

PETERHOUSE THOMAS CAMPION ENGLISH PRIZE 2019

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Question 4

'In that poetry is always patterned language, we may say that poetry is language tending towards mathematics.' Discuss some examples of poetic patterning in the light of this judgement.

Introduction

As a convergent sum 'tending towards' a value comes infinitely close yet never reaches it, poetry and mathematics cannot be seen as synonymous due to several fundamental distinctions. In his *Essay on Criticism*, Pope asserts that “most by numbers judge a poet’s song” (1711), with the implication that a numerical analysis and approach to poetry is an important component in, if not a prerequisite for, poetic criticism. Indeed, since the birth of the poetic tradition and notably in the seminal poetry of Homer and Virgil written in dactylic hexameter, mathematical regulation and analysis has played a central role. It is not wholly novel, therefore, to consider mathematics and poetry within the same context. Although the fields may seem intuitively disparate, the connections clearly exist. Scansion, rhyme, syntax, and structure are all inherently patterned (or sequential) aspects of the poetic discourse.

The judgement in question rests on two crucial claims: firstly, that ‘poetry is always patterned language’; secondly, that ‘poetry is language tending towards mathematics’. The first of these assumptions might be accepted given that all language at a base level is comprised of patterns (both grammatical and phonetical) and poetry seems to construct another layer of patterning above the those as a structured form of language. The second assumption requires not only a careful analysis of ‘poetic patterning’ itself, but first an examination of what ‘mathematics’ may be defined as.

Defining Mathematics

Mathematics, from the Ancient Greek *μάθημα* meaning "subject of instruction", is arguably one of humanity’s greatest achievements, and was described by Einstein as “the poetry of logical ideas” (1935). Since the pioneering work of the Greeks – most notably Pythagoras, Plato, and Aristotle – deductive reasoning has played a central role in mathematics. The use of axioms to derive new truths is at the core of the mathematical approach; mathematics seeks to make claims of certainty about objective truths.

G. H. Hardy makes the case at great length for mathematics as poetry in its own right: “A mathematician, like a painter or a poet, is a maker of patterns. If his patterns are more permanent than theirs, it is because they are made with *ideas*” (1940). Hardy suggests that the mathematician’s search for beautiful patterns is analogous with the way a poet’s words “must fit together in a harmonious way”. This definition seems to be relatively productive: Hardy sees patterning as fundamental to poetry and mathematics alike, which concurs with the assumption that “poetry is always patterned language”.

From this perspective, mathematics gains a certain aesthetic quality which becomes fully articulated by Lockhart as he refers to “these perfect little poems of thought, these sonnets of pure reason” (2009). Part of this appeal, though, is the ‘purity’ of reason. This abstraction from human experience is crucial as it shows mathematics to lie within Kant's noumenal realm; that is to say, mathematics can be viewed as an *a priori* entity, which exists as knowledge "altogether independent of experience, and even of all sensuous impressions [...] in contradistinction to empirical knowledge, which has its sources *a posteriori*, that is, in experience" (Kant, 1781). This position that "[m]athematical truths are *a priori* since they concern the temporal and spatial structure of reality" (Griffiths, 2015) is by no means a tangential observation, and must be considered in relation to the judgement in question. This definitive position demonstrates that mathematics is more than just patterns, but indeed a portion of knowledge which can be considered objectively true. This aspect of a mathematical definition is not to be ignored.

Thus, mathematics is to be defined as the use of axiomatic laws to encounter objective truths independent of human experience. While this position merits debate *per se*, and minority positions in contradiction do exist, it will be applied for the remainder of the discussion as further elaboration is beyond the scope and focus of this essay.

Poetic Patterning

For the ancient poets, the fundamental patterns of poetry were limited to metrical structures and phonetic patterns within them. Dactylic hexameter and elegiac couplets, for example, were both amongst the most common forms to be found in both Latin and Greek poetry, and both were forms essentially defined by *rhythmic patterning* (i.e. the sequence of 'long' and 'short' vowels). These forms afforded poets a finite set of line structures, which could be chosen for effect, and within these metrical regulations there were various opportunities to create *phonetic patterns* (e.g. assonance and consonance) as well as *syntactical patterns* (e.g. chiasmus, anaphora, or a tricolon sequence of verbs).

