

## Is (Some) Mathematics Poetry?

James Henle

*Smith College*, [jhenle@math.smith.edu](mailto:jhenle@math.smith.edu)

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# Is (Some) Mathematics Poetry?

James Henle

*Department of Mathematics and Statistics, Smith College*  
jhenle@math.smith.edu

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## Synopsis

It is often said that mathematics resembles poetry. We argue that some works of mathematics are in fact poetry. We support this with one classic mathematical “poem” and six modern attempts. We urge readers to try their hand at this genre.

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## 1. Introduction

The association of mathematics and poetry is ancient. It is recognized by both mathematicians and poets. The connection has been made in many different ways. I am going to take it in way that has not really been explored.

The idea is contained in a recent article by Joanne Growney in the *Mathematical Intelligencer* [3]. In the article, Growney describes the many ways in which poetry and mathematics have collaborated – poems about mathematics, mathematically structured poetry, poems with mathematical imagery.<sup>1</sup> She goes on to suggest that some mathematics may actually be poetry, but that it would need translation for it to be appreciated by non-mathematicians.

For some years I have toyed with the idea of composing mathematics as poetry. I believe that there is mathematical poetry that can speak to everyone, that needs no translation. I have little reason for this belief. Indeed, I have direct evidence to the contrary – the poems I’ve submitted have been

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<sup>1</sup>This journal, in its earlier incarnation as the *Humanistic Mathematics Network Journal* contained many examples of poems by Growney, Marion Cohen and others. See [1] for some such work. Growney recently edited an anthology, *Strange Attractors: Poems of Love and Mathematics*, published by A. K. Peters [2].



### 3. Six Poems

I have nothing to rival the Triangle, but it captures what it is that I wish to do. It has form. There is an easily grasped logic. It hints at deeper meanings and lures the reader to imagine and contemplate.

I offer the poems in the next few pages with no explanation. They have no titles, unless you count the numbers as titles. A title is sort of an explanation. A mathematical poem that needs to be explained (especially to readers of this journal) will have failed.

1.

$$\begin{aligned}
 (1)^2 &= 1^3 \\
 (1+2)^2 &= 1^3 + 2^3 \\
 (1+2+3)^2 &= 1^3 + 2^3 + 3^3 \\
 (1+2+3+4)^2 &= 1^3 + 2^3 + 3^3 + 4^3 \\
 (1+2+3+4+5)^2 &= 1^3 + 2^3 + 3^3 + 4^3 + 5^3
 \end{aligned}$$

2.

$$\begin{aligned}
 2 &= 2 \\
 \sqrt{2} &= 1.414214\dots \\
 \sqrt{2+\sqrt{2}} &= 1.847759\dots \\
 \sqrt{2+\sqrt{2+\sqrt{2}}} &= 1.961570\dots \\
 \sqrt{2+\sqrt{2+\sqrt{2+\sqrt{2}}}} &= 1.990369\dots \\
 \sqrt{2+\sqrt{2+\sqrt{2+\sqrt{2+\sqrt{2}}}}} &= 1.997591\dots \\
 \sqrt{2+\sqrt{2+\sqrt{2+\sqrt{2+\sqrt{2+\sqrt{2}}}}}} &= 1.999398\dots
 \end{aligned}$$

3.

One.

One 'one'.

Two 'one's.

One 'one' and one 'two'.

Three 'one's and one 'two'.

Two 'one's, one 'two' and one 'three'.

Three 'one's, two 'two's and one 'three'.

Two 'one's, two 'two's and two 'three's.

One 'one', four 'two's and one 'three'.

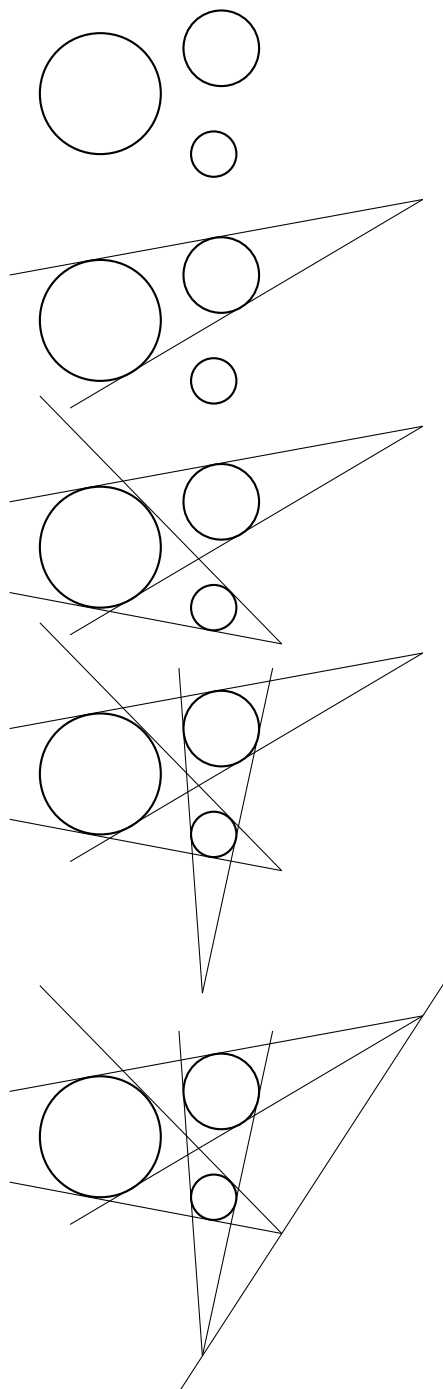
Three 'one's, one 'two', one 'three' and one 'four'.

