Goodblatt 1991, where we report an experimental investigation of the readers' response to this poem).

Rhyme and Meaning

In his essay "One Relationship between Rhyme and Reason," Wimsatt (1954: 153–66) points out the difference between Chaucer's rhymes and Pope's. Chaucer's are "tame"; that is, the same parts of speech are used in closely parallel functions:

Example 8

And he was clad in cote and hood of greene.
A sheef of pecok arwes, bright and keene,
Under his belt he bar ful thriftily;
Wel coude he dresse his takel yemanly.
(Chaucer, "The General Prologue," 103–6)

This is not the case with Pope, who achieves his witty effects, among other things, by rhyming, for example, nouns with verbs, and verbs with adverbs, in different syntactic positions:

Example 9

Blessed with each talent and each art to please,
And born to write, converse, and live with ease,
Should such a man, too fond to rule alone,
Bear like a Turke, no brother near the throne.

Rhymes like these are discerned as *vigorous*, and their perceived affects are best described as "tame" and "vigorous." The structure of vigorous rhymes is best accounted for in terms of the way they involve different parts of speech. The vigorous affect of "antigrammatical" rhymes (Roman Jakobson's term) can be explained in terms of a semantic information-processing model.

According to a prevalent, but by no means exclusive, view of semantic representation, the meaning of words can be perceived as bundles of elements that are referred to as "semantic features," "meaning components," or "primitive concepts." Thus, the word *bachelor* can be defined by the following set of components: [+NOUN +COUNT +CONCRETE +ANIMATE +HUMAN +ADULT +MALE −MARRIED]. Changing the sign of the penultimate feature in this bundle to [−MALE] results in a meaning structure that can be realized in the surface word *spinster*. Deletion of the last feature in the bundle results in a meaning structure that can be realized as the word *man*. If we delete the last feature and change the sign of the penultimate feature, we get the meaning structure of *woman*, and so forth.

Some cognitive and linguistic manipulations focus on the lowest features in the bundle. For instance, the statement "That person is a bachelor" usually asserts only that the person is unmarried; it does not state

that the person is also a human being, or an adult, or a male (although, by the same token, one *specifies* "that person" as adult and male). Similarly the negative: "That person is not a bachelor" negates only the lowest feature; it is equivalent to "That person is not unmarried," but it still specifies the person as adult and male. Assertion and negation appear to concern only a single feature of nouns, which is also the lowest.

Likewise, in the word-association game, according to Clark (1970: 276–77), the stimulus word *man* elicits *woman* 62 percent of the time (resulting from changing the lowest semantic feature, [+MALE]) but elicits *boy* only 8 percent of the time (resulting from changing the lowest-but-one feature, [+ADULT]); it elicits *girl* only 3 percent of the time (resulting from changing the two lowest features). Thus *woman* is obviously the unmarked response to *man*, whereas *boy* and *girl* are marked to varying degrees. These findings can be accounted for by assuming that the responses obtained are produced according to the simplicity-of-production rule: "Perform the least change on the lowest feature, with the restriction that the result must correspond to an English word. . . . Unsuccessful applications of simpler rules therefore force people to use more and more complex rules" (ibid.: 280–81). Eventually, this amounts to the principle of exerting minimum effort. Antigrammatical rhymes are produced against the simplicity-of-production rule, according to another principle: "Change as many features as possible, as high on the list as possible."[6] This results in the exertion of maximum effort; hence its vigorous affect.

The semantic structure of the rhymes in example 9 is thus antigrammatical; its perceived affect is vigorous and witty. Returning to the first stanza of Verlaine's "Chanson d'automne" (example 3), we notice that most of its rhymes, too, are antigrammatical: *longs* is an adjective, *violons* a noun; *automne* is an abstract noun, whereas *monotone* is an adjective. Even *coeur* and *langueur*, both nouns, are contrasted by a feature that ranks fairly high on the list: [CONCRETE]. Here, however, the perceived affect is quite different. The rhymes enhance a certain "thing-free" atmosphere and an intense, vague feeling rather than a sense of sharp-wittedness. The semantic features of the antigrammatical rhyme are well articulated in awareness, owing to the oppositions it points out. In a divergent stylistic context, these features are diffused among the other diffuse elements. When the same heterogeneous semantic elements are yoked together in an environment of convergence and strong shapes, such rhymes usually have a witty regional quality, in the sense of sharpness usually associated with cleverness and quickness of appre-

6. Elsewhere I address this conception of rhyme and semantic information processing at greater length (Tsur 1983b).

hension. This quickness, then, can be accounted for by the properties of strong shapes.

