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Exploring Mathematics and Art

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Math and Art Assignment # 4 (Visualization Project 2)-- Write-Up

For my second Visualization Project assigned to me in my Mathematics and Art class, I chose to endeavour towards creating a partially visual, partially linguistic representation of an Oulipo experiment using one of my own previously devised ideas for Oulipo writing or expression "constraints". Specifically, I utilized an Oulipo constraint that I found particularly appealing and interesting out of my complete list of other "hypothetical" constraints and random ideas-- this constraint being the creation of a poem out of the number sequence of the irrational number pi, or 3.14. This initial Oulipo constraint would be an idea I would later expand on by translating the linguistic or literal result to a visual form by using the magic of Adobe Illustrator (this I will explain later). Having spent much thought and much time on my second Visualization Project, and being quite content with the product of my careful adherence and attention to my Oulipo "experiment", I shall now go into great length and describe how several scattered ideas of mine on paper for my representation were devised, scrutinized, discarded, and manipulated until the idea I thought was best and most fit remained, allowing me to go digital and further my surviving concept for an Oulipo experiment.

The process of my Oulipo experimental-representational conception began about a day or two after the assignment was originally assigned in my Mathematics and Art class. I started by sort of cherry-picking ideas I thought were interesting for an Oulipo experiment out of a list of

initial constraints that I created for a past assignment that had to be posted on my Electronic Learning Portfolio, and by generating new ideas not previously on the list that I thought could yield fascinating results. One of the first initial ideas that came about in my mind before I even thought of the pi-based poem was an Oulipo experiment in which I could create several lines of a poem by combining and scrambling letters from a short quote in different ways. To exemplify, I took the famous Shakespeare quote "Brevity is the soul of wit", and created lines from a poem using only the letters from the aforementioned quote in each line, often coming up with everything from strangely profound lines to just senseless lines. Some examples were as follows: "With fools it be virtues", "Evil sits wet-- of your bit", and "It soothes Life writ by/ Your festive brows I thou lit". This initial idea would be something I later called my "Maxim Poem" Oulipo. Two other initial ideas I came up with for my Oulipo experiment were the constraints of replacing every vowel in the line of a poem or in a word with the vowel that immediately follows it, or the initial vowel's corresponding other vowel (the vowel after the vowel that immediately follows the initial vowel (for example, in the word "auspicious", adhering to the first constraint, a would be changed to an e, u would change to a, i would change to o, and o would change to u, transforming "auspicious" to "easpocoas", and in the second constraint, a in the word would transform into an i, every u to an e, every i to a u, and every o to a, changing "auspicious" into "iespucuaes").

Following the conceiving of these constraints, I began to think more creatively and more broadly as to the possible constraints I could use for my Oulipo scenario. Soon, the seemingly random notion came upon my mind of doing a visual representation depicting a grid comprised

of squares colored either red, yellow, or black that had to be arranged in specific ways under four individual rules or parameters-- these rules being that:

1. The first square one chooses to color must always be red.
2. Every square immediately next or adjacent to that first red square must be black.
3. Every square diagonally adjacent to the red square must be yellow.
4. No two squares of the same color may be next to each other (side-by-side). However, they can be diagonally adjacent from one another, this being their only non-constraint.

I am still puzzled even now of where this strange "grid" Oulipo experiment came from, but I hypothesize that it might have been slightly inspired by the Four Colors Theorem as well as, abstractly enough, Conway's Game of Life (a computer animation that depicts the emergence of biological systems and "life" out of simple rules, implying the lack of a need of a creator or designer figure). Moving onto matters regarding the Oulipo "grid" representation itself, after creating the above rules for the experiment, I proceeded to try out different combinations of the red, yellow, and black colored squares adhering to the four aforementioned rules, and derived at least three possible "solutions" to the experimental grid in which all the colored squares were positioned in a way that obeyed all four rules above and also prevented any two squares of the same color from meeting. I also managed to find an impossible variant of the colored grid that could not be solved (as in this specific scenario, every square was it its place except for two black ones that were next to each other on the far left of the grid, breaking rule #4). You will be able to find my ruminations and visual illustrations of previous ideas, and understand what I am describing here better on my Learning Portfolio, in the presence of visual imagery.