In turning from the classical tradition to poetry in the English language, it may be noted that the major development in phonetic patterning is the ubiquity of rhyme. Indeed, Oscar Wilde remarks that rhyme was "the one chord we have added to the Greek lyre", which, according to the Irish author, "can turn man's utterance to the speech of gods" (Wilde, 1891). Thus, the patterns of English poetry might be considered in three stages: (i) rhythmic patterning, (ii) phonetic patterning, (iii) syntactical patterning.

(i) Rhythmic Patterning

Rhythmic patterns in poetry may be the most successful with regards to what Housman called poetry's "peculiar function", namely to "transfuse emotion—not to transmit thought but to set up in the reader's sense a vibration corresponding to what was felt by the writer" (1933). The patterns of English prosody, based on a system of syllabic accentuation, may provide this transfusion when constructed in certain ways. This observation may be considered in light of one of the early 20th Century English canon's most popular poems: Kipling's 'If-', in which the rhythmical pattern conveys meaning *per se*:

*"If you can keep your head when all about you
Are losing theirs and blaming it on you,
If you can trust yourself when all men doubt you,*

But make allowance for their doubting too" (Kipling, 1910)

Here, Kipling's iambic pentameter verse follows the strict pattern of alternation between hendecasyllabic lines (with the hypermetric addition of one unstressed syllable – e.g. "you" at the end of line 1) and metrically regular lines. This mirrors the pattern of extensive *protases* and a final *apodosis* in the poem's syntax. There is an ongoing suspense in the so-called 'feminine' lines and resolution in the 'masculine' ones, and this pattern of tension and satisfaction culminates at the end of the poem, with the almost celebratory *apodosis* of

"Yours is the Earth and everything that's in it,

And—which is more—you'll be a Man, my son!"

This dialectical structure provides an idea by itself, regardless of the base meaning of its constituent words. When read aloud, the sensation of suspense and relief is tangible, and this is born of nothing but the rhythmic patterns of the verse. One might also see the palpable 'dissatisfaction' induced by hypermetric addition in that most famous of Hamlet's self-interrogations, "To be, or not to be, that is the question" (Shakespeare, 1603). In this situation, the feminine ending reflects the lack of clarity in Hamlet's thought amidst his "sea of troubles". Thus, rhythmic patterns (in the latter example, perhaps more accurately the *contravention* of these patterns) can convey a sense beyond that of the content of the poem. Mathematics, however, can only convey the truths that it articulates on one level, and does not possess the same 'layers of meaning' as poetry.

Rhythmic patterning as the genesis of sensation can also be seen evidently in Keats' 'La Belle Dame sans Merci: A Ballad' (1819); the dimetric fourth lines of numerous quatrains masterfully evoke an atmosphere of decay and unfamiliarity. For example, the first stanza reads:

"O what can ail thee, knight-at-arms,

Alone and palely loitering?

*The sedge has withered from the lake,
And no birds sing.*" (Keats, 1819)

The ballad convention prescribes a quatrain of alternating iambic tetrameter and trimeter, yet here Keats constructs a second line which (assuming 'loitering' is contracted through *synaeresis*) gains an additional syllable, and a final line which is strikingly short of a metrical foot. This establishes an undeniably bleak context for the rest of the poem, in which the addressee 'knight-at-arms' falls victim to the eponymous *femme fatale*, and coincides with the semantic field of decay born of 'palely' and 'withered'. Eliot once wrote about the "auditory imagination", or the "feeling for syllable and rhythm, penetrating far below the conscious levels of thought and feeling" (1933), which is eminently perceptible in Keats' ballad.

This parallel between rhythm and mood is true more generally of metre as a concept. The blank verse of Milton's epic poem 'Paradise Lost' (1667) seems to replicate in English the dactylic hexameter of Homer and Virgil: both metres have connotations of gravitas and epic narratives. Equally, the contemporary poet Blake Morrison's 'The Ballad of the Yorkshire Ripper' (1987) makes poignantly ironic use of the character of ballad metre. Morrison juxtaposes the lyrical levity of a ballad's connotations with the horrific nature of the murders he narrates. This juxtaposition is communicated to the reader through the familiar rhythmic patterning of the poetry, which thus assumes a significant role in the poem's effect.

