Fall 12-10-2015

Algebraic Poetry

Julian DeVille
Eastern Kentucky University, julian_deville3@mymail.eku.edu

Algebraic Poetry- Concatenation Structure

Julian DeVille

September 2015

Honors Thesis

Submitted in Partial Fulfillment of the Requirements of HON 420

Faculty Mentor

Dr. Steve Szabo EKU Mathematics and Statistics

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Abstract

Although content has evolved in poetry at a steady pace throughout the 20th and 21st centuries, the form in which this content is presented has seen little change. In response to this apparent stagnation of form in poetry, this presentation aims to combat the enforced linearity of writing, embracing Cubist ideals, to make way for a new form of poetry- algebraic poetry. This new form may then provide new inspiration within the literary community, and a new form with which writers may move forward, as opposed to adhering to the same form for centuries. This project then uses modern algebra to create a poem which operates within an algebraic structure forcing the reader to consider the perspectives it yields, with each possibility of the poem existing as an element of an infinite semigroup. The poem has infinitely many perceived orders, and thus can only be considered as a whole as opposed to one of its individual elements, in contrast to most other poetry produced in history. This structure is then compared to the philosophical works of David Hume and Immanuel Kant, and the algebraic implications of their understanding of the human intellect. It is concluded that the poem exists to reflect a simulated human mind through this algebraic structuring, assessing various philosophical agreements and contradictions throughout its history.

Keywords: algebra, English, literature, poetry, semigroup, honors thesis, undergraduate research

Contents

1 Introduction

With regard to creativity within the literary arts, Modernist Ezra Pound wrote "make it new" when defending use of otherwise outdated concepts, defending them on grounds that older styles could be made new in combination with new ideas. This, for the past century, has justified the reuse of a number of abandoned forms; however, since the rise of free verse poetry, little progress has been made in form within poetry. Free verse appears to be the anarchist form, unrestricted by meter, stanza length, rhyme, or other constraints, yet, from a more outside perspective, there still exist numerous constraints on free verse poetry. Despite the informality and free nature of free verse, this form, like any English literature, is still read left to right top to bottom, and is perceived as a single ordered set of words, and will not appear legible should the reader ignore that order. The Surrealists and subsequent schools would even dissect poetry into smaller pieces, even down to the word, then rearrange them as a writing exercise. Does this imply an alternate permutation of this ordered set is a new work? Linear poetry, seen in the overwhelming majority of poetry today, is a poem intended to be read in a single, forced, left to right top to bottom order. Some postmodernists, such as E. E. Cummings, experimented with spacing and abnormal line breaks to alter a reader's perception of the poem, but nonetheless there was still only a single arrangement of words to be read in precisely that order. In contrast, a non-linear poem would exist as a collective manifestation of multiple permutations of its words or phrases to be interpreted and analyzed as a set as opposed to a single object. The Surrealist exercise mentioned above would be a permutation of a linear poem, which, if intended by the writer, could function as a non-linear poem. Non-linear poetry defies the notion that a work must be perceived in a single order, as this appears an inefficient method of communicating between human minds, as the human mind rarely thinks in a single sequence. The human "train of thought" bounces between tangent memories or ideas along paths of information held common between them; for instance, people may see a red car, which reminds them of a red apple, which reminds them of when they went apple picking with their family, which reminds them of that summer, which then diverges into an arbitrarily large set of information held within the brain. This concept of association is explored further in the works of David Hume, and discussed in section 9. A poem which is flexible with respect to this behavior could be more palatable to the human mind, in addition to supplementing the words with an algebraic structure to arrange the set of permutations which manifest the work, which could also hold inherent meaning. For more information on this literature, see [2, 8, 6]. For more on mental geography, see [5, 7].

2 Algebraic Structures

Definition 1. An **Algebraic Poem** is a poem which uses algebra to produce a work which cannot be read in a single order.

Definition 2. Let $|A|$ denote the number of elements in A, where A is a set. If A is infinite, then $|A| = \infty$.

Definition 3. A **binary operation** $*$ on a set G is a function $* : G \times G \to G$. * is **associative** if for all $a, b, c \in G$, $a * (b * c) = (a * b) * c$. * is **commutative** if for all $a, b \in G$, $a * b = b * a$.

Definition 4. Let A and B be sets. R is a **relation** iff $R \subseteq A\text{x}B$.