If you thought the color grid experiment was the only “other” idea I had for my Oulipo experiment, you would be wrong. I previously mentioned how I began to think more creatively and outside of the box in order to find a unique source or foundation for my future Oulipo experiment that would truly be unique and original. After looking at the color grid problem and deciding it was “too simple”, or “too similar to the counting problem (Choice A) we were assigned to use a possible alternative to our second Visualization Project”, and therefore temporary “discarding” it, I labored towards thinking of other experiments I could create and spur into motion. After much time (a few more days of thinking-- this was already near the weekend) and thought, I conceived of at least three more ideas for a hypothetical Oulipo representation that were themselves highly original, but, in the end, not worthy of passage towards realization under my scrutiny after the pi-poem idea came up and reared its distinct countenance (neither of the three survived very long, either-- one of them did actually make it onto Adobe Illustrator and Google Drive and was close to being my final representation, but I decided to change my mind and forego the idea that I will mention later). One of my first truly creative ideas was similar to the color grid problem but had to do more with the dividing of squares infinitely, deriving some sort of quasi-fractal, if you will. The rules for this new “grid” or “square” problem came out to be as follows:

1. Start by drawing a large square and divide it into four smaller squares (into fourths).
2. Every UPPER-LEFT square must be blue/ every LOWER-RIGHT square must be red.
3. The two remaining squares (UPPER-RIGHT, and LOWER LEFT, respectively), must be divided into four squares again.

4. Repeat Steps 1 and 2 indefinitely. After dividing the two remaining squares into fourths, color these new grids' upper left squares blue, and lower right squares' red, and divide the remaining two. Keep doing this until the colored grids and the grids split into fourths are barely distinguishable, and you will have your "fractal").

This new fractal grid idea never made it past the initial drawing stage because I thought it was too superficial, uninteresting, or "basic". The second of my truly "creative" ideas involved the colorization and size of *fonts* themselves as a factor in this new Oulipo experiment that I later discarded for its impracticality. This new endeavour, was, strangely enough almost entirely based on Zeno's dichotomy paradox, but was also inspired, comically enough, by the one scene in Willy Wonka and the Chocolate Factory (one of my favorite movies of all time, rest in peace Gene Wilder), in which all the children who found their golden tickets and their parents had to sign a contract prior to entering the specific rooms of the factory (a contract, I presume, that made Wonka immune to liability or responsibility in case anyone got injured or died) whose font slowly got smaller and smaller until, by the very bottom, the words of the contract were unreadable-- possibly satirizing or criticizing the "tiny print" phenomena found on many business and corporate contracts that intentionally make your day quite miserable.

To elaborate upon my new "dichotomy Oulipo", I initially conceived of this new Oulipo idea when I began thinking of fonts and their various types, and the sizes and possible colors. Suddenly, I thought of the possibility of somehow being able to create an entire poem in which every line would be composed of the same font, but be depicted at only half of the preceding line's font size. In short, the first line of the poem would have words written in large font, the second line of the poem would have words written is a large font as well, but in a font size

