

STELLAR BODIES: A MULTIMODAL POETRY COLLECTION

by

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HONORS THESIS

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DEDICATION

Just for me, and for the sake of creating something.

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STATEMENT OF POETICS

This poetry collection places free-verse poems with python code, mathematics, images, and collage to create a connected set of multimodal artifacts that support a central exploration of identity. Inspired by poems where form follows function, or the very presentation of the poem speaks to the ideas it treats in text, I explore the line between poetry and other forms. The collection and its evaluation of identity looks topically at a variety of ideas surrounding centers, including the experience of women in male-dominated spaces, womanhood and motherhood, centers of self and of the world, and other evaluations of identity and its forms. In this exploration, the study of physics, astronomy, and mathematics offers a convenient lens to the interactions of people, systems, worlds known and unknown to us, and the possibilities of nature. Here, the aspect of translation is most helpful in viewing abstract ideas, such as falling in love, as a natural, mathematical experience, composing the abstract with the fundamental concepts around us. This project will contribute to current multimodal collections, which work to communicate about their subject using every possible resource.

Somewhere in Gougane

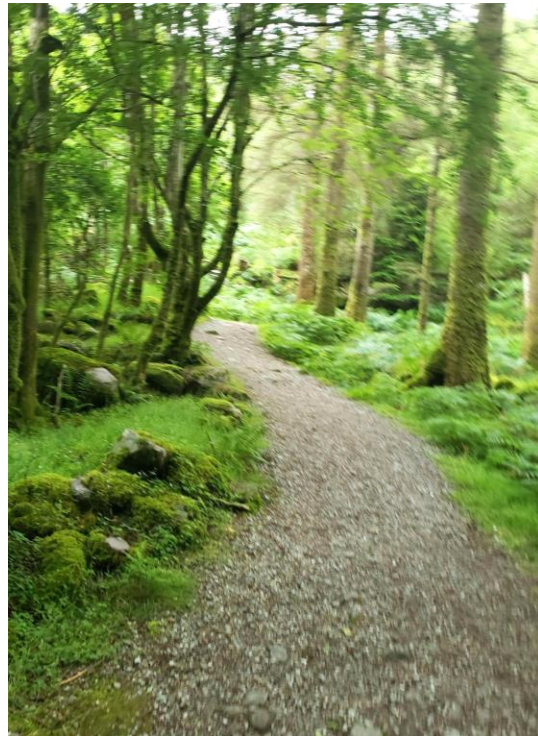
I lost balance
up a rocky trail

and I crossed slicked stones
waterfall-crest white
and I fell in and soaked
in the pool at the edge
and the leaves were pins bleeding
against the bright sky
and their image shivered
as I broke the film atop the water

and They whispered to me
like water filling my ears

and I rose out of the water
newly wet and wrinkled
and I carried on to an overlook
before returning to the people
and their noise
as my skin pricked with some
evaporated holy water

and I felt inside of me
a different center



Photographs by Kennedy Farrell
Gougane Barra, Ireland
Summer 2019

Peaches Pearls Bows.ipynb

```
import peaches
import pearls
import bows

girl = (she = [sigh, smile], her = [peaches, pearls, bows])

while peach(size = (big, enough), taste = 'bitter'):
    peach.call(her)

    if:
        #girl.speak("don't call me peach")
    else:
        girl.sit_and_wait(sigh, smile)

string = []

def pearl_string(pearl):
    girl.coat(pearl, layers='until it is pretty')
    string.append(pearl)

    return print(girl.she.smile)

for pearl in string:

    if pearl.dramatic_enough = True:
        pearl_string(peach)

        bows.arrow(tip = pearl_string)
```


The Woman in Spilled Milk

What woman is that
with milk

spilled

around

her body

just her outline, dark against
motherly brine, poke-a-dot skin
glowing and wet

a crowd has gathered to chant
that's not your body

they each remove wands
from their coats, use them to scan
her middle while whispers
grow louder and softer and more
frightening with each they find
layer
of muscle and bone
concealing a
Core?

THE
SYSTEME
OF THE
WORLD:
IN FOUR
DIALOGUES.

Wherein the Two
GRAND SYSTEMES
Of PTOLOMY and COPERNICUS
are largely discoursed of :

And the REASONS, both Philosophical and Physical,
as well on the one side as the other, impartially
and indefinitely propounded:

By GALILEUS GALILEUS LINCEUS,
A Gentleman of FLORENCE: Extraordinary Professor of
the Mathematicks in the UNIVERSITY of PISA; and
Chief Mathematician to the GRAND DUKE of TUSCANY.

