MAPS OF HUMAN COMMUNICATION: SCIENCE AND THE ARTS

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Table of Contents

1. Abstract

The purpose of this thesis is to examine the function of language as a map that navigates the perception of human reality. In the thesis, attention is paid to the structure of speech, and whether or not it accurately represents the structure of empirical knowledge. This thesis also examines how, in a scientific context, paradoxes and confusion in quantum mechanics can be avoided through the use of a linguistic formula. Such a formula will permit the structure of speech to be congruent with the structure of empirical knowledge, as it pertains to the description of scientific experiments. The structure imposed onto the content of films by certain creative techniques are also examined in this thesis. The overall conclusions are that while the use of a linguistic formula could be useful in a scientific context, a strict adherence to the structure of empirical knowledge might not be appropriate in the area of film-making, because it might stifle creativity or be viewed as censorship.

2. Introduction

In this thesis, I attempt to show how the use of language has an implication on how humans perceive the empirical world. In particular, the tools that are used to describe or express reality - whether its words, shot composition, photographic lenses, or creative writing techniques - impose a structure onto the content of the description or expression. This expression or description, can be viewed as a map of how human reality is structured. In a scientific context, if the structure of the map (language), is not congruent with the structure of the territory (knowledge/facts), confusion and problems can arise specifically in the realm of quantum mechanics, which occupies an important position in my thesis. Therefore, I propose a linguistic formula using philosophy as linguistic constants that can be applied to the descriptions of scientific experiments, so that the structure of the territory (knowledge/facts) can be referred to while discussing the experiment. However, in a creative context such as film, no formula is needed to refer to the structure of human reality because film is an art form. In the arts, the general idea that is conveyed is that there is no right or wrong way to create. Therefore, examining the structure of a film gives the audience an indication of how the film-maker perceives reality.

I developed an interest in quantum mechanics after I watched a film called *What the Bleep Do We Know!?* (William Arntz, Betsey Chasse, Mark Vicente, USA, 2004). The content of the film was quantum physics. From a research standpoint, it was a good beginning but further independent investigation was necessary. During the course of my study I read some material by Robert Anton

Wilson[1], which prompted more research into the philosophical, and linguistic foundations of my ideas. Even though my research originally started out solely on the topic of quantum physics, it branched out further into the realms of linguistics and philosophy. As a result, this thesis will only deal with one small facet of quantum mechanics. Furthermore, this thesis will be broken up into two parts: the analytical and the creative. The analytical part will be this written text, and the creative example based on the creative portion of the text will be a short film.

Consequently, the first part of the thesis is a report about my exploration into physics, philosophy, and linguistics, starting with classical mechanics. I discuss how Aristotelian philosophy has influenced this branch of science. I argue that the confusion surrounding the interpretation of findings from quantum mechanics arises from the use of language. I will discuss how language can be viewed as a map, and the importance of its structure. I'll further discuss the linguistic formula, where philosophy is used as "linguistic constants" when describing experiments in quantum mechanics. I will also cover the meaning of philosophies that I us as linguistic constants; these philosophies will include existentialism, empiricism, operationalism, instrumentalism, pragmatism, and agnosticism. I will apply this linguistic formula to a simple statement to provide an example of its effectiveness. Next, I will discuss the differences in quantum mechanics and classical mechanics, and follow it with the application of the linguistic formula to the "one electron through two slits experiment," a.k.a. "Double Slit Experiment."

[1] Robert A. Wilson, *Quantum Psychology*. (Tempe, Arizona: New Falcon Publications, 2005)

The subsequent section of the thesis will deal with photography, and how use of focal length along with the composition of the shot, can impose a structure onto the content of a film, just like the same way the use of "is" statements can impose a structure onto human reality. I will also discern, in a similar fashion, how the use of creative writing techniques and exposition in the context of a narrative film, can impose a structure onto the content of a film. All of these ideas were born out of initial research into the topic of quantum mechanics, and from the film *What the Bleep Do We Know*.

Finally, I discuss the short film called *Theta Games*, which I have made as the creative part of my thesis. This film provides an example of an existentialist structure, which I discuss in the film portion of this document. I also discuss the two other unfinished short films, the reasons why they were never completed, and what lessons I learned during the course of their creations. Written materials of the short films that have accumulated during the stages of their creations will also be included.

3. Western Philosophy

The direction this thesis took me in started at quantum mechanics. But, in order to understand quantum mechanics, we need to understand classical mechanics first. However, in order to sufficiently understand classical mechanics, we need to know which philosophy influenced and inspired its creation. We will begin with Western Philosophy.

3.1 Aristotle's Philosophy

The tools that humans use for description in the English language, impose a structure onto the content of the description. Specifically "is" statements impose a structure where the individual is outside the structure of reality. This particular philosophy can be traced back to Aristotle.

Aristotle[2] was the son of a physician, and took to Greek medicine and biology at an early age. After his father's death, he went to the Athenian Academy of Plato and studied there for twenty years. Covering the entirety of his work would be a daunting task, so I will only discuss the influence of Aristotelian philosophy on the English language. Volume fourteen of the Encyclopedia Britannica had this to say:

> "*The centuries-long impact of Aristotelian schooling lies at the root of the establishment of the following vocabulary: "subject" and "predicate" in grammar and logic; "form" (information, transforms) and "matter" as expressing the two correlative aspects of something that has acquired or acquires something else that is possibly essential to it; "energy" as the active power inherent in a thing; "potential" for what is latent but can be released; "substance" and "essence," "quantity" and meanings of "because" corresponding to the four causes), "genus" and "species" (general, special), "individual," "indivisible"(atomic)-these constitute only a*

[2] The University of Chicago, *Aristotle*. Encyclopedia Britannica. 1990. Fifteenth. ed. Vol. 1, pg. 556.

> *small sample of terms that still carry the mark of Aristotle's philosophy."*[3]

In Aristotle's view, a thing or object has its own essence that makes it that way. Thus, this leads to the conclusion that everything in nature, including man, has its own innate energy. Along the same lines, Aristotle proposes a clear distinction between man and nature. There is the idea of the indestructible atom, finiteness, and the absoluteness in all things. During Aristotle's time, this notion seemed to make a lot of sense. For example: my keyboard *"is" on the desk, because I can feel my fingers typing away*. I definitely know the keyboard "is" there; the tree I see in the forest is definitely there with its own innate energy, separate from mine. This philosophy made perfect sense at the time, with the limited amount of data that was available to them. The online Stanford Encyclopedia had this to say:

> *…it [Aristotle's Metaphysics] concerns issues that are in some sense the most fundamental or at the highest level of generality. Aristotle distinguished between things that are "better known to us" and things that are "better known in themselves,"[1] and maintained that we should begin our study of a given topic with things better known to us and arrive ultimately at an understanding of things better known in themselves. The principles studied by 'first philosophy' may seem very general and abstract, but they are, according to Aristotle, better known in themselves, however remote they may seem from the world of ordinary experience.*[4]

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[3] University of Chicago, *Aristotelianism*. Encyclopedia Britannica. 1990. Fifteenth. ed. Vol. 14, pg. 67

[4] S. Marc Cohen, *Aristotle's Metaphysics*. Stanford Encyclopedia of Philosophy, 2008. <http://plato.stanford.edu/entries/aristotle-metaphysics/#SubMatAriMet> (accessed December 18, 2005)

The philosophy that is presented above is a very general one, which uses abstractions. And, once again we see that there are clear distinctions between objects and subjects. *My keyboard is white* because it has some *innate "essence" which makes it white*. Or, the leaves of a tree possess *some innate "essence," which makes them green*. There is a distinction between subjects and objects. This distinction is also known as dualism. It seems as though this idea of duality has been unconsciously imprinted onto the western psyche with the use of the English language, which has been influenced by Aristotelian philosophy. This influence in the English language – specifically "is" statements – is reflected in the notion that the individual and the structure of empirical reality are two separate entities, which do not interact with one another. This view is also reflected in classical mechanics, which I will discuss next.

3.2 Classical Mechanics

Classical mechanics[5] is a branch of science that deals with the action of forces on physical systems. These physical systems inhabit our everyday physical reality. Thus, the mechanics of solids, liquids, gasses, and electromagnetic fields, all fall under the umbrella of classical mechanics. Our world would not be what it is today without it. One of its most distinguished characteristics is its ability to make absolutely accurate predictions and measurements. The field of classical mechanics has produced the building of bridges and cities, advances in medicine, manufacturing of automobiles, etc. Some scientists argue that the ability to make absolutely accurate predictions is the staple of a good scientific system.

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[5] *Mechanics,* Answers.com. 2009. <http://www.answers.com/topic/mechanics> (date accessed Sept. 20, 2009)

Another staple of Classical Mechanics is the ability to observe the cause and effect of any given phenomena, within human experiential reality. Henry P. Stapp (1995)[6] had this to say about classical mechanics:

> *The fundamental principle in classical mechanics is that any physical system can be decomposed into a collection of simple independent local elements each of which interacts only with its immediate neighbors.*[7]

According to classical mechanics, we can always determine the cause, the effect, and predict the outcome with absolute accuracy. Aristotle's philosophy is congruent with classical mechanics because statements that are considered to be Aristotelian, also represent the idea that reality can be broken up and decomposed into a collection of separate elements. The simple phrase "*the keyboard is white*," makes the assumption that there is no interaction happening between the human individual and the object. Therefore, the color white is perceived "absolutely" by any human who experiences it. In classical mechanics it is believed, that outcomes of experiments made in the macroscopic level or reality can be made with absolute accuracy.

