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Algorithm, Agency, and Potentiality: Reading Constraint-Based Poetry

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Abstract

In “Algorithm, Agency, and Potentiality: Reading Constraint-Based Poetry,” I explore the complexities of reading texts that are constrained by algorithms and computer code. I focus on two types of literature: Oulipo and contemporary computer-generated poetry. I begin by discussing the intellectual history of Oulipo and its main characteristics. Because Oulipo shares many key traits with contemporary computer-generated poetry, these types of literature can be used to read each other. I then analyze how the role of the author is obscured in The Policeman’s Beard is Half Constructed, a book of poetry written by the computer program Racter in 1984, and Raymond Queneau’s Cent Mille Milliards de poèmes, Oulipo’s seminal work. Using examples from contemporary computer-generated poems by authors including Stuart Moulthrop, Oni Buchanan, and Jason Nelson, I next discuss the reader as being placed on a spectrum of agency in which they have more or less control of the output of the work depending on how tightly the author controls the work’s potentialities. Finally, I explore ways to close-read constraint-based poetry, taking into account the work’s awareness of itself as a poem and as a program. I argue that in order to read constraint-based literature with confidence and nuance, scholars must acknowledge the complex relationship between the computer, the author, and the reader.
“Here we find ourselves, nose to nose as it were, considering things in spectacular ways, ways untold even by my private managers...Well, have we indeed reached a crisis? Which way do we turn?”

– Racter, 1984
**Introduction**

Since the invention of digital computers, people have experimented with computer-generated writing. In 1952, the inventors of the world’s first digital computer, the Manchester Mark I, programmed the machine to generate love poetry (Wardrip-Fruin 163). In 1984, U.S. programmer William Chamberlain published *The Policeman’s Beard is Half Constructed*, a book of poetry written by a computer program. The book is full of strange and fascinating short poems, stories, and even dialogues between Chamberlain and the program named Racter, which is short for raconteur, or storyteller. Many of the poems are astounding in their appearance of sentience. “More than iron, more than lead, more than gold I need electricity./ I need it more than I need lamb or pork or lettuce or cucumber./ I need it for my dreams,” writes Racter, and a chill may go down the reader’s spine. How could a computer write such poetry? In his introduction to the book, Chamberlain says that Racter is “the most highly developed artificial writer in the field of prose synthesis” at that time, as the program was able to conjugate verbs, print singular and plural nouns, assign gender to pronouns, and used “syntax directives” to string words together coherently (Chamberlain n.pag.) He subtitles the book “A Bizarre and Fantastic Journey into the Mind of A Machine” because it appears that Racter has a mind of its own and plenty to say.

It is no coincidence that around the same time as computers and computer-generated poetry were gaining momentum, literature focused heavily on algorithm and constraint began to emerge. Founded in France in 1960, Oulipo, short for *Ouvroir de Litterature Potentielle*, or “The Workroom of Potential Literature,” was the first literary form to strive for precise, algorithmic writing, valuing constraint and craftsmanship over inspiration. Raymond Queneau, one of the group’s co-founders, authored Oulipo’s seminal
text, a poem called *Cent Mille Milliards de poèmes*, or “One Hundred Thousand Billion Poems.” This work is a collection of ten sonnets, written so that any line of the same number (for example, line number two of the first poem and line number two of the second poem) can be exchanged for any other to create a new sonnet. All in all, there are one hundred thousand billion—$10^{14}$—possible sonnets that can be formed (Motte 200).

In this thesis I examine the relationship between computer-generated poetry and Oulipo, beginning my discussion with Racter’s *The Policeman’s Beard is Half Constructed* and Queneau’s *Cent Mille Milliards de poèmes* and then moving on to the work of more contemporary digital poets like Stuart Moulthrop, Oni Buchanan, and Jason Nelson. I refer to both Oulipian and computer-generated poetry as constraint-based works. When I refer to computer-generated poetry, I refer to poetry that is in some way dependent on an algorithm and a computer program to run. These texts may be created from programs that can combine vocabulary with syntax rules, as in the case of Racter, or they may display or manipulate text previously written and inputted by an author.

Works such as *The Policeman’s Beard is Half Constructed* demonstrate the problematic nature of reading constraint-based work. Critics argue over whether computer-generated poetry like Racter’s is in fact poetry, and, if it is poetry, how to go about reading it. Some have argued that computer-generated poetry is entirely removed from any authorial intention and therefore one cannot read it as they would a poem written by a human. Readers expect that thought motivates the words they read, therefore “to call something a poem or even a text is to say, among other things, that the words, phrases, lines, or sentences have not been arranged in this way by chance but have been produced by a person with certain intentions” (Juhl 6). Thus, the argument goes, a
computer-generated poem is not a poem or text at all. However, others take a more nuanced view and argue that a computer-generated poem is indeed a poem and can be interpreted as such. However, reading computer-generated poetry is not as straightforward as reading poetry written by a human author. Computer-generated poetry draws attention to the “overriding need for an alternative set of literary terms for the interpretation of computer-generated poetry” and “the need to focus on the object of interpretation (on what the poems are) but on the interpreter” (Emerson 47). In addition, “interpreting or reading (computer-generated or digital) texts should not be wholly based on the author’s intentions but neither should it wholly disregard the author’s intentions for the sake of treating the text as a series of material marks that must be experienced” (Emerson 57). Computer-generated poetry forces us to look at the computer, work itself, the author, and the reader and to understand the complex relationship between them.

I argue that reading constraint-based literature complicates issues of authorial intent and of readers’ interpretation. Writers of constraint-based works function more like programmers, and the act of programming is an act of intention. Depending on how they construct the work, the author-programmer has varying degrees of control over the final form of their work. Readers find themselves on a spectrum of agency where they have more or less control over the meaning of the work, depending on how tightly it is controlled by the author. In a time when computers are ubiquitous and where the literary landscape is shifting to include more work that is algorithmic, combinatorial, and collaged, learning to read constraint-based literature with confidence is crucial.
Greenhalgh 4

The Historical and Intellectual Context of Oulipo

In order to read and interpret both Oulipo and computer-generated poetry, it is necessary to examine the historical and intellectual context that shaped Oulipo. In 1960, François Le Lionnais and Raymond Queneau founded Oulipo. Both heavily engaged in mathematics, they wanted to create a group that would devote its efforts entirely to creating literature that was structured and constrained, whose basis was algorithm and quantifiable properties of language. Lionnais was inspired by the poem Queneau was working on at the time, the unusual *Cent Mille Milliards de poèmes*. This work, constrained by the sonnet form and able to create an almost unimaginable number of other sonnets, captured Lionnais’s attention and formed the basis for the Oulipian project, which Queneau describes as this: “To propose new ‘structures’ to writers, mathematical in nature, or to invent new artificial or mechanical procedures that will contribute to literary activity: props for inspiration as it were, or rather, in a way, aids for creativity” (51). With a view of literature that was strikingly different from any other literary methods of the time, such as Surrealism or Dada, Oulipo was born.