A relation is all possibilities 2 elements from respective sets which are paired conditionally on having a given trait. A simple example would be rhyming- let W be the set of all English words, and R be the relation rhyming such that aRb iff a and b rhyme, where $a, b \in W$.

Definition 5. Let A be a set, and R be a relation on that set. R is an **equivalence relation** iff R is reflexive, meaning $\forall a \in A, aRa$, R is symmetric, meaning $\forall a, b \in A, aRb$ iff bRa, and R is transitive, meaning $\forall a, b, c \in A$, aRb and bRc implies aRc.

Rhyming is also an equivalence relation, as every word rhymes with itself, a word rhyming with another word means the second word also rhymes with the first, and transitive because if a word rhymes with a second word, and that second word rhymes with a third word, then the third word rhymes with the first word.

Proposition 6. *An equivalence relation on a set partitions that set into equivalence classes; see [9].*

Due to the properies of an equivalence relation, sets of all related elements in a set are disjoint because the relation is symmetric and transitive, and nonempty because the relation is reflexive. The union of all such sets is the original set, because every element must belong to one of these sets, as every element is related to itself.

Definition 7. A **magma** is a set G with a binary operation on G. Denote the magma by $(G, *)$.

Definition 8. A **semigroup** is a magma $(G, *)$ where the binary operation $*$ is associative. $(G, *)$ is an **abelian semigroup** if the binary operation $*$ is commutative.

For more information on these definitions, see [4, 9].

Consider the set of all colors. One may mix any 2 colors to produce another color, and thus mixing is a binary operation on the set of all colors to itself. Let mixing be denoted by $+$. Consider the colors red, and blue. $red + blue = purple$, though also $blue + red = purple$. $red + blue = blue + red$, and thus red and blue commute. For any colors A and B, this will remain true, $a + b = b + a$ and thus + is commutative.+ is also associative, because 2 colors can be blended before adding a third color, and return the same result as if the second and third colors had been mixed prior to the first- for example, (red+blue)+purple=red+(blue+purple). Now, consider the algebraic structure this set and operation yield. The set of all colors is closed under +, as any 2 colors mixed remains a color, so the set of all colors under + forms a magma. Because + is associative, the set of all colors under + forms a semigroup. Note the "primary colors" blue, yellow, and red generate this semigroup, as any other color is a mix of some proportion of these colors. Also note that not every magma is a semigroup. For example, consider the magma $\{rock, paper, scissors\}$ under the operation "playing", where playing returns the winner of any pair of these elements by the rules of rock paper scissors, and in the case of a tie, the element which produced such tie. For example, rock "played" with paper returns paper, and rock "played" with rock yields rock. This operation is not associative, because rock "played" with the result of scissors verse paper is not equal to the result of rock verse scissors "played" with paper, as the first expression yields rock, and the second yields paper.

3 Concatenation Poem

Definition 9. A **Concatenation Poem** uses algebraic structuring with the operation of concatenation to produce an algebraic poem.

For the duration of this essay, let E be the set of all valid combinations of English sentences, and S be the set of all English sentences. Let $P \subseteq E$, which will serve as a poem.

Definition 10. Let P be a set of English sentences and concantenations of such.

$+ : P \times P \to P$, and define $+$ as concatenation of p_1, $p_2 \in P$. $+$ is associative.

Proposition 11. *$(E, +)$ is a semigroup.*

Proof. By design, $(E, +)$ is a magma, as any 2 English sentences may be combined to form valid English text. However, $+$ is associative, as $(p_1 + p_2) + p_3 = p_1 + (p_2 + p_3)$, and thus $(E, +)$ is a semigroup. □

Proposition 12. *P forms a semigroup under $+$. $P \subseteq E$, and $(P, +)$ is infinite; also, $(P, +)$ is a sub-semigroup of $(E, +)$.*

Proof. By design, $(P, +)$ is a magma. However, $+$ is associative, as $(p_1 + p_2) + p_3 = p_1 + (p_2 + p_3)$, and thus $(P, +)$ is a semigroup. Because $P \subseteq E$, every element in P is in E, thus P is a sub-semigroup of E. □

This semigroup $(P, +)$ is the poem, which obviously cannot be observed as merely a single element of itself. Much like a given literary work from a cycle cannot be fully understood outside such context, a single permutation of a non-linear poem cannot hold the thematic essence an entire work possesses. A single chapter of a novel, or single stanza of a poem may by chance stand alone as a work, but not as the writer intended; however, in linear writing this would simply remove a portion of the straight line of words which manifest as the novel, where in a non-linear work each removeable section would function as a standalone poem, just not to the full extent of being analyzed in isolation. A poetry collection is divided into a sequence of poems which collectively express a story, experience, or idea, whereas non-linear poems would express several possibilities of a poem without order.