Here I wish to draw together my discussions of phonetic and semantic information processing, via Wimsatt's treatment of the *homoeoteleuton*, or like endings: to allude to the difference between prose and verse as tantamount to the distinction between homoeoteleuton and rhyme would be an exaggeration rather than a distortion. "Non modo ad salitem ejus exstingu*endam* sed etiam gloriam per tales viros infring*endam*," says Cicero, which Quintilian cites as an example of homoeoteleuton. Here *-endam* and *-endam* are logically and legitimately alike; they have the same meaning, or are the same morpheme, and each supports the logic of the sentence by its particular position. Stylistic parallels or forms of meaning of this sort seem to come quite adequately to the aid of logic; they are part of the normal framework of patterns applied to prose (Wimsatt 1954: 153–54).

In prose, when the roots rhyme as well as the endings, the ensuing effect is one of alogicality, if not excess and artificiality. The cursus of metrical ending has a similar effect. If a prose writer were to reinforce a pair of parallel or antithetical clauses by presenting them each in iambic pentameter, we would claim that this was decidedly too much, that metrical equality was hardly interesting unless combined with a vein of logic that ran differently (ibid.: 154).

I should like to relate this discussion, and the following discussion of tame and vigorous rhymes, to the above discussion of codings used by good and poor readers. The experiment by Byrne and Shea has tapped two kinds of codings, semantic and phonetic, which are exploited for cognitive activities such as reading or keeping words in active memory. Similar-meaning words reinforce the use of the semantic code; similar-sounding words, the use of the phonetic code. In ordinary speech, the use of the phonetic code is "transparent"; it is exploited for the efficient use of short-term memory, yet it merits no conscious or even semiconscious attention. In literary use, however, it does receive some attention; we acknowledge its effect on the whole but are hard put to identify its source.

However, since as a rule language is used to convey meanings rather than merely sounds, semantic coding has a certain primacy over phonetic coding, even in literary language. Whenever possible, we foreground semantic coding; only when something seems to "go wrong" with the semantic coding do we shift our attention to the phonetic coding. In the quotation from Cicero, the like endings have the same meaning, or are the same morpheme, and support the logic of the sentence by virtue of their specific positions; in other words, this sort of stylistic parallel or form of meaning seems to enhance the logic of the sentence, so that the semantic and syntactic coding seem entirely satisfactory, and there

is little or no need for readers or listeners to attend to the phonetic coding. Since, however, like endings have similar sounds as well, they draw increased attention from readers or listeners; yet this similarity is used merely to reinforce the similar meanings. This is not so when it comes to rhyme. The greater the difference in the meanings of the rhyming words, the more inclined readers or listeners are to shift attention to their phonetic similarities. In antigrammatical rhyme, the difference in meanings is, by definition, greater than in grammatical rhyme; thus both semantic and phonetic representations participate more actively in the process of perception.

In view of the above analysis, three significant relations may be discerned between semantic and auditory-phonetic information in literary language. To paraphrase a distinction borrowed from ecological acoustics, rhyme is resonant, while homoeoteleuton is "thunk" (Graver 1993: 297). In homoeoteleuton, semantic and logical relationships are dominant, and the sound information is subordinate; it is perceived as rather flat or compact relative to the other possibilities. In rhyme, by contrast, the sound information becomes relatively loose, released to some extent from its attachment to meaning as well as less closely packed together. It reverberates in echoic memory, and the whole is perceived as more spacious, more plastic, having a fuller body. In this case there are two possibilities: "the cognitive system is not under the control of a strong shape at any level of the poem," or it "is under the control of a strong shape at some level(s) of the poem." In the latter case—in Pope's poetry, for instance—the regular meter, the symmetrical couplet form, and the parallelisms are just such strong shapes that exert rigorous control over the cognitive system and considerably tone down the impact of the rich precategorical auditory information. As a result, the auditory information remains subordinated to the abstract phonetic categories, generating a figure-ground relationship, which renders the perception of the string of abstract phonetic categories more plastic and bestows depth dimension on it, so to speak. In the former case—in Verlaine's "Chanson d'automne," for instance—the rich precategorical auditory information may get out of control, reverberate at large, and assume the emotive affects of nonreferential sound gestures. By the same token, attention tends to shift from the meaning to the sound of the poem. By analogy with visual perception, the precategorical information may be assumed to behave differently on both levels of the rhyme: so long as the abstract phonetic category is in control, interaction between the minute, inarticulate sound percepts is contained within the limitations of the speech sound; when the precategorical sensory information bursts the constraints of organizing shapes, interaction will occur with great intensity over considerable areas in the poem. This is why, phonetically speaking, Pope's rhymes sound so active even as they are also highly focused.