Translated from the Original Italian Copy, by THOMAS SALUSBURY.

ALCINOUS,
Εὐχόμενος ὅτι τῶν ἀποδείξεων αὐτῶν ἡ ἀλήθεια
SALUSBURY,
ἡμεῖς οὐκ ἐσμὲν ἱκανοὶ τῶν φιλοσοφικῶν καὶ φυσικῶν αἰτιῶν
L O N D O N,
Printed by WILLIAM LEYBOURNE. MDCLXI.



To the most Serene Grand Duke
O F
TUSCANY.

THough the difference between Men and other living Creatures be very great, yet happily he that should say that he could shew little less between Man and Man would not speak more than he might prove. What proportion doth one bear to a thousand? and yet it is a common Proverb, *One Man is worth a thousand* and *when as a thousand are not worth one*. This difference hath dependence upon the different abilities of their Intellectuals; which I reduce to the being, or not being a Philosopher; in regard that Philosophy as being the proper food of such as live by it, distinguisheth a Man from the common Essence of the Vulgar in a more or less honourable degree according to the variety of that diet. In this sense he that hath the highest looks, is of highest quality; and the turning over of the great Volume of Nature, which is the proper Object of Philosophy is the way to make one look high: in which Book, although whatsoever we read, as being the Work of Almighty God, is therefore most proportionate; yet notwithstanding that is more absolute and noble wherein we more plainly deserve his art and skill. The *Constitution of the Universe*, among all Phylcal points that fall within Humane Comprehension, may, in my opinion, be preferred to the Precedency: for it that in regard of universal extent it excell all others, it ought as the Rule and Standard of the rest to goe before them in Nobility. Now if ever any persons might challenge to be signally distinguished for Intellectuals from other men;

Plz 82

Ptolomey and *Copernicus* were they that have had the honour to see farthest into, and discourse most profoundly of the *Heavenly System*. About the Works of which famous Men these *Dialogues* being chiefly conversant, I conceived it my duty to Dedicate them only to *Your Highness*. For laying all the weight upon these two, whom I hold to be the Ablest Wits, that have left us their Works upon these Subjects; to avoid Solecisme in Manners, I was obliged to address them to Him, who with me, is the Greatest of all Men, from whom they can receive either Glory or Patrociny. And if these two persons have so farre illuminated my Understanding as that this my Book may in a great part be confessed to belong to them, well may it also be acknowledged to belong to *Your Highness*, unto whose Bounteous Magnificence I owe the time and leasure I had to write it, as also unto Your Powerful Assistance, (never weary of honouring me) the means that at length I have had to publish it. May *Your Highness* therefore be pleased to accept of it according to Your accustomed Goodness; and if any thing shall be found therein, that may be subservient towards the information or satisfaction of those that are Lovers of Truth; let them acknowledge it to be due to *Your Self*, who are so expert in doing good, that Your Happy Dominion cannot shew the man that is concerned in any of those general Calamities that disturb the World; so that Praying for Your Prosperity, and continuance in this Your Pious and Laudable Custom, I humbly kiss Your Hands;

Your Most Serene Highnesses

Most Humble and most devoted

Servant and Subject

GALILEO GALILEI

GALILÆUS

Galilæus Lyncæus,

HIS

SYSTEME

OF THE

WORLD.

The First Dialogue.

INTERLOCUTORS.

SALVIATUS, SAGREDUS, and SIMPLICIUS.

SALVIATUS.



IT was our yesterdaies resolution, and agreement, that we should to day discourse the most distinctly, and particularly we could possible, of the natural reasons, and their efficacy that have been hitherto alledged on the one or other part, by the maintainers of the Positions, *Aristotelian* and *Ptolomæique*; and by the followers of the *Copernican Systeme* and because *Copernicus* placing the Earth among the moveable bodies of Heaven, comes to constitute a Globe for the same like to a Planet; it would be good that we began our disputation with the examination of what, and how great the energy of the *Peripatetic* argument is, when they demonstrate, that this *Hypothesis* impos-

*Copernicus repa-
res the Earth a
Globe like to a Plan-
et.*

G. GALILEUS. *his Systeme.*

2

Celestial substances that are corruptible, and Elementary that be alterable, are necessary in the system of Aristotle.