4 Generating The Poem

For the duration of this essay, let S be the set of all English sentences, and let G be a set of English sentences such that $G \subseteq S$. Then G generates a set P, such that

$$P = \{p_1 + p_2 + ... + p_n | p_n \in G \forall n \in \mathbb{N}\}.$$

Definition 13. Let D and I be sets. $\oplus : D \times I \to G$ define $\oplus$ as concatenation of $d \in D$, $i \in I$.

For the durations of this essay, let D and I be sets such that $\forall d \in D$, $d \oplus i \in S \forall i \in I$. These sets will serve to generate the set G, which is used to generate the poem, P.This method is used to ensure parallelism throughout the poem, to reflect unity in cases where $p \in P$ is a perfect element, as a given $d_n \in D$ may be held in common between 2 distinct elements in G. Perfect elements are discussed in section 6 definition 14.. $G = \{d_n \oplus i_n | d_n \in D, i_n \in I\}$. This is all possible concatonations of elements from D and I respectively. Because the choices of $d_n \in D$ and $i_n \in I$ are independent of each other, $|G| = |D| * |I|$. Although D and I do not independently form algebraic structures, and $\oplus$ is not a binary operation, these sets serve to better generate G.

5 Subsets of P

Definition 14. Let $Length(a)$ be the number of complete sentences in a where $a \in P$, such that $Length : P \to \mathbb{N}$.

Proposition 15. *Let $a, b \in P$. Let L be the relation $L : P \times P \to P$ such that aLb iff $Length(a) = Length(b)$. L partitions P.*

Proof. Let $a, b, c \in P$. aLa because $Length(a) = Length(a)$, and thus L is reflexive. $aLb \iff bLa$ because aLb implies $Length(a) = Length(b)$, so

$Length(b) = Length(a)$, which implies bLa, and thus L is symmetric. aLb and $bLc \iff aLc$ because $Length(a) = Length(b)$, and $Length(b) = Length(c)$, so by substitution, $Length(a) = Length(c)$, and so aLc. This implies aLc, thus L is transitive, and therefore an equivalence relation. So, by Propositition 6, L forms a partition on P by number of sentences. □

Let L_n denote the subset of elements of P of length n

Proposition 16. $|L_n| = |G|^n$.

Proof. Because L_n is all elements of P of length n, they are constructed from the concatenation of n sentences from G, and repitition is permitted. Therefore, there exist $|G|^n$ elements of length n in P, and so $|L_n| = |G|^n$. □

Definition 17. Let $p \in P$. Define p as a perfect element if every sentence in p is unique within that element. Let perf(P) denote the set of perfect elements in P.

Proposition 18. $|perf(P)| = \sum_{i=1}^{|G|} \frac{|G|!}{(|G|-i)!}$

Proof. Assume G contains n elements. Because L partitions P, every element must be in one of the L_m subsets of P where m is a natural number less than n. L_1 will contain n perfect elements, because it is impossible for any sentences to be repeated. L_2 will contain $n*(n-1)$ perfect elements, as once a sentence from G is chosen, that sentence cannot be chosen again. L_3 will have $n*(n-1)*(n-2)$ perfect elements. Continuing this pattern, L_n will contain $n!$ perfect elements. The number of perfect elements in P will be the sum of the perfect elements in all of the L_m subsets of P, thus $|perf(P)| = \sum_{i=1}^{|G|} \frac{|G|!}{(|G|-i)!}$. □

Proposition 19. *The relation L also partitions perf(P).*

Proof. Let $a, b, c \in$Perf(P). aLa because $Length(a) = Length(a)$, and thus L is reflexive. $aLb \iff bLa$ because aLb implies $Length(a) = Length(b)$, so

$Length(b) = Length(a)$, which implies bLa, and thus L is symmetric. aLb and $bLc \iff aLc$ because $Length(a) = Length(b)$, and $Length(b) = Length(c)$, so by substitution, $Length(a) = Length(c)$, and so aLc. This implies aLc, thus L is transitive, and therefore an equivalence relation. So L forms a partition on Perf(P) by number of sentences. □