In what follows, I shall contrast the above conception of the relationship between rhyme and meaning to a rather widespread notion that appears to have arisen from the uneasiness of some critics about issues related to sound patterns and rhyme patterns. In many instances, critics try to introduce some ad hoc semantic feature for the specific rhyme pattern. In order to observe (albeit briefly) whether the semantic and gestalt tools I have proposed here better equip us to handle the instance addressed by Jones (1969), let us consider a few couplets from Pope:

Example 10

Our plenteous Streams a various Race supply;
The bright-ey'd Perch with Fins of *Tyrian* Dye,
The silver Eel, in shining volumes roll'd,
The yellow Carp, in Scales bedrop'd with Gold,
Swift Trouts, diversify'd with Crimson Stains,
And Pikes, the Tyrants of the wat'ry Plains.
("Windsor Forest," 141–46)

Example 11

Yet let not each gay turn thy rapture move;
For fools admire, but men of sense approve.
("An Essay on Criticism," 390–91)

Example 12

Others for language all their care express,
And value books, as women men, for dress.
("An Essay on Criticism," 305–6)

Example 13

Sole judge of truth, in endless error hurled:
The glory, jest, and riddle of the world!
("An Essay on Man," 2.17–18)

Example 14

Such if there be, who loves so long, so well,
Let him our sad, our tender story tell.
("Eloisa to Abelard," 363–64)

In his study of Pope's couplet art, Jones (1969: 74–75) quotes example 10 and comments on its third line:

> Because the participle "roll'd" is the rhyme word, the verb quality of "rolling" is emphasized rather than adjectival or substantive quality. "Shining volumes" is more effective coming before the rhyme "roll'd" than it would be after it, for it is the climactic rolling or writhing that is highlighted. We do not always think of volumes as round, but here it means "coils"; and when "roll'd" describes "volumes," the eelish quality is heightened, as the reader can easily imagine, even if he has never landed an eel.

Consider the first sentence of this quotation from Jones. The word *because* suggests a logical, causal relationship between its two clauses. But

is there one? To justify such a statement, there must be some generalization that can be consistently maintained, such as "When a participle occurs in the rhyme word, its verb quality is emphasized rather than its adjectival or substantive quality." I am not aware of any such generalization. In fact, all the grammatical and stylistic evidence suggests that the adjectival quality is emphasized in this epithet. Jones's interpretation, however, crucially depends on the participle's "verb quality." But since everybody feels that rhymes do something important to words, and since so little is known about *what* they do to them, Jones quite safely enlists the rhyme word in the service of the "verb-quality" construal of the participle. When words with certain meaning components are systematically manipulated into the rhyme, one can, perhaps, make a case for its significance; but even this cannot justify a generalization of *this* kind. Speech sounds are arbitrarily assigned to meanings in natural languages. Versification is typically an additional organization of the phonological component, irrespective of the meanings that might be ascribed to the sounds. Hence, in order to maintain that there is interaction between sound and meaning, a critic must be able to make explicit the principles on which he relies.

Syntactic inversion may be an effective foregrounding device, unless there are factors that tend to void it. In some cases, however, it may be reasonably supposed that the poet used his conventional right to syntactic inversion merely to make his words conform with meter and rhyme. In "shining volumes roll'd" there may be room for just such a reasonable supposition. But sometimes there is more to it than this.