one-half the size of the font in the previous line and so and so forth, which would continue until the very last lines of the poem could barely be read, or even conspicuously seen. You can see how Zeno's dichotomy paradox came into play here, as it states that: "*That which is in locomotion must arrive at the halfway stage before it arrives at the goal.*" (as stated by Aristotle in his *Physics*). Alternatively, Zeno himself states the following: "Suppose Homer wishes to walk to the end of a path. Before he can get there, he must get halfway there. Before he can get halfway there, he must get a quarter of the way there. Before traveling a quarter, he must travel one-eighth; before an eighth, one-sixteenth; and so on". In the same way, the dichotomy Oulipo experiment followed the same principles of the aforementioned paradox, with each line in my poem being written in a font size only a fraction of the initial first line's font size. This is the same idea, mind you, that made it onto Adobe Illustrator and Google Drive, and almost became my final presentation. The only problems impeding further progress of this Oulipo experiment were the legibility of the lines in my poem after a certain point as well as the overall low aesthetic appeal of the entire experiment overall. When I actually created the "Dichotomy Oulipo" on Illustrator, I quickly found out that after a few lines the words had become unreadable and that it would be necessary for people to zoom into the page depicting the poem to see the last couple of lines, which would overall decrease the effect of the visual representation on people, and add hassle and stress. Although the subject of my "Dichotomy Poem"-- this being of a man stranded in the ocean thinking he sees in the dark horizon a beacon that represents the meaning of life and all of existence, and doubting his sanity after being at sea, isolated, for so long, is no doubt suitable to the vagueness and shrinking font of the lines of the poem (the meaning of life is on the line with the smallest font, representing how unfathomable and

ambiguous it is), I still felt that overall this experiment's concept could be put into better use in a future project. In a last-ditch effort to possibly preserve the "Dichotomy Poem" as a valuable option for my visualization, I tried slightly altering the "rules" involving the font size and color, and reworked Zeno's paradox in such a way that the font of every line of the poem would be 80 percent the size of the font of the previous line, so that the last couple of lines in the poem would be readable. Whereas in the initial "Dichotomy Poem" Oulipo the first line would have words written in font size 72, and the second line would have words written in font size 36, and the third would have been written in font 18, and so on and so forth, now the second line had words written in a font size 20 percent smaller than that of the first line (80 percent of 72 is 57.6), and the third line had words written in words of a font 20 percent smaller than 57.6, and so on and so forth ad infinitum. This turned out to be more manageable, but still could not make the lines at the very end of the poem readable, if only by a negligible, microscopic amount. And so, the futile Frankensteinian attempt to revive the "Dichotomy Poem" so it could live a meager half-existence was thwarted, forcing me to finally lay to rest what could have been something truly unique-- for the font of the poem itself would contribute to its meaning (something, I am sure, has been tried only a few times before). I forgot to mention that I also experimented and toyed with the color of the highlight and the text of each line, so that each sentence of the poem would feature words that would gradually fade into white from the first line (which was written in the darkest color-- black) and sentences whose highlights would transcend in the exact opposite fashion (the first line written in black would be displayed in a perfectly white highlight, while the last line written in pure white would be displayed in a pitch black highlight). Below is

the poem but without all the clutter and disarray that came about with the dichotomous fonts (still retaining the "color" of each text and highlight however):

Somewhere out there in the horizon
Far away in the wasteland of the unknown
I thought I could see, if I looked hard enough,
The answer to life itself as a beacon of light in the darkness,
Shining brightly like a star would in the cold void of the universe.
Maybe it was just my imagination; maybe I was only seeing things.
But I knew for a fact that I was alone and gradually going insane.
Being stranded in the middle of the ocean for so long causes
You begin hoping and dreaming for salvation
Somewhere out there in the horizon.

Following this fruitless endeavour, I resolved to undertake the process of creating and crafting the third and final of my truly creative ideas for the Oulipo experiment prior to the pi-poem epiphany that I had. This idea, to my disappointment, did not last very long, and in fact had a shorter lifespan than my second idea involving the dichotomous fonts and Zeno's paradox. I, at this point, in my creative process, was a bit desperate and grappling at proverbial straws that kept slipping out of my fingers and subsequently had the great idea of creating some grid comprised of words that, having a central pronoun, would allow one to create different sentences depending on what path one chose to take from the center outward amidst the grid of words, implying that one could potentially create several "poems" of a vast list of line and word combinations (similar to some Oulipo representations we discussed in class among other things). This idea, although unique, was one I quickly discarded because I felt it was not a worthwhile pursuit or that it was somewhat unoriginal. I told myself that if I was going to create an Oulipo based visualization, I wanted it to be multilayered and as a rich in depth and detail as possible.