Since that it is necessary to introduce in Nature, substances different betwixt themselves, that is, the Caelestial, and Elementary; that impassible and immortal, this alterable and corruptible. Which argument *Aristotle* handleth in his book *De Caelo*, indicating it first, by some discourses dependent on certain general assumptions, and afterwards confirming it with experiments and particular demonstrations following the same method, I will propound, and freely speak my judgement, submitting myself to your censure, and particularly to *Simplicius*, a stout Champion and contender for the *Aristotelian* Doctrine.

Aristotle maketh the world perfect, because it hath the threefold dimension.

And the first Step of the *Peripatetick* argument is that, where *Aristotle* proveth the integrity and perfection of the World, telling us, that it is not a simple line, nor a bare superficies, but a Body adorned with Longitude, Latitude and Profundity; and because there are no more dimensions but these three; The World having them, hath all, and having all, is to be concluded perfect. And again, that by simple length, that magnitude is constituted, which is called a Line. to which adding breadth, there is framed the Superficies, and yet further adding the altitude or profundity, there results the Body, and after these three dimensions there is no passing farther to that in these three the integrity, and totality is terminate, which I might but with justice have required *Aristotle* to have proved to me by necessary consequence, rather in regard he was able to do it very plainly and speedily.

Aristotles demonstrations prove the dimensions to be three and no more.

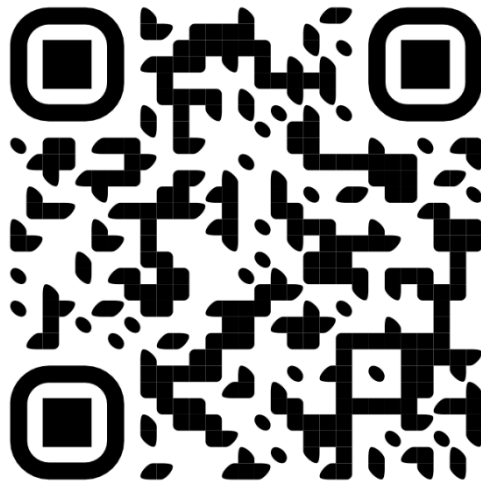
The number three celebrated among the Pythagorians

What say you to the excellent demonstration in the 2. 3. and demonstrations the definition of *Continual*? have you not first there proved, that there is no more but three dimensions, for that those three are all things, and that they are every where? And is not this confirmed by the Doctrine and Authority of the *Pythagorians*, who say that all things are determined by three, beginning middle and end, which is the number of All? And what leave you that reason, namely, that as it were by the law of Nature, this number is used in the sacrifices of the Gods? And why being so dictated by nature, do we attribute to those things that use three, and not to less, the title of all? why of two is said both, and not all, unless they be three? And all this Doctrine you have in the second Text. Afterward in the third, *Ad plenitudinem scientiam*, we read that *All*, the *Whole*, and *Perfect*, are formally one and the same; and that the whole only the Body, amongst magnitude, is perfect because it is determined by three, which is All, and being divisible three manner of waies, it is every way divisible; but of the others, some are dividible in one manner, and some in two, because according to the number affixed, they have their division and continuity, and thus one magnitude is continuous one way, another two, a third, namely the Body, every way.

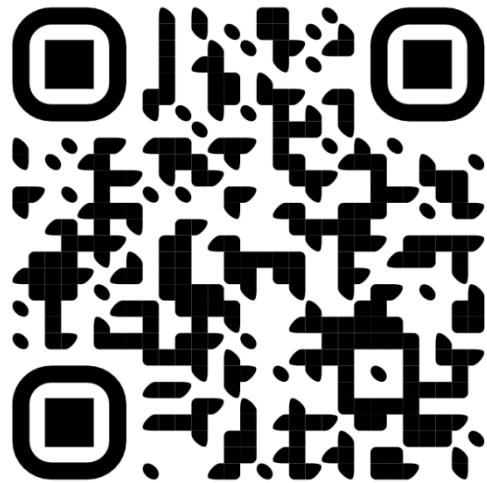
Omne, Totum & Perfectum.

ut dicitur.