Raymond Queneau’s unique interest in both literature and mathematics influenced his creation of *Cent Mille Milliards de poèmes* and Oulipo. Born in Le Havre, France in 1903, Queneau was an inquisitive child and a voracious reader. He grew up to study at the University of Paris and complete his degree in philosophy in 1926 (“Biography”). Though he studied the humanities, Queneau’s ideas about writing were greatly influenced by his fascination with science and mathematics. He nourished a love for the subject even though he did not excel at mathematics courses at university. Throughout his life he frequented scientific and mathematical lectures and joined the *Société mathématique de France* in 1948
and the American Mathematical Society in 1963 (Ferraro 132). Even as an amateur mathematician, Queneau collaborated on publications with famous mathematicians and published an article of his own in the *Journal of Combinatorial Theory* in 1968 (Ferraro 132). Combinatorics, which is the enumeration of the possibilities of different combinations of discrete objects (Bose), was a key area of Queneau’s interest. Throughout his life, Queneau would infuse his works with mathematical concepts and structures. His writing was “animated by a powerful attention to form, and that nature of that form is rooted in mathematics” (Motte 201).

However, before he began creating works that were heavily constrained by mathematical concepts, Queneau spent time that greatly influenced the future founding of Oulipo with a prominent intellectual and literary group of the time: the Surrealists. After Queneau graduated from university, he spent a year in military service in Algeria and Morocco, and when he returned in 1928, he married Janine Kahn, whose sister was married to André Breton, the founder of the Surrealist movement (Campbell-Sposito). The Surrealist movement captivated Queneau during the late 20s, and his experience with the Surrealists shaped the eventual creation of Oulipo.

Surrealism arose partly as a reaction to Realism, the dominant mode of writing at the time, which sought to depict life as it was. This detailing of mundane moments “clearly seems to me [Breton] hostile to any intellectual or moral advancement...It is this attitude which today gives birth to these ridiculous books, these insulting plays” (Breton 6). In his first *Manifesto of Surrealism*, Breton cites the opening passage from Dostoevski’s *Crime and Punishment* as an example of “these ridiculous books,” disdaining Dostoevski’s “school-boy description” and displaying disinterest in the passage which he feels is simply a description
of “the empty moments” of life (7). For Breton, there was nothing refreshing in the faithful description of a room or a scene in which all details were laid out as they were, or would have been in real life. What Breton and the Surrealists sought was art that would lift the reader and writer out from under the “reign of logic” (Breton 8) and restore to them a sense of childlike imagination and freedom that they had lost. Surrealism became a way of combating what the literature of the time offered: “clarity bordering on stupidity, a dog’s life” (Breton 6). Its aim was to find some imaginative truth that would ultimately restore the writer and reader’s sense of humanity, of a full life.

Surrealism was also heavily influenced by the politics of the time. The chaos of World War I still loomed in the public’s mind, and communism and socialism were on the rise. Communism brought with it the desire for revolution. In the mid 1920’s, Andre Breton and other Surrealists signed the Surrealist Manifesto: The Declaration of January 27, 1925. In this incendiary document, the men seemed to be positioning themselves as part of a highly political movement, using literature and poetry only as the means to an end. The first declaration states brazenly, “We have nothing to do with literature; But we are quite capable, when necessary, or making use of it like anyone else” (qtd. in Nadeau 240). This is followed by declarations that portray Surrealists as warriors for some ideal, warriors to show society its flaws. The final declaration states, “Surrealism is not a poetic form. It is a cry of the mind turning back on itself, and it is determined to break apart its fetters, even if it must be by material hammers!” (qtd. in Nadeau 241). This 1925 Declaration outlines the Surrealist belief that there was something critically wrong with society, and that Surrealism was a “formal warning to Society” that it would soon undergo a Revolution (Nadeau 240). This idea of Revolution partially aligned with the communist idea of
revolution. Society, which was corrupt and stratified under capitalism, should seek justice and equality in a system where everyone was equal. It was to be the pinnacle of society's evolution. However, Breton never fully aligned himself with communism, which never in practice produced the utopia its theory promised. Breton never became a dominant figure in the politics of the time. Though he supported Leon Trotsky and disapproved of Stalin, he never took any political action, because “the problematic nature of communism...stemmed from its willingness to rely on traditional power structures, which Breton abhorred. In this sense, revolutionary politics could never achieve the true intellectual independence and freedom of poetry” (Taminiaux 64). The communist ideal never yielded any fruit of freedom or equality. Instead it simply became a tool for powerful leaders to oppress people and for making the subversive and radical commonplace and oppressive.

Though their 1925 Manifesto threatened violence, Breton and his followers were more interested in creating radical works of art than effecting radical political change. Breton believed that the literature of the time was not fulfilling its purpose, which was to renew the reader and return him to a place of childlike imagination. Where communist leaders went made radical changes in politics, economics, and societies, “the first mission of surrealism was thus to locate its own fight at the level of language” (Taminiaux 55). Breton’s tools of revolution were not the hammer and sickle; his “material hammers” were pen and paper, and his fight was for a radical literature. Communism, however, was influential for Breton because “it was first of all the stuff that dreams are made of” (Taminiaux 66). Communism promised a utopia in the imagination. It was, in essence, a dream. But Breton, who was highly influenced by Sigmund Freud’s work on dream analysis and the power of the unconscious mind, asks, “Can't the dream also be used in solving the
fundamental questions of life?” (Breton 10). Essentially, “for Breton, the fascination of communism stemmed from the profound love of elsewhere (ailleurs), an essentially poetic notion that implied the sense of the unknown and of what could only be imagined because of its utmost remoteness” (Taminiaux 66). Breton’s Surrealism was not concerned with the details of everyday life, which he believed constrained imagination and creative impulses. Breton’s Surrealism was founded on the idea that the secrets of great literature were hidden in a man’s subconscious, and that the Surrealist method of writing would dredge these thoughts up from the depths of a man’s mind, where he might find other worlds in which to revel.

Breton’s “Manifesto of Surrealism” details his conceptions of the ideal art-making process. A writer, for example, should begin writing not thinking about what he was writing, but rather by creating “a monologue consequently unencumbered by the slightest inhibition and which was, as closely as possible, akin to spoken thought” (Breton 17, italics his). This spontaneous writing takes on an “extreme degree of immediate absurdity” (Breton 18, italics his). The goal of surrealist art is to bring into the light “the superior reality of certain forms of previously neglected associations, in the omnipotence of a dream, in the disintegrated play of thought” (Breton 19) whose absurdity is childlike and liberating. Through this automatic process, the artist can access the parts of himself that he suppresses. Indeed, Breton admits that he was “completely occupied” (17) with Freud’s theories of psychoanalysis and dream interpretation, which Freud had newly developed in the late 1890’s and early 1900’s. Like Freud, Breton believed that “if the depths of our mind contain within it strange forces capable of augmenting those on the surface, or of waging a victorious battle against them, there is every reason to seize them” (Breton 9).
Through the process of creating art without thinking, one may seize the “strange forces” that shape one’s conscious reality.