Consider example 13. The antithesis leaves little room for doubt that *error*, in the first line, is a word of key importance. Although *hurled* contributes such components to the image as helplessness, passive endurance, and instability, its decisive component, physical transfer, has little relevance for the thought expressed by the antithesis. *Hurled* constitutes a virtuoso rhyme with *world*, but at the double price of an "inelegant" syntactic inversion and manipulation of the word of key importance out of the rhyme. Is it possible that so great a master of poetic technique as Pope is guilty of such incompetence? How can we explain, then, that this "deficient" line constitutes one of his most famous couplets, on which his reputation as a major poet is grounded? An alternative explanation is that the syntactic inversion, the virtuoso rhyme, and the manipulation of the keyword out of the rhyme serve one common effect. As the random collection of couplets in examples 11–14 suggests, such inversions, manipulating insignificant words into the rhyme, are not uncommon in Pope's poetry. It will be noted that in examples 11–13 the inversion occurs at the end of the first line of the couplet, whereas in example 14 it occurs at the end of the second line. I argue that this is quite significant.

Consider example 11. Here, *move* provides the finite verb and the idea of causation only; greater interest lies in the direct object *rapture* and

especially in the subject, *gay turn.* Briefly, then, syntactic inversion maneuvers the nonemphatic verb into the rhyme. At the same time, the antithesis *fools–men of sense* focuses attention on the verbs *admire* and *approve.* These two verbs are near synonyms in that they express a positive attitude; they are near antonyms in that they express uncritical enthusiasm and sound judgment, respectively. This semantic and rhetorical structure is the main source of this couplet's wit. The witty affect of the verb *approve* is greatly enhanced by its high degree of requiredness in this position. It is required here owing to its place in the rhyme pattern, in the antithesis, and in the segmentation of the line. So, in light of our earlier elaboration on gestalts, it might be suggested that the syntactic inversion at the end of the first line is functional: the structure of the first line is weakened sufficiently to make the part dependent on, and therefore integrated with, its context. That is to say, the weaker the ending of the first line, the stronger the structural closure perceived at the end of the couplet. One of the most effective means of amplifying the closure of a piece of poetry, at various levels of organization, is to weaken the closure of the preceding unit, rendering it more dependent on the poem as a whole.

Likewise, in example 12 the inversion highlights the noun phrases *language* and *all their care*; the least emphatic member of the clause, the verb *express*, is again dislocated into the rhyme. Once again, attention is focused on *dress*, in the rhyme of the second line, by various means: requiredness arising from segmentation, the rhetorical scheme (zeugma), and two meanings embodied in the word *dress*: "guise, appearance, adornment" and "fine clothes." A similar process takes place in the first line of example 13, even though attention is not focused with such vigor on the rhyming word in the second line.

Hence, contrary to Jones's contention, it is not the rhyme that effects the meaning of, and bestows emphasis on, the word manipulated into it; it is, rather, the relatively low semantic importance of the word manipulated into the line ending that deemphasizes the first rhyme. The process is governed by the gestalt principles discussed above and is geared to "the conditions which maximize our tendency to respond to groups of individual stimuli as unified 'percepts.' "

A very different effect may be observed in example 14. This couplet is perceived as "softer" than the examples discussed so far. This affect is achieved by a variety of means, but only the syntactic inversion at the end of the couplet concerns us here. "Eloisa to Abelard" is very different from Pope's other major poems in that the witty affect is replaced by a pervasive emotional tone, which is supported by a relatively divergent structure. The drastic weakening of the closure at the *end* of the couplet is an effective means of weakening the overall gestalts within the rigid constraints of Pope's poetics.

Dactylic Rhyme, Intertextuality, and Cognitive Poetics

In this section I shall focus on the placement of stress in rhyme, dwelling on the perceived affects of dactylic rhyme in various stylistic contexts. I shall also discuss the relative merits of cognitive poetics and the historical approach of intertextuality in accounting for these qualities. Regarding the placement of stress, for our purposes we will distinguish among three types of rhyme: masculine (in which the stress is on the last syllable of the line), feminine (in which the stress is on the penultimate syllable), and dactylic (in which the stress is on the antepenultimate syllable). The third kind is very rare in English poetry, and is illustrated in the following examples:

Example 15

Her favorite science was the mathemātĭcăl,
  Her noblest virtue was her magnanīmĭty,
Her wit (she sometimes tried at wit) was Āttĭc ăll,
  Her serious sayings darkened to sublīmĭty;
In short, in all things she was fairly whăt I căll
  A prodigy—her morning dress was dīmĭty,
Her evening silk, or, in the summer, muslin,
  And other stuffs, with which I won't stay puzzling.
(Byron, *Don Juan*, 1.89–96)