For example, if I were to go outside and find a rock, pick it up, and drop it on the ground, I can predict that the rock will fall to the ground. I can do this experiment a thousand times over and still get the same result. A statement about the rock falling to the ground can

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[6] Theoretical Physics Group, University of California.
[7] Henry P. Stapp, *Why Classical Mechanics Cannot Naturally Accommodate Consciousness but Quantum Mechanics Can*, 1995. <http://psyche.cs.monash.edu.au/v2/psyche-2-05-stapp.html> (accessed November 12, 2007)

have an Absolute structure, because it is congruent with the facts that are present, which we can perceive through our senses.

According to Alfred Korzybski (1933), language functions as a map. Much like in the way a road map is intended to navigate through physical space, language functions as a map that navigates human perception of reality. He adds that if the structure of the map (language) does not resemble the structure of the territory (knowledge/facts), confusion and problems can occur. Tools that can be used create maps (language/statements), are linguistic constructs, such as "is" statements.

3.3 Language As a Map

The linguistic construct "is" pertains to classical mechanics, as this branch of science has the ability to absolutely predict phenomena with great accuracy. However, the use of "is" statements that are associated with Aristotelian philosophy, can become problematic as it makes assumptions about empirical knowledge, or as Korzybski (1933) calls it, the "territory." Korzybski (1933) explains this in his book:

> *Let us take some actual territory in which cities appear in the following order: Paris, Dresden, Warsaw, when taken from the West to the East. If we were to build a map of this territory and place Paris between Dresden and Warsaw thus:*

Actual Territory *_____*_____*

Paris *Dresden* *Warsaw*

Map *_____*_____*

Dresden *Paris* *Warsaw*

> *We should say that the map was wrong, or that it was an incorrect map, or that the map has a different structure from the territory… A map is not the territory it represents, but, if correct, it has a similar structure to the territory, which accounts for its usefulness.*[8]

Korzybski (1933) asserts that language is like a map, and the knowledge about human reality is the territory. And, that the structure of the map has to accurately represent the structure of the territory. This permits making an absolutist statement about picking up a rock, and dropping it, because it represents an accurate description of the structure of reality. However, the statement, *the keyboard is white* does not represent the structure of the keyboard and individual working together as a system. Instead, this statement assumes that the human individual and keyboard are two systems that do not interact with each other. The phrase, *the keyboard is white*, is a gross oversimplification of several complex processes which are occurring, in a seemingly simultaneous fashion. In this case the map (language/statement), has a different structure from the territory (knowledge/facts). Korzybski (1933) writes more about the importance of structure in his book:

> *…words are not the objects which they represent, structure, and structure alone , becomes the only link which connects our verbal processes with empirical data… we must study the structural characteristics of this world first, then only, build languages of similar structure, instead of habitually*

[8] Alfred Korzybski, *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics*. Pg 58. Fifth. ed. (Fort Worth, Texas: Institute of General Semantics,1933)

ascribing to the world the primitive structure of our language.[9]

In other words, an understanding of the world has to be attained first, and then a map can be created from it, not the other way around. An example of this would be me drawing a map of Paris. Since I have never been to that city, in my imagination, I can create a map of Paris, and place the Eiffel Tower and the Louvre, where I imagine they are located. However, if I were to ever visit Paris, I could never use this map, as it does not accurately represent the structure of the territory. Similarly, Aristotle imagined how the individual and reality interacted, and came up with a map. The metaphysics of Aristotle was composed at a time when very little data about the world was known, and the map (language), which was borne out of that limited knowledge, did not accurately represent the structure of the territory (knowledge/facts). The inaccurate map (language), which was devised then, was due to the fact that knowledge of how the individual and reality interacted was unknown.

Over time, there has been great progress in the fields of physics, biology, psychology, physiology, psychopharmacology, etc., which leads to the conclusion that the structure of our map (language) based on Aristotelian metaphysics, does not accurately resemble the structure of our territory (knowledge/facts). The metaphysics of Aristotle, and the map (language) borne out of the metaphysics, seems to be an abstract oversimplification. These abstract oversimplifications in speech, separate the human individual from the structure of empirical reality. This separation is not congruent with our current model of human knowledge (territory).

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[9] Alfred Korzybski, *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics*. Pg. 59. Fifth. ed. (Fort Worth, Texas: Institute of General Semantics,1933)

This can be very problematic in scientific contexts, specifically in the realm of quantum mechanics.

My goal in the next portion of this document is to identify the processes that occur while experiencing human reality (territory), so that our verbalisms (map) can better represent their structure. The identification of these processes, or the structure of human reality can be made by using different philosophies as linguistic constants, in a linguistic formula. When I use the term "linguistic constant," it means that the specific philosophies will be constantly referred to, that will relate to the structure of the empirical world, no matter how simple the statement.

It is my hypothesis that using these philosophies as linguistic constants, will give humans a clearer understanding of quantum mechanics. A secondary benefit would be that Idolatry would be avoided. Idolatry as defined by the Merriam-Webster Online Dictionary is as follows:

> *1 :the worship of a physical object as a god*
> *2 :immoderate attachment or devotion to something.*[10]

It would be important to avoid Idolatry, because people can be devoted to a map that may not accurately represent the structure of the territory. For example, if I were to succumb to Idolatry, I would be devoted to the map I created of Paris from my imagination, even though it is inaccurate in its structure. My friends, peers, and everyone else who likes this map, will also be devoted to it. Even if

[10] *Idolatry*. Merriam-Webster Online Dictionary, 2009. <http://www.merriam-webster.com/dictionary/idolatry> (accessed March 15, 2008)

someone actually went to Paris, came back, and told everybody that my map was wrong, my friends and I would still be devoted to the map that I created. I propose to use different philosophies in order to create a linguistic formula, which can better represent the structure of human reality, rather than ascribing a structure from the use of "is" statements. This linguistic formula will serve as a constant reminder of how human reality is structured, and how the individual works within, or is a part of that structure. This will lead to the creation of a map (language), where the structure is congruent with the structure of the territory (current knowledge/facts).

4. Philosophy

In order to construct this linguistic formula using philosophy, so that the structure of our map (language) is congruent with the structure of the territory (current knowledge/facts), we first have to understand the meaning of each philosophy. Once an overview of the meaning has been covered, the philosophy will be applied as a linguistic constant to the phrase *my keyboard is white*. As each philosophy is explained, it will be applied to the keyboard phrase, along with the previous constants, in the construction of the linguistic formula. It might appear repetitive, but that is the point of a linguistic constant.

The philosophies that will be included in the linguistic formula are as follows; agnosticism, empiricism, operationalism, instrumentalism, pragmatism, and existentialism.

4.1 Existentialism

Existentialism bears no resemblance to Aristotelian philosophy. The existentialist believes that all knowledge or truths we have accumulated are from our sensory experiences, and are not indicative of anything objective or universal. The existentialist argues that universal, objective, or certain knowledge is unattainable. Existentialism can be found in the works of nineteenth century philosophers like Friedrich Nietzsche and Soren Kierkegaard. Other philosophers in the twentieth century that embraced existentialism include, Martin Heidegger, Karl Jaspers, Gabriel Marcel, Jean-Paul Sartre, and Maurice Merleau-Ponty. According to the Encyclopedia Britannica, the definition of existentialism is,

> *(1) Existence is always particular and individual—always my existence, your existence, his existence. (2) Existence is primarily the problem of existence (ie., of its mode of being); it is, therefore, also the investigation of the meaning of Being. (3) This investigation is continually faced with diverse possibilities, from among which the existent (ie., man) must make a selection, to which he must then commit himself. (4) Because these possibilities are constituted by man's relationships with things and with other men, existence is always a being-in-the-world—ie., in a concrete and historically determinate situation that limits conditions choice.*[11]

According to Robert Anton Wilson, speaking in existentialist and phenomenological language when discussing quantum physics, allows an easier understating of this branch of science.

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[11] University of Chicago, *Existentialism*. Encyclopedia Britannica. 1990. Vol. 25, pg. 621 Fifteenth. ed.

> *One summary of existentialist theory says "Existence precedes essence." That means that we do not have an inborn metaphysical "essence" or "ego", such as assumed in most philosophy.*[12]

Existentialist language forbids the use of "essences" or "spooks" (things that happen by accident), to describe an operation or function from observed phenomena. Under this philosophy, while describing an event or phenomena, it is important to indicate who is witnessing – or observing – the phenomena. It can be called an existentialist anchor. For example, a statement such as, the tree *is brown,* has no existentialist anchor. The tree appears brown *to me*, is the correct statement, as it indicates that the human individual is a part of the structure of empirical reality. In Aristotelian philosophy, the tree *is* objectively brown, which means that everyone observes the exact same shade of brown. The assumption made in the previous statement is that the human individual is not a part of the structure of reality, but is separate from it. This assumption is not congruent with the structure of the territory (current knowledge/facts).

Applying an existentialist constant as a linguistic device follows: The keyboard is white, *to me*. Another example would be: The keyboard appears white *to me, because of my previous experiences with the color white, and with what the consensus belief of white is at this present moment in space-time*.

Using existentialism as a linguistic constant ensures that the use of language is congruent with the facts of how a human individual experiences reality.