The Aristotelian Systeme



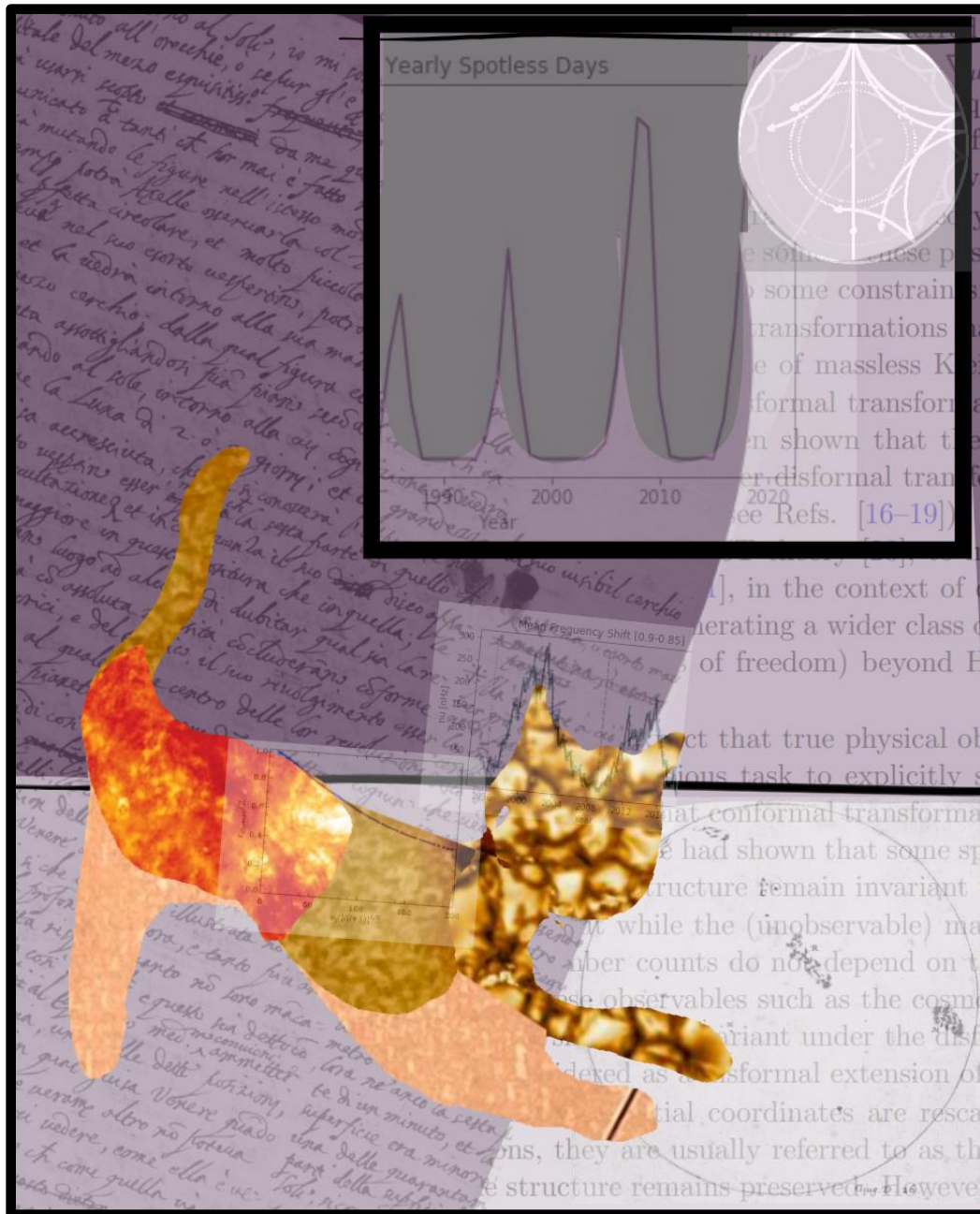
[Her Hypothesis](#)



Galileo

I call him
“quarantine kitten,”
and he stretches,
long and leading
with little feet—
the ones Sandburg
wrote about.
In corner carpet
patches he studies
the sun through
his telescope.
Needing clear skies
for his little work,
he pads sunspots and
is untroubled
by the world beyond
the window.