In some cases, the rhythmic patterns of poetry can be even more directly analogous with the poem's content. The final stanza of Hardy's delicately tragic poem 'The Voice', inspired by the death of his first wife Emma, exhibits this direct reflection. After three quatrains of dactylic tetrameter (which constructs a waltzing, enchanted tone for the speaker's excited reaction to hearing the voice of his deceased wife), the final stanza arrives abruptly:

*"Thus I; faltering forward,
Leaves around me falling,*

*Wind oozing thin through the thorn from norward,
And the woman calling.*" (Hardy, 1913)

The caesura and metrically contracted lines bring the poem to a startlingly bleak conclusion. Aloud, these lines are naturally read much more quickly than their antecedents, which parallels the "faltering forward" of the speaker. It must be noted that this example is the breaking of a pattern, rather than the pattern itself, which is a significant distinction. The initial pattern brings its own "vibration corresponding to what was felt by the writer" (Housman, 1933), but the interruption of that pattern involves just as much emotive weight. Interruption of patterns, of course, has neither legitimacy nor 'value' in the realm of mathematics: there, to break a rule is not productive of meaning but fallacious.

It has been shown that rhythmic patterning in poetry can "transfuse emotion" (Housman, 1933), which can occur in harmony with or independent of the poem's content. However, mathematics does not involve this conveyance of emotion through its patterning, and is restricted to the objective abstract truths by which it is governed. It must also be noted that several prominent examples of this poetic transfusion are disruptions of patterning – they are irregularities. The discourse of mathematics in its purest form does not allow for irregularities.

Furthermore, rhythmic patterning is not governed by rules, but described by them; the sense of confusion in Hamlet's hypermetric line exists without anyone's imposition of terminology and regulation on the metre. Holden writes that prosody "in poetry is roughly equivalent to what formal proof is in mathematics" (1985), yet this position is somewhat fallacious. Whereas 'formal proof' is required to establish the veracity of a mathematical conjecture, prosody is not needed for the sensation of rhythm to exist. Imposition of rules is not a legitimising process in poetry. Rhythmic patterning is thus an appeal to something innate in the reader, something organic, and critical frameworks exist apart from that something. Karl Shapiro notes that "the attempt to reduce verse to a body of principles must inevitably suffer

from imprecision" (1947), and the reductive nature of metrical rules is undeniable in consideration of much of poetry where metre is ambiguous. In direct contrast, the rules of mathematics must exist for the patterns to hold any meaning. Mathematical rules are not an objective framework placed retrospectively on subjective phenomena, but instead an objective framework inextricably involved with objective truths. In this way, poetry cannot be paired with mathematics on account of rhythmic patterning alone.

(ii) Phonetic Patterning

Phonetic patterning involves the relationships between similar vowel sounds and consonants, which often give poetry a dimension beyond prosaic language and indeed mathematics. These relationships can create a variety of effects, from assonance to internal rhyme. The 18th Century poet Alexander Pope depicts rhyme disparagingly as facile and predictable, asserting, for example, that "Where'er you find "the cooling western breeze", / In the next line, it "whispers through the trees"" (1711). However, an examination of select examples may show that, in contradiction of Pope's inexact remarks, both rhyme and phonetic patterning in general can elevate and enhance a poem. Phonetic patterning has the power to create associations between words, to encapsulate thoughts, and to represent linguistically the sounds of the poem's content.

Though Gerard Manley Hopkins is famed for his poetry's fidelity to the rhythms of English dialect, with its 'sprung rhythm' and distinctly English diction, his phonetic patterning is also consummate. His curial sonnet 'Pied Beauty' is no exception, in its unconventionally articulated praise for God. The sestet reads:

*"Glory be to God for dappled things—
For skies of couple-colour as a brindled cow;
For rose-moles all in stipple upon trout that swim;
Fresh-firecoal chestnut-falls; finches' wings;*

Landscape plotted and pieced—fold, fallow, and plough;

And áll trádes, their gear and tackle and trim." (Manley Hopkins, 1918)

When read aloud, these lines appear indulgently alliterative. This phonetic patterning across the poem creates a patchwork of association which mirrors Hopkins' depiction of "dappled" things in all their patterned expression. The consonance of "couple-colour" emphasises the duality of colour through the close duality of the velar consonants, which is then married with the "cow" and its hide. This consonance associates the "skies" and their bovine counterpart in a way more emphatic than the metaphor constructed through "as"; the disparity in significance and size between the "skies" and the "brinded cow" is thus traversed by a phonetic association.