Example 16

But—Oh! ye lords of ladies intellĕctŭăl.
Inform us truly, have they not henpĕcked yŏu ăll?
(Byron, *Don Juan*, 1.175–76)

Example 17

He learned the arts of riding, fencing, gūnnĕry,
And how to scale a fortress—or a nūnnĕry.
(Byron, *Don Juan*, 1.303–4)

Example 18

Ōne mŏre ŭnfōrtŭnāte,
Wēarў ŏf brēath,
Rāshlў ĭmpōrtŭnāte,
Gōne tŏ hĕr dēath!
(Hood, "The Bridge of Sighs," 1–4)

Example 19

Tōuch hĕr nŏt scōrnfŭllў!
Thĭnk ŏf hĕr mōurnfŭllў,
Gĕntlў ănd hŭmănlў;—
Nŏt ŏf thĕ stāins ŏf hĕr;
Āll thăt rĕmāins ŏf hĕr
Nŏw ĭs pŭre wōmănlў.
(Hood, "The Bridge of Sighs," 15–20)

In his excellent study of dactylic rhyme, Uzi Shavit (1993: 20–21) tells us that

> most English handbooks of prosody associate the dactylic rhyme with light and comic verse; and this is right, undoubtedly, from the statistical point of view. However, does this mean that the comic quality is inherent in the English dactylic rhyme? At least one famous example contradicts this assumption: Thomas Hood's "The Bridge of Sighs." This poem is conspicuously touching, or pathetic. Still, about one-third of the poem's verse lines end in a dactylic rhyme; and this kind of rhyme is clearly one of the poem's most outstanding characteristics. Consequently, some contradiction ought to arise between the poem's message or pathetic theme and the comic effect of its rhyme. (Translations my own)

However, it would appear that the opposite is the case. Shavit (ibid.: 21) quotes Edgar Allan Poe, who comments in his "The Poetic Principle" that "the vigour of this poem ['The Bridge of Sighs'] is no less remarkable than its pathos. The versification, although carrying the fanciful to the very verge of the fantastic, is nevertheless admirably adapted to the wild insanity which is the thesis of the poem." Likewise, Emil Legouis (ibid.) suggests that Hood "found for these poems, and especially for the second of them ['The Bridge of Sighs'], most original meters and rhymes, which heightened their pathos." Shavit concludes that the relationship that the English tend to find between the dactylic rhyme and low comedy is not inherent in the English dactylic rhyme but derives from the relative scarcity of this kind of rhyme in English. As a result, these rhymes tend to be associated with the texts in which they occur, which are typically mainstream, canonical texts. A prominent case in point, which actually bears the most dactylic rhymes of any poem in English, is Byron's *Don Juan* (cited in examples 15–17). Nor is there any doubt that Byron's use of dactylic rhyme has a pointedly comic affect.

Later, in an attempt to explain the apparent contradiction between the comic and pathetic affects of the dactylic rhyme, Shavit adopts one of my own suggestions, namely, that this apparent contradiction is derived from the high markedness of the English dactylic rhyme. Markedness is a double-edged phenomenon; that is, in some contexts it generates a heightened witty, comic quality, whereas in others its impact is emotional. Accordingly, the prosodist's task is to establish the conditions under which markedness contributes to each of these qualities. This requires a cognitive theoretical framework to facilitate an examination of the unique perceptual characteristics of the various prosodic patterns (Shavit 1993: 25).

While he does not object to this line of investigation, Shavit prefers to consider the opposite affects of the dactylic rhyme within a different, historical framework of theory, insisting on intertextuality as the basic characteristic of literary texts and the source of the contradiction mentioned above. (Shavit has since suggested, by way of personal communication,

that the two approaches should perhaps be regarded as complementary; this possibility is explored below.) Shavit (ibid.: 25) adds:

> If we view the English dactylic rhyme in this context, the comic use Byron and Frere made of the dactylic rhymes appears to be directly related to the peculiar coupling of the burlesque epic with the ottava rima, that is, to the Italian model of Luigi Pulci and other Italian burlesque poets from whom Frere and Byron adopted not only the ottava rima but also the comic tone and the familiar and light style characteristic of "Beppo" and *Don Juan.*