The Window, the Cat, and the Sunspot



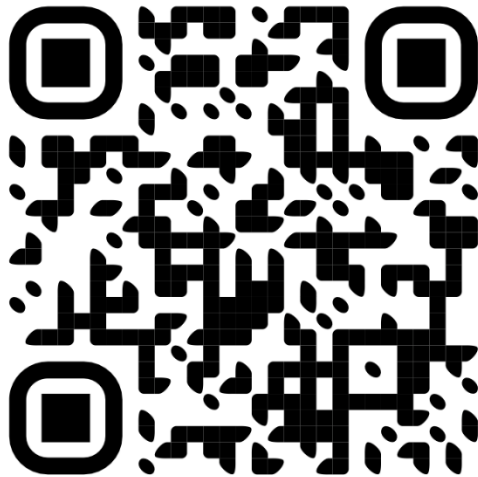
Already

like you might love me already like you
I met you and you
smiled at me like
we had collected stones -
scattered dandelions on a playground.
like we played until our stomachs
were warm and our cheeks were burning;
like you might love me already like you
pretend to make much of dandelion people!
I like you might love me already like you
tell me why your brother left school like
like winter is cold like winter is cold like winter already

we had classes together and you told me
the boys I had dated wouldn't understand me
like you might love me already like you
anyway and that one day you tried to kiss
me and I probably didn't breathe out enough
not so scary and I went away to college and
we were apart but I thought of loving you and
those things, but maybe you found that
I keep forgetting

like you might love me already already

[The Spiral Fractal](#)



July

July: she thinks about loving him
over a cigarette and a sateen sheet,
cooling thigh and stomach.

October: she screams
at peeled wallpaper, little shadows
he fingers and palms constellations,
they stretch and swirl her skin sour.

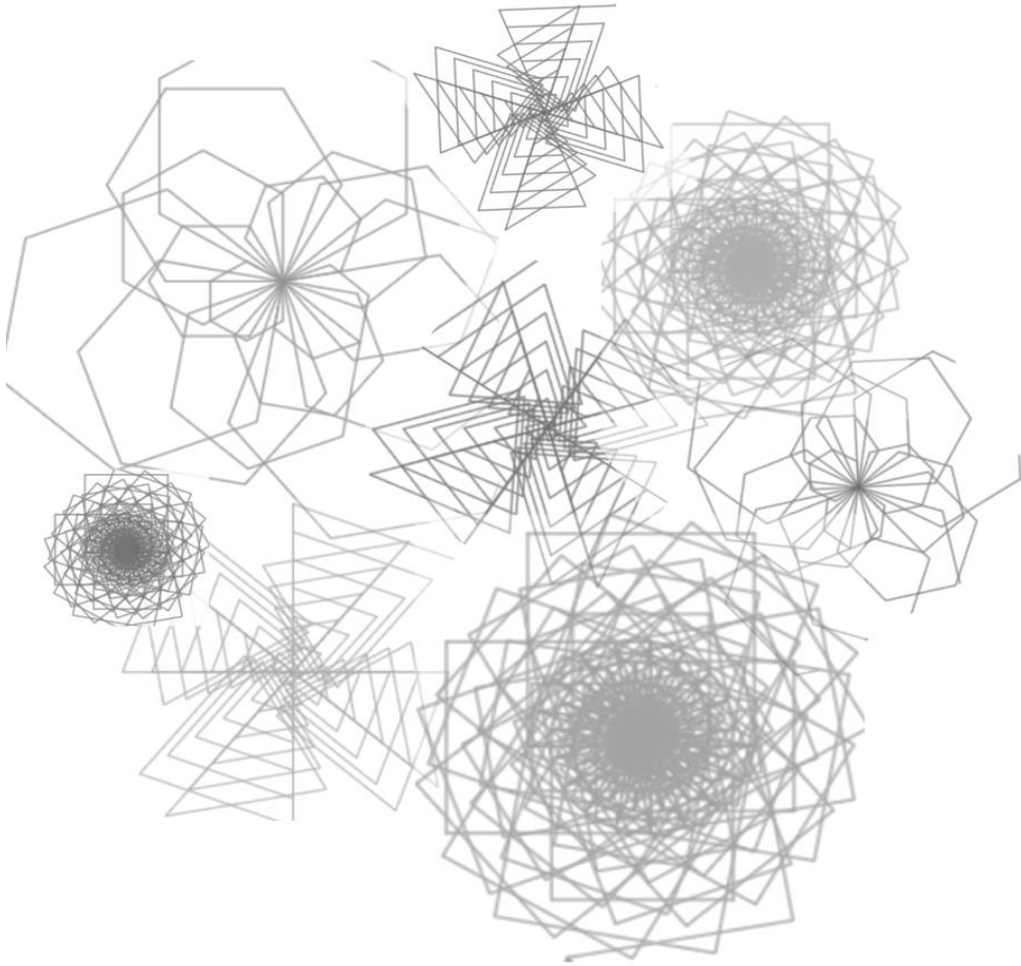
December: she lies
next to him flat, uncovered,
pointing her toes.
she heard some snakes
stretch out by their prey
until they are big enough
to swallow it whole,
but her toes don't stretch long
enough for swallowing.

