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Matter, Memory, Multiverse: 
The Prism of Reality

By

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Abstract

When Isaac Newton conducted his prism experiment, and discovered a “new theory of light and colours,” the experiment had far more social and scientific import than he could have anticipated. In his paper, Newton broke “whiteness” down into its true, conglomerate, multi-layered essence. “For the first time,” a phrase that was used quite a bit during the Enlightenment and Restoration of the 17th-18th centuries, whiteness was understood as a composite that contained every other colour. What happens to the paradox of the Enlightenment-- predicated upon “individuality” that was strangely restricted to white males-- when the very basis of “whiteness” has been altered? And what other facets of life have tools redefined; even altered irreversibly? Tools have been restructuring our perception of “the real” for centuries; some opening up entirely new worlds that expand our view of humankind and life outside of its periphery, some restricting us to worlds that are tainted with delusion, or never existed in the first place. However one approaches the question of tools, and their impact on humankind, one must confront the transformative effects that tools have on “the real.” This project will seek to trace the history of tool-based cultures, and how the most primitive extension of our biological make-up has launched us into a future that we, perhaps, aren’t prepared for. Fast forward a few hundred years, and we are being confronted with the “forgotten majority” that we have kept hidden, and “the real” is being problematized now more than ever before.
Introduction: Sanding the Edges of the Real

“The people who are absent are the ideal, those who are present seem to be quite commonplace.”
-Johann Wolfgang Von Goethe

“The trick to forgetting the big picture is to look at everything close up.”
-Chuck Palahniuk

There is a certain satisfaction derived from using sandpaper on a beautiful slab of wood. If the reader has ever had the experience of sliding this ragged, unforgiving paper down a wood surface due to be stained, they can relate to the contented feeling they experience when the wood conforms to their will. Sandpaper rounds out the rough edges of a wooden surface, and turns any undesirable bump or corner into sawdust—the “leftover” oak that settles on the floor of the garage and only serves as an inconvenience, to be swept up later. Sandpaper also prepares the wood for the staining process, turning the “raw” wood into a smooth, shiny, aesthetically pleasing surface to be used at cocktail parties, or in the office of a tenured college professor. It is telling that our immediate memory when we hear the word “wood” is generally of this glossy derivative, not the original product carved out of the oak tree. The gloss and sheen of a sanded desk, stained to perfection, is ultimately the image of wood in its “ideal” state.

The debate between realist and idealist viewpoints has dominated philosophy for centuries, in a transcontinental effort to deduce whether the world is constituted by the brain and its interpretation of the senses, or physical truths that exist entirely separate from each living body. This debate has ultimately doomed this paper from the start, as we will be using these terms in an entirely different way. For the sake of this project, let us establish separate definitions for realism and idealism; ones that will allow us to aptly investigate a pivotal topic in this paper: forgetting.
There is an infinite number of experiences, stories, details, etc. that the human brain is forced to part with on a minute-to-minute basis--leaving them to lie dormant on the “garage floor” of our minds like useless sawdust. In order to sift through a universe that is as apathetic as it is unforgiving, our brains are constantly idealizing their surroundings; blunting the edges of experience.

This is ultimately the definition of “idealism” that this project will concern itself with: to “envision or see things in an ideal or perfect manner”(Julita 1). The term “ideal” can be loaded with meaning on sensory experience, mind-independence, and countless other philosophical concepts that have been debated for centuries. However, for the sake of investigating the development of knowledge, and a particular view of the world over the course of three particularly turbulent centuries, it is necessary to diverge from these philosophical debates and get to the bottom of the terms “ideal” and “real.” The Oxford English Dictionary defines “ideal” as “conceived or regarded as perfect or supremely excellent in its kind; answering to one’s highest conception” or “Existing only in idea; confined to thought or imagination; imaginary; opposed to real or actual.” Also: not real or practical; based on an idea or fancy; fancied; visionary” (Oxford English Dictionary; Ideal). To boil all of this down to one particular divergence between “realism” and “idealism”: “idealism focus[es] on ‘what could be,’ and realism focus[es] on ‘what actually is” (differencebetween.net). Following this, an “ideal” view of the world is one that conforms to one’s “highest conception” of it. When idealising one’s surroundings, one will often ignore or forget certain unsavory details to maintain a pleasant view of life. If the reader has ever seen a video of the dazzling lights illuminating Times Square, without the videographer panning down to reveal the homeless citizens lining the streets and begging for food, then they have seen an idealized depiction of New York City. Realists would argue that the video should include those
struggling on the sidewalks, idealists would insist in using the “close up” method discussed in our epigraph. This is the split that this paper will investigate, in numerous parts and throughout various points in history, in order to delve into the world created by the “medium,” and how this fascinating phenomenon can both alter our view of the universe and bring us closer to the ultimate truths about reality.

Discussions on the presence of the “medium” largely began when a new form of literature arose in the 17th century; a literary form that we will discuss extensively in this paper: the novel. When this new, unique, and “formally realistic” medium was popularized, it became a source of anxiety and debate for literary purists confined to a specific conception of literature. The authors of the first novels grappled with the difference between the “real” and “ideal” in ways that altered the socio-political landscape, and created false categories that effectively “rounded out” the incongruous features of reality. Aphra Behn, author of the proto-novel Oroonoko (a text we will discuss in great detail later in this paper), asserted the reality of a story that is rooted in complete fiction. In her introduction, she asserts that the main character of the book, Oroonoko, is so unique that she couldn’t possibly fabricate a single detail: “He who has good fortune to draw a face that is exactly charming in all its parts and features, what colours or agreements can be added to make it finer? All that he can give is but its due; and the glories in a piece whose original alone gives it its perfection” (Nixon 63). A wonderful sentiment to be held by a documentarian, or an author of a biography; however, what follows this introduction is neither of these things. Behn argues that she couldn’t possibly fabricate a detail in a fictional story, effectively “idealizing” reality in a way that doesn’t admit to this fictionalization.

Behn was certainly not the only author to do this, either. Her fellow novelists could not stop endowing their stories with statements of authenticity: “it borrows none of its excellencies
from the romantick flights of unnatural fancy, its being founded in truth and nature” (Nixon 69). Daniel Defoe, the author of the famous (and possibly the first novel) *Robinson Crusoe*, is even more blatant with this fabrication when he says, “The editor believes this thing to be a just history of fact; neither is there any appearance of fiction in it” (Nixon 65). Indeed, these “editors” desperately wanted their stories to be accepted as truth; and in many cases, these stories were tales of bourgeois lifestyle shared amongst the “individuals” who gained their liberty during this time of rampant reading and writing. However, the problem with these grand proclamations of “truth,” “fact,” and “history” is the act of *forgetting* that is part and parcel of these ideal “formal realist” novels. The “realism” that these novels are formally appealing to is, in fact, “idealism” in the most basic sense. These authors effectively rounded out the edges of modern experience, and excluded the *vast majority* of experiences that were occurring during this time period.

In this paper, we will begin by discussing this *majority*, and the implications that stem from its exclusion from the canon of both literature, and life in general. We will discuss three novels that illustrate the problems inherent in this idealistic exclusion of entire groups of people, and entire pockets of reality. In order to contextualize this topic, we will begin by discussing the beginning of the British Enlightenment, a period that permanently altered the socio-political landscape of the world. We will also discuss the medium that sparked this drastic change (the “novel”).

We will then discuss scientific discovery, and how the “medium” extends far past the genre of the novel and aids us in hypothesizing the vastness of “the real.” Assisting us in this endeavor is theoretical physicist, and all-around Enlightenment thinker David Deutsch, who proposes a real that is far more vast and seething than anyone could anticipate.
We will also discuss the differences and similarities between philosophy and science, and the ways in which the two converge to strengthen our knowledge of a fascinating multiverse that is both immediately present, and agonizingly separate from our experience of the universe. This will bring us to Deutsch’s hypotheses on “shadow photons” and alternate universes that both affect our reality, and remain far removed from it.

Finally, we will discuss a particular branch of alternate realities that are manmade and constantly advancing: virtual reality. During this discussion, we will use the philosophy of Henri Bergson to clarify and expand our view of this newly advancing technology in order to explore the implications of this fascinating tool.

Though disparate, these topics will prove to be closer together than one might think. The investigation of “the Real” has been the occupation of philosophers and scientists alike for generations; and the closer we come to a view of its framework, the more it resists us. So, how do proto-novels connect to theoretical shadow-photons? What stake does *Robinson Crusoe* have in a discussion on Virtual Reality technologies? Let us start by consulting, of all things, the classic-rock band Pink Floyd, who surprisingly have quite a bit to say about the issues surrounding the Enlightenment.
Pink Floyd’s Enlightenment: Time, Money, and Optimism

“All that is now
All that is gone
All that’s to come
And everything under the sun is in tune”
-Pink Floyd

The Enlightenment According to Pink Floyd

Perhaps the most pressing issue plaguing studies of the British Enlightenment that began during the late 1600s is that of the silenced majority. During this era of scientific discovery and revolutionary thinking, there was another reality occurring simultaneously, that both allowed for this massive revolution, and was made invisible by it. In this way, there was an “infinite” number of realities occurring at the same time that textualization was attempting to turn into an all-encompassing one; there were an “infinite” number of people, but only a select few “individuals.” David Deutsch confronts this concept of “infinity” and its many implications in his book *The Beginning of Infinity*, where he theorizes about scientific thinking, and how it was refined during this period of British Enlightenment. For him, infinity means far more than the “infinite” number of silenced human beings, it means the “infinite” amount of discoveries that can potentially be made with the constant discovery of “new knowledge.” During the era that Deutsch is theorizing about, two novels were published that took the form of enlightenment-microcosms. One novel is canonical, and was perhaps the first “novel” of all: Daniel Defoe’s *Robinson Crusoe*. However, the other novel had been “silenced” or placed in the “infinity” for centuries, until very recently. *The Female American* was written anonymously under the alias “Unca Winkfield.” The book has been said to parallel *Robinson Crusoe*; however, the differences between the two texts are far more interesting than their similarities. In fact, these two texts diverge precisely at the fork in the road between “mini-enlightenment” and “The Enlightenment” that we are in today. And Deutsch will
offer some brilliant insight on the causes of these differences. In order to pick apart these texts, Francis Bacon and Tom Bottomore’s theories on “use” (and for Bottomore, “exchange value” as well) will be essential to define and expand upon. However, to begin theorizing about The Enlightenment, and the factors that contributed to (and hindered) this phenomenon, we must first consult the Enlightenment thinker Isaac Newton’s discoveries, and how the rock stars in “Pink Floyd” created a message that capitalized on and summarized the moral implications of Newton’s empirical work.