Shavit notes that Hood's poem bears no relation whatsoever to Byron's epic. The meter of *Don Juan* is iambic pentameter, and its strophic form is the ottava rima, whereas "The Bridge of Sighs" is written in dactylic dimeter and an irregular strophic form. The combination of dactylic dimeter and dactylic rhyme, says Shavit, points in a different direction, to the angels' choirs in *Faust*; the following is a very convincing example:

Example 20

Tätig ihn Preisenden,
Liebe Beweisenden,
Brüderlich Speisenden,
Predigend Reisenden,
Wonne Verheißenden,
Euch ist der Meister nah,
Euch ist er da!
(Goethe, *Faust I,* 801–7)

In validation, Shavit also points out that the association between *Don Juan* and dactylic rhyme was established gradually, over an extended period of time, and thus was unlikely to have inspired Hood or his readers and critics. Moreover, in 1835 Hood left England for the Continent, where he stayed for five years, stopping first in Germany and later in Belgium. It was only during his sojourn in Germany that he was allegedly exposed to Goethe's *Faust.* Now, let us imagine a present-day native speaker of English who spends time reading nineteenth-century English poetry but is unaware that in 1835 Hood spent some time in Germany, knows no German or Italian, and has never read original versions, or English translations, of *Faust* or Italian burlesque epics. What assumptions can be made about his perceptions of English dactylic rhyme? More likely than not, Byron's rhymes will produce a comic affect, while Hood's will arouse a passionate affect. I am not extolling the unsophisticated person as my prototypical reader. Rather, I wish to point out the weaknesses of the historical approach by extending its argument ad absurdum. If we can credit a reader such as the one described above with the ability to perceive a comic affect in Byron's rhymes and a passionate affect in Hood's, we need not assume that a more sophisticated reader must have been exposed to Luigi Pulci and Goethe to perceive these qualities in Byron and Hood.

Thus an explanation must be sought elsewhere, and a cognitive explanation would appear to be as good as any other. But first we must postulate three possibilities: (1) that the poetic passage's comic or affectionate affect is determined by its content, on which the dactylic rhyme has no effect whatsoever; (2) that the dactylic rhyme amplifies any perceived affect generated by the contents of the text; or (3) that the dactylic rhyme has some comic or passionate potential that may be realized in certain stylistic contexts, of which the explicit contents are part. It is assumed here that evidence for the second possibility supersedes the first one and evidence for the third possibility supersedes the first two. I shall explore the third possibility within a cognitive frame of reference.

The dactylic rhyme is highly marked in English poetry for three reasons. One reason is that it is more difficult to produce in the English language than in several other languages; hence its rarity. The other two reasons seem to be less language-dependent. The second reason has to do with the grouping of unstressed syllables with stressed ones. For unstressed syllables to achieve a sense of stability, they must be grouped with an adjacent stressed syllable in a metrical strong position, and it is easier to group them forward than backward. Backward grouping is always perceived as marked. In the dactylic rhyme, the last two unstressed syllables must be grouped backward, since by definition they are not followed by a stressed syllable in a strong position. Furthermore, when the dactylic rhyme occurs in a ternary meter (dactyl, anapest, or amphibrach), two weak positions are grouped forward and two backward, with the same (last) stressed syllable in a strong position (as opposed to the binary meters, in which there is only one weak position between any two strong positions). This may generate an uneasy feeling of perceptual ambiguity and confused directions. The third reason has to do with the acoustic cues for grouping and stress. According to Woodrow's experiments (Meyer 1956: 106–7; Chatman 1965: 26–27; Tsur 1977: 88–89), nonlinguistic sound stimuli are perceptually grouped into end-accented groups when there are differences of duration and into beginning-accented groups when there are differences of amplitude (loudness). Differences of pitch do not affect the direction of grouping. There is some indication that this may be the case with linguistic stimuli, too. Furthermore, at variance with layman's intuition, linguistic stress is cued by a mixture of pitch, duration, and amplitude in a decreasing order of effectiveness (Frye 1958). In natural speech in languages that are not syllable-timed, there are considerable differences of duration between syllables; this renders beginning-accented prosodic units more marked than end-accented ones, and dactylic rhymes especially marked. In syllabotonic meter in particular, beginning-accented units (cued by amplitude) are more marked than end-accented ones (cued by duration).