And so, looking back at some of my previous Oulipo constraints that I posted on my Learning Portfolio, I eventually decided to go with one of my old ideas-- the pi-based poem, as I thought it would be my best option towards creating a truly great Oulipo experiment. I had realized, after placing my other ideas under scrutiny, that my pi-poem idea had more potential than the others because it could be expressed quite well both visually and linguistically. I later expanded upon my original pi-poem idea after converting it into visual form, but that will be something I shall discuss later, after, of course, I go over my process in creating the pi-based poem, working out the finer details, and finally translating this work into a visual form on Illustrator.

My pi-poem Oulipo idea was nothing new-- it was one of my older ideas that I had posted on my Electronic Learning Portfolio for an older assignment. However, it instantly captivated me for its general simplicity, but at the same time for its potential profundity, at least if I played my cards right. As I stated in the beginning of this write-up, the pi-poem in principle and at its core was, and is an Oulipo experiment depicting a poetic work whose lines have the same number of words as their corresponding digit in the random numerical sequence of pi, or 3.14. This alone implies that the poem has the potential to go on infinitely due to the irrational infinitude of pi, but for the sake of time, I decided to use only the first 12 digits of pi for this project. I started off this Oulipo experiment by searching for the first 14 digits of pi (even though I considered making the poem much longer) on Google, and wrote them down vertically on my Google Docs software. As for the subject matter of the poem itself, I thought that it would be a great idea if I made this poem about pi and how it must feel existing as only an abstract value and nothing more, and grew content with the concept due to the “infinite” nature of the poem itself contributing to its central theme-- that of pi’s eternal suffering. Each individual digit in the

number sequence of pi was matched by a line with the same number of words, and I wrote the lines of the poem until I was finished with the 14 lines (I originally wrote more lines, and the original poem can be found below):

PI: ITS ETERNAL SUFFERING BY THE FACT OF ITS OWN EXISTENCE

3 Here I am
1 Meaningless
4 Standing in the abyss
1 Meaningless
5 Because I am not alive,
9 Amidst my empty vanity and my eternal, ceaseless suffering
2 Alongside futility.
6 Why do I suffer, you ask?
5 Because I am not alive,
3 Here I am
5 Because I am not alive,
8 Cursed to endure a lonely, somber half-existence
9 Amidst my empty vanity and my eternal, ceaseless suffering
7 I am Pi, fated to infinite agony.

Originally, I planned for each line to say something different despite the fact that there were clear repeats in the pattern of the numbers of pi, meaning that two lines with the same number of words could appear close to one another, and yet say different things. However, after putting more thought into the poem itself, I realized designating a specific line to each number so that repeating numbers would also repeat lines was more effective to the overall simplicity, message, aesthetic, and meaning of the poem (this would also help in the visual representation of the poem when I would experiment with the different settings and options in Illustrator). Following this slight modification to my poem, as demonstrated above, I moved onto Adobe Illustrator and thought of ways that I could potentially visually express the poem I had just created out the numbers of pi themselves. I began with the idea of reflecting the poem itself vertically on

Illustrator, thereby creating an abstract shape comprised of words and their mirror forms, but this was a possibility I quickly discarded. Then I started experimenting with the way in which I could type my poem onto Illustrator and discovered an amazing variation of the regular Type tool featured on the upper left side menu of the software. Having not known this beforehand, I was surprised to find out Illustrator allowed me to type sentences at *an angle* or *along a predetermined path or shape*. The idea suddenly came to me of trying out the Type tool on circles, and I was pleased to find out that typing sentences *in a circle* was not only possible, but also a gateway towards the next phase of the final assembly of my Oulipo experimental visualization.