Within the context of the poet's praise for "dappled things", Manley Hopkins draws on a variety of images across God's creation for the commonality of their "dappled" complexion, creating affiliations between them by phonetic patterns. The skill of the poem, therefore, is to unite such distant images through phonetic associations. The "finches' wings" are associated with the "Fresh-firecoal chestnut-falls", despite their numerous dissimilarities. Phonetic patterning in 'Pied Beauty' contributes to the central argument of the poem; through the musical association of words via consonance, Manley Hopkins establishes a unity in nature through God. Henceforth, the various images are bound by their "dappled" nature, God's creation, and the phonetic relationships which exist between them. This is arguably a prime example of *melopoeia*, one of Ezra Pound's 'three kinds of poetry': the poetry is enhanced by the musicality of the words and its meaning is thus reinforced.

Furthermore, the fifth line of Manley Hopkins' encomium serves as a demonstration of onomatopoeic consonance. The plosive alliteration in the line mirrors the puncture and penetration of the earth: "plotted and pierced" and "plough". Phonetic patterning can thus have the psychological impact of associations between words and other words, but also between words and real phenomena. The language of mathematics cannot establish these layers of

meaning and association: a mathematical statement can only provide one layer of meaning, though that meaning may be itself complex associations between entities.

Rhyme affords a structural sequencing which has often been used in order to frame thoughts. An efficacious example might be the conclusive rhyming couplet in a Shakespearean sonnet, which typically brings the poem to a resolution by presenting the central conceit of the poem in a condensed thought. Sonnet 130, in its famous declaration that "My mistress' eyes are nothing like the sun" (Shakespeare, 1609), boasts the conclusive couplet:

"And yet, by heaven, I think my love as rare

As any she belied with false compare." (Shakespeare, 1609)

The poem's implicit criticism is of his contemporaries and their "false" comparisons between "coral" and their mistresses' lips, between "perfume" and their "breath", between "snow" and their "breasts". These numerous examples fill the octave and the first four lines of the sestet, before the above couplet offers a resolution to the poem's ambiguity thus far. Until the rhyming couplet, the poem seems to lack an argumentative direction which, as it is delayed, comes all the more immediately in the couplet. The rhyme plays a crucial role in this structural choice of Shakespeare's, as it gives the couplet the appearance of a conclusive flourish. In rhyming "rare" and "compare", they possess a proximity which has not been seen in the rest of the poem. Thus, the unity of the thought (i.e. denouncing "false compare") they possess is emphasised by the phonetic patterning of these two lines. Phonetic patterning, therefore, can be used to frame ideas in poetry.

Mathematics, though concerned with patterns, cannot create layers of association and implicit frameworks for thought in the same way. The content of an equation may describe complex relationships, which may indeed exist on multiple levels, but it cannot describe them implicitly or appeal to the human ear in the same way as phonetic patterning in poetry. Phonetic patterning in poetry often relies on the reader's sense of association acting subconsciously, as

a layer of connection which runs parallel to the syntax itself. In making this discrimination, perhaps borne of the semiotic distinction between numbers and letters, it is shown that phonetic patterning does not provide evidence for poetry's equation with mathematics.

(iii) Syntactical Patterning

The English critic Winifred Nowotny has observed that "syntax, however little it is noted by the reader, is the groundwork of the poet's art" (1962), yet there is a general reluctance in poetic criticism to see the patterns of syntax as demanding the same artistry as the patterns of rhythm and sound. The rules of syntax in poetry are more fluid than the standard syntax of prose. Less clarity is demanded in a poetic context, and the expectations which the reader brings from his typical prosaic experience may be deliberately disrupted for effect. Poets are not chained to the convention of 'subject, verb, object', and may disrupt this pattern by promoting and demoting parts of speech within the syntax of a poem (thus employing hyperbaton) to a variety of effects. Through syntactical patterning, one may provide emphasis, create links, and establish ambiguity.

Milton's 'Lycidas', an elegy in the pastoral mode written for Edward King, features a disruption of standard syntactical patterning that guides the reader's focus and impression of scale. Lines 39 through 41 are particularly helpful in demonstrating this effect:

"Thee, Shepherd, thee the woods, and desert caves,

With wild thyme and the gadding vine o'ergrown,

And all their echoes mourn." (Milton, 1638)

The typical 'subject, verb, object' of English syntax is thoroughly disrupted here, and in its place Milton constructs 'object, subjects, verb'. In line 39, Milton skilfully utilises our expectation of an initial subject to create the surprising "thee the woods" (which might initially sound like a phrase in apposition such that the addressee *is* the woods). The apostrophic perspective is emphasised by the repetition of "thee", a repetition needless in prosaic syntax.