Queneau participated in many Surrealist activities, such as psychoanalysis, but he distanced himself from Breton and the Surrealists by the 30’s and desired to be part of an entirely different method of meaning-making. Queneau regarded Breton’s project as a kind of escape toward exotic mental regions, apparently foreign to those where common sense prevails, insofar as they are for this reason a source of delectable strokes of inspiration, but such that what is revealed there is only what one brought oneself...In other words, if all wandering brings one back to places one already knows, why not take the places one knows as pretexts for wandering? (Leiris xx)

In Queneau’s eyes, Breton’s search for truth in “exotic mental regions” of the unconscious was misguided. The artist may find strange and seemingly nonsensical images there, but they contain in fact “only what one brought oneself.” How can the artist interpret the unconscious without bringing images from the conscious to the unconscious and back again? Queneau and Oulipian writers did not find it productive to seek creative energy elsewhere but in the conscious mind, and “instead of relying on a sacrosanct inspiration supposedly coming from the depths, he [Queneau] absorbs what he sees when looking lucidly around himself....” (Leiris xxii). While Surrealists focused on making art that formed from subconscious spontaneous thought, Queneau was more interested in work that was consciously planned. In other words, Queneau favored calculation over inspiration, he “locate[d] the creative impulse within the artist rather than without” (Motte 195).
Oulipian believed that creating art under constraint was the only way to truly free and empower artists. Where Surrealism emphasized letting writing flow from an inspiration which the writer could not control, Oulipo adamantly asserted that inspiration stifled creativity (Motte 194). Queneau was also concerned with dynamics of power in this so-called inspiration, “for if inspiration is to be amorphous, haphazard, and ill-defined, there will need to be an arbiter of inspiration, for someone to declare when inspiration actually and truly visits the artist” (Motte 194). Andre Breton clearly fills this role of arbiter in Surrealism. Oulipo is skeptical of this type of control, which seems to be motivated by power instead of art. The constraints of Oulipo are rigid, formalized, and well-defined, and they eliminate the danger of one man calling the shots as to what constitutes true inspiration or not. Oulipo also vehemently dislikes Surrealist ideas that texts can be created by chance, by the random flow of the subconscious. For Queneau and the Oulipians that followed him, “chance plays no role in artistic creation. Here, Queneau is perhaps motivated by his idea of the omnipresence of structure, by his conviction that even the most amorphous text is governed by a set of formal rules” (Motte 196). Every text, every work of art, functions according to some set of rules, and by understanding this “omnipresence of structure,” the artist can learn to control the structure and work with it instead of against it.

The Characteristics of Oulipo

Just as Surrealism is categorized by automatic and subconscious writing, Oulipo is organized around key characteristics, though they differ greatly from Surrealism. First, Oulipians foster an attitude of craftsmanship when creating works. Oulipo is short for Ouvroir de Littérature Potentielle – “The Workroom of Potential Literature. Why use the
word “ouvroyr?” “Because,” Queneau tells us, “it intends to work” (51). Oulipians wanted to distance themselves from the romanticized inspiration that so captivated the Surrealists, and thus identified themselves as artisans, not artists. They believed that working with a constraint takes discipline and control, where more “inspired” methods of art, like Surrealism, allow the author to sit back and create without thought or effort.

The second characteristic is, quite obviously, constraint. Constraint can operate on various levels within a text. One could write a text with the constraint on the level of the letter, such as an anagram, where letters in a word or phrase are rearranged to create new words, or a lipogram, where one letter is left out (Bénabou 44). Georges Perec’s La Disparition or The Void is a famous example of a lipogrammatic text. The whole 300-page novel is written without the letter “e,” which is an even more common letter in French than it is in English. Constraints progress up through the phoneme (single sound unit), syllable, word, syntagm (a string of words that form a larger syntactic unit), sentence, and finally paragraph level (Bénabou 44-45). Oulipians acknowledge that all writing follows some sort of rules, since language is inherently a system guided by rules, but believe that “it must be freely admitted that writing under constraint is superior to other forms insofar as it freely furnishes its own code” (Bénabou 41). Before one even starts writing, if they know what constraint they will use, they know a key feature of their text, and they have the first step in going about the creating it.

The third tenet of Oulipo is potentiality, which is highly related to constraint. Oulipian Jacques Bens describes a potential work as “a work which is not limited to its appearances, which contain secret riches, which willingly lends itself to exploration” (65). Queneau’s Cent Mille Milliards de poèmes is a prime example of potentiality. Though it
would appear that the work consists of only 10 sonnets, its “secret riches” are revealed when the reader explores the possibilities of combinations available from the 10 original sonnets. A work of potential literature provides plenty of opportunities for the reader to interact with and explore the work. Potentialities are what the author creates by crafting the work, and it is up to the reader to make potentialities solid. Constraint is key in creating potential works, because constraint creates the framework from which potential variations of a work emerge.

Finally, while Oulipians are seriously concerned with creating interesting works of literary value, they also have the goal of creating works that are playful. Queneau says that Oulipo is amusing. “At least for us it is” (Queneau 52). He calls some of the algorithms and constraints used to create works “diversions” (52), but he does so facetiously. He reminds those who would dismiss Oulipian constraints as meaningless tricks that many mathematic achievements “sprang in part from that which used to be called ‘mathematical entertainments’, ‘recreational mathematics’” (Queneau 52). Intellectuals may amuse themselves with coming up with and implementing constraints, but this does not mean that the constraint will not yield profound and interesting work. Along the same sentiment, François Le Lionnais says in the First Manifesto of Oulipo, “When they are the work of poets, entertainments, pranks, and hoaxes still fall within the domain of poetry. Potential literature remains thus the most serious thing in the world” (28). The author of an Oulipian work offers the work up as “a game, as a system of ludic exchange between author and reader” (Motte 20). The reader must be prepared to take the work seriously as a work of literature, but they also must be prepared to have fun with it.

Oulipo and Computer-Generated Poetry: Understanding the Role of the Author
Oulipo shares many of its key traits with computer-generated poetry, which makes it natural to compare the two. The language Oulipians use to describe their work is distinctly computer-related. Computer-generated poems are dependent on algorithms contained in their code, and in Oulipo, each work “freely furnishes its own code” (Bénabou 41). The code dictates and constrains the way a work operates, and this constraint leads to potentialities. In the case of computer-generated poetry, potentialities emerge when the computer generates or combines text in random and unexpected ways or provides multiple opportunities for combination. In addition, computer-generated poetry often shares an attitude of playfulness, as many works take the form of interactive interfaces or games.

Because Oulipo and computer-generated poetry share so many characteristics, readers encounter similar problems with reading these two types of work. In this section I will focus on Racter’s *The Policeman’s Beard is Half Constructed* and Queneau’s *Cent Mille Milliards de poèmes* as works that exemplify the difficulties of reading constraint-based text. Reading a poem that “turns up” in the process of reading *Cent Mille Milliards de poèmes* is just as disconcerting as reading a poem generated in the Racter program. In both cases, the reader may feel like there is no meaning or intention behind a work that is randomly generated.