What I mean by the Type tool applied to a circular shape as being the gateway towards the next phase of my Visualization Project is that, upon realizing the possibilities that this newfound capability in Illustrator entailed, I realized, also, that I could further build upon the meaning of my new pi-poem and add another layer to the work in the form of a circle or cyclical shape being the visual illustration of pi's endless suffering in the abyss, as mentioned in the poem. Just as pi's suffering in my poem is implied to be infinite and is brought about its very own eternal existence, so to was the circular form of my visualization representative of pi's infinity for the worst-- its numerical descent into madness. Before even thinking of my circular sentences I created a large circle on Illustrator that I would use to start my visualization. Regarding my new found "circular" sentences, however, I thought of the possibility of being able to write out all 12 lines of my poem in a circular fashion, but in order for me to do that I would have to divide my newly created circle into layers or concentric "levels" large enough to fit one or two of the sentences corresponding to my poem. The reason I even considered suddenly

writing the lines of my Oulipo poem on layers of my circle would not come into full fruition until I later started experimenting with the color in the font of the lines of my poem (harkening back to the days of the dichotomy-based Oulipo from before). At the time of this stage of my Visualization Project I considered the circular writing as a way of increasing the aesthetic appeal of my visualization project as well as a way of emphasizing the cyclical, infinite nature of both pi's madness and the poem's perpetual continuation. Little did I know that the very way I typed out the first 14 lines of my poem would factor into the meaning of the Oulipo Visualization as a whole.

Using the Type tool, as mentioned, on a circular path allowed me to type line after line of my pi-poem in separate concentric layers that got smaller and smaller, until at the very center circle one could see the last line of the poem typed out in a small size font. In this way I was able to create an abstract shape out of the typography in my Visualization, each layer within my circle having at least two sentences typed out, snuggling tightly into the limited circular space there was, which forced me at times to adjust the font size and spacing between words for aesthetic neatness. Having typed out all of my lines inside my circular Visualization in white text (contrasting the black background that was the circle-- to make the letters really pop out), the idea of color suddenly came into my mind. This is what I meant before by "the very way I typed out the 14 lines of my poem"-- not in the sense of the font of the text, or but in each word's individual placement *and* color. You might be asking right now why I chose to color each individual word in each individual line, and this is shall answer promptly: I somehow got the idea that it might be possible for me to color each word a certain color and at the same time place them on each concentric level of the visualization on Illustrator in such a way that *no two words*

with the same color met next to each other or were met by a word of the same color in a higher concentric level or a lower one. I still think after finishing this Visualization Project that the idea of the Four Colors Theorem from the color grid problem I had thought of days ago had somehow resurfaced in my mind, and allowed me to incorporate a deeper element into my representation but using only three colors instead-- red, yellow, and blue. This began by far the most difficult and laborious phase of my project. Trying to get every single word to be colored either red, blue, or yellow and at the same time place them so two words of the same color would never be present in adjacent layers or adjacent to one another was brutally difficult as I, on multiple occasions, ran into situations that would require me to change the color of multiple words across a large section of my Visualization so that every word would still obey the new Oulipo constraints I placed upon my already constrained Oulipo visualization. All it took was one red word to be present next to another red word, and soon I would be changing the color of a word an entire layer away amidst the entire constrained system falling apart. Sometimes it became necessary for me to adjust the spacing of my words slightly so that two words of the same color could be present diagonally from one another but not directly over or under one another-- and I was not about to add yet another constraint to make my Visualization any harder than it already was. As I experimented with combinations of words in red, yellow, and blue, I found, to my curiosity, that there were multiple ways in which I could arrange the colors of my words and still make them adhere to my color constraints-- multiple alternatives and possibilities to my Visualization. This surprised me, considering I had thought prior to implementing my color constraints that there would be very few, if any solutions to the problem that I had myself created just to make things a little more interesting. Eventually, I did manage to color all my words in all

my lines in all the layers of my Visualization Project in a way that I found suitable and in a way that also adhered to the rules I stipulated already, that:

1. Every word in every line of every concentric layer of this visualization must be colored either red, yellow, or blue.
2. And, furthermore, no two words of the same color must meet adjacent to each other on the same layer or directly above or below each other on two separate concentric layers.