February: his eyelashes,
tongue, shoulders, and shade
are shopping at her grocery store.
They are following her home.

April: she confesses
the childish way,
to her mirror. She quit
smoking, but there is still
a taste. she is rewriting

July: like red and honey,
sticky and raw. she is
stomach, and thigh, and skin,
collected fingers and toes,
slither, and sigh, and stretch,
and hands.

A Bouquet of Accidental Flowers



READER'S INDEX

“Somewhere in Gougane”, 1

Gougane Barra, Ireland is thought to be a place where the veil between this world and the mythical, magical world of the Good People, Kind People, Faeries, or Tuatha De Dannan exist. Water, holding immense importance in Irish mythology to connection with the gods and mythological spiritually, is the connection point in the poem where the speaker appears to cross into a liminal space between worlds. The waterfall also serves as a physical space of separation between the lower area of the trail system where people often gather for pictures, games, and food, and the upper side of the trail system.

An exploration of centers of the world and inspired in part by William Carlos Williams's “The Red Wheelbarrow”, the poem addresses the center of self for it's speaker. In the brief text, Williams comments, “so much depends upon the red wheelbarrow,” which inspired me to explore the idea of centers as a whole and what centers of different worlds could look like. In Somewhere in Gougane, the speaker explores spiritually and identity, finding a new center of self through a spiritual experience with nature, and perhaps the magical Tuatha de Dannan of ancient Irish mythology. The following page shows images from Gougane Barra Ireland that are paired with the poem. From the stones and rocks at the waterfall, to the water, and the bright path leading the speaker through the trails, the experiences in the poem are grounded by the vibrant reality of this space.

“Peaches Pearls Bows.ipynb”, 3

This work is constructed of python syntax-style commentary. First, an object is created called “girl”. She is given attributes and characteristics. As the poem treats each of the terms in the title, the girl interacts with and uses the materials. While this is not an operable code, and these libraries do not exist, it imagines treating interactions with the structures of our world with the logic of a for loop. In this way, the poem briefly and sweetly explores the resistance of a girl against irritants, how she uses these experiences to create something beautiful and dangerous.

“The Woman in Spilled Milk”, 4

Inspired by the results of an amateur tarot card reading given by a close friend of mine, the woman in spilled milk is the figure in the artwork. Upon seeing this image on the card, I was met with thoughts of motherhood and womanhood. I wondered myself, who is that woman? As I poured over the artwork on the card, depicting a dark human shape in a puddle of milk that had been spilled on the tabletop. At the table, Toni Morrison sat and looked at the scene. In the poem, who the woman is may be just as unclear. Perhaps she is not a woman at all, and perhaps it doesn't matter. I worked to explore the scene poetically without giving the woman any action or agency, speaking to the intrusion of the crowd on the woman as they scan her insides.

“The Systems of the World”, 5

This work comes from Galileo Galilei's 1661 manuscript titled *The Systems of the World*. The piece is inspired by methods of black out or erasure poetry, where an existing text is taken and by leaving words, erasing others, and affecting the text with art, color, or transparency, a new work is created. A primary inspiration for attempting such a poem was my reading of *A Humument* by Tom Phillips, where each page of an existing novel is affected with abstract, vibrant, and topical artwork, leaving just a few words on each page that together tell a new story.

Galileo's original text explores the transition of thought from the Earth being a flat surface to a round body. The discussion in his letters explores this hypothesis and mentions Aristotle and Copernicus's contributions specifically. These key players also made arguments about the Earth's placement among other heavenly bodies, arguing whether or not the Earth is the center of our solar system and the larger universe.