The reader then expects a verb soon after to resolve the tension caused by the syntactical ambiguity, which they only find after further elaborations on the subject. Thus, not only is there a deliberate ambiguity established by Milton, but also a strong emphasis on the scale of the lamentation for the death of his addressee: not only do "the woods, and desert caves" mourn the shepherd, but the caves are "[w]ith wild thyme and gadding vine o'ergrown". Indeed, the inversion of line 40 mirrors the "vine" in its complex growth, with the adjective at the end of the line where we might expect it at the beginning. The verb "mourn" is delayed until the very end of the sentence, giving it a profound gravity and significance. Syntactical patterning in poetry, therefore, can work against conventional word order in order to create a tension in ambiguity and emphasis in placement. Tension and emphasis, of course, cannot be found in Mathematics – a discourse in which ambiguity is not to be celebrated but condemned.

This ambiguity has been stretched to its extremes in much of the Experimentalist poetry of E. E. Cummings. For example, the following lines from his poem which toys with the parable of the Good Samaritan in Luke's gospel, 'a man who had fallen among thieves', demonstrate *in extremis* such syntactical flexibility:

*"swaddled with a frozen brook
of pinkest vomit out of eyes
which noticed nobody he looked
as if he did not care to rise"* (Cummings, 1926)

Cummings is known for his mastery of punctuation, for both involving and omitting it in novel ways. Here, the omission constructs what Greenfield describes as the "unlovely idea that the vomit is coming out of the eyes, and that the eyes which notice nobody are, zombie-like, looking" (1967). Cummings also plays with the common collocation 'nobody noticed' in English, inverting it with a playful change of agency, which fits into the poem's broader question about the role of society and individual in this transposition of a seminal story in

Western culture. Syntactical patterning in poetry, therefore, is a key way in which poetry can distinguish itself from other textual forms.

Nevertheless, mathematics is not concerned with ambiguity or the disruption of established patterns. If mathematics were concerned with the sequence of 'subject, verb, object', it would demand that sequence to be axiomatic. Syntactical patterning in poetry makes it a discourse, in places, of unfamiliarity and deliberate ambiguity. This prevents any equivalence being drawn with mathematics, wherein rules are absolute such that, if broken, there is no 'effect' but rather an untenable contradiction.

Conclusion

Poetic patterning, in its three modes as explored, rests on several consistently important aspects: disruption, ambiguity, symbolism, and the reader's emotional response. To disrupt the regular metre of a poem or to defy the typical syntax of English speech is to create a poetic pattern with distinctive meaning; to disrupt a mathematical rule is not to create meaning but to defy it. The syntactical ambiguity afforded to poets and the abstraction of prosody from a consistent descriptive set of rules in English (i.e. the subjectivity of scansion) are both integral features of poetic patterning; mathematics, however, relies on prescriptive axioms and demands claims of absolute certainty. The skill of the poet is oftentimes to use and compose words to create layers of meaning beyond the base functions of the words independent of each other; mathematics can only make statements on one level – there is no symbolism to be found in a trigonometric identity. Finally, and most significantly, where poetry is defined by a human interaction via text, mathematics is specifically removed from human experience.

In the end, one must return to Housman's resounding observation that poetry has the remarkable power to "transfuse emotion—not to transmit thought but to set up in the reader's sense a vibration corresponding to what was felt by the writer" (1933). This interpersonal exchange is at the core of the distinction between poetry and mathematics. A poem means

something different to each reader, and can only possess meaning when read. Mathematical statements bring the same truth to each reader, and possess their truth regardless of being read. Poetry exists firmly *a posteriori*, whereas mathematics lies in the *a priori* realm; mathematics "transmits thought", whereas poetry is designed to "transfuse emotion".

This divergence indicates that, just as the infinite series below approaches the value of one but never actually reaches it, while poetry may indeed be mathematical and 'patterned language', it never fully connects with the discourse of mathematics.

$$\sum_{n=1}^{\infty} \left(\frac{1}{2}\right)^n = \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{32} + \dots = 1$$

Thus, in precise mathematical terms, poetry can be said to be language 'tending towards mathematics', as that is in itself to recognise a separation between the two discourses. Though this space is, in the sum above, infinitesimally small, between poetry and mathematics there lies a much more significant interval: the chasm of human experience.

(3989 words)

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