At this point in my creative process, I thought I was finally finished constructing an Oulipo experimental visualization that I felt and thought was aesthetically pleasing (what with all the bright primary colors contrasted against the black background), deep (with the multilayered meaning of the poem woven with the visualization itself and its "physical form", and mathematically sound (pi= circumference, and also the number of words per line adhering to the sequence of pi, plus the "Three" Colors Theorem, but I was wrong. I decided to take my current Visualization *one step further* (which is normal due to my Type A overachieving personality), and wondered of the possibility that maybe, just maybe, there was a chance or way that I could create other sentences out of the words that I color coded, red, yellow or blue. Some of the words of a certain color at first yielded nonsensical blabber depending on how I read the words (in clockwise or counterclockwise order), but after adjusting the colors of the words themselves throughout the visualization (this itself was what led me to other combinations of colors, despite taking an even longer time to form coherent sentences), I was able to create mostly readable, and strangely mysterious and enigmatic sentences, which I think enhanced the message of my poem in my Oulipo Visualization that much more. Below are the sentences I was able to create per

layer depending on how I read words colored red, yellow, or blue under a certain combination of colors that adhere to the color constraint from before:

Color Combination Sentences:

YELLOW:
I, the Meaningless, am alive (clockwise)
Empty, and suffering (clockwise)
Ask? Why suffer? (clockwise)
Because I am alive. (clockwise)
Am not lonely. (clockwise)
Half-suffering, my vanity, eternal (clockwise, continue from upper layer)
Am to... (clockwise-- spiral motion between layers) (to in reference to what= ambiguity!)

RED:
I, not Meaningless in abyss (clockwise)
Amidst vanity, my ceaseless. (clockwise)
Alongside you, do (counterclockwise)
Am not here because (counterclockwise)
Existence to a (clockwise)
Ceaseless and empty amidst (counterclockwise)
I, Infinite Pi (counterclockwise)

BLUE:
Here, am standing because (clockwise)
My Eternal Futility (clockwise-- spiral motion onto next lower layer)
I, I, I, I, alive (clockwise, continue from upper layer))
Somber, cursed (clockwise)
Endure (clockwise, continue from upper layer)
My (clockwise)
Fated agony, I (clockwise, continue from upper layer)

As the above sentences created out of words of a specific color demonstrate, some resulting sentences came out more logically and sensibly than others (the words colored in YELLOW AND BLUE mostly created the most coherent sentences, and, on top of that, created sentences that could all be read clockwise-- interesting, no?) By comparison the sentences created out of the words colored RED were less coherent (though there was a distinct pattern between clockwise readings and counterclockwise readings), to the point that some lines were

missing possessive pronouns (however, on the brighter side, this emphasizes pi's own low self-esteem, to the point that he barely regards himself as an entity that can be seen as an individual (I) rather than a mere abstract rumination). The Visualization Project in its totality was now completed, factoring in constraints within constraints, if you will. Below are the summarized rules of the entire Visualization Project from start to finish, from the poem to the Illustrator visualization, in case you needed them all to be in one place for feasible reference, as well as a list of mathematical and artistic decisions I had to make throughout my project over the course of several days (not to mention my blunders and struggles along the way).

The Constraints for my final Oulipo Visualization:

POEM:

1. Every line of the poem must have the exact same number of words as the digit in the numerical sequence of pi, or 3.14, that it corresponds to. For example, since the first digit of pi is clearly 3, the first line of the poem should have three words, ad infinitum.
2. Although two lines with the same number of words may appear next to each other (through no fault of human error, but merely the random pattern of pi), all lines with a specifically designated number of words must repeat the words of the last line with the same number of words. For example, the word "Meaningless" appears on the second line of the poem, corresponding to the digit 1 immediately after 3 in pi. The number 1 appears again after the third digit of pi, 4, but the word "Meaningless" must be retyped or rewritten for repetitive effect.

VISUALIZATION ON ADOBE ILLUSTRATOR:

1. Every word in every line within every layer of the concentric visualization must be colored either red, yellow or blue.
2. No two words of the same color can be adjacent to one another on the same concentric layer, or above or below a word with the same color in an upper or lower layer.
3. Each set of words of a different color must read at the very least a partially sensible or legible sentence either clockwise or counterclockwise (YELLOW excelled at this).