If there is an image associated with Pink Floyd that is more iconic than the white-brick wall, or the flying pig, it is certainly the light prism. In 1665, Isaac Newton used a prism just like the one featured on the cover of “Dark Side of the Moon,” and made the revolutionary discovery that there is no such thing as whiteness. On this groundbreaking day, Newton covered his windows in order to allow a singular beam of sunlight to enter the room. He then “placed [his] prism at this light entry,” and was astounded to see the “vivid and intense colours produced by this procedure” (Newton 2). In this way, Newton discovered that a single, white beam of light contains a rainbow of colors. This scientific discovery had obvious ethical implications as well. How does one uphold white superiority in the 1600’s if there is literally no such thing as the color white anymore? It is compelling to consider a scientific discovery having such weighty moral baggage, and it seems that Pink Floyd picked up on this interesting genre-blending phenomenon when they added a third medium to the legacy of the Newtonian prism: rock and roll. In 1973, Pink Floyd released the album that would seal their legacy: “Dark Side of the Moon.” The album was unlike anything the world had ever seen before. Roger Waters (their main songwriter) intertwined deep philosophical rants, with civil rights protesting; ethereal melodies, with angry crashes and bangs. Yet, the album’s legacy extends far past its mesmerizing sound. Ultimately, “Dark Side of the Moon”
indirectly tells the story of the British Enlightenment; an anti-capitalist tale of seeking pure knowledge and advancement. The album begins with the conjoined songs “Breathe (In the Air)” and “Time,” where Waters reflects on the futile nature of labor and “the system”: “Run, rabbit run. Dig that hole, forget the sun. And when at last the work is done. Don’t sit down, it’s time to dig another one” (Pink Floyd “Breathe”). The concept of “forgetting the sun” is incredibly important to hold onto, and will be explored later in this paper. However, for the moment let us move onto the all-important concept of “Time.”

For the most part, the concept of temporality was an Enlightenment invention. Before the establishment of “individuals” in the “public sphere,” the time in the day was determined by sunlight/moonlight, not the chiming of the town clock. Therefore, when Waters sings

Every year is getting shorter, never seem to find the time. Plans that either come to naught, or half a page of scribbled lines. Hanging on in quiet desperation is the English way. The time is gone the song is over, thought I’d something more to say.

it is almost bafflingly reminiscent of the Enlightenment (Pink Floyd “Time”). Confronting the “infinity” that David Deutsch discusses (whom we will get to in a minute) was a daunting task in the 1700’s. For the first time ever, people were “scribbling lines” at the rate of infinity. In fact, the vast majority of books were reduced to mere “scribbled lines”; doomed to disappear within the shadow of canonical writers like Henry Fielding and the like. So, what was producing this infinite amount of writing?

The next song on the album provides a brutally honest answer to this question: “Money, it’s a crime. Share it fairly but don’t take a slice of my pie. Money, so they say. Is the root of all evil today. But if you ask for a rise, it’s no surprise that they’re giving none away” (Pink Floyd “Money”). The booming capitalism that arose during this time of British Enlightenment, and the producer of the paper and ink that was fueling said Enlightenment, was the result of a silencing
much more inhumane than the disappearance of non-canonical works of literature. This capitalism was fueled by slave labor, and plantations were the main source of capital. As a result, there were plenty of “rises,” but not in the way Waters talks about. Ultimately, the British plantation owners weren’t giving a “slice of their pie,” or anything else for that matter, and massive insurgency occurred within these oppressed communities as a result.

Which brings us to the next song on the album, “Us and Them.” This was an incredibly turbulent lyric in the time of heavy segregation in the 1970s. On this ballad, Waters sings “Us, and them. And after all, we’re only ordinary men” (Pink Floyd “Us and Them”). The whole song takes the form of an ode to the forgotten “majority” that so many enlightenment thinkers grappled with. The appeal to an “ordinary humanity” was an Enlightenment ideal, but not an Enlightenment practice. In fact, as we discussed before, the Enlightenment was an incredibly contradictory time characterized simultaneously by individuality and oppression. So, what was all of this for? What good cause arose at the expense of the forgotten majority? The inscription of this essay is a snippet from the last song on “Dark Side of the Moon,” which is called “Eclipse.” Besides the fact that astronomy was clarified and expanded upon in great detail during the 1700s-1800s, this song has even larger implications in our Pink Floyd/Enlightenment comparison. The end of the song goes: “All that is now. All that is gone. All that’s to come. And everything under the sun is in tune” (Pink Floyd “Eclipse”). This is the perfect depiction of the concept of “infinity” that will inform this entire paper.

The quantum physicist David Deutsch postulates that Enlightenment thinkers have been, and always will be, trying to get to the bottom of infinity, or the “everything under the sun” that is so perplexingly “in tune.” Just like the Newtonian prism, the scientific “infinity” that Deutsch identifies in his book The Beginning of Infinity has heavy moral implications. Deutsch explores
the possibility of marrying every discipline; “soft sciences” working together with “hard sciences” in perfect harmony. His theory goes as follows: When Enlightenment thinkers engaged in scientific thinking, there was inherently a mixture of subjectivity and objectivity; creative thinking and logical thinking, that contributed to the final solution. Therefore; when Newton proposed his theory about the refracted light that emits from a prism, it was no accident that this scientific theory contained philosophical considerations within it. For Deutsch, knowledge is the all-encompassing solution. In order to continuously stave off extinction and live pragmatically, the human race must acquire new knowledge ceaselessly. Therefore, in order to unlock this infinitude, the principle that will be of primary importance is optimism.

**Optimism: Glass-Half-Full or Something More?**

Deutsch has a completely original conception of optimism, and how such a principle can open up much larger conversations about capitalism, and the Enlightenment as a whole. For Deutsch, the usefulness of new knowledge is only paralleled by the harm that could result from a lack of knowledge. He argues that knowledge is the key to “infinity,” and anything that is considered “impossible” is simply unknown: “If something is permitted by the laws of physics, then the only thing preventing it from being technologically possible is not knowing how” (Deutsch 213). An extreme example of this would be time travel. Ultimately, we know that if one was to travel faster than the speed of light, one could interact with time in a way that is currently considered “impossible.” One could access the current “timeline” in a way that forces it to cease its linearity. However, a much more basic example is the cure of diseases. The advancement of knowledge continues to lead us further and further away from mortality. New data continuously conquers the harsh reality of terminal illness; yet, there are still diseases that continue to perplex
even the most knowledgeable scientists. Even more perplexing is the fact that “no explanation has enough reach to predict the content of its own successors-or their effects, or those of other ideas that have not yet been thought of” (Deutsch 197). This means that any meaningful discovery is stimulated by a great leap of faith, and sometimes a total abandonment of old principles.

This is precisely where Deutsch’s “principle of optimism” begins to play a large role in the Enlightenment and the “advancement of learning” that vastly took place during this period. His definition of the “principle of optimism” goes as follows: “All evils are caused by insufficient knowledge” (Deutsch 212). Deutsch has a habit of packing endless meaning into a six-word sentence; however, it is important to contrast this definition with his counter-theories of “blind optimism” and “blind pessimism” in order to understand this principle in its full context. Deutsch says that “blind optimism is also known as ‘overconfidence’ or ‘wrecklessness’” (Deutsch 201). He gives the example of the Titanic; a ship that was “designed to survive every foreseeable disaster, [but] collided with an iceberg in a manner that had not been foreseen” (Deutsch 201 itals. mine). On the opposite end of the spectrum is “blind pessimism.” Considering the Titanic example, “A blind pessimist argues that there is an inherent asymmetry between good and bad consequences: a successful maiden voyage cannot possibly do as much good as a disastrous one can do harm” (Deutsch 201). An inherently “pessimistic” institution, and one that we will get back to shortly, is capitalism. The super-wealthy seem to have a fixation on tradition, and abandon useful scientific discoveries, like that of climate change, to meet their business agenda. In this way, optimistic/scientific thinking is slightly under attack in this stage of the Enlightenment. Environmental discoveries are being made at a rapid rate, whilst simultaneously being swept under the rug by fat-cat businessmen. This makes optimistic knowledge even more useful. In an age
where incessant pessimism places a climate-change denier in charge of the EPA, we must continuously return to “matters mechanical” (Bacon 177).

These “matters mechanical” are the primary producers of “useful” knowledge for Francis Bacon, an Enlightenment philosopher and Deutschean “optimist.” Bacon is an interesting figure in “optimistic” thinking because he thinks about optimism in slightly different ways than Deutsch. Bacon begins his “Historia Mechanica” with the “tale so common of the philosopher”: “while he gazed upwards to the stars fell into the water; for if he had looked down he might have seen the stars in the water, but looking aloft, he could not see the water in the stars” (Bacon 178). In this way, Bacon pulls back on Deutsch’s optimism a bit. For Bacon, concrete practices like the “mechanics” will ultimately produce the most “use.” Yet, upon closer examination, Bacon’s use of this tale to emphasize the importance of the mechanics greatly resembles Deutsch’s warning against blind optimism. In order to make true advances in learning, one must keep said “advancement” in mind while continuously considering empirical data (like the “water” that the philosopher failed to see). Bacon goes on to emphasize the importance of the mechanics, and what the study can do for the advancement of learning:

But if my judgement be of any weight, the use of Historia Mechanica; is of all others the most radical and fundamental towards natural philosophy; such natural philosophy as shall not vanish in the fume of subtile, sublime, or delectable speculation, but such as shall be operative to the endowment and benefit of man’s life. For it will not only minister and suggest for the present many ingenious practices in all trades, by a connexion and transferring of the observations of one art to the use of another, when the experiences of several mysteries shall fall under the consideration of one man’s mind; but further it will give a more true and real illumination concerning causes and axioms than is hitherto attained (Bacon 178 itals. mine).

The parallels to Deutsch in this paragraph are astounding, and will certainly need some unpacking. For one, Bacon’s fixation on “benefit” and “use” are essential to this paper. For Bacon, the ultimate “useful” object is knowledge. Creating new knowledge, in turn, establishes a lasting change that
“shall not vanish in the fume of subtile, sublime, or delectable speculation.” Finally, the discipline-mixing that is hinted at in this passage is an ideal that seems to be essential to Enlightenment thinking, and Deutshean thinking at that. Deutsch is extremely invested in this mixing, and Bacon identifies the benefits of this anti-zoning approach when he says, “For it will not only minister and suggest for the present many ingenious practices in all trades, by a connexion and transferring of the observations of one art to the use of another.” There is an overlap to be extracted from Bacon and Deutsch’s work that is fundamental to the two books we will discuss shortly: Robinson Crusoe and The Female American. The concept of “use” in relation to “learning” and “infinity” is at the heart of the Enlightenment, and scholars were able to identify this concept both during, and hundreds of years after the beginning of this massive expansion. Knowledge is useful because it creates more knowledge. The concept of “infinity” that Deutsch strings throughout his paper will be gradually uncovered by “good explanations.” The “everything under the sun” that Roger Waters sings about is discoverable (and our second chapter might astound you, as we explore discoveries to be made that might not necessarily be “under the sun,” or in within our “universe” in general). As we will see, the term “use” is utilized in two different fields, “learning” and capitalism, each weighing heavily on the thinking that began occurring during the 1700s.