In view of these observations, the binary, end-accented, iambic meter would be perceived as less marked, more flexible, than either the binary, beginning-accented trochee or the various ternary meters (in which two weak positions are grouped with an adjacent strong one). Among the ternary meters, the beginning-accented dactylic would be perceived as more marked, less flexible, than the rest. Accordingly, the middle-accented amphibrach is the only meter in which pitch differences, the most effective acoustic cue for stress, can be dominant; it should be perceived as the most easily flowing meter. As a matter of fact, numerous critics at different historical moments, in a variety of languages, have commented on the perceptual qualities of the various meters in this vein, though they have offered quite different explanations for them (cf. Tsur 1977: 83–96). One more observation concerning line length is needed here. From this point of view, the iambic pentameter line seems to be the most flexible one: shorter lines are perceived as more rigid; longer lines tend to break up into two or more smaller (rather rigid) segments. Hence, in comparing the meters of *Don Juan* and "The Bridge of Sighs," it should be noted, first, that the former's meter is the least marked meter available, while the latter is the most marked one; and second, that in respect of line length, too, Hood's verse is more marked than Byron's.

We have observed that the dactylic rhyme is a highly marked prosodic form, and, as a result, it tends to have a witty or comic perceived affect. This is its "unmarked" affect. But it may have a more marked affect as well, which may be described as pathetic, passionate, even hypnotic. As I have suggested above, regular meter gives security to the "Platonic Censor in us." A witty quality is generated when this security is genuine; a hypnotic quality, when false. In Byron's epic, the marked dactylic rhyme is embedded in a relatively unmarked prosodic environment that has considerable flexibility. In Hood's verse, we are confronted with a conspicuous instance of "false security," so characteristic of hypnotic poetry. The sense of more-than-usual security is generated by the rigid dactylic dimeter; the sense of more-than-usual insecurity is generated by the unstable dactylic rhyme, on the one hand, and by the unpredictable sequence of rhymes, on the other. If Poe is right in discerning "the wild insanity which is the thesis of the poem," then this may be another ingredient that contributes to its sense of insecurity.

This is why a reader who is not equipped with a broad knowledge of literary history may intuit, in spite of his ignorance, a comic quality in Byron's dactylic rhyme and a pathetic or hypnotic quality in Hood's. This ability to "switch" from one set of aspects to another when perceiving the dactylic rhyme corresponds to the ability noted by Wittgenstein (1976: 214e) to "understand the request to pronounce the word 'till' and to mean it as a verb" as opposed to, say, an adverb. It is this mental ability

that underlies our capacity to offer a range of more or less legitimate interpretations of the same text or to associate a variety of perceived qualities with the same prosodic structures. Intertextuality can reinforce intuitions arising from the cognitive processing of individual poems. Where there are no such intuitions based on cognitive processing, intertextuality remains a phantom and merely transfers the mystery from one place to another.

To conclude this discussion of dactylic rhyme, I wish to address another issue raised by Shavit. One of the most impressive manifestations of dactylic rhyme in modern Hebrew poetry (in the Ashkenazi pronunciation) appears in "Birkat Am" (The blessing of the people), a Zionist ode by the great Hebrew poet Haim Nakhman Bialik. As Shavit convincingly points out, this poem became a model for a long line of rightly forgotten odes, all displaying an abundance of dactylic rhyme. Shavit (1993: 32–33) cites literary historian F. Lakhover, who also remarked that

> our poet too built his hymn on a highly artistic construction that arouses security by giving definite orders and pronouncing vigorous commands, yet at the same time also evokes a sense of loss and wishful longings. Its rhymes in the even-numbered lines are short and vigorous; in the odd-numbered lines, by contrast, they are long and drawn out. This means that they are predominantly drawn out and most effectively convey the innermost hope and hidden cravings. (Translation and abridgement my own)

This passage, which I have drastically shortened, has something of the impressionistic chatter about it. Prosodist Y. Bakoon (also cited in Shavit 1993: 32–33), notes that Lakhover's assessment was determined by the poem's content rather than by the rhythmic structure of its rhymes. However, "the cravings and longings" suggested by Lakhover may also have structural foundations. According to the analysis outlined above, the dactylic rhyme is characterized by precisely the "lack of . . . well-articulated modes of progression" that is "capable of arousing powerful desires for . . . clarification and improvement" (Meyer 1956: 160). The citation from Lakhover may also suggest, perhaps in spite of the writer, why an ode like this one is likely to have a more assertively ceremonial character than a pathetic or hypnotic one. In fact, the dactylic rhyme alone arouses a feeling of uncertainty, whereas as far as the content of the poem is concerned, the "artistic construction . . . arouses security and pronounces vigorous commands."