6 Manifesto

Although the past century yielded unwieldy progress in writing, the poetic form has seen little change since the early 20th century, and is due for an upgrade. Following the barriers penetrated by free verse, as writers abandoned the constraints of rhyme, meter, and organized stanzas, the next is linearity. Linearity is primarily a byproduct of writing in most languages, as left to right top to bottom, or other linear fashion appears the only way to read poetry; however, algebraic structure yields new possibilities for writing. Poems can exist as sets of permutations generated by a common algorithm, closed number systems, or even as infinite loops. Currently, connected poems must be read separately as a collection in hopes the reader can assess them concurrently after; poems can now exist as the unity of their possibilities. While a sequence of words divided by line are read in order, the images and themes they relay are more complex, and they exist as the reader's assessment of such. A non-linear work could allow concurrent assessment from the beginning, as a poem can only exist as the structure which generated it. Much as the Cubists attempted to force alternate but simultaneous perspectives on the reader, nonlinear poems simply cannot be assessed as a single perspective and achieve this goal of breaking the straightforward method by which poetry is communicated. From poems written as sets which manifest permutations of the work, forcing the poem to exist as a set of possible variants, the linear manner in which poetry exists today can be broken. The essence of an entire collection could be compacted to a single set of generating lines, open to interpretation by each possible permutation, the ideas conveyed appearing in a variety of orders, adding a new possible assessment. Once a multitude of permutations are read, the ideas and their relations can be assessed with the timeless perspective of human thought.

7 Example Poem

The set D:

- d_1 :"An end from the beginning, "
- d_2 :"Beginning from the end, "
- d_3 :"In a masochistic mindset, "
- d_4 :"Time a stuttering something, "
- d_5 :"The natural light flickered; "

The set I:

- i_1 :"we were doomed to rationality."
- i_2 :"the unmoved mover paused."
- i_3 :"captured in reflection, and reflected in lost pages."
- i_4 :"I forgot to wonder."
- i_5 :"the slumbering monads awakened."
- i_6 :"all we knew was that we knew nothing."
- i_7 :"God sprung forth from holy bias."

The set G:

- g_1 :“An end from the beginning, we were doomed to rationality.”
- g_2 :“An end from the beginning, the unmoved mover paused.”
- g_3 :“An end from the beginning, captured in reflection, and reflected in lost pages.”
- g_4 :“An end from the beginning, I forgot to wonder.”
- g_5 :“An end from the beginning, the slumbering monads awakened.”
- g_6 :“An end from the beginning, all we knew was that we knew nothing.”
- g_7 :“An end from the beginning, God sprung forth from holy bias.”
- g_8 :“Beginning from the end, we were doomed to rationality.”
- g_9 :“Beginning from the end, the unmoved mover paused.”
- g_{10} :“Beginning from the end, captured in reflection, and reflected in lost pages.”
- g_{11} :“Beginning from the end, I forgot to wonder.”
- g_{12} :“Beginning from the end, the slumbering monads awakened.”
- g_{13} :“Beginning from the end, all we knew was that we knew nothing.”
- g_{14} :“Beginning from the end, God sprung forth from holy bias.”
- g_{15} :“In a masochistic mindset, we were doomed to rationality.”
- g_{16} :“In a masochistic mindset, the unmoved mover paused.”
- g_{17} :“In a masochistic mindset, captured in reflection, and reflected in lost pages.”
- g_{18} :“In a masochistic mindset, I forgot to wonder.”

- g_{19} : "In a masochistic mindset, the slumbering monads awakened."
- g_{20} : "In a masochistic mindset, all we knew was that we knew nothing."
- g_{21} : "In a masochistic mindset, God sprung forth from holy bias."
- g_{22} : "Time a stuttering something, we were doomed to rationality."
- g_{23} : "Time a stuttering something, the unmoved mover paused."
- g_{24} : "Time a stuttering something, captured in reflection, and reflected in lost pages."
- g_{25} : "Time a stuttering something, I forgot to wonder."
- g_{26} : "Time a stuttering something, the slumbering monads awakened."
- g_{27} : "Time a stuttering something, all we knew was that we knew nothing."
- g_{28} : "Time a stuttering something, God sprung forth from holy bias."
- g_{29} : "The natural light flickered; we were doomed to rationality."
- g_{30} : "The natural light flickered; the unmoved mover paused."
- g_{31} : "The natural light flickered; captured in reflection, and reflected in lost pages."
- g_{32} : "The natural light flickered; I forgot to wonder."
- g_{33} : "The natural light flickered; the slumbering monads awakened."
- g_{34} : "The natural light flickered; all we knew was that we knew nothing."
- g_{35} : "The natural light flickered; God sprung forth from holy bias."

