Composing Mathematical Poetry

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Abstract

Mathematical poetry begins when worlds we consider distinct collide. The language of mathematics intersects with the compression and elisions of poetry. While many poems have a mathematical component in their composition, readers and writers usually do not connect these elements to mathematics. In this workshop participants will experiment with language and structures from both domains in order to compose new poems, as well as reading poems that employ mathematical language and techniques.

Workshop activities. The workshop will consist of writing games, activities and discussion of techniques for creating future work. Participants will consider the intersection of mathematical language and a traditional form, the sonnet, as well as more contemporary forms such as the American Sentence. They will also explore one of the Oulipo forms that originated as a mathematical experiment with language. Participants will leave with mathematical games and techniques for their own mathematical writing and for their classrooms.

Oulipo and other experiments with repeating random structures. Oulipo (Ouvroir de Litterature Potentielle) or Workshop of Potential Literature, uses structural constraints to produce poetry [1]. Since the original investigations by mathematician Francois de Lionnais and writer Raymond Queneau, many other writers have experimented with these techniques. In this exercise students will rely on an Oulipo-like technique for choosing words from mathematical texts. Participants will use every fifth substantive word, and then write "between" those words connecting them with content from another area. For example a writer might start with a text on symmetry, and write a poem about a relationship. The workshop will suggest directions for examining other rule-based reorganizations of a variety of texts.

Sonnets with and without rhyme. The sonnet displays a number of mathematical structures, first in its regular syllabic pattern per line of 5 beats, or 10 syllables. It displays them secondly in its pattern of 3 quatrains and a couplet in the Shakespearean Sonnet, or an octet and a sestet in the Petrachean Sonnet [2]. Finally there is the regularity of its rhymes. Shakespeare provides the most famous example of the sonnet, but there are a number of contemporary poets working in that form as well. For example, Marilyn Hacker [3], Leslie Wheeler [4], and Clark Coolidge [5] are well known for their work in the sonnet form.

Workshop participants will read traditional and contemporary sonnets, and experiment with a timed sonnet writing game.

Sample Poem: The Contemporary Sonnet
Carol Dorf, The Messrs. Shakespeare Attend the Festivals [6]

Time travel wearies the dislocated
bard, and even more bleak the demands
that arise from multiple locations,
and audiences who by cheers remand

his appearance to bow with bended knee.
Then there are programs to autograph,
slow work with a quill, thus reluctantly
he relies on ballpoints and doubles to draft

his signature. Sometimes scholars criticize
but all men deserve moments to return
to dreams. Let them write papers and devise
high-borne attributions to his plays. He's learned

to ignore the imposters, and enjoy the crowd's
appreciative bouquets, as he waits, head bowed.

Syllabic Poems. Syllabic poems appear in many forms. One type is the nonce poem, a one-time creation, where the poet follows the same syllabic pattern in each stanza, such as Marianne Moore [7] frequently wrote. Other syllabic forms are more familiar such as Haiku with lines of 5,7,5 syllables, and Tanka with lines of 5,7,5,7,7 syllables. One that has come into recent prominence is the "American Sentence" [8] created by Allen Ginsberg as an alternative to the Haiku. The American Sentence is one seventeen syllable sentence. Workshop participants will experiment with the American Sentence and the Haiku and compare the results as well as the experience of creating each. They will also have the opportunity to create their own syllabic forms and write poems in those forms.

Sample Poem: American Sentence
Allen Ginsberg, from 221 Syllables at Rocky Mountain Dharma Center [9]
Headless husk legs wrapped round a grass spear, an old bee trembles in sunlight.

Summary. Through writing a series of mathematically based poems, participants will begin to see ways to incorporate mathematical writing into their own writing practice and their classrooms. Participants will also be able to create new exercises for themselves and their students.

Additional Reading:
Carol Dorf, "Why Poets Sometimes Think In Numbers," *Talking Writing,* January 2012.
Sarah Glaz, "Mathematical Pattern Poetry," *Proceedings of Bridges Towson*, pp. 65-72, 2012.

References:
[1] Monica de La Torre, "Into the Maze: Oulipo," *Academy of American Poets,* 2005.
[2] Academy of American Poets, "Poetic Form: Sonnet," *Academy of American Poets,* 2004.
[3] Marilyn Hacker, *Selected Poems, 1965-1990,* W. W. Norton, 2003.
[4] Lesley Wheeler, *Heterotopia,* Barrow Street, 2010.
[5] Clark Coolidge, *88 Sonnets,* Fence Books 2013.
[6] Carol Dorf, *Mezzo Cammin,* Volume 3, Issue 1, Summer 2008.
[7] Marianne Moore, *Selected Poems*, Faber, 1969.
[8] Paul E. Nelson, "American Sentences," *Global Voices Radio,* 2005/2008.
[9] Allen Ginsberg, *White Shroud: Poems 1980-1985*, Harper & Row, 1986.