Racter’s poetry in *The Policeman’s Beard is Half Constructed* disquiets readers because they cannot reconcile the idea of a computer writing such human-sounding language. Computer-generated poetry appears disingenuous. When we encounter lines like “A tree or shrub can grow and bloom. I am always the same. But I am clever” (Racter n. pag.), at first we believe that a sentient being must have written the work, but when we find that it is simply a computer following the rules of an algorithm without thinking at all,
without feeling at all, we feel tricked. Any lines that tug on our heartstrings are simply produced by chance, not by someone trying to evoke emotion or say something profound. More strange is that Racter appears to be aware of how uncomfortable its writing makes readers. Racter’s closing words in the book appear as if the computer understood itself as a computer, and as if it understood the difficulties in reading computer-generated poetry: “Here we find ourselves, nose to nose as it were, considering things in spectacular ways, ways untold even by my private managers...Well, have we indeed reached a crisis? Which way do we turn?” (Racter n. pag.). The question, posed by a computer, is unsettling and hard to reconcile.

Queneau’s *Cent Mille Milliards de poèmes* also makes readers question whether they have reached a crisis. Though readers may be comfortable reading Queneau’s 10 original sonnets, other combinations of lines feel less like poems and more like, well, combinations of lines. If Queneau himself did not put together a certain set of lines, how can one be sure that the combination means anything? If the reader encounters the stanza, “Those snaps of Pisa’s tower are bound to please/ any diner chooses escargots/at five o’clock he rests in his marquise/where Galileo once took pots to throw” (Rowe), how can they be certain that the references to the related phrases “Pisa’s tower” and “Galileo” in the same stanza are not just a coincidence? Given the randomness of the line combinations and the reader’s own doubt, it would be easy to dismiss Queneau and Racter altogether as something that seems like poetry but is not, a poetry sham. These texts leave critics wondering, “Will all texts in the future be authorless and nameless, written by machines for machines? Is the future of literature reducible to mere code?” (Goldsmith n. pag.). However, when we examine Racter’s poetry in *The Policeman’s Beard is Half Constructed* and Queneau’s *Cent Mille*
Milliards de poèmes, it becomes evident that the answer to this question is a firm no. As these two works show, the author is not absent, but obscured. One can envision the author more like a programmer who collaborates with the computer to create a text.

The Policeman’s Beard is Half Constructed portrays a simplified version of how the work was written, hiding the role of human thought in its creation. The cover advertises the work as “The first book ever written by a computer,” and Chamberlain himself portrays Racter more as a sentient being than a machine in his introduction. However, he disguises the fact that he himself, along with a colleague, Thomas Etter, authored the program’s code, and that he had to sort through massive amounts of output in order to compile a book so full of witty and philosophical musings as The Policeman’s Beard. It is not as if Racter simply generated the content of the book in its complete and finished form. Compiling Racter’s output took a great deal of curating, and in this way The Policeman’s Beard should be read as more of a collaborative project between Chamberlain and the computer. Chamberlain also claims that Racter produces writing “that is in no way contingent on human experience,” but he misinterprets (or perhaps exaggerates) Racter’s abilities. The program’s entire lexicon was programmed by Chamberlain and Etter. They had to go through a process of selecting words they thought would be interesting for Racter’s vocabulary. They also programmed the way that Racter combines words, giving the program its witty character and quirky voice. The fact that Chamberlain selected from Racter’s output the question, “Well, have we indeed reached a crisis?” (Racter n. pag.) indicates not that Racter is aware of the conundrum of machine writing, but that Chamberlain himself is aware. Placing this section at the end of the book is Chamberlain’s way of emphasizing the problem, and it subtly indicates just how much Chamberlain was
involved in the creation of the book. Though Chamberlain foregrounds Racter’s role in creating the text, *The Policeman’s Beard* is a testament to what humans can do in coding programs that create interesting work and in arranging and interpreting this computer-generated text.

Reading *The Policeman’s Beard* and *Cent Mille Milliards de poèmes* requires us to not only to re-think the role of the author, but also the reader. Chamberlain functions as a programmer to design how Racter will run, and then he functions like an editor who reads and reviews work for publication. His role as an author includes the roles of programmer and reader. In *Cent Mille Milliards de poèmes*, Queneau functions like a programmer as well, building the rules that will allow his work to “run.” Queneau then steps out of the process and lets the reader take the role of a type of author, building their own poem from the lines he provides. These new ways of envisioning the reader and the author subvert the ways that readers, writers, and scholars traditionally approach and make sense of a text. In an age when more and more works are created via “word processing, databasing, recycling, appropriation, intentional plagiarism, identity ciphering, and intensive programming” (Goldsmith), the role of the writer, the programmer, and the reader collapses. In creating a work, writers must be sensitive readers, sifting through information and selecting that which stands out. They must also be programmers, coding a work to function according to certain rules. Readers, as in the case of trying to read the poems from Queneau’s work, become writers themselves, generating text, arranging it into something cohesive and meaningful. The ability “to question and tear down such clichés and reconstruct them into something new, something contemporary, something—finally—relevant” (Goldsmith n. pag.) empowers both readers and writers.
The Oulipian Project vs. Contemporary Computer-Generated Poetry

Though in this thesis I spend a great deal of time exploring the relationships between Oulipian works and contemporary computer-generated works, it bears discussing some ways in which the two differ, because while Oulipo in many ways anticipates computer-generated poetry, it is a different project. One feature that sets Oulipo apart from computer-generated poetry is the quality of craftsmanship. Warren Motte explains that the word *ouvroit* meaning “the workroom” “is etymologically related to the word *ouvrer*, ‘to work,’ in the sense of ‘working’ a given material: wood, copper, stone” (9). The Oulipian project values the artisanal process, a process that is physical, labor intensive, and, importantly, analog. Oulipians devise and implement algorithms by hand, and they value the intense discipline it takes.

Does writing constraint-based work on a computer diminish a sense of craftsmanship, since the algorithm is implemented automatically by the computer program? Imagine if Georges Perec had written *La Disparition* by using a computer program to generate text without any *e*'s. His linguistic feat would seem much less difficult. Imagine instead that Perec created the program that could sift out any words with *e*'s in them and create a text that made good sense. Though he was not actually writing the text directly, the fact that he created a computer program to write such a text is laudable. Raymond Queneau lists craftsmanship in his characteristics of Oulipo, but he says, “this is not essential. We regret having no access to machines: this is a constant *lamento* during our meetings” (51). If Oulipians had had access to the kinds of digital computers that proliferated in the 80’s, or better yet, the computers around today, perhaps Oulipo would have turned out differently. However, Oulipo is not dead, as members continue to join and
write without the aid of computer programs. Though some Oulipian works make use of a computer, the act of creating and implementing constraints without the use of a computer remains a key feature of the Oulipian project.