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[12] R. A. Wilson, *Quantum Psychology*. Pg 16. (Tempe, Arizona: New Falcon Publications, 1990)

4.2 Pragmatism

Mathematician, philosopher, and physicist, Charles Sanders Pierce developed this school of philosophy around the 1870's. According the Columbia Encyclopedia, Sixth Edition, the definition of pragmatism is,

> *method of philosophy in which the truth of a proposition is measured by its correspondence with experimental results and by its practical outcome. Thought is considered as simply an instrument for supporting the life aims of the human organism and has no real metaphysical significance. Pragmatism stands opposed to doctrines that hold that truth can be reached through deductive reasoning from a priori grounds and insists on the need for inductive investigation and constant empirical verification of hypotheses. There is constant protest against speculation concerning questions that have no application and no verifiable answers. Pragmatism holds that truth is modified as discoveries are made and is relative to the time and place and purpose of inquiry.*[13]

This method closely resembles existentialism, as it rejects absolutism, and opposes ideologies that favor inborn qualities that can be used to acquire truth. This form of philosophy can be seen as useful for scientific language because propositions that have no practical application, or cannot be tested and verified with empirical evidence, become meaningless. Also, pragmatism propagates the idea that "truth" is subject to change based on new developments, experiments, theories or models. Use of this philosophy as a

[13] *Pragmatism*, The Columbia Encyclopedia. Sixth. ed. Encyclopedia .com, 2009. <http://www.encyclopedia.com/topic/pragmatism.aspx> (accessed December 5, 2005)

linguistic constant would disallow the idea of a static or absolute truth, thus being more congruent with the structure of the territory (current knowledge/facts).

An application of this linguistic constant is as follows: The keyboard appears white to me, which is based on my experiences with the color white, and with what the consensus belief of white is at this present moment in space-time (existentialism). H*owever, this truth is subject to change if new theories, models, or experiments which can be empirically verified, are devised.*

Using Pragmatism as a linguistic constant for science seems beneficial, as this philosophy requires constant empirical verification.

4.3 Empiricism

This philosophy stands in stark contrast to the philosophy of Aristotle. In Aristotelian philosophy, there is the idea that all the knowledge humans have acquired are innate, or inborn. Empiricists believe that knowledge can only be gathered through the sense organs, and denies any innate knowledge. The Stanford Encyclopedia of Philosophy had this to say:

> *Insofar as we have knowledge in the subject, our knowledge is a posteriori, dependent upon sense experience. Empiricists also deny the implication of the corresponding Innate Concept thesis that we have innate ideas in the subject area. Sense experience is our only source of ideas.*[14]

[14] Peter Markie, *Rationalism vs. Empiricism*. Stanford Encyclopedia of Philosophy, 2008. <http://plato.stanford.edu/entries/rationalism-empiricism/#1.2> (accessed December 9, 2005)

In a scientific context, any theory which relates to the physical world, must be supported by evidence which can be directly experienced through the senses. For Sir Isaac Newton, it was the apple that fell and hit him on the head. His theory garnered acceptance because of his evidence: simply an apple falling to the earth.

In order to apply empiricism as a linguistic constant we can say; the keyboard *looks* white to me, which is based on previous my experiences with the color white, and with what the consensus belief of white is at this present moment in space-time (existentialism). This conclusion is subject to change if new theories, models, or experiments, which can be empirically verified, are devised (pragmatism). Using empiricism as a linguistic constant seems useful, as it is more congruent with the structure of the territory (current knowledge/facts).

4.4 Instrumentalism

This method of thought resembles pragmatism, but specifically deals with instrumentation.

> *Mainly now the theory that scientific laws and theories are not to be interpreted as stating truths, or as claiming objective correctness, but as instruments for the prediction of statements which can be tested by observation. It is in*

terms of usefulness rather than correctness that the laws are judged.[15]

This philosophy tells us to measure the worth of a concept or theory, by how useful it is at either explaining or predicting phenomena. The instrumentalist proposition would be as follows: *This explanation seems to be congruent with the modern scientific conclusion, making it a useful tool to explain the interaction between the individual and empirical reality.*

Application of the forgoing philosophies as linguistic constants, would read as; sensory data is received through my eyes into my nervous system, which registers the keyboard to be white (empiricism). This statement about the color white is based on my experiences with the color white, and with what the consensus belief of white is at this present moment in space-time (existentialism). This truth is subject to change as new theories, ideas, or experiments, which can be empirically verified, are devised (pragmatism). *This explanation seems to be congruent with current scientific findings, which makes it a useful explanation of how the color "white" is perceived by the human individual.*

4.5 Operationalism

Operationalist philosophy was developed by physicist Percy Williams Bridgman. According to WordReference.com it is defined as,

[15] *Instrumentalism*. Philosophy Professor. 1953. <http://www.philosophyprofessor.com/philosophies/instrumentalism.php> (accessed September 19, 2009))

> (*philosophy) the doctrine that the meaning of a proposition consists of the operations involved in proving or applying it.*[16]

Operationalist philosophy tells us that we must look for the operations involved in any given event. As a linguistic constant, it forbids any proposition that does not describe the operation or mechanism of any given phenomena.

An example of a meaningless proposition would be: *my keyboard is white because it has some innate essence which makes it that way.* Application of operationalism as a linguistic constant on the keyboard statement would be; *light reflects off of something, which vibrates the surface molecules, which in turn re-radiates out as sensory information. My optic nerve*[17] *inputs these signals into my nervous system; sensory neurons*[18] *pick up this information and send it via interneurons*[19]*, to the occipital lobe in my brain, which registers the keyboard as white.*

If we were to apply all of the philosophies discussed thus far as linguistic constants to the keyboard phrase, it would read; *light reflects off of something, which vibrates the surface molecules that in turn re-radiates out as sensory information:* my optic nerve inputs

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[16] *Operationalism,*Wordreference.com. 2008. <http://www.wordreference.com/definition/operationalism> (accessed January 15, 2006)
[17] *Optic Nerve,* Britannica Online Encyclopedia. n.d. <http://www.britannica.com/EBchecked/topic/430325/optic-nerve> (accessed February 8, 2006)
[18] *Basic Neuron Types,* How Your Brain Works. October 30, 2008. <http://health.howstuffworks.com/brain2.htm> (accessed February 8, 2006)
[19] *Basic Neuron Types,* How Your Brain Works. October 30, 2008. <http://health.howstuffworks.com/brain2.htm> (accessed February 8, 2006)

these signals into my nervous system (empiricism)*; sensory neurons pick up this information and send it via interneurons, to the occipital lobe in my brain, which registers the keyboard as white;* this computation of the color white is contingent on my experiences with the color white, and with what the consensus belief of what white is, at this present moment in space-time (existentialism). This conclusion is subject to change as new theories, ideas, or experiments that can be empirically verified are devised (pragmatism). This statement seems to be congruent with current scientific findings, which makes it a useful explanation of how the color "white" is perceived by the human individual (instrumentalism).

This form of philosophy becomes important when attempting to study science, as it demands that events and explanations be described by their operations, rather than essences or accidents. Thus, makes the structure of the statement (map), more congruent with the structure of the territory (current knowledge/facts).

4.6 Agnosticism

Agnosticism is a system of thought that was born out of theology. In 1869 Thomas Huxley, added an "a" at the beginning of the word Gnostic, to create a new school of philosophy. The word Gnostic derives from the Greek term gnosis, meaning knowledge, which developed into a belief system that people followed. The Gnostics believed that communion with god was capable through the self. The "a" that was added at the beginning by Huxley was meant to

be antithetical to the "Gnostic" belief.[20]The following passage, pertaining to agnosticism, is from the Encyclopedia Britannica:

> *…, strictly speaking, the doctrine that man cannot know the existence of anything beyond the phenomena of his experience. The term has come to be equated in popular parlance with skepticism…*[21]

Some parallels can be seen here with existentialism. The practical application of this method of thinking would be to take a skeptical approach with physics, being open and taking into account all the possibilities, and not allowing oneself to commit to one interpretation.

As a linguistic constant it is important to address non-committal interpretation. For example, the proposition: *the keyboard is white*, assumes a very definite stance on the color. It assumes that there is an objective white out there in external reality, which is fixed and absolute, and that the observer knows it objectively. Now if we add agnosticism as a linguistic constant, the same statement would be; the keyboard *seems* white to me. The usage of the word "seems" accounts for the idea that all we know is what we perceive through the senses and based on individual experiences. Therefore, an absolute statement cannot be made. This philosophy is important, as it stresses that we do not know all the possible information at hand, just the facts that we know based on current findings. It also stresses that our map (language) is not absolute in its structure, and is

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[20] Austin Cline, *Agnosticism and Thomas Henry Huxley,* About.com. 2009. <http://atheism.about.com/od/aboutagnosticism/a/huxley.htm> (accessed January 15, 2008)

[21] University of Chicago, *Agnosticism,* Encyclopedia Britannica. 1990. Vol. 1, pg. 151 Fifteenth. ed.

constantly changing, based on new findings about the territory (knowledge/facts).

4.7 Complete Linguistic Formula

If we were to use all of the philosophies we have previously learned as linguistic constants, in addition to agnosticism, the statement would read; it seems (agnosticism) as though light reflects off of something, which vibrates the surface molecules that in turn re-radiates out as sensory information (operationalism)*:* my optic nerve inputs these signals into my nervous system (empiricism); sensory neurons pick up this information and send it via interneurons to the occipital lobe in my brain, which registers the keyboard as white (operationalism)*;* this computation of the color is contingent on my experiences with the color white, and with what the consensus belief of what white is, at this present moment in space-time (existentialism). This conclusion is subject to change as new theories, ideas, or experiments, which can be empirically verified, are developed (pragmatism). This statement seems to be congruent with current scientific findings, which makes it a useful explanation of how the color "white" is perceived by the human individual (instrumentalism).