What’s the Use? A Capitalistic Question

To understand “use” as it applies to capital and labor, it would be beneficial to consult Marxist theory. Tom Bottomore provides a thorough account of Marxism in his book A Dictionary of Marxist Thought, where he defines two essential terms: “use value” and “exchange value.” The differences between these two definitions will ultimately serve to identify the differences between Robinson Crusoe and The Female American, and the implications that these differences contain.
Bottomore does a thorough job of explaining the Marxist concept of a “commodity”: “The commodity is used by Marx to analyse forms which arise on the basis of a well-developed commodity production and exchange, but which are not themselves in the primitive sense commodities, that is, *products produced for a system of exchange*” (Bottomore 102 *itals. mine*).

In this way, commodities are abstract entities, which contain within them value that is not necessarily based on any empirical qualities. As Bottomore goes on to explain; “For example labour power is sold for a price, the wage, and hence appears on the market as a commodity, though labour power is not produced as a commodity, nor does its value arise directly from the labour expended in producing it” (Bottomore 102). Following this, one may see that labor, and the commodification of said labor, is the ultimate abstraction. The laborer is simply an abstract data-point; removed as much as possible from the system of commodity-exchange that is “capitalism.” However, things get even more abstracted when Bottomore begins explaining “use value” vs. “value,” or “exchange value” as our soon-to-be analyzed friend, Robinson Crusoe would call it:

The commodity, then, has two powers: first, it can satisfy some human want, that is, it has what Adam Smith calls USE VALUE; second, it has the power to command other commodities in exchange, a power of exchangeability that Marx calls VALUE. Because commodities exchange with each other in definite quantitative proportions each commodity can be thought of as containing a certain amount of value. The whole mass of commodities produced in a period can be seen as a homogeneous mass of value, though looked at in another way it is a heterogeneous collection of different and incomparable use values. As values commodities are qualitatively equal and differ only quantitatively in the amount of value they contain. As use values commodities are qualitatively different, since each product is specific and cannot be compared with another (Bottomore 101).

This is the perfect example of capitalist abstraction. The fact that “As values, commodities are *qualitatively equal* and differ only *quantitatively* in the amount of value they contain” is entirely anti-*empirical*; it disregards the concrete facts of reality. The type of value that has a stake in the “infinity,” or things *as they are* is *use* value, where “commodities are qualitatively different, since
each product is specific and cannot be compared with another.” One may begin to see the abstract reasoning contained within the capitalist system; and as we have previously discussed, the concept of “commodities” rose at the same time that the British Enlightenment was taking place. Therefore, it would be compelling to consult some of the writing that was being produced at this time. Yet, it would be even more compelling to analyze the writing of a canonical writer like Daniel Defoe, and contrast his most famous piece with a recently uncovered book by an anonymous female writer, Unca Winkfield. The intricacies of these two texts extend far past their concern with use and exchange values. These novels depict the reality of the “silenced majority” in ways in which philosophers and scientists alike began to come to terms with “everything under the sun.” Furthermore, Deutsch theorizes about the difference between THE Enlightenment, and past “mini-enlightenments” that died out as quickly as they began:

> Occasionally, there have been places and moments where there was, briefly, an end to pessimism… The end of pessimism is potentially a beginning of infinity. Yet I also guess that in every case- with the single, tremendous exception (so far) of our own Enlightenment, this process was soon brought to an end and the reign of pessimism was restored (Deutsch 216).

So, how did pessimism cause such a stark difference between “mini-enlightenments” like that of the Greeks and The Enlightenment we currently find ourselves in? And what role does capitalism play in all of this? For answers to these questions, it will be essential to consult our first text (and arguably the first “novel”-whatever that is- ever written), *Robinson Crusoe*.

**Crusoe’s Descent Into Pessimism**

Many scholars argue that, with his creation of the character Robinson Crusoe, Daniel Defoe was setting out to explore The Enlightenment thinking that was occurring so heavily at the time. Yet, as we will see in a minute, it may be more compelling to think of Crusoe’s life as a “mini-
enlightenment” instead; an allegory that runs contrary to popular analyses of the novel. This text certainly begins with “optimistic,” Enlightenment level thinking. On the very first page, Crusoe is confronted with the “pessimistic” temptations of his father’s middle class lifestyle: “He asked me what reasons more I had for… leaving my father’s house and my native country, where I might be well introduced, and had a prospect of raising my fortunes by application and industry, with a life of ease and pleasure” (Defoe 6). This type of “ease and pleasure” is exactly the kind of thinking Deutsch warns against. This retort by Crusoe’s father is comparable to the Titanic example from Deutsch, where the “evils” of an unsuccessful maiden voyage can never outweigh the joys experienced on a successful one. However, Crusoe doesn’t heed his father’s advice. He sets sail with a ship full of strangers, and devotes his life to sailing the seas and engaging in “optimistic” thinking; the type of thinking that had no precedent, and could not be predicted by any past experiences. During Crusoe’s “Enlightenment,” he meets a slave named Xury. In particularly “Us and Them” fashion, they form a friendship that ends up contributing to fascinating discoveries. For example, upon discovering a group of “Negroes” on a shore that their boat was passing by, it is said that “We made signs of thanks to them, for we had nothing to make them amends” (Defoe 26). This “sign making” scene is important, as it entails an “advancement” that Bacon would be delighted with. Though Crusoe and Xury could not verbally communicate with the native peoples of this island, they were able to form a relationship with them using experimentation and “signage.” Through this universal exchange, new knowledge was created. The two amateur sailors, and now friends, formed relationships that were as-yet unprecedented.

This exchange is quite simple and straightforward, and though this may not convince one of “Enlightenment” thinking just yet, there is an incredible scene later in the novel that weighs far heavier on the questions Deutsch uncovers in his book. After “making signs” to the peoples of
Africa, Crusoe sells his dear friend Xury into slavery in an incredibly “silencing” way. As a form of penance, or sheer bad luck, Crusoe’s ship is wrecked and washed ashore on a deserted island. Though initially flustered, Crusoe exhibits great reason and experimentation in order to stay alive:

“It came into my thoughts that I should lose my reckoning for want of books and pen and ink… I cut every day a notch with my knife, and every seventh notch was as long again as the rest, and every first day of the month as long again as the long one, and thus kept my kalendar” (Defoe 52 itals. mine). Here, the reader can begin to see the “mini-enlightenment” taking place; predicated on “books and pen and ink.” A direct connection is made to Bacon’s philosophy in the next line: “I brought out of the ship… several things of less value, but not all less useful to me… as in particular, pens, ink and paper, several parcels in the Captain’s, Mate’s, gunner’s, and carpenter’s keeping, three or four compasses, some mathematical instruments, dials, perspectives, charts, and books of navigation” (Defoe 52 itals. mine). Taking a look at this list, the mini-enlightenment begins to take shape in major ways. For one, the list of tools that Crusoe considered “useful” is telling. His use of “mathematical instruments” and “pens ink and paper” illustrates the “useful” knowledge that Bacon postulates in Advancement of Learning. Here, Crusoe is ultimately setting out to create knowledge that will allow him to access the “infinity” of the world, and keep him alive. The “kalendar” will allow him to sort through the infinitude of time, the mathematical instruments will allow him to place numerical/empirical values on the objects riddled throughout the island, and Crusoe’s brain will allow him to remain alive until he can escape his captivity. In this way, Crusoe briefly experiences the “lightning in a bottle” optimism that contributes to a lasting Enlightenment. However, all of it comes crashing to the ground when “money, O drug” enters the narration (Defoe 47).
Money and Power: “What Art Thou Good For?”

The futile system of capitalism has been used as a symbol of strife, conflict, and corruption throughout history. There is something about this abstract exchange of currencies and commodities that spark a “drug-like” addiction in human beings--no matter how rational. Upon discovering a bit of money on the ground, Crusoe expresses the futile relationship that his “enlightened” being has with such an entity: “what art thou good for? Thou art not worth to me, no not the taking off of the ground, one of those knives is worth all this heap. I have no manner of use for thee” (Defoe 47). Again, we are confronted with the term “use;” and in this instance, money is far less useful than the mechanics that can be found in Crusoe’s “knife.” In this scene, Crusoe is reflecting on the abstract nature of capitalism, and this monologue begins to show the reader that science is inherently non-capitalistic. Despite the temptation of this “drug,” Crusoe continues to engage in Enlightenment level thinking; building a shelter to keep him safe at night; keeping a chart of weather and the location of the sun, etc. In fact, this mini-enlightenment continues until Crusoe discovers other people on his island and reverts back to his “pessimistic” role as “capitalist.”

As Crusoe sits, watching the group of “savages” from his self-proclaimed “castle,” he sees one of their captives escape. When Crusoe sees this, a telling inner-monologue ensues: “It came very warmly upon my thoughts, and indeed irresistibly, that now was my time to get me a servant” (Defoe 160). Upon seizing this man as a slave, he names him Friday (and names himself Master), and this move ultimately marks the end of the Enlightenment. Crusoe reverts back to abstractions; idealistic “exchange values” that place a commodified value on individuals. He returns to a life of capitalistic practices, and is ultimately discontented with this way of life after experiencing an existence based solely off of “use.” He cannot forget Xury, or the island, or sign-making with a group of people he had never experienced before. The end of Robinson Crusoe follows this general
theme, with Crusoe returning to his native land and making obscene amounts of “money, O drug” with his purchase of a slave plantation. Though he is incredibly wealthy, Crusoe is inconsolably unhappy, and becomes a stranger in his own land. His role as “capitalist,” though comfortable, cannot compare to the excitement and optimism of the Enlightenment-level, scientific thinking that he experienced on the island. With his appeal to capitalistic “exchange value,” the “useful” tools like “pen paper and ink” become insignificant. In this way, pessimism kills Crusoe’s Enlightenment, and reduces it to a mini-enlightenment. The novel fittingly ends with insurgency, which was a pressing reality for everyone turning human beings into “commodities” at this time:

300 Caribbees came and invaded them, and ruined their plantations, and how they fought with that whole number twice, and were at first defeated, and three of them kill’d; but at last a storm destroying their enemies canoes, they famish’d or destroyed almost all the rest, and renew’d and recover’d the possession of their plantation, and still lived upon the island (Defoe 241)

Though the plantation owners were eventually successful, this level of insurgency was the result of the suppression of “infinity” at the hands of capitalism; the infinity of people, and the infinity of knowledge. A counterexample to this novel, and an example of a lasting and optimistic Enlightenment, can be found in the sister-novel of Robinson Crusoe: The Female American.