Another feature that distinguishes Oulipo from computer-generated poetry is the fact that Oulipo is, at its core, more concerned with the constraint than the work. Because potentiality is crucial for Oulipians, a work does not have to be realized in order for it to be considered Oulipo. Lionnais sums up the Oulipian goal: “to discover new structures and to furnish a small number of examples” (qtd. in Lescure 39). Developing an algorithm or a type of constraint would be enough; another writer could come along at any time and create an example of the constraint manifest. With the computer-generated poetry I will examine, the goal is reversed. Most authors I will discuss seem to have a particular output in mind and then devise a program that will produce this output. Programs are specific to the works they create, whereas in Oulipo the work is specific to the constraint. In some ways, the Oulipian project sees farther than contemporary computer-generated poetry, which focuses on the poem as an isolated event rather than specific instance of a large, general structure.

**Understanding the Role of the Reader: Spectrums of Agency**

In a previous section, I introduced the idea that computer-generated poetry allows writers to become more like programmers and readers to take on more characteristics of writers. However, the reader does not always take on characteristics of a writer in an all-or-nothing manner when they engage with a constraint-driven work. In the following section, I explore how constraint-driven poems place the reader within a spectrum of agency. Depending on the work, the reader may have a fair amount of control over the final
form of the work, or they may function more like an observer than an active participant. In other words, the reader has more or less control over the potentialities of the text, depending on how tightly the author controls them.

On one end of the spectrum are works whose outputs are tightly controlled by the author and whose algorithms yield a small range of potentials. The reader’s options of ways to interact with the text are limited, and they have little control over the final output. Stuart Moulthrop’s “Reagan Library” is a good example of a poem on this end of the spectrum. “Reagan Library” builds a text-world in which the reader slowly experiences the work. When the reader begins the text—perhaps “game” would be a more appropriate term here—they land on a page that displays paragraphs of text and a digital image.

The content of the image is unclear, as is the meaning of the text. This first page is a world without context. The reader can manipulate the image by swiping left or right with the mouse, rotating the image as if the reader were at a fixed point in the center of a circle and spinning slowly around. Within the text, certain words or phrases contain links. Clicking on the links leads the reader to another page of the same format, only with different text and a different image. As you click through various links, an image of the world slowly emerges.
Landmarks repeat in the digital images, and the reader can begin to construct a map of their surroundings. Similarly, phrases are repeated between pages of text. Links are not entirely predictable, and it is possible to end up in the same scene as you started out or visited at one point in your explorations. Each time you land in a scene you have already visited, the text differs slightly, and is a bit more cohesive. In this way, the landscape and the story slowly emerge in the course of the reader’s exploration.

Reading the text, by way of moving back and forth between different landmarks, is an act of patience in which the reader has little agency. The reader gets a feeling of blindness, especially when they first begin reading the piece, because their perspective is severely limited. Only by taking their time to scroll through each landscape, read the text, and follow the links does the reader slowly get a sense of scene and story. In “Reagan Library” there is no flipping or scrolling back to previous scenes in order to re-read. When the user lands on a page they have already visited, they are essentially re-reading the page, but some of the text has changed. In many cases it is impossible to say what was previously on the page and what has been changed, since presumably the reader has visited many pages before revisiting one, and because certain phrases are reused on different pages to describe different scenes. The reader’s only real agentive act is clicking on different links. By clicking, the reader travels through the world.

“Reagan Library” is a text-world of limited potentialities and therefore limited agency on the reader’s part. Moulthrop’s program is designed to let the reader know how much of the world they have explored and how much they have yet to discover. On each page, there is a single colored square at the end of the text. Each time you revisit a page, another square appears. In my experience I could make the program generate no more
than 4 squares per page. When I encountered 4 squares, I knew it was time to go complete other pages. Moulthrop also gives the reader cues by occasionally noting what percentage of the text the reader has encountered so far. While there is some doubt as to how accurate the percentages are (there is one page where the cue reads, “75% of readers believe these statistics”), the numbers do seem to correlate with the amount of text one has gone through (Moulthrop). Moulthrop limits potentialities as the reader goes along, in the end creating a text that will not change, and whose path you can now predict from the links. Once the reader picks up on these cues, it is only a matter of time before they navigate the whole work by doing nothing more than clicking on hyperlinked words at random. The reader cannot control the output of the program but comes to understand that their role is the role of observer and explorer rather than active participant.

On the other end of the spectrum are digital poems like *Oulipoems* by Millie Niss and Martha Deed. *Oulipoems* contains six works that are all directly influenced by the Oulipian project. “Poggle” and “The Electronic Muse” are two poems within *Oulipoems* that give the reader tools with which to build their own poem. “Poggle” functions like a poem-creating game. The reader is given a set of tiles with words or phrases on them and must click on the tiles to create a poem before the timer runs out. The reader can only click on tiles that are adjacent to each other. The words in the boxes are randomly (or semi-randomly) presented by an algorithm, and the reader must then interact with this constraint to create a poem. The reader could generate a poem that is more or less nonsense, or with careful planning they could generate something of interest. Whatever they generate, it is important that the work takes the form of a tool with which the reader can create something, which is very different from the act of exploring a world in “Reagan Library.”
"The Electronic Muse" follows the same principle as "Poggle" but gives the reader different tools. In this work, the reader's goal is to generate a poem. They can generate lines by clicking a drop down menu and selecting a voice, such as Shakespeare, Anne Sexton, or Dick and Jane. A line is then generated in the poem space that takes the voice of whomever the reader selected. This program actually gives the reader a high degree of freedom. Unlike in "Poggle", which provides heavy constraint, the reader can manipulate the lines generated in "The Electronic Muse" in a number of ways. They can use arrow buttons to select a line and move it up and down in the poem, and they can delete lines they do not want. They can also add vocabulary to a current style. The result is a line that is a hybrid style; it takes on characteristics of the source style, the reader, and Millie Niss as the author. It is interesting to consider whether “The Electric Muse” and “Poggle” should or even could be considered poems themselves, or whether the poem that the reader creates is the real poem. Niss and Deed's works function like programs that the reader interacts with to
create their own work. In this sense, the reader is less like a reader and more like a user. Perhaps the term “wreader” could also be applied in this situation. The term, used by digital poet Jim Andrews, cleverly picks up on the double role that the reader of a digital poem like “Poggl” fills. They must read and interpret the program and then create their own work based off of it. The wreader is heavily involved in the output of the work.