Using these aforementioned philosophies as linguistic constants, will ensure that the structure of the map (language) is more congruent with the structure of the territory (current knowledge/facts). This linguistic formula will be applied to one experiment in quantum mechanics. But, before we can begin, we have to understand quantum mechanics, and how it differs from classical mechanics.

5. Quantum Mechanics

Niels Bohr originally came up with the theory that the energy of an atom has to be a fixed constant. An atom could not exist in a world where only the Newtonian laws of physics prevailed. In the macroscopic world, if a ball were to roll down a hill, it would eventually come to a stop, as its energy would run out. By this rationale, atoms cannot exist because the electrons orbiting the nucleus would run out of energy, and it would spiral and crash into the nucleus. However, experimental observation of atoms does not fit the above hypothesis. Niels Bohr[22] proposed that the energy of an electron is fixed. Which means that even though an electron can orbit a nucleus a thousand times, it would never run out of energy, like the ball that rolls down a hill. The notion that the energy of an electron is fixed has become a staple of quantum theory. This idea is one of the distinguishing features between classical mechanics and quantum mechanics.

Another feature that distinguishes quantum from classical mechanics is the Planck's Constant[23]. In 1900, Max Planck concluded, after observing the radiation of heated materials, that energy comes in small discontinuous chunks which he referred to as quanta. From his investigation, he derived a universal constant, which came to be known as the Planck's Constant. The implication is that the energy of each quanta, is proportional to the frequency of the radiation, and equals the frequency multiplied by the Planck's

[22] *Quantum Theory,* TheBigView.com. n.d. <http://www.thebigview.com/spacetime/quantumtheory.html> (accessed June 17, 2008)

[23] *Planck Constant,* The Internet Encyclopedia of Science. n.d. <http://www.daviddarling.info/encyclopedia/P/Planck_constant.html > (accessed April 7, 2007)

Constant. In mathematical terms, it is E=f*h, where E equals energy, f as the frequency of radiation, and h as the Planck's Constant. Planck's Constant h, equals 6.256*10-34 Js (joules per second)[24].

There are many other mathematical features that make up quantum mechanics, which will not be covered. Instead, I will focus on the stringent use of language, by applying the linguistic formula, as a way of accounting for the structure of human reality in written form. Data collected from experiments in quantum mechanics indicates that the structure of the classical world (low energy/macroscopic), works differently from the quantum world (high energy/microscopic). Therefore, the structure of language (map) that is required, has to be congruent with the particular structure in the quantum universe. In the next portion of the text, the linguistic formula will be applied to the "one electron through two slits," experiment.

5.1 One Electron Through Two Slits

One of the most famous experiments that deals with the subatomic world is the "one electron through the two slits"[25] experiment. The setup of this experiment is as follows; an electron

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[24] *Planck's Constant and the Energy of a Photon,* Science Trek: Quantum Atom. n.d. <http://www.colorado.edu/physics/2000/quantumzone/photoelectric2.html> (accessed March 15, 2007)

[25] *The Feynman Double Slit Experiment. 2005.* <http://www.upscale.utoronto.ca/GeneralInterest/Harrison/DoubleSlit/DoubleSlit.html> (accessed March 21, 2007) *The double-slit experiment,* physicsworld.com. 2003 <http://physicsworld.com/cws/article/print/9745> (accessed March 21, 2007)

gun is placed in front of a piece of metal with one slit: behind the metal piece is an electron detector screen, which indicates to the experimenter where the electrons will land. The electron gun is pointed at the slit in the piece of metal, and is fired. The experimenter predicts where the electrons will land on the detector screen. If the slit is on the left side of the metal piece, the electrons show up of the left side of the detector screen, and vice versa. At this point of the experiment the laws of classical mechanics are still held to be useful, since the experimenter is able to make accurate predictions.

The next part of the experiment has two slits in the piece of metal, which is between the electron gun and the detector screen. The gun is placed between the two slits. The prediction is that the electron will choose one of the slits to go through, and end up on that particular region of the electron detector screen (left or right side). However, when the experiment was conducted, the results were not consistent with this prediction. The electrons landed in vertical rows, all over the entire electron detector screen. This observation baffled the scientists that conducted the experiment. It seemed as though the electron went through both the slits at the same time, and refracted off of one another, and then showed up as discrete particles on the electron detector. The conclusion seemed to be that when the electrons went through the two slits, they behaved as waves, but when they hit the electron detector, they appeared as discrete particles. This prompted the question whether electrons are waves, or discrete particles.

In the next part of the experiment an electron detector was placed beside the two slits on the piece of metal. The electron gun was fired, but this time instead of the electron going through both the slits, it only chose to go through one of the slits. It ended up in the

region on the electron detector that was closest to the slit (the electrons appeared on the left side if it went through the left slit, and vice versa), and there was no refraction pattern on the electron detector. It seemed as though that placing an electron detector near the slits changed the way the electrons behaved.

Applying the linguistic constants to this particular experiment is as follows. A piece of metal with two slits is placed between an electron gun and an electron detector screen. The experimenter fires the electron gun (existentialism). The electron goes through both the slits, and creates a refraction pattern on the electron detector screen (operationalism). Light reflects off the electron detector, which vibrates the surface molecules, which then re-radiates out as sensory information (operationalism). The experimenter's optic nerve inputs this information to his/her nervous system (empiricism). The nervous system makes a computation, telling the experimenter that there is a refraction pattern on the electron detector screen (operationalism). According to the data collected from this experiment, it seems (agnosticism) that an electron can behave as a wave, and as a particle, depending on the set up of the experiment (existentialism). This conclusion seems (agnosticism) to be useful, as it explains the phenomenon in the double slit experiment, without causing confusion, or resorting to any paradoxes. However, since the experimenter is not able to make accurate predictions about where the electrons will land, it should not be accepted as a final answer (instrumentalism). Furthermore, this conclusion – or truth - is subject to the date and time of its inquiry. If new theories, ideas, or experiments are proposed and carried out, this conclusion will change (pragmatism). This linguistic formula indicates a structure to human reality that is more congruent with modern scientific findings. The "one electron through two slits" seems less confusing once the

linguistic formula is applied to it. Furthermore, the debate on whether a particle "is" a wave or an electron is non-existent, and meaningless.

In the preceding sections, I have outlined how language can be viewed as a map, which navigates human perception of reality. The tools that are used to describe reality impose a structure onto the content of the description. In a scientific context, the structure of the map (language) has to be congruent with the structure of the territory (knowledge/facts), in order to avoid confusion and paradoxes. In the following sections, I will elaborate on how a map (film) assumes a structure to the territory (knowledge).

6. Film

Since a film brought me on this journey through physics, linguistics, and philosophy, it is only fitting that it ends with the subject. In film class, students are taught to look at film as a language. The content, music, editing, shot composition, lighting, production design, make up, acting, etc., make up the language of film. Since film can be viewed as a language, it can also be viewed as a map of how human reality is structured. Therefore, the structure of the film, will give a representation of how human reality is structured. However, before I discuss these ideas I will provide a broad understanding from a few different elements of film; specifically creative writing techniques, film endings, and photography. After each section, I will discuss how these elements in a film impose a structure onto human reality.

6.1 Photography

The format that will be discussed is 35mm film, as most feature films nowadays are shot in this particular format. I will discuss shot composition, photographic lenses, aperture, and focal length, in the proceeding sections.

6.2 Focal Length

The focal length[26] on a lens is measured as the distance from the center of the camera body to the front of the lens. The focal length is always measured in millimeters. A long focal length will produce an image that is very flat, or in other words very two-dimensional. Lenses with long focal lengths are called telephoto lenses. When a telephoto lens with a long focal length is used, the background, the middle ground, and the foreground appear to be closer together than they are in real life. If a subject is running towards a camera that is equipped with a telephoto lens, the subject will appear to be running in place. The effect will be like a person running on a treadmill.

[26] Vincent Bockaert, *Focal Length,* dpreview.com. 2009. <http://www.dpreview.com/learn/?/key=focal+length> (accessed June 18, 2009)

6.3 Aperture

The aperture[27] of the lens dictates how much light falls onto the film negative. It is an opening in the lens which is made out of diaphragm blades. This is measured in f-stops. The control of the aperture not only controls the amount of light that is coming through the lens, it also affects the focus on different areas of the image. The opening of the aperture is inversely proportional to the f-stop measurement. A fully open aperture can be measured at f1.8 – the f-stops on lenses vary from different manufacturers with different focal lengths – and an almost fully closed f-stop could be measure at f22.

A shot with a telephoto lens with an f22 setting, obtains a sharp focus on the foreground, middle ground, and the background. A shot from a telephoto lens with a setting of f2.8 or f4 will blur planes (foreground, middle ground, background) of the image. Use of the focus ring can blur out areas of the image. For example, a subject sits on a chair in the foreground of the frame; behind him/her is a plant: behind the plant is a painting on the wall: two of these planes (foreground, middle ground, background) can be blurred out at the same time. A director can use this as a tool to let the audience know what to focus on in the frame. This technique is known as selective focus. More planes of focus are available on lenses with long focal lengths. Lenses with short focal lengths generally have fewer planes of focus.