Lakhover describes the poem's rhyme structure, which includes a systematic use of dactylic rhyme; he further suggests that this renders the rhymes "most expressive of the innermost hope and hidden cravings." Bakoon objects that these cravings and longings have little to do with poetic structure. My own handling of Bialik's dactylic rhyme and Lakhover's commentary, however, together with my appeal to Meyer's understanding of weak shapes, can be taken to illustrate how cognitive

poetics enables cognitive hypotheses intended to systematically correlate "the particular regularities that occur in literary texts" with "the specific effects of poetry" (Shavit 1993: 32–33).

Summary

I have tried to give a comprehensive cognitive view of rhyme. Rhyme is one of the most powerful resources of poetic language. Readers and critics have strong intuitions about it but have difficulty in talking about it and its contribution to the total affect of a poetic passage. So, very frequently, critics ignore rhymes in their writings or merely point out the rhyme pattern of a poem. Other critics resort to impressionistic effusion in talking of rhymes. Still other critics rely on some ad hoc semantic analysis, hoping that the reader will discover its relevance to the poem's perceived affect, or on some argument based on intertextuality, sometimes merely transferring the mystery from one place to another. The present essay has attempted to reveal the sources of the possible affects of rhyme, to offer critical tools to talk about rhyme in a meaningful way, and to relate its affects to its structure systematically.

Speech sounds are abstract categories from which the rich precategorical sensory information is typically stripped away. Nevertheless, some of this information does reach the cognitive system, reverberating for a very short time in short-term memory and facilitating certain cognitive tasks with reference to verbal material. Rhyme exploits and enhances this sensory information. There is some experimental evidence that the memory traces of two words considerably apart in time may be fused and perceived as if simultaneously present. In certain conditions, such fusion of auditory information may be perceived as if spread over the intervening section of the poetic passage. We all are familiar with figure-ground relationships in visual perception as well as in music. In certain circumstances well defined by gestalt psychology, inarticulate ground may bestow depth dimension and plasticity on good shapes. Gestalt psychology has discovered, on the other hand, that when gestalts are considerably weakened, the interaction of color and other gestalt-free sensory elements may be enhanced *across* their boundaries. It has been suggested above that similar processes may take place in the relationship between the phonetic categories and the underlying acoustic information. Some cognitive mechanisms related to the performance of poetry may enhance these processes (e.g., Repp's discovery concerning the segregation or integration of the fricative sibilants [s, š]; generating an attitude in which the cognitive system is on no level of the poem under the control of some strong shape, definite direction, or patent purpose). Also, with reference to Omar Khayyám's *rumble of a distant Drum*, for instance, suggestions were made concerning the possible interaction of semantic or thematic features with acoustic information

underlying speech sounds. Some of those gestalt laws were considered that "designate the conditions which maximize our tendency to respond to groups of individual stimuli as unified 'percepts' " (e.g., grouping by similarity or proximity, or the need to weaken the part in order to make it dependent on the whole) and that, by the same token, may systematically account for the perceived qualities regularly associated with certain rhyme patterns. Considerable attention has been devoted here to the relatively rare dactylic rhyme in an attempt to account for the conflicting perceived affects regularly associated with it.

The general canons for the evaluation of a poetic passage are unity, complexity, and some intense human quality pervading it. The greater the unity, complexity, or intense human quality of a poem, the greater its aesthetic worth is said to be. As for complexity, rhyme superimposes an organizing pattern on a string of words, in addition to the semantic, syntactic, and metrical patterns. By the same token, this additional organizing pattern enhances unity, and the raison d'être of the gestalt principles considered above is to "maximize our tendency to respond to groups of individual stimuli as unified 'percepts.' " At the same time, by turning the phonetic and acoustic resources of rhyme, along with the grouping gestalts, to aesthetic ends, we shift the focus of our attention from the efficiency of performance in certain cognitive tasks to such intense human qualities as "witty" or "emotional."

I wish to end with a caveat. There is no way to predict the perceived affects of a certain rhyme pattern (or of any other poetic structure). The affects must be accepted as given, as directly perceived by the reader. It is only after the event that one may account for them with structural features of the text that, to use Sibley's (1962) term, "typically count toward them."

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