Of course there are many works that fall in the middle of the spectrum, somewhere between being a program and being a traditional poem. *The Mandrake Vehicles* written by Oni Buchanan is a good example of such a text. There are three “vehicles” in this text, all formatted in the same manner. I focused my analysis on the first installation. Using the numbers on the top of the page, the reader can move through the seven pages, which actually function more like phases, of the vehicle. The reader first encounters a page with a block of poetic prose. Click on the “next page” button and certain letters grow in size and disappear, leaving the text with many holes and making it only vaguely readable. On the next page, letters trickle down and fall from some words onto others. Some letters attach to other words while most fall to the bottom of the page, arranging themselves into new poetic words at the bottom: “rilles orryr ballet oasis tryst typhoon when plangent sea nettles radishes haunt askew” (Buchanan 4). From the text with many holes in it, a new poem is created by removing all the spaces. This same process continues: letters grow and fade out of the poem, letters trickle down to create a list of words at the bottom, the poem forms from recombining letters still in the poem-space. The result of the process is a block of text that is carefully distilled down to one poem, and then another, shorter poem via a series of intermediate steps.
Buchanan's work at first appears to allow the reader limited agency. The sequence of pages and text on the pages is the same every time you view it, so it is quite easy to get a handle on the work. Like an actual book, you can flip back and forth between pages to see how the process happens and to re-read. Like in “Reagan Library,” the reader can explore the world of the poem but does not have a direct role in crafting the world except by clicking to advance to the next page. However, Buchanan created a subtle feature that allows readers more room to play with the work. During sequences of animation where letters disappear or trickle out, there is a stop/play function, where the reader can stop the change in mid-process and look more closely at the change at any given point. The reader could potentially take screen shots of the poem at any point in the animation and create readings of the screenshots. Slight changes in time could lead to subtle changes in meaning. Thus, the poem contains more potentialities than it seems to at first. It is possible that no
two people could stop the poem at the exact same point, giving rise to nearly infinite subtly different images and interpretations.

If we examine Queneau's *Cent mille milliards de poèmes* based on the spectrum of agency, is it clear that the reader has a high degree of control over the final product. Interestingly, the amount of agency the reader has varies on the format of Queneau’s work. Reading the work in book form, the reader can easily manipulate the work physically. The book consists of ten pages cut into fourteen strips of paper, each containing one line. The reader can flip through the strips of lines until they find a combination they like, and then they can focus on pertinent lines by means of a separator page that holds extra lines out of view. Though this format is somewhat clunky, in that the reader sometimes feels like they are swimming through slips of paper, it gives the reader a high degree of control over the work. They can flip back and forth between sonnets, choosing to change only one line at a time if they wish. It is easy to return to an earlier sonnet by simply flipping to the same configuration of lines. It is almost like reading a traditional book, except that each line is its own page.

The reader's agency and the focus of the work changes when *Cent Mille Milliards de poèmes* is presented in a digital format. Given the use of constraint and the sheer number of possibilities of combinations, it is no wonder that Queneau’s work has been reformatted for a digital interface. One reader created a flash application to view the work, criticizing the fact that the book format

naturally inclines the reader to favor ten of the sonnets as being more naturally paired, just by the particular distribution of lines. What’s more, the very first one of those sonnets is invariably the most ‘natural’ one, as it is the
first one any reader reads, and the only one that is at all easy to read without
fumbling through a small forest of sonnet-shavings. (Dow)

In the application, the user can create new sonnets by hovering their cursor over a line,
which then spins until the reader removes their cursor. In contrast to the book format, it is much easier to generate poems quickly. However, there is little precision, and it is impossible to return to a particular combination once you run your cursor over the lines. This is especially frustrating if you stumbled upon an interesting combination and accidentally moved your cursor over the poem. In this format, the reader can read individual sonnets, but it is hard to keep track of them or compare them since the poem changes with the slightest touch. The goal of this type of interface seems to be more to demonstrate the potentiality of the poem rather than to dig into its meaning in any particular combination. The author points out that he does not speak French, and thus cannot read the lines of the sonnets as they are (Dow), so for him the goal is certainly not semantic meaning. Indeed, the application creator programmed a sonnet counter into the application, so that the emphasis rests on numbers of sonnets generated, not on any particular sonnet. Readers who interact with this type of digital application have more
control over the number of poems they can generate but less in control of the content of specific poems.

Because I cannot read French, I consulted a second digital version of Queneau’s work that places the reader on a similar level of agency as the book format does. On this site, the reader can choose to start on one of the original 10 poems, or they can begin with a random combination of lines. The French lines accompany the English translations, and the translator devotes the bottom of the page to translation notes. Buttons on the left of the poems allow the reader to switch just one line at a time or to randomly shuffle the lines.

This interface is perhaps the best for readers who want to do a close reading because it gives them a high degree of control over how they combine lines. It is much easier to create a readable poem since the reader does not have the worry about managing many tiny strips of paper. However, the sense of potentiality is diminished in this interface, because, unlike in the book format, the reader cannot see an array of lines at once, and, unlike in the Flash application, the reader has no easy way of counting how many poems they have
encountered. Agency fluctuates with each format, causing the reader to experience _Cent Mille Milliards de poèmes_ differently depending on where they view it.

_Cent Mille Milliards de poèmes_ and _The Mandrake Vehicles_ help us re-think what it means for a text to occupy a digital space and what it means for a text to be interactive. It is a common conception that digital works are necessarily more interactive than conventional, print works. If we take “interactive” to mean that the reader has more agency, we know from an examination of works like “Reagan Library” and the Flash application of Queneau’s work that this is not the case. The digital interface may simply be a way to present algorithmically created or displayed text. In this format the act of clicking functions very much like turning a page, and is interactive only in the sense that it is necessary to the act of reading the work. Queneau’s work in print format certainly does entail turning pages, but the reader has to more actively turn pages in order to create their own poem from Queneau’s lines. It should be noted, however, that the amount of agency a reader has is in many cases entirely up to them. While some works like “Poggle” demand creativity, the reader could give up their agency by clicking random tiles and making an entirely random poem, one that they have given little thought to and are not invested in. The beauty of Oulipo and contemporary computer-generated works is that they occupy a space of tension between randomness and order, algorithm and intention, and the reader who acknowledges these tensions and learns to work with them will certainly get the most out of the work, whether it is in print or digital format.

**Reading for Meaning: Poetic and Algorithm Awareness**

If the reader’s first task when confronted with a computer-generated poem is to interpret their level and type of interaction with the text, then their second task is to read
for the work’s meaning. But just as constraint-based poetry is slippery in the ways it makes
the reader respond to and interact with the work, it is also slippery in the levels of meaning
it contains. As with the Racter poetry, the reader may at first assume that since text is
generated, at least in part, by a computer, it has little semantic value, because a computer
cannot “mean” anything when it generates text. The reader could leave the text alone or
choose to approach it with a different assumption: the text refers to itself. It is often quite
easy to read computer-generated poems in this way, because when it is impossible to
decide what certain words or phrases refer to, one can assume that the words refer to
themselves. In fact, this is a tactic that can be used to analyze almost any poem, computer-
generated or not. Opaque language can always be read as a commentary on language itself.
However, many computer-generated poems contain words, phrases, or themes that are
deliberately self-referential. Constraint-based poetry can be self-aware on two levels, one
of algorithm and one of language. Many are aware of themselves on both levels. In addition,
their awareness of themselves as program or poetry plays an integral part in their
discussion of other subjects and themes.