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[27] *What is an "aperture"?* Photography: The Resource Page. 2000. <http://www.mir.com.my/rb/photography/fototech/apershutter/aperture.htm> (accessed June 19, 2009)

6.4 Wide-Angle Vs. Telephoto Lens

A lens with a short focal length is called a wide-angle[28] lens. Generally a lens with a focal length of 35mm or shorter is considered to be wide-angle. The effect of this particular type of lens on the image is opposite to that of a telephoto lens. Subjects and objects are more fully realized in three-dimensional space on a wide-angle lens. Objects look farther away from each other than they are in real life. If a subject's face was shot right in front of a wide-angle lens, the nose of the subject will be elongated and distorted. As the subject gets closer to the camera this effect is amplified. This is the reason why wide-angle lenses are not used in portrait photography, as it is not very flattering to the subject.

6.41 Wide-Angle Lens

The aperture of these lenses are usually are on the smaller side, which could create problems when lighting a scene. If a wide-angle lens is going to be used, a larger amount of light is usually required. Also, the use of selective focus is not heavily employed with the wide-angle lenses. These kinds of lenses are able to capture a larger angle of view, meaning that more of the surrounding environment can be captured in the frame. As the focal length gets shorter, the more distorted the images become. Eventually the image no longer resembles what the human eye sees. There is a point - around 18mm - where the wide-angle lens ends, and the fish-eye lens begin.

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[28] Roman Zolin, *Wide Angle Lens,* Roman R. Zolin. n.d.<http://tips.romanzolin.com/articles/article045.php> (accessed June 25, 2009)

Images created by these lenses are extremely distorted. This type of lens also contrasts the effect of the telephoto lens, more so than the wide-angle.

6.42 Telephoto Lens

Telephoto lenses obtain images with very little depth, and can apply selective focus. They are primarily used in modern cinema for close-ups. The traditional close-up is set up so the background is blurred out, and the subject remains in sharp focus. This specific technique was originally used to capture very subtle changes in facial expressions of a subject, but nowadays is used as the primary lens in Hollywood film-making. An example of this can be found in the Michael Bay film *Transformers* (Michael Bay, USA, 2007). Telephoto lenses were primarily used in the making of the film. The angle of view is narrow for the long shots*, so not a lot of the environment can be seen. A lot of close-ups of the actors are used when dialogue is delivered.

6.5 Telephoto Photography as a Map

The same way that language can be viewed as a map, film can also be viewed in the same vein. Film students are taught to look at film as a language. Film, when treated as a language, has a structure to it, and can be viewed as a map, which relates to a structure of human reality. An example of this can be seen in the use of selective focus, for a close up shot. In a close up shot, the subject is placed in the foreground and the background is completely blurred. This type

* The subject in the frame is small, and a large section of the environment is also displayed.

of shot implies that the subject is more important than the environment: it assumes a structure to reality where the subject and environment never interact with each other. This resembles the metaphysics of Aristotle, where greater importance is placed on the subject, and not on the environment.

However, it is important to note that using a telephoto lens does not necessarily mean that the subject and environment are disconnected. If the distance between the camera and the subject is increased to the point where the subject and the environment are clearly displayed in full view, then it avoids the assumption that the subject and the environment are disconnected from one another. Akira Kurosawa employed telephoto lenses heavily, but never separated subjects from their environments. Examples of this can be found in all of his films. Specifically, in the film *Dreams* (Akira Kurosawa, Japan, USA, 1990), there was a scene where the protagonist, a small child, was walking through a multi-level peach orchard. The image was very two dimensional with very little depth, but the child walking in the frame is quite small compared to the orchard.

The only issue that occurs when trying to use telephoto lenses in order to achieve long shots, where the subjects and environments are displayed, is that the distance from the scene to the camera has to be very great. The distance has to be large in order to fill all of the visual information in the frame, since telephoto lenses have a narrower angle of view. This eliminates the possibility of capturing an environment that is very small and closed in. Fortunately, a wide-angle lens is able to achieve that.

6.6 Wide-Angle Photography as a Map

A wide-angle lens is able to capture more of the surrounding environment, which makes it ideal to capture spaces that are small, cramped, and closed in. But, that is not its only function. The focal length of a wide-angle lens is smaller than that of a telephoto lens. It begins at 35mm and goes down from there. One of the characteristics of the wide-angle lens is its ability to fully realize subjects and objects in three-dimensional space. Another characteristic of the wide-angle lens is the ability to produce vanishing points. An image taken with a wide-angle lens – especially very wide – has a point in the image where everything disappears. Since telephoto lenses produce flat two-dimensional images, vanishing points cannot be produced. Wide-angle lenses are primarily used in shots where the foreground and background are in sharp focus. The angle of view is much larger than a telephoto lens, and a larger amount of the environment can be captured onto the negative.

Using wide-angle lenses implies that the subject and environment are inextricably linked. The structure to reality that is assumed by the use of this lens, is that the subject and environment interact with one another. This structure seems similar to existentialist philosophy.

Within the film world, wide-angle lenses have been used to capture environments that are pivotal to the look and or feel of the film. A good example of this can be found in the Terry Gilliam film *Brazil* (Terry Gilliam, UK, 1985). The film was set in a futuristic, dystopian, post-industrial urban landscape. Great attention to detail was employed for the production design of the film. Terry Gilliam

made sure that the environment had ample screen time with the use of wide-angle lenses.

A good example of a scene where a wide-angle lens was used, could be found in the establishing shot where the protagonist arrived at his office. A steadi-cam equipped with a wide-angle lens, followed the protagonist as he walked to his office. The idea that was being projected was that of a large cold, faceless corporation, and how the workers interacted with it. The use of the wide-angle lens not only provided a larger angle of view, but also added a touch of surrealism that came with the perspective of a wide-angle lens.

Gilliam's consistent use of the wide-angle lens assumes a specific structure to reality; a structure where the environment and subjects are inextricably linked, and affect one another. The assumption that is made – or so it seems – was that the environment and subjects cannot be disconnected from one another. The wide-angle lens allows the environment to be not just merely a backdrop, but another character, so to speak

Much in the same way that language can be viewed as a map of how human reality is structured, the same can be said for film. The use of a wide-angle lens, along with a composition where the environment is extensively seen, assumes a structure to reality that implies that the subject and environment are inextricably linked. This structure resembles an existentialist perspective to reality. The environment also affects the subjects, and the subjects affect the environment.

Use of a telephoto lens, where the subject is in focus and the environment is blurred out, assumes a different structure to human

reality that implies that the subject and environment are disconnected from one another. In this type of image, the subject is the main focus, and the environment is not considered to be of any importance. This type of structure resembles an absolutist reality. An absolutist structure in a film, is not only assumed with the use of telephoto lenses and selective focus, it is also implied by how an ending of a film is written.

6.7 Absolute Conclusion in a Film

This next section of this paper deals with the ending of a film. The absolutist influence can be seen in the way an ending is written. For example, the phrase "… it's a happy ending," insinuates that the ending of a film "is" happy, no matter who watches it. Films that have clear-cut happy endings, where the protagonists fulfill some goal, or overcomes some hardship, are happy no matter who is watching. It seems that in Hollywood the absolute conclusion is favored over an ambiguous one.

A good example of this can be found in the film *Brazil*. The film centered around protagonist Sam Lowry, whose life was turned upside down when he ended up running into a woman that inhabited his dreams. Before encountering this woman, he led a very regimented life; waking up at a certain time, going to work, coming home, etc. The woman in his dreams got accused of being a terrorist, and became wanted by the authorities. It became Sam's mission to help her. He told this woman that he was in love with her, and that she inhabited his dreams. Of course, she reacted with a great deal of suspicion. In the beginning she thought Sam was insane, but as the plot moved forward, she started to acquire some affection for him, as

Sam hid her from the authorities. They did fall in love and everything seemed great, but the authorities arrested them both. At that point they become separated. Sam got interrogated by his former friend, who worked for the same company as Sam once did. He questioned Sam about his connections to the terrorists. During the interview, a group of terrorists entered through the roof and rescued Sam. The rescuer turned out to be another suspected terrorist, Harry Tuttle, whom Sam had made friends with earlier in the film. Sam was reunited with his dream girl. They drove off into the sunset in a trailer, and they lived happily ever after… or so it seemed. In the next shot Sam was back in the interrogation cell. His facial expression resembled a happy catatonic state. It was also revealed that his dream girl had already been killed. The film ended.

The studio had great reservations about this ending, as it lacked an absolute conclusion. It was not possible to say whether the film had a happy, or sad ending. One could argue it was happy, because in Sam's mind he was with the woman of his dreams living out his fantasy. However, it can also be argued that it was a sad ending, as this fantasy was only in Sam's mind and was not the reality of the situation. The arguments could go back and forth. Terry Gilliam constructed the ending so that the conclusion would be left ambiguous. Whether or not the ending was perceived to be happy or sad, depended on the individual watching it, and reflected his or her personal beliefs and experiences.

This particular type of ending assumed an existentialist structure, in terms of how the audience perceived the film. The audience had to decide for itself whether or not this film had a happy, or a sad ending, which implied that the audience was interacting with their environment. In this case, the environment was the film.

The tools that are used to express human reality, impose a structure onto the content that is being expressed. In this case the tool, is how the ending of a film is written. The ending of *Brazil* favors an existentialist structure to reality, by forcing the audience to draw their own conclusions.