Unca Winkfield’s Optimism

To truly understand the novel Robinson Crusoe as a microcosmic “mini-enlightenment,” as Deutsch postulates, it is essential to analyze the female Crusoe: Unca Winkfield. Unca was born into a wealthy family, to a father who began a plantation in Virginia. Despite the novel starting on a plantation, however, Unca’s life develops in an entirely different way than Crusoe’s (despite the overt similarities between the two characters). The tone of the novel, and its attitude toward the “infinity” or “multitudes,” is established early on when Unca’s father says, “We have no right to
invade the country of another, and I fear invaders will always meet a curse; but as your youth
disenables you from viewing this expedition in that *equitable* light that it ought to be looked on,
may your sufferings be proportionally light! for our God is just, and will weigh our actions in a
just scale” (Winkfield 37). This is completely contrary to the capitalistic “enlightenment” view
that we encountered in *Robinson Crusoe*. This theme truly determines the trajectory of the book,
and is expanded upon shortly after when Unca’s father is captured by the Indian peoples. When an
“old man,” who turns out to be the king of the Indians, speaks to his captives he says, “Men, for I
see you have legs, arms, and heads as we have, look to the sun” (Winkfield 38). In this way, the
“old man” is appealing to their common humanity, much like the line in “Us and Them” that we
have already discussed; “After all, we’re only ordinary men.” Furthermore, he has the captives
“look to the sun,” which we know is the perfect symbol of Deutsch’s “infinity.” Following this, it
is easy to theorize that Unca Winkfield was appealing to a *lasting* Enlightenment predicated on
collaboration, “good explanations,” and the creation of “useful” knowledge. If the insurgency that
Crusoe experienced in Defoe’s novel continued, the mutual mission of Enlightenment thinking
would be lost; the enlightenment would remain “mini.”

Unca becomes an interesting advocate for this sort of refined (“capital E”) Enlightenment
thinking. In a blatant plot overlap with *Robinson Crusoe*, Unca sets sail, only to become stranded
on a deserted island. Upon roaming the land for a while, she comes across a “stone room” in which
she finds a “book lying on the table” (Winkfield 58). What follows is a precession of
Enlightenment-style thinking and collaboration; “bibliomancy,” that equips Unca with the tools to
*survive*: “see page of this book, 397. How you may subsist, you may learn from the history of my
life” (Winkfield 58). This is absolutely fascinating, as it shows the power of print culture, and
collaboration, in a period of time where knowledge was spreading at the rate of infinity. Here,
Unca is learning to survive from the “history” of a man who lived and died on this island before her. One may be reminded of Deutsch’s Principle of Optimism, which states that “all evils are caused by insufficient knowledge.” This print-based collaboration prevented “evils” from befalling Unca in a way that wouldn’t have been possible before; and later in the book, she spreads this wealth of knowledge to the “Indians” she encounters.

A scene later in the novel serves a double-purpose for this essay, and is perhaps one of the most telling parts of the novel. During her explorations one day, Unca comes across a “subterranean cell” that is labeled “THE ORACLE OF THE SUN.” Within this cell, Unca discovers highly “valuable” riches, like “precious stones, and here and there a large diamond,” a “golden staff,” “gold rings,” “two of the richest bracelets,” etc. (Winkfield 80). However, Unca reflects that these “commodities” only contained “use value” in a perfectly optimistic, Enlightenment society like hers: “[I] satisfied my curiosity with looking at treasures that could yield me no real service” (Winkfield 80). This quotation is extremely reminiscent of Crusoe’s monologue about “money, O drug!”; and yet, the scene takes an entirely different turn.

Unca finds a narrow stairway that ascends into the head of the “oracle of the sun” and finds that her voice is amplified when she speaks into it: “[it] led me up into the image of the sun” (Winkfield 80). Again, we return to the trope of the “sun,” and this “oracle of the sun” certainly allows Unca to aid in uncovering the “infinity” of the world: “This image, particularly the head of it, it seems, was so wonderfully constructed as to increase the sound of even a low voice to such a degree as to exceed that of the loudest speaker… ‘What knowledge of mechanics must the ancients have had!’” (Winkfield 80). If this doesn’t perfectly depict the connection between Deutsch, Bacon, and the two novels analyzed, then it seems that nothing will. This oracle, that of the “sun,” allows Unca (a female thinker) to amplify her voice (or the knowledge she wishes to divulge) to
reach masses of people. She utilizes this method with the Indian peoples throughout the play, reading them Bible verses, and readings from the “Book of Common Prayer.” However, something much greater contributes to the “lasting Enlightenment” of this novel that doesn’t appear until the very end of the plot.

On the last two pages of the novel, Unca reencounters Captain Shore, the head of the ship that deserted her on the island she had been inhabiting the entire book. However, upon being given the opportunity to return to England and live a capitalistic lifestyle, Unca refuses. Instead, she has her husband “settle [their] affairs in London,” and return with a “whole library of books, and many kinds of goods” (Winkfield 154). This is certainly the most fascinating section of the book, and precisely where Winkfield’s plot completely diverges from Defoe’s. When given the opportunity to live a bourgeois lifestyle in London, and participate in the “pessimistic” system of capitalism, Unca opts for “useful” knowledge when she decides to purchase a “whole library of books” instead. Even more of an anti-capitalist move is the way Unca interacts with the English traders who bring them goods: “We did not suffer the sailors to come any further upon the island, than just to land the goods, that no discovery of our habitation be made” (Winkfield 154). In this way, Unca entirely rejects the capitalistic lifestyle. She is contented with the “advancement of learning” that Bacon introduces, and Deutsch expands upon in their respective texts. Therefore, Robinson Crusoe truly represents the (lower case e) “mini-enlightenment.” He lives a fleeting existence as an enlightenment thinker; making discoveries, conducting experiments, etc. However, as soon as he is given the opportunity, he reverts back to the pessimistic lifestyle of “exchange value,” and becomes miserable because of his choice. On the other end of this spectrum is Unca Winkfield, who engages in Enlightenment thinking throughout the book, and rejects the one thing that would reduce her “useful knowledge” to “scribbled lines”: a reversion to pessimism. So, both of these
necessities, paired with the theories discussed throughout this chapter, offer an interesting insight into
the effects of capitalism and “pessimism” on Enlightenment thinking. In order to continuously
discover “everything under the sun,” as Pink Floyd suggests, we must take an optimistic leap of
faith and be confident that, if our voice isn’t projected to the masses now; eventually, the infinitude
of silenced voices will finally be unleashed.

In the next chapter, we will uncover an infinity that goes far beyond the exclusion of female
writers, the oppression of slaves, the insignificance of lower-class citizens, and the silencing of
voices. Throughout our analysis of another pivotal Deutsch text, The Fabric of Reality, we will
discuss the infinity of the “multiverse,” a complex and interwoven system of universes that interact
with each other in ways that could change our scientific thinking forever. We may be on the brink
of a new Enlightenment, one that extends our line of thinking far past any concept of “physics” we
have become familiar with to-date. In an optimistic leap-of-faith, let us uncover the mysteries of
Quantum Physics and Quantum Mechanics, and come to terms with the infinite possibilities that
the multiverse may unravel for us.
The Multiversal Majority: Are Novels Virtual?

*E pur si muove!*
And yet it moves!
-Galileo Galilei

But the most surprising, and wonderful composition was that of whiteness. There is no one sort of ray that can on its own exhibit whiteness; it is always compounded, and the compound has to include all the primary colours that I have listed, mixed in the right proportions.
-Isaac Newton

**Introduction: Mind, Body, Medium (Not Necessarily in that Order)**

Now that we have discussed at length the development of the entirely new and revolutionary genre, the Novel, we must open up this discussion to contemplate much larger forms of mediation: computation and cognition. The first half of this discussion includes two pieces of writing that fit into the category of *Novel* form. This discussion was meant to show how British society reacted/ molded to the *formally realistic, and yet empirically idealistic* depictions of life in these novels. Yet, it should have also shown the implications surrounding the idealistic notion of “individuality” engendered by the novel. Indeed, this new form of writing had far reaching implications for the majority of people who were *stifled* and *silenced* by this cookie-cutter depiction of society. To review: For an overwhelmingly vast majority of human history, new ideas were both feared and shunned by the powerful institutions that profited from the collective ignorance of the people. As we have seen in the introduction to this project, the monarchy and the Church grew into obese informational monopolies, and the subjects were meant to mold into one idealistic category-- predicated upon a workmanship that was only concerned with sunrise and sunset; production and consumption. The only instances of reading and writing occurred on the level of the monarchy and the court, where select copies of Shakespeare, Chaucer, etc. were circulated to the minority of readers in Britain.
Yet, this period of intellectual imprisonment would eventually end. A German philosopher who dedicated much of his career to theorizing the Enlightenment, Jurgen Habermas, discusses this liberation in detail. During the seventeenth century, the tide of British history would permanently turn, as a new form of literature began circulating Britain “for the first time” (Habermas 5; 7; 12). The “Novel,” named for the “newness” of both the medium and the complete social shift it engendered, rapidly became the first form of mediation thrust into the realm of “popular culture.” Indeed, the Novel created the possibility for a popular culture, or a “public sphere” in the first place; an agora-like realm in which “individuals” (not subjects) could meet and discuss their fortune, their religion, or even their discontentedness with the king:

Because, on the one hand, the society now confronting the state clearly separated a private domain from public authority and because, on the other hand, it turned the reproduction of life into something transcending the confines of private domestic authority and becoming a subject of public interest, that zone of continuous administrative contact became "critical" also in the sense that it provoked the critical judgment of a public making use of its reason. (Habermas 24).

As we can see here, the newly formed “public” was creating an ability to use their reason in a critical manner, a concept that was never before contemplated under the monarchical rule of the King. Therefore, the Public Sphere that Habermas theorizes was a zone of opportunity, of both the financial and civil kind. Yet, as Habermas argues for this idealistic view of the British Enlightenment, he still admits that his picture of this period in time is painted with broad and sweeping strokes.