Moulthrop’s “Reagan Library” is full of phrases that point to the work’s awareness of
being a computer-generated poem and that explore the relationship between humans and
computers. Moulthrop answers questions the reader asks as they explore the work,
whether they are aware they were asking them or not. When the reader searches for
cohesion and questions why they can find little, the text soothes them with the affirmation
that yes, “this sentence is out of order,” but that it is not a problem with the computer; the
reader cannot “reconfigure their browser” to make things clearer. In this world of
computer-generated potentialities, “it is hard to go too far” (Moulthrop n. pag.) Later, the
Greenhalgh 30

text echoes itself: "This sentence is out of order. Change your head" (Moulthrop n. pag.) The slightly altered echo of the previous phrase gives the reader the answer they were searching for when struggling to make sense of the work. The reader should not reconfigure their browser in order to make sense of the poem; they should change their head. Moulthrop offers more clues as to how the reader can go about this. In many sections, the narrator describes scenes from his childhood or scenes of him interacting with the digital landscape. Then he sneaks in lines like “my processor hurts” (Moulthrop n. pag.) Here, Moulthrop personifies a component of a computer at the same time as he automates the narrator. Perhaps Moulthrop means to indicate that the human head and computer processor are interchangeable, or even more interestingly, that they are essentially the same thing. In order to interpret Moulthrop’s poem, in which “some of the language is randomly generated, [and] some of the language is not randomly generated” (Moulthrop), the reader should then envision their mind more like a processor, a piece of machinery that has the necessary circuitry to execute logical operations. Moulthrop’s language bears interesting similarities to the epilogue Raymond Queneau included in the print version of “Cent mille milliards de poèmes.” It is a quote by Alan Turing, who is regarded as the father of modern computing. The epilogue reads, “Only a machine can appreciate a sonnet written by another machine.” This quote implies that perhaps computers are the only things that can appreciate computer-generated poetry, or that a human is a type of computer. At the very least, perhaps only a person who understands the complex relationship between computer and humans can understand computer-generated poetry.
Like "Reagan Library," "Concatenation" is work in which lines are reiterated to build subtly different meanings, but unlike Moulthrop's work, "Concatenation" alludes much more subtly to itself as a program. "Concatenation," part of a series called *Generative Poetry* by digital poet geniwhate (sic), plays with the mutability of language and its ability to take on various different meanings. "Concatenation" is a poem that falls on the same side of the spectrum of agency as "Reagan Library" in that the reader can explore and observe the work, but they have little control in the program's output. The reader first encounters a poem space with phrases in red letters on a green background peppered with faded red letters. Click on the poem space and the phrase changes. Sometimes the words are clustered together in the space, sometimes they are spread apart, and sometimes letters are simply scattered across the space. "Concatenation" is at once a poem about poetry and about war. In fact, war and language are conflated in phrases like "mothers teach the grammar of war" and "the world is a spelling mistake" (geniwhate). However, this conflation is complicated and nuanced by the algorithm of the poem, which randomly displays one of the lines in the poem's database each time the reader clicks. Particularly interesting is when a line is iterated and reiterated in a slightly different form than an original line, much like in "Reagan Library." When I read "Concatenation," I first encountered the phrase, "words bombs are scattered/scattered are" and then later on, "scattered bombs are words" (geniwhate). Finally, this line appeared: "scattered words are bombs" (geniwhate). Given that most lines are in fixed form and tend to reoccur if the reader
clicks through the poem enough times, it is likely that geniwaite wrote these lines before inputting them into the program. Nevertheless, the permutations of these words and phrases are displayed in random sequence by the program, and they yield subtle differences in meaning. The first version can be interpreted as an image of both words and bombs being scattered over a community. Language can be just as oppressive as physical violence; their combination implies total control and violence in every form. The second iteration of the phrase says that the bombs scattered are in fact words. This could mean that violence is a form of language, and that the dropping of bombs is a message to the victims. Finally, the last instance is the converse of the previous phrase, this time meaning that the words are in fact bombs, and that language is a type of violence. Taken together, all three phrases complement each other. What is more, the relationship between language and violence is strengthened with each iteration of the phrase. It is like computer-generated anaphora, adding nuance and emphasis each time a phrase is repeated and reworked. Each line in “Concatenation” takes meaning in relation to the phrases that come before or after it. “Concatenation” as a title also carries a double meaning. On a general level, it indicates the combination of a series of things. In this case, meanings are concatenated in the process of clicking through the poem. On another level, “concatenation” is a phrase used by programmers to denote the combination of different data types. In geniwaite’s work, the term could be interpreted as a nod to both the literary and technical aspects of the poem. Through the poem, individual phrases are concatenated, violence and language are linked, and poetry and programming are tied.

The same subtle awareness of the work as a program can be found in Oni Buchanan’s The Mandrake Vehicles, though this work focuses on the process of creating
poetry and explores language in many forms. Each page of the work is meant to highlight its connection to other pages and to illustrate the process of one version of the work morphing into the next. Buchanan says in her introductory notes that *Vehicles* is informed by the mandrake plant itself, which has “a rhizomatous root structure, meaning that the plants themselves are all connected underground by horizontal subterranean stems shooting off from the vertical root of each individual plant” (Buchanan). Indeed, in *Vehicles* each page is connected by an animation which shows the morphing process in motion and which also shows how words and pages are connected to each other in unexpected ways. Words and phrases within the various stages also subtly point to this idea of process and organic connection. In the first installation, the first page contains a block of poetic prose describing a mandrake being pulled from the ground: “—was it—of surface, liminal, for first there was a layer, *first*, a membrane of dust to host the infinitesimal rupture” (Buchanan 1). This page is just the beginning; it itself is a “membrane of dust to host the infinitesimal rupture” that will lead to the discovery of a complex structure and interconnectivity beneath the surface of this prose block. After a series of transformations, the work settles into the form of one concise poem, whose first line begins with the word “winnowing” (Buchanan 7). This word perfectly describes Buchanan’s process. From a block of beautiful, solid prose, words and letters are carefully sorted out. Though they may be beautiful in themselves, they are extra and do not serve the final poem. The last poem is more beautiful because the reader has seen what has been winnowed out.

Buchanan’s attention to and delight in language runs through the whole work, creating a poem that is pleasing on simply the word level. Buchanan uses the digital interface to emphasize words and the relationships between them. In the work’s
intermediate stages, select letters trickle down to form their own words at the bottom. They are words not found in the original page and which may or may not have significance to the current page, but which are beautiful in themselves. Delicious care is taken in the crafting of these words: “rilles orrery ballet oasis tryst typhoon hewn plangent sea nettles radishes haunt askew tolling” (Buchanan 4). These unique words are tied together by a series of alliterations, first the “r” sound morphing to and “ay” sound morphing into “t” sound that loosely connects the series from “tryst” to “tolling.” In her introductory notes, Buchanan explains that these words are “made of scales of the same heavy letters that will form the next poem, but they create the ‘could-have-been’ words which exist only as unselected entities.” These “could-have-been” words are an interesting way to describe the potentialities hidden in the *Vehicles*. There could be potentially hundreds of other poems springing from these “detrius words” (Buchanan), but in order to convey what Buchanan wishes to convey, they must be thrown out. The animation that shows the letters trickling out the poem and assembling new words illustrates Buchanan’s thought process as she crafts the *Vehicles*. The digital interface is crucial, as no such dynamic illustration of process would be possible on a printed page.