However, the studio did not like this type of ending. For them it had to be an absolute conclusion, and not a relative one that is based on the individual's experiences and beliefs. So, the studio decided not to release the film to the North American market, and had it re-cut. The studio cut was much leaner, running at around ninety minutes, with no ambiguous ending. In this version, the last scene where it was revealed that Sam was still in the interrogation room was deleted. It was replaced with a shot of Sam and his dream girl living happily ever after, making it an absolute conclusion.

With the studio cut, one could definitively and absolutely say that it was a happy ending. The interesting part of this situation is that the original film was released to the European market, and there were no problems at all with the ending. In fact it received praise and critical acclaim. One reason that there were no problems in the European market, could have been that absolutist philosophy was a western creation, which influenced the English language. It seems as though the more one heads east an existentialist perspective is favored over an absolutist one. If film can function as a map, the same way language can, then this studio version of the map (*Brazil*) has an absolutist structure. The original ambiguous ending to *Brazil*, assumed an existentialist structure to human reality.

Another example where an ambiguous ending of a map did not sit well with the studio can be found in the Ridley Scott film *Bladerunner* (Ridley Scott, USA, Hong Kong, 1982). The film was originally adapted from the short story, *Do Androids Dream of Electric Sheep*, by Philip K. Dick. The story was set in a dystopian futuristic Los Angeles. The impression the audience got is that America was no longer a world superpower, having been replaced by Japan. Large intrusive billboards colored the landscape of an overpopulated, pollution ridden city. Noodles and rice replaced hamburgers and fries as fast food. In this futuristic setting, scientists had acquired the ability to produce machines that resembled and functioned like human beings. These machines were called replicants and were used for a variety of purposes; manual laborers, pilots, soldiers, prostitutes, etc.

The film centered around the protagonist Rick Deckard, a former police detective. Deckard's specialty was the "termination" of replicants that escape their work detail, and harm humans. This particular vocation was given the title of Bladerunner. Deckard was recruited by the police to track down some renegade replicants, who had killed people and were posing as humans in Los Angeles. This group of replicants were led by the mastermind Roy Batty, who was the latest model known as Nexus 6. In this future, all of the replicants were produced by a company called the Tyrell Corporation. Deckard visited the creator and CEO Dr. Eldon Tyrell, in order to ask him about the Nexus 6 models. Instead, he encountered Tyrell's niece, who asked him about the test he used to determine whether someone is a replicant. She asked Deckard to administer this test to her. Deckard spoke to Tyrell after this interview, and it was revealed that Tyrell's niece was really a Nexus 6 replicant. His real niece Rachel, died a very long time ago, and Tyrell had implanted her

memories into the replicant. However, Rachel was completely unaware that she was a machine. Rachel was more life like than the other models of replicants, which was the goal for the new Nexus 6.

During the course of the film Deckard revealed to Rachel that she was a replicant, and ended up falling in love with her. He found and "terminated" the other replicants – except for Roy who shut down before could be killed. Deckard could not bring himself to kill Rachel. Instead, he decided to leave L.A. with her. The last shot of the film was of Deckard and Rachel standing in the elevator; the door shuts, and it cuts to black. In this futuristic world it is illegal for a replicant to be living in the human world. Of course, this implies that Deckard and Rachel will be on the run from the authorities. The ending of the film was not explicit in stating whether or not Deckard and Rachel were able to get away safely. It could have been a happy ending, or it could have been a sad ending, depending on whether or not the viewer harbors more of an optimistic outlook, or a more of a pessimistic one. It could not be stated in absolute terms whether or not the end was happy or sad. An existentialist structure to human reality was imposed on the map (*Bladerunner*), with the use of an ambiguous ending.

Just like *Brazil*, this ambiguity with the ending of *Bladerunner* did not sit well with the studio, and the producers decided to re-cut the film with an absolute conclusion. The last scene was cut out, and was replaced with a god's eye view of Deckard's car, driving into the mountains on a bright sunny day. It cut to the interior of the car and the audience saw Deckard and Rachel. The voice over – which was added to the re-cut version – insinuated that they were able to get away from the authorities. This re-engineered ending assumed a structure to reality, which was closer to absolutism, by making it

more explicitly clear that the couple had gotten away safely. There was not much room for interpretation with this ending – or the entire film due to the voice over - unlike the original film where it was up to the viewer to draw their own conclusions.

Since the original ending forced the viewer to draw their own conclusions, it assumed a structure to reality where the subject (viewer), interacted with the environment (film). Furthermore, whether or not the original ending was deemed happy or sad was contingent on the viewer that was watching it. This assumed a structure onto reality where an existentialist perspective was favored over an absolutist one. It also seemed that the way some Hollywood studios structured their films, assumed an absolutist structure onto reality.

The tools that are used to portray human reality, impose a structure onto the reality that is being expressed. In the case of Terry Gilliam and Ridley Scot, the studios re-cut their films so that an absolutist structure prevailed.

6.8 Absolute Meaning of a Film

Not only did Ridley Scott face problems with an ambiguous ending to *Bladerunner*, he also faced problems with how explicitly information was presented in the film. The studio felt that the audience would not understand the film, so in the re-cut studio version, a voice over from the perspective of Deckard was provided during the entire film, explaining and commenting on every aspect of the story. In the original cut, there was a scene where Deckard played the piano, and dozed off to sleep. A dissolve to a shot of a

unicorn galloping towards the camera followed. It was revealed that Deckard dreamt about unicorns. This seemed significant, because in the last scene of the film before Deckard walks into the elevator with Rachel, he finds an origami unicorn on the ground. During the course of the film a mysterious character named Gaff - presumably a cop - made these origami animals. Finding this origami unicorn on the ground, coupled with cryptic voice over audio from Gaff about Rachel, seemed to indicate that they knew Deckard dreamt about unicorns. This could have meant that Deckard himself was a replicant, but that was not explicitly stated. Also, it was not clear if the police were going to let them go, or chase them down. The studio cut replaced this ambiguity with exposition. The following definition of exposition is from Dictionary.com:

> …2. the act of expounding, setting forth, or explaining: the exposition of a point of view.
> 3. writing or speech primarily intended to convey information or to explain; a detailed statement or explanation; explanatory treatise: The students prepared expositions on familiar essay topics….
> …8. (in a play, novel, etc.) dialogue, description, etc., that gives the audience or reader the background of the characters and the present situation.[29]

The exposition that was used in the re-cut version was a voice-over from Deckard's perspective, which was presented during the coarse of the film. Also, Deckard's unicorn dream and the last scene where he picked up the origami unicorn were deleted from the film. Since every aspect of this studio cut was made so very explicit,

[29] *Exposition,* Dictionary.com. 2009. <http://dictionary.reference.com/browse/exposition> (accessed June 12, 2009)

everyone who watched the film derived exactly the same meaning from it, based on their own experiences and personal beliefs. The meaning of the original film varied from individual to individual.

The original writers of the film used a technique, known in creative writing as "show vs. tell." In the context of creative writing, the use of exposition is considered an inferior style. Instead, "showing" ones idea is better than explaining it. Another way of describing this technique is to "dramatize" the idea, instead of explaining it. This tool in creative writing imposes a structure onto the film and the viewer that favors an existentialist structure. Each viewer who comes across this technique in a film will not derive exactly the same meaning from its contents.

Another example of the "show vs. tell" technique, can be found in the Stanley Kubrick film, *2001: A Space Odyssey* (Stanley Kubrick, UK, USA, 1968). The first act of the film took place in prehistoric times, when apes still roamed the earth. The idea which was dramatized in this act was that a higher species of apes – which man has evolved from - was able to create a tool in order to protect their territory, and gain access to natural resources… or so it seems from my own point of view. Because there was no kind of voice over narrative, or text, or dialogue, the meaning of this act will be varied from individual to individual, based on their experiences, knowledge, and beliefs.

Other parts of the film used the "show vs. tell" technique as well. The second act took place in the very distant future, where space travel was as normal as taking a vacation on Earth. Very little was explained to the viewer. Moreover, the audience was never given

any cues on how to think or feel about what they were seeing. This allowed the viewer make value judgments for themselves.

The use of this creative writing technique imposes a structure onto the film, where the viewer has to make the choice about the meaning of a film. This technique favors an existentialist structure.

7.0 Short Film

Originally, this thesis was supposed to have three short films included in it, but only one came to fruition. I was only able to complete the short film called *Theta Games*. These short films were meant to employ the "show vs. tell" writing technique, as well as long shots combined with wide-angle lenses, in order to assume a structure onto the films where the viewer, has to make a choice about the meaning of the films. This structure ultimately favors an existentialist perspective.

7.1 Theta Games

This short was the second attempt at using the Canon XL2 mini digital video camera's, 24 frames per second feature. Normal video frame rates are either 30 or 60 frames per second. Film cameras run at 24 frames per second. This specific camera was intended to mimic the motion of a film camera. My colleague Jonathan Davoodi had recently purchased a Canon XL2 camera, and I wanted to a chance to see if this camera could do what it advertised with the different frame rate.

The conception of the story took place in a moment of inspiration. I talked to Jon and we came up with a shot list. We shot it at his apartment with mostly natural lighting. All the footage turned out incredibly well. This was a very simple technical shoot. There was no off camera lighting like *Coils*, or a stringent use of long takes like in *Vectors*. In the end, the pure simplicity of the shoot, coupled with time spent on color correction, ensured its satisfactory completion.