Four 'one's, one 'two', two 'three's and one 'four'.

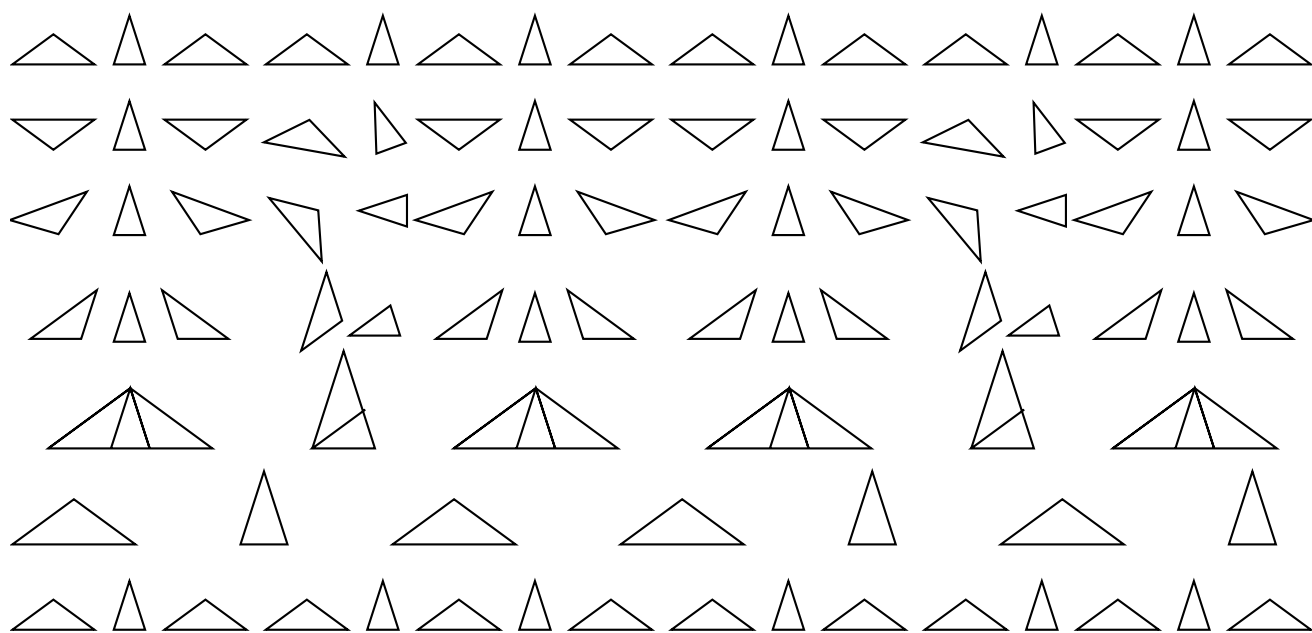
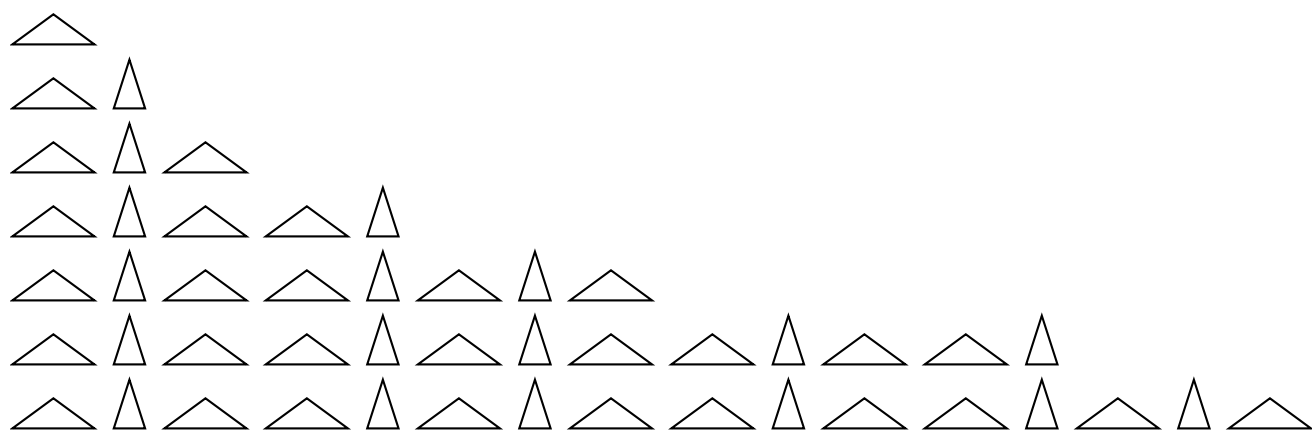
Three 'one's, two 'two's, one 'three' and two 'four's.

Two 'one's, three 'two's, two 'three's and one 'four'.

4.



5.



6.

One line of this poem—only one—is true.  
This is the second line of the poem.  
No one understands this poem—no one—but you.

### References

- [1] Cohen, Marion (2007). *Crossing the Equal Sign*, Plain View Press.
- [2] Glaz, Sara and Growney, JoAnne (2008). *Strange Attractors: Poems of Love and Mathematics*, A. K. Peters, Ltd.
- [3] Growney, JoAnne (2009). What Poetry Is Found in Mathematics? What Possibilities Exist for Its Translation?, *The Mathematical Intelligencer*, vol 31, no. 4, pp.12–14.