In the original geocentric model, supported by Aristotle and Ptolemy, the Earth is the center of the solar system and the Sun, Moon, and planets orbit around it. One argument against this model is that allowing the planets to complete circular orbits around Earth does not account for their apparent motion from the Earth's perspective. For example, if we track the position of Venus in the sky each night over a few months, we observe it moving forwards for some time before moving backwards on itself and then forwards again. Because of this retrograde motion, the geocentric model incorporated epicycles, allowing the planets to “turn back” on themselves and loop around. In this model, the planet orbits around a point and the point orbits around the Earth. These courses are

shown in the Aristotelian model python program following the poem. This program is interesting because it estimates the complex movements of the planets from the Earth's perspective while drawing very little reason from physics as to why the objects are moving in this manner.

Moving away from the geocentric model, Copernicus suggested (at one time) a heliocentric model, placing the Sun at the center of the solar system. In this hypothesis, he proposed the Earth and other planets revolved around a stationary Sun, a model which is estimated by Her Hypothesis, following the Aristotelian model. Here, the cause of the resulting motion and maintenance of the planets around the Sun is gravity!

As it is presented in the poem, the woman presents this model as her own, only to be dismissed by the group of men. In this way, I found the title of the original manuscript would be a fitting title for the poem, as the woman is an outsider to the scientific discussions and works diligently to present an idea that may not be heard. Notably, "she" and "her" are not present in the original text, but rather it is found. Hidden in *other* convenient words, an alternative history, or even fable-like tale is discovered.

"Galileo", 12

Written during the first year of the COVID-19 pandemic, "Galileo" explores the scene of a cat pawing at a sunny spot on the carpet. This work was a continuation of my exploration of centers of worlds, aiming to explore another seemingly small center. Here, the cat's world is as large and complicated as needed for the work of basking in sunshine to be completed.

This poem was also inspired by personal experience, as I adopted a "quarantine kitten" of my own in April of 2020. Over the following months I participated in a dedicated study of helioseismology and the solar cycle, for which my kitten as listening and learning alongside me. While this personal source is a main feature of the poem, the text also explores the discovery of sunspots. In the early 1600s, Galileo used a telescope to magnify the Sun, shining its light onto a piece of paper rather than looking through it himself. In doing so, he was able to mark dark or dim spots on the Sun and track their locations over time. This constituted the discovery of sunspots, and further the magnetic activity of the Sun's solar cycle. His discoveries were notes in his "Letters on Sunspots", a page of which is used in the collage following this poem.

“The Window, the Cat, and the Sunspot”, 13

Paired specifically with “Galileo” this collage combines works from Galileo’s first writings of the discovery of sunspots (and more largely, magnetic activity on the Sun) to figures part of one of my own previous research projects on the solar cycle. The cat himself is made up of images of our Sun, including paper drawings from Galileo and even the highest resolution image of the Sun’s surface from the Inouye Solar Telescope in Hawaii. As the cat crosses to the lightened area of the room, he finds one of Galileo’s journal entries on the carpet, sunspots included.

“Already”, 14

“Already”, taking a peculiar shape compared to the other poems included in the work, explores love as a mathematical or natural relationship. It’s final form and following python code resembles a spiral fractal, which in itself offers an example of perfection in nature (as these shapes can be present in a variety of organisms and phenomena from a snail’s shell to the spiral of a galaxy). Further, it spirals to enhance the readers feelings of anticipation and the actual “falling” of falling in love, exploring a variety of thoughts in the speaker’s mind. The text itself is displayed in the spiral, but also has a stem holding it up creating something resembling a blown dandelion. A dandelion holds many seeds for possibility just as the text of the poem explores through the speaker’s retelling of a (possibly imagined) shared romantic history.

“July”, 16

“July” explores, most directly, the ending of a relationship. In it the “peeled wallpaper’s little shadows” are used as an allusion to the short story “The Yellow Wallpaper” by Charlotte Perkins Gilman, which follows a woman suffering from “hysteria” and catalogs the abuse she endures as well as her declining mental state. In “July”, this may offer insight to the state of the speaker, as she begins a journey across each of the stanzas in reaching a new understanding. Here, the idea of center is used to explore an intimate relationship with other and with self.

“A Bouquet of Accidental Flowers”, 17

Simply, this is a collection of mistakes made while calculating the proportions and angles for “The Spiral Fractal”. In this way, they can be paired with and are connected to the content and themes of “Already” as much as “The Spiral Fractal” program is.

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