Habermas cedes that he is formulating an idealistic depiction of the Public Sphere; however, one interesting claim ultimately strikes the heart of the issue with stunning clarity. Habermas argues that the social reality that the novel and the Enlightenment as a whole engendered was both “ideology and more than ideology” (Habermas 48; 88). He describes this bind as the contradiction where the medium (the novel, periodical, etc. and the public sphere that they create)
are both idealistic in the way that they don’t account for the majority of people being exploited to produce this Enlightenment, and more than idealistic in the way that the medium becomes a force in itself, enforcing the system that excludes the majority and undeniably produces new knowledge en masse. By this, we mean new knowledge like the Galileo quote in our introduction, where he challenges the geocentric model of the universe as he consults the physical facts of the universe; namely, that the Earth is indeed moving around the sun! So, ultimately the newly popularized textual medium both obscures reality by depicting a particular, idealistic view of it, and also produces that strange reality in a way that enforces the minority group’s position of power.

As Habermas goes on to argue, the ability for a white, property owning man to become an “individual” participating in the public sphere was predicated upon the exclusion and exploitation of the majority of humans producing this wealth and freedom. The category of “individual” both depended on and denied the existence of the slave labour of both African and Caucasian slaves overseas; where ink, paper, and the overall wealth needed for this newfound freedom was being produced. It also excluded the majority of readers and writers; namely, female writers, who were entirely denied a spot in the public sphere due to their designated location within the “privatized… patriarchal conjugal family” that represented the height of their potential at the time (Habermas 41). This did not stop some female writers from not only writing, but writing specifically to subvert these exhaustive and idealistic categories. One of these “female pens,” Aphra Behn, did a particularly fascinating job with this task, and we will discuss her proto-novel Oroonoko shortly. However, let us first discuss the implications of the “Public Sphere,” Habermas’ conception of this time in British history, and the powerful effect that the rise of the novel had on social reality during the British Enlightenment.
Clifford Siskin touches on this brilliantly in his two books *System*, and *This is Enlightenment*, where he acknowledges the medium as having the power and import it truly possesses. For Siskin, the text/medium becomes absolutely essential in the creation of a new “system” of hypothesis and critique. During this time, Newton opts to “shake hands with philosophy,” parting with the self-affirming notion that God created the universe, that the Earth is the center of everything, and a myriad of other beliefs that had to be left in the past in order to take an “optimistic” leap into the future. (Siskin *System* 99). Ultimately, the rise of the medium creates the possibility of a system of critique, opening up the potential of a “System becoming a thing in the world and constituting the world as a thing” (Siskin *System* 103). In other words, the world became knowable, and depending on how the medium was utilized, it could create massive amounts of new knowledge, or exploitative dualities that worked against the physical facts of humanity. This theme could be traced through works that we have already discussed; namely, novels by Daniel Defoe, as he creates the perfect depiction of an individual thriving on his exploitation of a man who came from a “minority” group. This concept could also be traced in works by Isaac Newton, as he creates a more apt depiction of the world through experimentation and systematic archiving. Both of these authors were traced at length in our first chapter, and the reader has seen how their work revolutionized the social/scientific reality of their time. Siskin describes this process when he says “One message that system conveys over and over again is that knowledge during the Enlightenment became a matter of doing things over and over again. Guesswork needed ‘things as they are’ not because things like dots somehow suggest nuclear furnaces, but because things can help us choose between guesses... every iteration mediating the previous ones to produce a tighter fit between things and explanations” (Siskin *System* 88). This
rise of “system” introduced the possibility of what Geof Bowker calls the “ontological priority of mediations.” Bowker describes this concept as follows:

Bowker made a strong case for the generative power of mediations or, to use his own words, ‘the ontological priority of mediation.’ Bowker argued that, since mediations sub tend and generate the dualities through which we think (e.g., human/nature, self/other), it is an error to understand mediations as emerging from the dualities. For example, in Anglo-Saxon England, it is the mediation of the new written contract that produces the fraught duality, the before and after, of ‘orality’ and ‘writing’. Or, to take another example, it is the mediation of the European empires that produces the modern duality of the human (who are capable of discovering the limits of the world) and nature (which must be now cataloged, stored up, and known as other than human) (Siskin *This is Enlightenment* 36).

This “ontological priority of mediation” will be the focus of this chapter, as we trace the generative power of the medium from the origins of the novel, through the newly discovered realities contained within the tenets of Quantum Physics. First, we will review how the medium created the world, enforcing the lopsided power dynamic of the seventeenth-eighteenth centuries. Then, we will trace this influence to the beginning of Genetic studies (theorized retroactively by David Deutsch using mediated and “theory-laden” processes). Finally, we will fast-forward to the beginning of Quantum Computing, where the world is becoming a medium in interesting and revolutionary ways. Here, we will pause briefly to discuss cognition, and how our brains act as “virtual” mediums. During this discussion, we will investigate the presence of realism and idealism, another duality illustrated by the medium and discussed at length in the beginning of this project, in order to theorize how the social history of the Enlightenment mirrors the current revolution in theoretical physics. Though this gap seems like an ambitious one to bridge, the reader will quickly begin to see how the humanities simply cannot remain segmented from the sciences any longer, as they are truly two parts of one whole (a “whole” that Deutsch would simply but provocatively call “knowledge”).

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In order to begin this discussion on the medium and its generative power, we must first take a look at a text that is often called a “proto-novel” for its experimental use of novelistic features at a time when the genre didn’t technically exist: Aphra Behn’s *Oroonoko, the Royal Slave*. As we have discussed, many of the classically canonical works of the sixteenth and seventeenth centuries concern themselves with reinforcing the classic conceptions of race, power, private life, etc. These novels produce the conception of the “individual;” namely, a white, property owning male who is capable of participating in the intellectual public sphere. Examples of novels with this “ontological priority of mediation” are canonical works like *Robinson Crusoe* and *Tom Jones*. These novels reinforce the dualities of “individual participating in the public sphere” vs. “slave producing his wealth”; “man” vs. “woman”; “private” vs. “public”-- lines that were unapologetically idealistic. Indeed, this is what Habermas was referring to when he introduced the concept of “ideology and more than ideology.” However, one proto-novel during this time period (in fact, the text that is often considered the first novel in history) negates these dualities in extremely interesting ways.

The revolutionary qualities in *Oroonoko* begin as soon as one sees the name of the author. Aphra Behn, a female writer (and the first “novelist” of the time period), is extremely aware of the drawbacks her “female pen” might have on the overtly realist message contained within her writing (Behn 43). Indeed, Behn (and not to mention, her fellow novelists at the time) was completely fixated on the act of writing, and the new medium being created: “it may serve to excuse some of its faults of connection: for I never rested my pen a moment for thought” (Behn 5). Behn remains apologetic for the errors her “female pen” might create, and for the “Romantic” nature of the story, paying mind to the power and “ontological priority” of the medium we have
already discussed. With a mind for this power and privilege, Behn tells a story about a man who simply cannot be placed in a typical novelistic category. The main character, Oroonoko, is an African prince by right, and yet he is forced into slavery due to his “complexion” and controversial love interests. He naturally struggles with the confines of slavery, often seeking to spark a mutiny and free his fellow people from tyrannous rule and exploitation: “It had been well for him if he had sacrificed me, instead of giving me the contemptible whip… No I would not kill myself, even after a whipping, but will be content to live with that infamy, and be pointed at by every grinning slave til I have my revenge; and then you shall see that Oroonoko scorns to live with the indignity that was put on Caesar” (Behn 69). In this quote, one can see Oroonoko struggling with this conglomerate identity, and in turn, struggling with his enslavement. Indeed, this struggle extended throughout all facets of life, especially during this time period when categories were considered to be so ironclad, and yet fell apart on top of their brittle foundations.

This struggle is also apparent as Behn wrestles with the new medium she is producing. The typical novel created divisions between “individual” and “slave”; “king” and “subject,” effectively creating the dualities themselves. The very production of this physical novel (Oroonoko) was predicated upon exploitative slave labor in countries where the number of “slaves far exceed[s] the whites,” and the reality of “mutiny” is a constant potentiality because of the idealistic nature of the white man’s power in these colonies (Behn 48-49). With this in mind, Behn wrote a novel that truly reflects on the idealistic structure of category/duality.

The “idealism” involved in creating false categories/ dualities is aptly illustrated by a mathematical concept introduced by Georg Cantor called “set theory.” It is ultimately a theory of infinity, just as we saw in Deutsch, and it argues for the presence of infinite/ uncategorizable “sets” that bleed one into the other:
Set theory is the mathematical theory of well-determined collections, called sets, of objects that are called members, or elements, of the set. Pure set theory deals exclusively with sets, so the only sets under consideration are those whose members are also sets... So, the essence of set theory is the study of infinite sets, and therefore it can be defined as the mathematical theory of the actual—as opposed to potential—infinit. (Stanford.edu)

As we have seen, working with categories is an inherently messy business, and Cantor is simply illustrating the reason for this messiness mathematically. He argues that any category inherently contains within it aspects from other categories that are meant to remain separate from it. Therefore, the Novel naturally contains aspects of the Romance, or the Gothic. The slave contains kingly features within him, even when silenced, or forced into a category that stifles this potential. Behn seeks to subvert these deceiving categories when she writes of “The Royal Slave,” and shows a man to her readership that effectively upsets their conception of rigid categories.

Upon first being introduced to the reader, Oroonoko is described as a slave who cannot be placed into a categorical box:

His face was not of that brown, rusty black which most of that nation are, but a perfect ebony or polished jet. His eyes were the most awful that could be seen, and very piercing; the white of them being like snow, as were his teeth. His nose was rising and Roman instead of African and flat. His mouth, the finest shape that can be seen, far from the great turned lips which are so natural to the rest of the Negroes... (Behn 15).

During this description, one can trace the idealisms that Behn is struggling with as she confronts a man that entirely subtends the category that the minority group wants to place him in. This man is no African slave. Indeed, he is a Prince-- adopting the name Caesar in addition to his birth name, Oroonoko. This section simply shows that the idealisms inherently reinforced in canonical novels of this time period: works by Defoe, Bacon, Fielding, etc., are ultimately paper-thin and
“ontologically” supported by the medium of the novel only. This is part of the “generative” force that we previously discussed, which Siskin refers to in This is Enlightenment.

This inner-contradiction and struggle leads to a morbid, yet fitting ending, where the reader finds Oroonoko/Caesar literally tearing himself apart to avoid being re-enslaved by white colonists. This ending suggests Behn’s own struggle to work within categories that simply don’t hold up outside of the textual medium that perpetuates and reinforces them. Oroonoko’s conglomerate personhood simply doesn’t support a novelistic form that would like to idealize him; round him out as a person; create a single mold of the “African slave” who is both “over there” and “out of the equation.” Behn creates a novel where these idealisms simply don’t hold up-- a realist novel; a novel bound up in Cantorian infinitude. And the violent ending is as shocking as it is fitting, for Oroonoko is not a man who can be enslaved, either physically or categorically.