Cardinality of subsets:

- $|D| = 5$
- $|I| = 7$
- $|G| = |D| * |I| = 7 * 5 = 35$
- $|L_1| = 35^1 = 35$
- $|L_2| = 35^2 = 1225$
- $|L_3| = 35^3 = 42,875$
- $|L_4| = 35^4 = 1,500,625$
- $|L_5| = 35^5 = 52,521,875$
- $|L_6| = 35^6 = 1,838,265,625$
- $|L_7| = 35^7 = 64,339,296,875$
- $|L_8| = 35^8 = 2,251,875,390,625$
- $|L_9| = 35^9 = 78,815,638,671,875$
- $|L_{10}| = 35^{10} = 2,758,547,353,515,625$
- $|perf(P)| = \sum_{i=1}^{|G|} \frac{|G|!}{(|G|-i)!} = \sum_{i=1}^{35} \frac{35!}{(35-i)!} = 3,129,764,335,927,597,938,072,043,866,460,975$

Example 20. $g_{34} + g_5 + g_{18} + g_{23} + g_{29} + g_{10}$:

- $g_{34} + g_5 + g_{18} + g_{23} + g_{29} + g_{10} \in L_6$.
- $g_{34} + g_5 + g_{18} + g_{23} + g_{29} + g_{10} \in Perf(P)$.

The natural light flickered; all we knew was that we knew nothing.

An end from the beginning, the slumbering monads awakened.

In a masochistic mindset, I forgot to wonder.

Time a stuttering something, the unmoved mover paused.

The natural light flickered; we were doomed to rationality.

Beginning from the end, captured in reflection, and reflected in lost pages.

Example 21. $g_1 + g_{11} + g_{22} + g_{33}$:

- $g_1 + g_{11} + g_{22} + g_{33} \in L_4$.
- $g_1 + g_{11} + g_{22} + g_{33} \in Perf(P)$.

An end from the beginning, we were doomed to rationality.

Beginning from the end, I forgot to wonder.

Time a stuttering something, we were doomed to rationality.

The natural light flickered; the slumbering monads awakened.

Example 22. $g_3 + g_{14} + g_{15} + g_9 + g_{26}$:

- $g_3 + g_{14} + g_{15} + g_9 + g_{26} \in L_5$.
- $g_3 + g_{14} + g_{15} + g_9 + g_{26} \in Perf(P)$.

An end from the beginning, captured in reflection, and reflected in lost pages.

Beginning from the end, God sprung forth from holy bias.

In a masochistic mindset, we were doomed to rationality.

Beginning from the end, the unmoved mover paused.

Time a stuttering something, the slumbering monads awakened.

Example 23. $g_{15} + g_{29} + g_{32} + g_4 + g_6 + g_{20}$:

- $g_{15} + g_{29} + g_{32} + g_4 + g_6 + g_{20} \in L_6$.
- $g_{15} + g_{29} + g_{32} + g_4 + g_6 + g_{20} \in Perf(P)$.

In a masochistic mindset, we were doomed to rationality.

The natural light flickered; we were doomed to rationality.

The natural light flickered; I forgot to wonder.

An end from the beginning, I forgot to wonder.
An end from the beginning, all we knew was that we knew nothing.
In a masochistic mindset, all we knew was that we knew nothing.

This example shows how the design of G via D and I can produce unity, parallelism, and repitition even in the case of a perfect element.

Example 24. $g_5 + g_{29} + g_5 + g_{28} + g_5 + g_{27} + g_5 + g_{19} + g_5 + g_{12}$:

- $g_5 + g_{29} + g_5 + g_{28} + g_5 + g_{27} + g_5 + g_{19} + g_5 + g_{12} \in L_9$.
- $g_5 + g_{29} + g_5 + g_{28} + g_5 + g_{27} + g_5 + g_{19} + g_5 + g_{12}$ is not in $Perf(P)$.