My mathematical and artistic decisions:

1. Whether to choose Option A (my own counting problem) or Option B (my own Oulipo constraint visualization or representation for my second Visualization Project). This was a largely Artistic decision-- and which option I chose is probably more than obvious.
2. What Oulipo constraint I could even use. (Artistic and Mathematical)
3. Whether I could use already existing constraints of my own original design from my Learning Portfolio, or synthesize a new one from sheer imagination (Artistic).
4. Whether to go for the "every vowel in a line must be replaced by the vowel that immediately follows it/the initial vowel's other vowel (Artistic).
5. Whether to use the color grid problem as my Oulipo experiment (Artistic).
6. Whether to use the fractal grid problem (dividing every upper right and lower left square into fourths ad infinitum (Artistic).
7. Whether to use to Dichotomy Oulipo experiment involving the shrinking fonts and the poem that resulted, as well as whether to make the text and the highlights around the text opposite colors from each other (Mathematical and Artistic).

8. Whether I should continue with the Dichotomy project or scrap it and start over (Artistic).
9. Whether I should, in desperation, try the ephemeral "word maze" Oulipo for my experiment (creating different sentences from a central pronoun outwards) (Artistic).
10. Whether I should just quit over-complicating the project and do something simple *for once* (more of a moral decision).
11. Whether I should use the pi-poem idea and create something unique out of it (Artistic).
12. What the poem comprised out of the digits of pi should be about, and what words to incorporate under the constraints of the initial poem (Mathematical and Artistic).
13. How long the poem should be (now it is 14 lines).
14. Whether I should make every line different despite some lines have the same number of words as others (Artistic), or make every line with a certain number of words repeat (also Artistic).
15. Whether I should leave the poem as it is, or attempt to recreate it in a visual form on Illustrator (Artistic).
16. Whether I should be satisfied with the reflective poem idea or try something more geometric and typographical (Artistic).
17. Whether I should use my Type tool to my creative advantage or stick to something mundane (to the latter I say nay, for the decision was Artistic).
18. What font the type from my poem should be (I had originally considered AR BONNIE or AMATIC SC for my circular layers, but I eventually decided to stick with Two Cen MT Condensed. (Artistic)

19. How many lines long the poem should be to fit the concentric layers (technically Mathematical due to it involving numbers).
20. What size to shrink my words and sentences down to for each layer (Mathematical).
21. How far individual words should be spaced from one another (Mathematical).
22. What colors to choose for my words and letters (Artistic).
23. Which colors to give to which words so that the “Three” Color Theorem is adhered to (Artistic).
24. Which way to read which sentences (counterclockwise or clockwise, technically Mathematical).
25. Whether to finally be satisfied with my Oulipo experiment (Moral).

My blunders:

1. Numerous times I found myself stuck in pigeonhole or a Catch-22 after I accidentally colored a word a specific color, not realizing another word was directly above or next to it that had the same color, inducing a chromatic “domino effect” forcing me to change the colors of the words of entire layers just so that my color constraint could be adhered to. At one point I had colored a word red and found exactly one word above, below, to the left, and to the right of the initial word that were all red.
2. At one point more than halfway through my Visualization, I realized that I had copied the second half of the 14 digits of pi incorrectly from my poem, confusing it for a set of digits that went afterwards, forcing me to rewrite some incorrect sentences, and make a LOT of color adjustments (the entire ordeal took a few hours of my day to resolve).

3. Right around the time I started writing this write-up, I noticed that I had forgotten to write the word “eternal” on one of the lines near the deepest concentric circles, forcing me to slightly adjust my color coded “new poems” and do some more color adjusting.

Bonus: When you look at the visualization as a whole, you can compare the seven concentric circles to Dante’s Nine Circles of Hell, discounting the vestibule of the Inferno, (the first circle for the wavering in faith), and Limbo. Really accentuates pi’s eternal, fated, agony as a result of its own infinitude.