So, this novel has a self-reflexive fixation on the “ontological” agency of the medium. It is actively exposing the ideological categories that people and things are thrust into by the structure of the novel, and shedding light on the fact that the majority are truly producing the wealth and privilege of the minority. In turn, the majority (slaves and indentured servants producing the wealth and materials needed for the mass textual production of the time period) are erased from the public eye in the name of producing an idealized state of “individuality” and “freedom.”

Another Siskinian topic that is interestingly discussed during this novel is scientific experimentation and “system-building”, specifically during the scene in which Caesar (Oroonoko) is shocked by an electric eel: “At last they brought him home, where he was in a few hours well recovered and refreshed; and not a little ashamed to find he should be overcome by an eel, and that all the people who heard of his defiance would laugh at him” (Behn 55). The prince is levelled by an unexpected force; one that lay in waiting so successfully that its power is almost “laughable;”
or one that may even seem “Romantic” (Behn 5). Therefore, it is not only the textual medium that transforms our vision of “the real” in socially consequential ways. Soon, we will uncover the power of the scientific medium as we sift through David Deutsch’s theoretical and revolutionary conception of “the real” that lies in waiting (and Deutsch’s real is far more powerful than the electric current circulating through an eel).

**Physical Realisms/Idealisms**

To begin this section on Deutsch’s conception of “the real,” we must first discuss his argument that almost all worthwhile scientific observation is “theory laden.” For Deutsch, this ultimately assumes that scientific discovery requires multiple layers of mediation—effectively doing away with the “pure” empiricist notion that science must be done with the human senses. Deutsch thinks this empiricist approach is a mistake, and he uses the stars that we immediately experience as humans tethered to the Earth in order to illustrate his (seemingly) contradictory theory about “the real”:

> Astronomers nowadays never look up at the sky (except perhaps in their spare time) and hardly look through telescopes… In many cases, no image of the distant object is ever produced, only lists of numbers, or graphs and diagrams, and only the outcome of those processes affects the astronomers senses… And so, observed through such a telescope, stars do not appear to twinkle or move across the sky as they did to generations of observers in the past. Those things are only appearance—parochial error. They have nothing to do with the reality of stars (Deutsch Beginning of Infinity 38-39; italics mine).

Following this, one may begin to see how “the real” and the “ontological power of the medium,” in producing/interpreting this “real,” takes on an entirely new meaning. The “medium” effectively becomes the message, where a pure empiricist view; namely, Oroonoko physically catching hold of the electric eel and feeling its numbing effects, is ultimately a bane on the depiction of the real
“real.” Our “system” of “things as they really are,” in the way Siskin proposes, is composed of meticulously graphed and theorized data points. The majority of scientific research is done in this mediated fashion, in an effort to not only increase the human capacity of amassing knowledge (in the way Bacon discusses), but also to safeguard the empiricist impurities that plague our conception of “the real” when we solely use our senses. In this way, “the real” is counterintuitively experienced through multiple layers of mediation-- the more mediated/“theory laden” thinking that is used, the more “real” a picture of the phenomenon being theorized.

This theory-laden depiction of the real is reflected quite a bit during Deutsch’s section on gene replication and the physical bodies of “living” things. Deutsch begins this section by criticizing Aristotle’s conception of the “animate,” or living thing vs. the “inanimate” thing (such as a rock). For Aristotle, inanimate things require a “jumpstart” of sorts. When the rock is at rest, it requires a kick, or a slant, or any other physical phenomenon to begin its motion again. However, for an animate being like a bear, a physical “push” isn’t required. The bear can begin moving at will due to its capacities as an animate being (Deutsch Fabric of Reality 167-70). However, Deutsch picks apart the inherent mistake in Aristotle’s conception of living/non-living things when he says “the basis of life is molecular” (Deutsch Fabric of Reality 170). Deutsch points out that “Chemical reactions” (such as the one that arouses motion in the bear) “are nothing more than the motion of atoms, so the bear never is entirely at rest” (Deutsch Fabric of Reality 170). For Deutsch, “the real” is precisely that which resists our immediate sensory experience. This conception may have aided our ancestors, as they excluded female writers, slave populations, or truly anyone who wasn’t a white, male “individual.” The parallel, though inventive, is one that we must draw in order to truly understand the historical precedent that led to our conception of radically new sciences like Quantum Physics. In this instance, the only way to view the “reality” of the bear, the
truly living processes that enable us to consider it “animate,” is through increasingly mediated and
theory-laden techniques.

Indeed, Deutsch sees genetic codes as inherently more “animate” than the organic bodies
that act as their “vehicles.” For Deutsch, gene replication is the only truly consistent feature of
“animate” life: “Alive is at best a courtesy title when applied to the parts of an organism other than
its DNA. An organism is not a replicator: it is part of an environment of replicators-- usually the
most important part after the other genes” (Deutsch Fabric of Reality 175). This point is absolutely
essential to understand, as Deutsch privileges the reality of gene replication over the reality of
interacting organisms--in short, our experienced reality as human beings. In other words, the
exclusion of the majority from our conception of “the real” during the novelistic conception of the
world within the British Enlightenment is mirrored in Deutsch’s conception of the
scientific/ontological “real.” Our day-to-day experience of animate life vs. inanimate objects is
truly an idealistic one. Deutsch is seeking to accomplish the same task as Behn--using the medium
(his book) to expose “the real,” or the majority that is concealed from us. Ultimately, reality
consists of an infinite number of interacting genetic structures which make up the “vehicle” (us)
by which these genes replicate. The only experience we can have of these genes is both a mediated
and theory-laden one; therefore, Deutsch’san genetics is simply another example of the
Enlightenment bind of Idealism vs. Realism-- where the actual shared real is that which is excluded
from our experience.

Multiversal Realisms/Idealisms

Though this conception of “the real” seems to be at the height of radical thinking on this
subject, Deutsch takes this theory a step further in his layout of Quantum Theory and Computing.
This theory begins during the chapter on the “Significance of Life.” This chapter discusses genetic replication, which we have been discussing so far, and the argument takes an extremely interesting and theoretical turn. Deutsch begins by proposing that “Genes are in effect computer programs, expressed as sequences of A, C, G, and T symbols in a standard language called the genetic code which, with very slight variations, is common to all life on Earth” (Deutsch Fabric of Reality 171). Could this mean that all life on Earth can be likened to a mediated computer program? Absolutely.

Deutsch begins his chapter theorizing Quantum theory and the “multiverse” in The Beginning of Infinity as follows: “I shall… explain something [Quantum theory] that is more astounding than any fiction, yet is the purest and most basic fact we know about the physical world” (Deutsch Beginning of Infinity 262). Deutsch begins to lay out this “something” as a phenomenon entirely inferred through theory and interference. Indeed, Quantum theory is derived entirely from unexplained absences--the appearance of an additional mediator when no mediator is immediately present. The experiment that he discusses concerns a box with tiny slits through which photons are able to seep through. The box has a certain number of photon beams shining straight through it, and an apparatus that is meant to detect the presence of any unseen phenomena occurring in the box. Yet, the phenomena that Deutsch is so concerned with do not get recognized by this apparatus. In fact, Deutsch would not even be able to detect the phenomena if not for a certain absence, or interference that occurs in the readily “tangible” photons shining through the box: “[the photon] passes through one of the slits, and then something interferes with it, deflecting it in a way that depends on what other slits are open; the interfering entities have passed through some of the other slits; the interfering entities behave like photons; except that they cannot be seen” (Deutsch Fabric of Reality 43). One may begin to see where an entirely new conception of “the real,” one that proposes that what is “real” is precisely that which cannot be seen, is beginning
to take shape. For Deutsch, these photons (both interfering and unseen), or “Shadow photons,” suggest the existence of “at least a trillion shadow photons accompanying each tangible one” (Deutsch Fabric of Reality 44). What sort of force can act on tangible “realities” while remaining entirely unseen and undetected?

As we have seen in Deutsch’s other arguments (on DNA replication and distant Solar Systems), it is not far off to use theory-laden techniques to edge closer to the reality of these phenomena: “Thus we have inferred the existence of a seething, prodigiously complicated, hidden world of shadow photons… it follows that reality is a much bigger thing than it seems, and most of it invisible” (Deutsch Fabric of Reality 45; italics mine). Just as there is a hidden reality underlying the idealistic notion of “individuality” engendered during the Enlightenment, or the interaction of organisms with supposed “animation” and agency, so too is there a hidden reality underlying the very building blocks of “the real” itself. Indeed, Quantum theory is the only branch of science that argues “what is real is precisely that which cannot be seen” (Joe Rogan Experience). For Deutsch, this “reality” is one composed of alternate universes-- a seething “multiverse” that is exposed every time a tangible photon is interfered with in a way that even our most advanced tools (mediators) cannot register: “In other words, they do not form a single, homogenous parallel universe vastly larger than any tangible one, but rather a huge number of parallel universes, each similar in composition to the tangible one, and each obeying the same laws of physics, but differing in that the particles are in different positions in each universe” (Deutsch Fabric of Reality 45).

So, one may begin to see how the “excluded majority” within the social realm that is exposed in Aphra Behn’s work--the messiness of categories that become so tangential to the exclusion of massive amounts of “the real”--takes on an entirely new life in Deutsch. It is not an idealistic notion of humanity that Deutsch is concerned with, but an idealistic notion of “the real”
itself. Deutsch considers traditional conceptions of physics to be ultimately missing the mark--
maintaining idealistic categories despite clear evidence (in the form of the photon experiments)
that there is something truly untheorized occurring in his multiversal box. Following this, Deutsch
and many other theoretical physicists (not to mention top companies like Google, Apple, IBM,
etc.) are making strides to introduce a new technology that will, in effect, “harness nature” in order
to carry out computations at an impossibly rapid rate-- completely collapsing the binaristic
structures that we’ve seen mediums perpetuate in order to do calculations that account for “ones
and zeroes simultaneously” (Deutsch Fabric of Reality 195). This new technology is called
Quantum Computing, and though it is currently only being theorized, the potential for accessing
the vast and seething “real” is astounding.

**OK Computer: A New Dawn in Computation**

Let us begin with Deutsch’s most interesting claim about Quantum Computing: that “A
quantum computer would be capable of distributing components of a complex task among vast
numbers of parallel universes, and then sharing the results” (Deutsch Fabric of Reality 195).
Therefore, for Deutsch, Quantum Computing will finally give us access to an unidealized notion
of “the real” that accounts for all that is unseen (in other words, the *majority*). The benefit of
Quantum Computing is illustrated through the distinction between “tractable” and “intractable”
computational tasks. A “tractable” task is something like, say, a math problem in which “the time
[to complete the equation] does not increase too sharply when we apply the same method to ever
larger numbers” (Deutsch Fabric of Reality 198). There are certain problems that increase
exponentially in difficulty when adding one decimal point, or one hundredth of a number, to the
equation. These problems are referred to as “intractable,” meaning that they will eventually
become effectively unsolvable due to the massive amount of time it takes to solve them with each increasing value.