An end from the beginning, the slumbering monads awakened.
The natural light flickered; we were doomed to rationality.
An end from the beginning, the slumbering monads awakened.
Time a stuttering something, God sprung forth from holy bias.
An end from the beginning, the slumbering monads awakened.
Time a stuttering something, all we knew was that we knew nothing.
An end from the beginning, the slumbering monads awakened.
In a masochistic mindset, the slumbering monads awakened.
An end from the beginning, the slumbering monads awakened.
Beginning from the end, the slumbering monads awakened.

8 Significance of the Poem

This specific structure is intended to mimic David Hume's understanding of human nature and reasoning, as he argues every idea is either a copy of an impression or an association between preexisting ideas, where an impression is defined as a single unit of sensory data. Upon inspection, this results in a large, but finite set of impressions, which then bijectively map to a set of ideas, and these ideas then expand to a semigroup under association of ideas. This is true because he also assumed ideas are not innate, have origin, and cannot come from nothing, which implies closure. Association of course cannot be seen as a single operation, or even a collection of binary operations; though, the same vague structure of producing infinite possibilities through manipulation of a finite set is what the structure of this poem is intended to mimic. As far as content, every line is an image or reiteration of a philosophical concept, often supplemented with some notion of time, or lack thereof; this is intended to, in tandem with the structure, explore philosophical progress throughout history through a poetic form which mimics human reasoning. It is often cited by philosophers across time, particularly beginning with the enlightenment era, that human reasoning may or may not be sufficient to understand the fundamental truths of reality, which is supplemented with a strange pattern of contradiction, as nearly every philosopher to emerge begins by critiquing pre-existing philosophical notions, then providing a new outlook, often invalidating previous belief. This leads to relatively little accumulated knowledge, or measurable progress, yet, ironically, the human race seems to have amassed a good understanding of ontology and epistemology despite this pattern, all of which is encompassed in this poem, as these statements, out of sheer probability, may contradict, or supplement each other in a given iteration of the poem. This also encompasses the apparent lack of entelechy achieved with regard to philosophy, as it, like the poem, eventually fades to circular and repetitive argument. Specifically, line d_5 alludes to Descartes often used justification for assumed axioms in his arguments within *The Meditations*, i_5 is an allusion to Monadistic theory as explored by Liebinz, specifically referring to how, in his Idealistic worldview, matter was composed of dormant monads, so formal reality and consciousness were both produced from the same fundamental substance. i_2 is an allusion to Aristotle's diety, "The Unmoved Mover", which served as the notion of perfection to which all of existence strived. Other lines are imagistic, or personal assessments of philosophical trends, particularly Kant's idea of time in *A Critique of Pure Reason*, for lines d_1 and d_2. Also mirroring Hume's reality of the human mind, numerous subsets and partitions on the poem yield significance, even if only from a math perspective.However, these partitions are enacted by an outside force, and only inherently hold meaning in accordance with that force. One may observe a set in nature, then classify and subdivide such in an attempt to reach understanding, but these divisions and classifications are not innate, and not inherently implied by the object- they are merely forced representations for our own purposes. This is another irony intended in this work. This work is a human creation, but as a creation is merely a generated semigroup, until partitions and analysis are performed on the object, but in this case, the object is already metaphysical, and mathematically perfect in nature, so our understanding through deductive reasoning is also perfect with respect to the work, unlike analysis of any other poem. For works not mathematical in nature, inductive guesswork is necessary to reach an at best probabilistic understanding of the theme and significance, as these works are not created by deductive reason, or even inductive reason; art is defined as an expression of the human experience. While this also is an expression of human experience, it is a rational expression by deductive means, and thus is open to deductive analysis returning high degrees of certainty. For further research on the philosophical implications of the example poem, see[5, 7, 1, 3, 10].

9 Conclusion

In conclusion, the structure serves not only in supplementing human expression within the poem and provides unity to its intended statement, but also serves to challenge the literary world. This new form could be used to incorporate reader perspective, and cater to the cognitive realities of the human mind, so one may best deliver literature from one mind to the next, given it does not appear to function in a linear manner. This algebraic structure mimics the habit of association within the scope of writing, adds dimension to writing, and a plethora of possibilities with regard to new forms. From a mathematical standpoint, this structure is fairly simple- a finite set generates an infinite semigroup in which each element serves as possibility of a poem, but there is no evidence to suggest that this structure is unique. Numerous structures or algorithms could be used to produce algebraic poetry, and numerous algebraic poems could be written using the structure provided. While possibilities in writing may have seemed limitless before, this structure furthers that assumption, and challenges the notion that free-verse is the magnum opus of poetic form.

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