7.2 Vectors

The second short film was called *Vectors*. The three outdoor scenes for this short were shot, and they turned out really well. However, there were some technical issues with the interior scenes. A wide-angle adapter was purchased for my Canon XL2 mini DV camera, in order to capture the environment with the protagonist in the frame. The problem that occurred was that a full zoom-in could not be achieved. Half way through the zoom the image blurs out. This caused an issue, because the original scene called for a full zoom-in from an ultra wide perspective. A re-write would have to be done that would use cuts in these scenes. Originally these indoor scenes were written as one continuous take, which would differ from the outdoor sequences that employed lots of cuts. Zooming in from an interior shot, and fading into the exterior shot that is already zooming in, would create a smooth transition from one scene into the next. This technique was orchestrated on purpose, based on the idea of connectivity among all things. Since placing cuts during this sequence would distort these original ideas, I decided to place it on hiatus. A wide-angle adapter for the Canon XL2 camera, with full

zoom in capability, has to be acquired and used for these important transitions.

7.3 Coils

The third short film was called *Coils*. All the principal photography was completed on this short. However, there were two very important scenes that were lit very badly. These two scenes were supposed to be slightly surreal. My original plan was to use the chiaroscuro[+] technique in lighting, along with the wide-angle lens to achieve this goal.

Video is not very forgiving when it comes to lighting. I had two 600 watt fresnels along with grip gear for the lighting set up. What I learned was that if the ratio of key lights to fill lights are too high, then all the details will be lost in highlights[*]. It was my first attempt at lighting, and I was afraid that my key-to-fill ratio was going to be too high. So I used a 2:1 key-to-fill ratio. This meant that my key light (main source) was twice as bright as my fill light (secondary source). I did not use a field monitor to check the image, but it seemed to be okay. This was not the case when I captured the footage onto my computer, and looked at it with my broadcast monitor. Even though there was a 2:1 ratio, there was very little shadow in the frame. In fact, it looked almost as if it was flatly lit.

Flat lighting is used in TV sitcoms, news broadcasts, sporting events, games shows, and soap operas, where there are no shadows present. The ratio for flat lighting would be 1:1. After doing more

[+] The interplay between light and dark.
[*] Brightest part of the image.

research I discovered that for video, a 4:1 key-to-fill ratio is the limit. I was disappointed with myself for lack of proper research, but it was a very important lesson in lighting, which I'm glad I learned.

When I viewed the footage, the real life couple that played the love interests in the film, were out of the country. Therefore, it had to be placed on hiatus. An attempt will be made again at completing this short, when sufficient funds are available for lighting, and a new space is found.

8. Conclusion

The tools that are used to describe or express human reality, whether its words, camera lenses, shot composition, or creative writing techniques, all impose a specific structure onto the content of the text, images, and films. Text, images, and films, can all be viewed as maps. The tools that are used to create these maps, can refer to a structure of human reality that is not congruent with the territory (current knowledge/facts). In a scientific context this can be problematic, when using the tool of an "is" statement in order to describe events in a quantum mechanics. "Is" statements can be used in the context of classical mechanics, because it relates to absolutes.

I proposed a linguistic formula, using philosophy as linguistic constants, in order to refer to a structure of reality that is more congruent with the structure of the quantum mechanical world. I expect those who read this formula will correct any errors, and expand on it in order to make it more useful. The formula itself is not absolutely defined. The idea of a linguistic formula that helps relate

structure of the territory (current knowledge/facts), to human speech (map) can be beneficial in a scientific context, but is not necessary in a creative context. In a scientific context a stringent detail paid to the tools that describe human reality, in order to avoid confusion and paradoxes, seems very useful. However, in the arts there is freedom to choose the tools, because it is considered to be entertainment. A strict adherence to the structure of human reality placed on film-making, might stifle creativity or be considered censorship.

I have described some of the tools for film-making - which are photographic lenses, writing techniques, and shot composition – and how they impose a structure onto the film, and empirical reality. The tools that film-makers use to create their films, gives the viewer an indication of how the creators perceive reality. Film-makers such as Terry Gilliam, Stanley Kubrick, and Ridley Scott, seem to harbor an existentialist perspective to reality. The studios that re-cut *Brazil* and *Bladerunner* on the other hand, seem to harbor an absolutist perspective to reality. Since the tools that are used to express reality, impose a structure onto the content of the expression, it would seem to be wise to be mindful of the tools that are used, since films can be viewed as maps that navigate human perception.

9. Theta Games

Short

By

Sujoy Bandyopadhyay & Jonathan Davoodi

INT.
FADE IN:
VIEW OF AN OPEN SHOT OF A RANDOM KITCHEN
CUT TO:
SHOT OF SOMEONE SLEEPING - PEACEFUL
CUT TO:WIDE SHOT OF KITCHEN - LIGHTS DIM DOWN TO A GREEN TINGE
CUT TO:
THE MAN IN BED TURNS OVER (HOLD ONE BEAT)

CUT TO:
MEDIUM SHOT OF WATER AS IT BEGINS TO BOIL SLIGHTLY

CUT TO:
SLIGHT HIGHER ANGLE OF MAN AS HE TURNS OVER TWICE

CUT TO:
MEDIUM CLOSE UP SHOT ON WATER AS IT STARTS TO SPEED UP

CUT TO:
HIGHER ANGLE SHOT OF MAN AS HE BEGINS TO TOSS AND TURN

CUT TO:
CLOSEER SHOT OF WATER BOILING

CUT TO:
HIGHER SHOT - THE MAN IS THRASHING ABOUT THE BED VIOLENTLY

CUT TO:
EXTREME CLOSE UP - WATER IS BOILING AT ITS PEAK

CUT TO:
OVER SHOT - THE MAN IS IN A RAGING SEIZURE

CUT TO: QUICKLY

SHOT OF WATER BOILING, CAN'T SEE THE POT

CUT TO: QUICKLY
FLAT ANGLE SHOT OF MAN: HIS BACK ARCHES BACKWARDS

CUT TO: FASTER
WATER COMING DOWN FROM THE BOIL

CUT TO: FASTER
SHOT OF MAN – SUDDENLY HIS EYES OPEN AND HE WAKES UP – HE IS CATCHING HIS BREATH

CUT TO:
THE POT IS BACK IN THE FRAM. WATER IS CALMING ITS BOIL

CUT TO:
MEDIUM SHOT, MAN WIPES THE SWEAT OFF OF HIS FORHEAD

CUT TO:
EXTREME CLOSE UP SHOT OF THE SWEAT ON THE MAN'S HAND

9.1 Short Film Treatment

Vectors

By Sujoy Bandopadhyay

20089357

Scene One

Fade in from black to a wide shot of a room.

It is nighttime.

There is a bed in the foreground of the frame, a computer and desk to the left hand side, and a bedside desk on the right.

There is window behind the bed. The lighting is sparse, and on selected areas of the frame.

There is high contrast in this image, and the reds are more apparent than any other color, and all the colors are slightly desaturated.

The shot stays this way for [40 seconds] with no sound, until something in the bed starts to move.

Someone is underneath the covers.

He starts very slowly to sit up on the edge of the bed.

A subtle sound of wind fades in. His body language is slumped forward, and he stares at the ground in a daze, [for 20 seconds].

A very high pitch tone fades in and the MAN breaks from his daze and yawns.

He shakes his head and moves his right jaw around, trying to affect his ear.

He starts to rub his ear, and the high pitch noise lessens. He looks at the bed, squinting, his shoulders up, and his body leaning forward.

He hears a sound of a car idling, and coming to a stop.

He goes to the window. A conversation is taking place, but the volume is too low to make out what they are saying.

We hear the voices fading, a door shutting, and the car driving off.

The MAN gets back underneath the covers, and tries to find a comfortable position. He stares at the ceiling [for 5 seconds]. He decides to get up and go to the computer desk. He turns on his computer.

The camera starts to pan left, and slowly zooms in on the computer screen.

The sound of a very low frequency rumbling fades in slowly, and gets louder as the camera zooms closer into the computer screen.

As the background image – of nature - on the screen fills the frame, it dissolves into another zoom in shot and comes to a stop. As the zoom comes to a stop, the deep rumbling fades out.

Scene Two

The zoom stops at an extreme long shot, with hardly any depth of field.

It is daytime.
The camera displays tall grass in the foreground, and in the background we see a figure of someone.

The colors are slightly saturated, there is low contrast, and the green is brought out.

Sounds of cars, people, nature, industrialization, are all jumbled together.

Dissolve to a medium long shot of nature in the foreground.

The MAN is sitting on the grass, doing something with his hands that is not visible. Some of the sounds of cars and industrialization fade out.

Dissolve to a medium shot of more nature in the foreground and of the MAN in the background. His posture is upright, and his head is shaved.

What he is doing with his hands, is still not visible.

All of the mechanical sounds fade out, and all that is left is of nature and people.

Dissolve to a closer medium shot, where the MAN is visible from the chest up, in the background, and nature in the foreground.

The sounds of people fade out, and there are only sounds of nature.

A very strong sound of water fades in.

The MAN's face and eyes are very relaxed. His shoulders are back, and there is a hint of a smile on his face as he works on something.

Then, his whole body violently shakes, and he laughs afterwards.

Dissolve to an extreme wide angle shot of the MAN's head in the right of the frame, looking to the left, and the tree line in the background.

The sounds of nature disappear, and the only sound that remains is the water.

The MAN closes his eyes, and the sound of deep rumbling starts to fade in.

An extreme close up image of running water, from the top left hand corner, to the lower right hand corner of the frame, fades in on top of the image that is already there.