To clarify how Quantum Computing avoids the difficulty that arises when conducting “intractable” tasks, let us refer to a recent news article discussing DARPA’s initiative to expand their research on quantum computing: “Millions of molecules exist, and each molecule has a unique three-dimensional atomic structure, as well as variables such as shape, size, or even color. This richness provides a vast design space for exploring novel and multi-value ways to encode and process data beyonds the 0s and 1s of current logic-based, digital architectures” (DARPA itals. mine). It is telling to consider the fact that the next step in scientific research, or uncovering the vastness of “the real” in general, is predicated upon a breakthrough which will bring humans beyond the empiricist methods of Enlightenment-era research. This division between “tractable” problems and “intractable” ones is simply another imaginary binary for Deutsch, as the potentiality for Quantum Computing will erase any notion of “intractable” problems: “These are computational tasks that are ‘intractable’ when we attempt to perform them using any existing computer, but which would be tractable if we were to use quantum-mechanical objects as special-purpose computers” (Deutsch Fabric of Reality 209). This notion of using “special purpose computers,” or in other words, using the world as mediator (one may begin to see how this serves as the flip side of the “ontological privilege of idealism” that we discussed previously), would open up an infinite amount of computational possibilities. These special Quantum Computers can, theoretically, calculate these “intractable” tasks by filtering them through each parallel universe exposed in our previously discussed light experiment. Indeed, they would harness the infinite “real” that is unseen in order to erase the possibility of “intractable” computations.
In a Quantum Computation, “At each instant, the bit has value 1 in a certain proportion of universes and 0 in another. All those universes, at all those times, are already shown… They are not moving anywhere!” (Deutsch *Fabric of Reality* 212). The process that Deutsch is referring to in this quote will completely erase any binaristic conception of “the real.” Deutsch is illustrating how Quantum Computing accesses each parallel universe (proven to exist through shadow photons accompanying each tangible photon) in order to calculate the ones and zeros of binary code *simultaneously*. Quantum theory allows for the possibility of calculating *infinite possibilities* simultaneously, accounting for each separate trajectory of each individual photon at the same time. This is what is at stake for theoretical physicists, largely written off as “quacks” despite the very tangible (and shadowed) evidence of interference—evidence otherwise unexplained outside of shadow photons. Quantum computing uses features of nature, or “quantums,” as “special purpose computers’—the perfect example of the “world becoming medium.” Therefore, Deutsch’s theoretical experiments in Quantum Computing open up the potentiality, “for the first time,” of accessing the real to its fullest extent (Habermas). If “the basis of life is molecular,” then the only step forward for a study of the real is *using molecules as the medium through which we compute.*

**Confronting the Shadows**

Therefore, we have gone through three incredibly disparate, but undeniably connected realism/idealism binaries. Beginning with Social Realism/Idealism, we saw how Habermas theorized a public sphere that consisted of a *minority exploiting the majority*, in order to produce the very individuality that created this public sphere in the first place. During this section, we discussed how Aphra Behn, the first novelist, and someone jumping the obstacles of writing with “a female pen” during this time period, sought to break down the idealistic binaries being created
by the newly proliferated medium of novel reading during this time period. Her depiction of an African prince who is enslaved, and yet maintains his “Roman” features and heroism, truly subverts the binary that reinforced the power dynamic of this time period.

After this discussion, we transitioned into the notion of experimentation, and an access to “the real” that is inherently mediated by computation and “theory-laden” processes. In this section, the binary of Physical Realism/Idealism was subverted when we saw that our “animate” reality ultimately exists at the level of DNA, and to call our physical bodies “living” is a mistake. The only replicatory capabilities occur at the level of genes, which use our bodies as “environments” in which to be replicated. Therefore, in order to access the “reality” that is ignored in our privileging of the human body, we must cut ties with empiricist notions of experimentation. For Deutsch, that which is real is precisely that which must be mediated by tools and theoretical techniques. One may remember our discussion of Siskin and Bowker; as they theorized the “ontological priority of mediation.” Though Deutsch is discussing a radically different topic, their conclusions are similar. The medium is ultimately that which produces our reality for us, in both revealing and exclusionary ways. Indeed, the medium is at the heart of it all; it is that which produces the real unfolding around it.

This notion of “the real” being produced/exposed by mediation ties together generations of intellectual work, and opens up the potential to argue for Deutsch’s most radically theoretical argument, yet one that is completely rooted in tangible “realities” that we have come to accept; namely, Quantum Computational methods. In this section, Deutsch argues for a Multiversal Realism that does away with the intractable, idealistic notion of the world as strictly tangible. Deutsch would like to argue that photons exist both tangibly and in shadow form, and the shadow photons are innumerably more present than tangible photons. Indeed, Deutsch’s conclusion that
there is a seething “real” that includes a multiverse of potentialities opens up the possibility of a radically new form of computation: Quantum Computation. This new (and as yet, theoretical) form of computing introduces the possibility of doing away with intractable problems \textit{entirely}, for access to an infinite number of parallel universes makes calculating ones and zeros an instantaneous process. One may harken back to a quote we encountered in Siskin, where he is discussing the potential of Enlightenment-based “systems” to archive each experiment, and each bit of “guesswork” conducted from this point in history onward. For Deutsch, Quantum Computing eliminates the “guesswork” and “archive” entirely. The multiverse is the archive; each individual potentiality already accounted for. In order to carry out this quantum process, the “world” must \textit{literally} become the medium, as we use molecular structures--the building blocks of “the real”--\textit{as the computer}. Therefore, one may begin to see how the duality between Realism and Idealism that has plagued our vision of “the real” since the beginning of medium-based experience is beginning to fall apart as the nature of the medium is constantly changing.

Soon, that which is unseen will confront us-- not through the empiricist senses, but through mediation and theoretical processes that expose “the real” for what it truly is; infinitely variable and entirely resistant to any previous form of categorization. Therefore, the “systematic” thought processes engendered during the rise of the medium in the seventeenth century has led to increasingly complex conceptions of the real. Parallel universes have left the science fiction screen and pervaded our “reality,” whatever that means, and the possibilities for building new “systems” of realist thought are (quite literally) endless.
The World of Images: “Virtual” and “Hypertextual” Cognition

Throughout this project, we have discussed many different forms of mediation at great length. We investigated three different novels, all written at the very origin of this entirely new form of writing. We then discussed the new ways in which mediation has improved since the Enlightenment period, and how scientific discovery has advanced based on these mediated/ theory laden processes. However, a theory we have yet to discuss is that of “virtuality,” and the new form of mediation that different conceptions of this word have begun to create. Though this seems like a term that is more at home in a book by Deutsch, the term was originally used by Henri Bergson to discuss cognition, and the way human beings interact with their environment. Yet, the two philosophers’ opinions on virtuality intersect in fascinating and important ways.

In order to begin this comparison, and investigate the definition of the “virtual” that Bergson brings to the philosophical table, it would be worthwhile to briefly investigate a new form of textualization taking shape in the new age of digital literature— or as Professor Massimo Lollino calls it, “Twitterature” (Lollini 1). In his essay “Hypertext and Twitterature,” Lollini analyses a new format that is being used to discuss Francesco Petrarcha’s textual mangum opus, Rerum Vulgarium Fragmentata (Rvf). Since its inception between the years of 1327-1368, Rvf has been the subject of hundreds of years worth of criticism and dialogue. Compiling the disparate pieces of the text, and the broad array of arguments/critiques informing each individual reader’s perception of the text was considered an impossible task; that is, until the conception of the hypertextual project The Oregon Petrarch Open Book.

Before we get to the interesting phenomenon that is the “OPOB,” let us rewind to discuss hypertextualization, and the implications it has in regards to the continuous “Enlightenment” style thinking that Deutsch argues we must engage in for humanity to advance. According to Lollini, a
hypertext is typically associated with the *digital* phenomenon, subject to constant changes in meaning and interpretation due to its “democratic” existence as a text located within the digital universe. A more general definition of “hypertext” is “text that links to other information. By clicking on a link in a hypertext document, a user can quickly jump to different content” (techterms.com). Lollini discusses this new textual format in a way that makes it comparable to the first form of “democratic” and liberating textuality; the novel: “That is, the crucial role of the reader in giving texts meaning depends on the forms and the materials by which the text is transmitted. Cavallo and Chartier go so far as to say that because form produces meaning and generates new ways of looking at a text, every change in the text’s material body produces new meaning” (Lollini 1). One might see the similarities between the online discourse surrounding a hypertext, and the newly popularized “publick” discourse in cafes and salons during the rise of the British Enlightenment. The hypertext gives rise to “the democratization of knowledge” that has truly never been seen before—-a perfect picture of the collaborative format that Deutsch thinks knowledge should take (Lollini 1).

Within this universe of “Twitterature,” a text like Petrarch’s *Rvf* can be read in entirely novel ways. Lollini argues that the digital form of *Rvf*, the “OPOB,” effectively “opens up this marvelous text to new readers and to new styles of reading while keeping the dignity of the secret textual meaning susceptible to new interpretations” (Lollini 1). The result is a type of “literary democracy” in which readers can each contribute their own findings and experiences to the text itself, and access the wide and interconnected range of criticism, related materials, etc. in order to construct a more holistic view of the text and its reception. A version of this is discussed by Lollini when he mentions the “Twitterization” of *Rvf*, where readers from all walks of life are afforded the opportunity to add to the discourse by operating within increasingly popularized mediums:
Archiving separate editions together in the OPOB allows scholars and casual readers alike to enrich their encounters with the text by reading it alongside Renaissance and modern commentaries and by comparing the Italian original with translations into Spanish, French, and English and with partial translations in Russian, Chinese, Japanese, and German. Furthermore, readers may decide to experience the text along with artworks and musical renderings. Or, more concisely, they may read the entire Rvf in tweet format (Lollini 1).

To harken back to a term used by Deutsch within his discussion of Quantum Computation, discourses on texts like the Rvf are becoming increasingly tractable as an infinite range of intellects are being granted tickets to the proverbial show of literary analysis--and the analytical framework of the text is growing ever-larger because of this democratic system of reading.