Where *The Mandrake Vehicles* is concerned with earnestly exploring the work’s transformation, Jason Nelson’s “This is how you will die” is a poem concerned with making an absurd game of poetry and the poet himself. Filled with scribbly lines and morbid humor, “This is how you will die” is poem modeled off of a slot machine in which the reader
can spin the wheel and receive a facetious prophesy about their own death.

The work is in some ways like Queneau’s *Cent Mille Milliards de poèmes* in that the reader can make new works from different combinations of lines. Of course, Nelson's work contains far fewer possible combinations than Queneau’s, and the reader basically gambles to see what the fate of the poem (and their own fate) will be, whereas the reader has much more control when reading *Cent mille milliards de poèmes*. Nelson's work is built on playfulness and general disrespect. The reader may encounter lines like “The police fight crowds for your blood, collected in rusted communion plates” (Nelson), which communicates a disregard for anything sacred. Under the umbrella of this disregard art and scholarship also fall, which Nelson both rues and mocks. One fortune reads, “Your body is mistakenly sent to an Ohio medical school, and used for slice practice...and sales of your previous poetry book are still not enough to pay for lunch” (Nelson). This line is one of several that simultaneously pokes fun at and bemoans the fate of the contemporary poet whose work is underappreciated and undersold. Expressing a related sentiment are lines like “Your death is reported by tenure-seeking academics as being suspiciously modernist”
Greenhalgh 36

(Nelson). Here Nelson depicts the stereotypical ravenous scholar who will over-analyze anything for academic recognition. Through lines like this and through the interface of the slot machine itself, Nelson makes it clear that “This is how you will die” stands counter to so-called “Great Art,” and that those who fall prey to the desire to make or criticize Great Art will end up penniless or will miss the point. In some ways his goal is similar to the Oulipian goal of being artisans instead of artists, not wishing to make works that were built on romantic fallacies such as inspiration, but working with the aleatory and absurd. However I doubt Nelson would categorize himself as a craftsman. If anything he is a satirist, using an algorithm of randomness to poke fun at serious topics and serious people.

Though Queneau’s Cent Mille Milliards de poèmes contains references to itself as an algorithmic work, it is much harder to read for content than any of the poems I have so far discussed because of the sheer volume of possibilities. In reading the poem, one simply does not know where to begin, and certainly not where to end. To attempt a reading, I used Rowe’s website, which was the easiest way for me to manipulate the text. One question that arises in reading is whether one should read a single poem as a unit of meaning on its own, or whether one should read several poems together. When you begin to look at the text this way, as a collection of collections of poems, the possibilities really are infinite. Since I determined earlier in this thesis that Queneau’s work as displayed on Rowe’s website gives the reader a high degree of agency, I decided to take advantage of that agency and to craft a poem myself, switching out lines until I found something that felt cohesive:

So now the bard spurs iambic and trochees

And sniffs the smoke that sets his nose aglow

He’d much to learn despite his four degrees
We always hope to keep ourselves so-so

The Parthenon horse is shivering in the bise
Your mind turns more and more to gloom and woe
For death casts piles of shit on pedigrees
Most people like to read the words they know

The genealogist finds every blot
To cease from scratching parchment he cannot
You can't quote Virgil in a limousine

Oh reader thinking thus your heart will lock
You cannot number off each ploch and pock
Clear from the start the ending is foreseen. (Rowe)

In creating this poem, I picked lines that dealt with writing, reading, scholarship, and history, topics that Queneau furnished for me. This poem comments on the writer as one who, though learned, cannot know everything, since “he’d much to learn despite his four degrees.” I also picked the line “death casts piles of shit on pedigrees” because it echoes themes in Nelson’s “This is how you will die.” These ideas taken together say something about the powerlessness of the author, whose knowledge is never enough to create a flawless work or a work people will want to read, since “most people like to read the words they know.” In the last stanza the poem addresses the reader who is also in a state of powerlessness, since they “cannot number off each ploch and pock.” Here the poem points
to itself, aware that the reader cannot account for every line combination in *Cent mille milliards de poèmes*. They are too many to read and explore. The last line of the poem is interesting, seeming at first to contradict the line before it. How is the reader unable to number off each poem yet able to foresee the ending? It makes more sense to interpret that the ending is foreseen by Queneau and by *Cent Mille Milliards de poèmes* itself. The poem’s algorithm foresees the poem’s and the reader’s fate, a fate of endless potentials where no amount of learning is quite enough to pin them all down.

**Conclusion**

In this thesis I have discussed how Oulipo and computer-generated poetry can be used to read each other because they share traits of constraint and potentiality. They complicate the role of the computer, the author, and the reader, and demand that the reader be more attentive to where they stand in relation to the work. So where do we go from here? I believe that those who learn to read constraint-based works will be more sensitive readers of traditional works. Readers who acknowledge their role as both a passive observer and an agent of a text will read with more energy, with more sensitivity. For example, if a student has trouble grasping the meaning of a poem, they should play with it, cut it up, rearrange it, and then reassemble it. When they realize reading can involve using the creative eye of a writer, more opportunities for understanding will open up to them.

Furthermore, constraint-based poetry can help us be more open to other types of literature from which readers and academics have typically shied away. Methods like collage, pastiche, and repurposings seem radical in contrast to the traditional image of the lone writer and his inspiration. Then again, so did Oulipo when it first began. However,
Oulipians did not see their project as anything revolutionary, and neither should we. In the *Second Manifesto* of Oulipo, Lionnais argues that “if the Oulipo suddenly ceased to exist... in the long run, everything would return to normal, humanity eventually discovering, after much groping and fumbling about, that which the Oulipo has endeavored to promote consciously” (31). Oulipian characteristics are foundational the way literature has been and will be made. Lionnais argues that in the natural process of the evolution of literature, Oulipian writing would inevitably emerge even if there were no Oulipians to consciously promote it. Constraint is an underlying characteristic of language, and those who know how to work with constraint will be powerful writers.

Today, constraints of code and algorithm also facilitate the ways we view and access content. Readers who are aware of the ubiquity of constraint will be more receptive to works in which constraint is crucial to the work, whether it be the constraint of a text-generating program or the constraint of using another’s words to express your own ideas and emotions. Just as creating algorithm-based work filled Oulipians with the desire and energy to write, constraint will have an empowering effect on contemporary authors and readers:

Far from this "uncreative" literature being a nihilistic, begrudging acceptance--or even an outright rejection--of a presumed ‘technological enslavement,’ it is a writing imbued with celebration, ablaze with enthusiasm for the future, embracing this moment as one pregnant with possibility. (Goldsmith)

The goal of literature has always been to make meaning, and works in the tradition of Oulipo and computer-generated poetry celebrate making meaning in an unconventional
way. What is more, they celebrate works that are “pregnant with possibility” of new works, of works generated from works, of an endless cycle of creation.
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