Indeed, the hypertextual format toward which literature is trending almost mimics the rise of novelistic forms of literature. The archive (a term the reader might remember Deutsch using a great deal) is immediately accessible to scholars and laymen alike through hypertextual mediums. This acceptance of the fact that countless living bodies may have something to contribute to the text is extremely similar to the concept of the “public sphere” that arose during Enlightenment-Era Britain. Lollini seems to be making this connection when he says,

digital platforms make literary texts like the Rvf available to an audience far larger than the one retrieving books from libraries. These texts also become available through searchable databases, giving readers a new type of access and enabling new, integrated intertextual readings… This opens a path to exciting new research questions on the reception of the text throughout the centuries (Lollini 1).

Therefore, the text transforms as new interpretations are contributed to the “Twitterature” version of this age-old text--numerous and disparate parts are subjectively assembled to create a newly compiled version of a text that had been read the same way for centuries. This is precisely the type of archival and multi-disciplinary learning/research that Deutsch pushes for in his books. This matrimony of textual interpretations and general ideas is essential in order to make new discoveries; and the forms that a hypertext can take are virtually infinite.
One “hypertextual” experience reveals itself during a reading of Henri Bergson’s book *Matter and Memory*. Bergson’s depiction of subjective experience, and how each individual experience becomes part and parcel of the larger “whole” or “actual” world, is hypertextual in its own right (even if it didn’t mean to be). In fact, a closer reading of Bergson’s “MM” will reveal that the French philosopher may have been more acutely aware of hypertext, and even more, virtual reality than he could have conceived of at the time-- and his concept of each “living body’s” perception of the universe trends toward an actual view of virtual reality that is getting more possible as each day in 2018 passes by.

On top of theorizing about virtuality, Bergson was ultimately arguing for a brand new conception of sensory experience. Bergson introduced a new conception of “the medium” (which we have discussed throughout this project) when he allocated the *human body* as the primary and all-encompassing medium through which we experience the world. Bergson argued that “all seems to take place as if, in this aggregate of images which I call the universe, nothing really new could happen except through the medium of certain particular images, the type of which is furnished me by my body” (Bergson 18). This pivotal point in Bergson’s book begins to reveal his novel conception of the body, and how it contributes to our ongoing discussion of “the medium.” Indeed, Bergson’s vision of the body suggests a particularly hypertextual, “choose-your-own-adventure” conception of an ever-expanding list of possibilities that is his “virtual” universe. Bergson argues for the body’s influence on the universe surrounding it, and vice versa, when he discusses how each of us “living bodies” navigate our worlds as they present themselves to us: “I have supposed that the office of the image which I call my body was to exercise on other images a real influence, and, consequently, to decide which step to take among several which are all materially possible” (Bergson 20). In fact, Bergson depicts a world surrounding the body that entirely conforms to its
influence; each individuated experience taking on a privileged life of its own according to the way in which the body interacts with it. For Bergson, this process is one of constant interaction between the body and the world surrounding it: “The objects which surround my body reflect its possible action upon them” (Bergson 21). Therefore, the world is both affected by the body interacting with it, and affects the way the body might take action within it. Furthermore, the world for Bergson is boiled down to a “system of images” (not unlike the “world” of virtual reality headsets that we will soon discuss). Each individual action is conditioned by this system of images, and is instrumental in the way the system is structured going forward.

Bergson’s concept of a “system of images” is essential in order to move forward with our analysis of new forms of textualization like virtual reality. The entire connection between the Bergsonian “virtual” and the virtual reality headsets becoming so rapidly popular today pivots on one quote taken from Matter and Memory and used as the epigraph for this entire project:

Here is a system of images which I term my perception of the universe, and which may be entirely altered by a very slight change in a certain privileged image - my body. This image occupies the center; by it all the others are conditioned; at each of its movements everything changes, as though by a turn of a kaleidoscope (Bergson 25).

Following this quote, one might begin to see how Bergson’s “virtual” presciently depicted the possibility of an ever-expanding and ever-improving technology called “virtual reality.” For Bergson, the body almost takes the form of a hypertext in itself. An interpretation of the “text” that is the “system of images” surrounding each individual body constantly shifts as we each contribute ourselves to its interweb. The “kaleidoscope” constantly shifts, just as interpretations of RvF are constantly shifting due to its new, digital, “democratic” formatting.

This concept of a constantly shifting, reactionary view of the world is prescient, as it directly correlates to the way that Virtual Reality, and the newly-popularized “VR Headset”
operates based on the headset-wearer’s interaction with the virtual world. Art, literature, and even gaming are shifting in irreversible ways due to this rise in “virtual” technology. These new advances show that Bergson’s theories extend far past our perception of the universe surrounding us, to digital universes created by and for us.

In expanding our discussion on Bergson’s “virtuality”, it is necessary to discuss the new trend arising in art and literature called “virtual reality” (“VR” for short). In an article entitled “What is Virtual Reality?” published by the “Virtual Reality Society,” virtual reality is explained as follows:

our entire experience of reality is simply a combination of sensory information and our brains sense-making mechanisms for that information. It stands to reason then, that if you can present your senses with made-up information, your perception of reality would also change in response to it. You would be presented with a version of reality that isn’t really there, but from your perspective it would be perceived as real. Something we would refer to as a virtual reality (vrs.org).

Accepting that our experience of the world is engendered by our sensory experiences (a concept that, as we will see, Bergson certainly subscribes to) gives rise to an interesting analysis of newly discovered forms of VR. Notice that the quote above discusses the possibility of a new “version of reality” both fabricated and created by VR technology. As a user within the VR system turns his head, an expanse of the VR universe is created to fill his gaze with this “version” of reality. Even more interesting; as he begins to take action, the virtual world surrounding him will begin to adjust itself to his impact on it. One might begin to see how Bergson’s theory of virtuality plays such a large part in theorizing this new technology-- if the body is already used as a medium, why not tweak the sensory information it receives. This new form of mediation has a wide-ranging impact on the future of the hypertext, and the future of literature itself. Not to mention, it is already altering approaches to art and journalism in significant and fascinating ways.
One interesting example of a VR system that is being used for journalistic and artistic purposes is the “Hunger in Los Angeles” Project created by Nonny De La Pena. The exhibit places the VR user inside of a simulation within which they experience a man going into diabetic shock on the line at the Los Angeles Food Bank. De La Pena saw the potential in instilling empathy in the viewer using a VR headset. During her TED Talk on this new form of VR journalism, she asks her audience “What if I could present you a story that you remember with your entire body, and not just your mind?” (ted.com). This question is intimately tied up in the discourse on Bergson’s theories, as “memory” is so affected by the matter surrounding the living body. In an essay called “The Reality of the Virtual,” John’s Hopkins Professor Keith Pearson writes, “Freedom, then, has to be seen as intimately organized with necessity, and memory is bound up with matter” (Pearson 1112). For De La Pena, the “matter” being used in this project is not physical at all, and yet, it affects the “memory” of the user in extremely Bergsonian ways. De La Pena’s system seems to work because “the individuated body is the site of the condition of possibility of the virtual” (Pearson 1113). In other words, the user’s sensory experience is entirely immersed in this VR software because it is carrying out the cognitive functions Bergson established almost two hundred years ago. This immersion is not only a fascinating tool when it comes to telling a story, but it is also unmatched at provoking a form of empathy for the “invisible” people in the world (to harken back to our conversation on the British Enlightenment in the first chapter of the book).

De La Pena’s project is all about bringing the forgotten majority into the spotlight, and forcing the viewer to empathize with them in ways that even the novel fell short on. She says she wanted to “take people who are hungry, who I felt were invisible, and make them visible in a way that was so compelling that people would really get what was going on out there” (docubase.mit.edu). The software is, in a word, effective. Despite the bad graphics, and all around
“uncanniness” of the “Unity” software that De La Pena used for the project, a user notes that “it didn’t take more than about a minute before [I] became a denizen of the uncanny valley. It was just my world, and that trumped any judgmental gaze I had on the aesthetics” (Frilot; King 52). The world that De La Pena places the user within with her “Unity” driven VR journalism becomes a particularly tangible conception of the Bergsonian “virtual,” and the “actuality” of the universe surrounding the VR user becomes unimportant as they surrender their faculties to the simulation.

This surrender is mainly due to the sophistication with which we can now operate these systems. Even in 2011, with bad cartoon graphics and an all-around unconvincing delivery system, the user is still immersed within this empathetic relationship with the cartoon man seizing on the floor due to diabetic shock. De La Pena notes that she began seeing “really intense, authentic reactions from people that blew [her] mind” (ted.com). One must deduce that this authenticity, both in the immersion of the users and the reactions from the users, is due to a particular conformity with the Bergsonian sensory experience: “There is no single encoded camera point of view… [one has the] ability to look or not look, to turn and look for the police or to look at the person who’s on the phone” (Frilot; King 52). In other words, the VR user is engaged in a Bergsonian system of “virtuality” that creates a genuine experience within their psyche, even when they can point out the uncanny nature of the experiment. For De La Pena, reading a story wasn’t enough. One had to experience it sensorily, using the faculties of the mind that create a full-fledged experience.

This “choose-your-own-adventure” format, one in which you can “look or not look,” is precisely the evolution of hypertext that we began to discuss in the beginning of this chapter. Virtual reality systems have begun to revolutionize the way we think about literature. With “virtual” realities growing ever-closer to “actual” realities, the Bergsonian line is extending far past what we ever thought was imaginable. Users are becoming “denizens” of the virtual worlds
they have begun to inhabit, and it is not difficult to conceive of a world in which the lines between
the virtual and the actual are broken down in the name of redefining “the real” in radically
transformative ways.

Is the trend toward virtual realities one that could open up the possibilities Deutsch yearns
for in his musings on theoretical physics? Do virtual experiences, an infinite number of them at
that, do away with more “intractable” problems? Is the virtual reality we inhabit when we place
the headset on an “actual” experience, to use the words of Bergson? And if not, what distinguishes
the “actual” of our day-to-day lives from the virtuality of our headset-driven experiences? As we
look back at our analysis of numerous novels that defined the knowledge and “reality” of the period
they were written in, and at Deutsch’s theories on a new form of knowledge that is being explored
following experiments with “shadow photons,” it is not difficult to see a “useful” form of progress
taking place within the most unexpected corners of science. What was once a thought was written
down on paper and distributed to the masses; what was once an impossibility was explored by
Deutsch in a way that opened up an infinite number of universes to our scientific (theory-laden)
hypotheses; and what was once considered “virtual” is having very real and actual effects on our
emotional and mental states. De La Pena, and countless others, are exploring the vast expanse of
possibilities introduced to us by the theories of Henri Bergson, and the term “virtual” seems to be
ripe with opportunity. From a multiversal viewpoint, no problem is intractable, and we may never
cease accumulating new knowledge in the name of an infinite Enlightenment.
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