The shot of the MAN and the skyline fades out, and image of water remains.

An extreme close up image of a circuit board fades in on top of the image of water.

The image of water fades out, the deep rumbling begins to fade out, and all that is left is the extreme close up of the circuit board.

Scene Three

The camera zooms out of the circuit board and tilts up to a wide shot of the room.

The sound of wind fades in.

Computer parts and books on mathematics and philosophy are scattered all over the place.

A dark foreboding music (no drums) fades in.

The MAN enters the frame from the left hand side. He is going through the computer parts on the floor, hurrying to find a piece.

His eyes and body are tense.
The high pitch noise fades in.
The MAN yawns, shake his head, and rubs the top of his head with both of his hands.

The sound continues as he reaches for a bottle of pills on the bedside table. He opens it up, takes out two and swallows them down.

A sound of a car idling fades in with muffled voices.

The MAN gets on his bed and goes to the window.

Suddenly, he jerks away from the window and hugs the wall beside it.

He slowly peaks out the window for a second, but quickly comes back to the wall.

He closes the drapes and kneels in the middle of the bed.

He stares downward at the bed, squinting his eyes.

His eyes begin to close, and his throat starts to close on him as he fights back tears. The tears ducts don't give in.

He looks around, gets off the bed, and looks for a computer part.

The camera tilts up and slowly zooms into a painting on the upper right hand corner of the wall.

The deep rumbling noise fades in.

When the painting fills up the whole frame, it dissolves into another slow zoom in shot, back to the pond of SCENE TWO.

Scene Four

The zoom in shot stops at a medium shot, of the MAN, with only his chest up in the frame.

The deep rumbling fades out, and sounds of nature, with water being the predominant noise, fades in.

Cut to a close up shot of the MAN's hands, as he assembles the final pieces of his 3d puzzle (which will likely be a building, but as of yet undetermined).

As he finishes, the sounds of nature fade out.

Water is the only sound left, which begins to fade out. Cut to a medium long shot of him looking at the finished piece.

The MAN is very calm and relaxed.

He is sitting up straight, and his shoulders are back.

The sound of the water fades out. And the sound fades out completely.

Silence. [This shot holds [for 40 seconds.]

Cut to an extreme close up of kindling falling to the ground.

Quickly cuts to extreme close up of setting up kindling and newspapers.

Quick cut to an extreme close up of a match striking.

Quick cut to an extreme close up of fire.

Cuts quickly to a long shot of the fire in the center of the frame, and the MAN to the right, sitting cross-legged

looking at it. [This shot stays for 10 seconds.]

Cut to a medium long shot with the MAN to the right of the frame, with the fire on the left side.

The MAN picks up the 3d puzzle from his right, he rips it in half, and throws it into the fire.

Cut to a close up shot of the puzzle burning.

Cut to an extreme close up shot of the puzzle burning.

Cut to a long shot of the fire burning in the centre of the frame, and the MAN sitting cross legged to the right.

The MAN gets up, picks up his crutch, and walks toward the camera.

As he gets closer, the sound of the fire becomes louder.

When the MAN gets close, the deep rumbling sound fades in.

The frame then turns into a circle and zooms out into a point, until there is nothing there.

The sound of fire also fades out. [Black for 5 seconds]

Fade in from black to a zoom out shot from the computer speaker.

As it zooms out the camera pans to the right, and comes to the same composition as the first shot from SCENE ONE.

The volume of the deep rumbling sound lowers, but doesn't fade out.

As the figure in the bed starts to move and get up, music kicks in.

The music is similar to scene 3 music, but more layering, more extended chords, and more chaos.

As the MAN sits up, the video is slowed down, and it fades to black.

9.2 COILS

A SHORT

BY

Sujoy Bandyopadhyay & Jonathan Davoodi

SCENE ONE

(1) FADE IN: EXT.

A CLOSE UP SHOT OF DIRT. A SMALL SHOVEL COMES INTO THE FRAME AND SINKS INTO THE DIRT. THE CAMERA ZOOMS OUT TO A MEDIUM LONG SHOT, TO REVEAL A GARDNER PLANTING SEEDS INTO THE DIRT. THE CCMAERA PANS 180 DEGREES TO THE LEFT, ENDING AT A SHOT OF A CAR TO THE LEFT OF THE FRAME, FACING WEST.

(2) CUT TO: EXT.

MEDIUM CLOSE UP OF THE FRONT PART OF THE CAR FACING WEST.

(3) CUT TO: EXT.

MEDIUM UP FRONT VIEW OF THE WINDSHIELD.

(4) CUT TO: EXT

MEDIUM SHOT OF THE FRONT PART OF THE CAR, FACING EAST.

(5) CUT TO: INT.

A MAN IS SITTING IN HIS CAR. HES DRESSED IN A SUIT. HE IS LOOKING DOWNWARD, AND HIS ATTENTION IS SQUARELY FOCUSED ON THE CD BEING PLAYED. A VERY MELLOW RELAXING VOICE OF A MYSTIC HEALER.

TAPE: " …There is an old koan that comes to mind. A few monks were gathered in front of the courtyard at their temple. They were debating objectivity and subjectivity. The master came out and joined them. He asked one monk, 'look at this rock, is it inside your mind, or

outside it.' The young monk replied with, 'the Buddha says everything is an objectification of the mind, therefore, the rock is inside my mind.' The master replied with, 'you must have a very big head, to hold a rock that size.' The problem that the young monk faces is the same everyone faces everyday. If you answer this koan with the rock is inside my head, you are incorrect. If you answer this koan with the rock is outside my head, you are incorrect. The problem lies in the two valued either-or logic, which stems from our philosophy and language."

(6) CUT TO: INT.

A DIFFERTNT ANGLE OF HIM. HE'S LYING BACK WITH HIS EYES CLOSED, LOOKING VERY RELAXED. THE VOICE IS STILL BEING PLAYED, WITH SOME NEW AGE MUSIC IN THE BACKGROUND.

TAPE: "… Now, you are feeling very relaxed. Your entire body, from head to toe, is relaxed. You feel every, subatomic cell, vibrating with the white light. You can now, wish for anything you want, for yourself. Wish it, and you will it, into existence. (10 seconds pass by with no voice.) When I count to 10, you will wake up, feeling refreshed, and fully alert. 1… 2… 3… 4… 5… 6… 7… 8… 9… 10… wake up! Wake up! Wake up!" (THE MAN OPENS HIS EYES, AND LEANS SLIGHTLY FORWARD.)"Thank you, for allowing me to be a guide."

(7) CUT TO: EXT.

LONG SHOT OF THE CAR IN THE LEFT SIDE OF THE FRAME, FACING WEST.

HE GETS OUT OF THE CAR, WALKS TO THE END OF THE CAR AND STOPS.

(8) CUT TO: EXT.

HIGH ANGLE MEDIUM LONG SHOT, OF THE MANS LEGS. HE SLOWLY WITH PRECISE CALCUATION, BIGINS TO WALK. AS HE STARTS TO WALK, MUSIC OF A PUNGI, WITH SOME LIGHT PRECUSSION FADES IN. THE CAMERA PANS FROM LEFT TO RIGHT, FOLLOWING HIS LEGS. THE CAMERA STOPS, AND HIS LEGS EXITS THE FRAME TO THE RIGHT.

(9) CUT TO: EXT.

SHOT OF DOOR TO A HOUSE FROM THE OUTSIDE, ON THE RIGHT SIDE OF THE FRAME. THE MAN WALKS UP TO THE DOORWAY FROM THE LEFT SIDE OF THE FRAME. HE PAUSES. TAKES A DEEP BREATH

(10) CUT TO: EXT.

CLOSE UP OF DOOR BELL. THE MAN'S FINGER COMES INTO VIEW AS HE PRESSES THE DOOR BELL

(11) CUT TO: INT.

POV SHOT OF THE DOOR FROM THE INSIDE. A FEMINNE HAND OPENS THE DOOR TO REVEAL THE MAN HOLDING FLOWERS AND SPORTING A BIG SMILE.

THE WOMANS SHUTS THE DOOR IN HIS FACE.

(12) FADE TO: EXT.
EX CLOSE UP SHOT OF DOORBELL. MAN'S FINGER PRESSES THE BUTTON.

(13) CUT TO:INT.

WOMAN'S HAND OPENS THE DOOR REVEALING THE MAN, DRESSED IN BAGEY KAKI PANTS AND A WHITE POLO SHIRT. HE'S HOLDING A HEARTSHAPED BOX OF CHOCOLATES

SHE SLAMS THE DOOR IN HIS FACE ONCE AGAIN.

(14) FADE TO: EXT.

SHOT OF MAN'S FINGER PRESSING THE DOORBELL.

(15) CUT TO:INT.

POV SHOT OF WOMAN'S HAND OPENS THE DOOR REVEALING MAN WITH A BIG PLUSH TEDDY BEAR. HE'S DRESSED IN BUSINESS CASUAL CLOTHING, WITH A WHITE DRESS SHIRT, HOLDING A PLUSH TEDDY BEAR.

THE WOMAN SLAMS THE DOOR IN HIS FACE.

(16) CUT TO: EXT.

THE MAN HANGS HIS HEAD DOWN, AND STARTS TO WALK AWAY FROM THE DOOR. HE LEAVES THE FRAME TO THE RIGHT.

(17) CUT TO: EXT

LONG SHOT OF THE CAR FACING EAST, TO THE RIGHT OF THE FRAME. MAN ENTERS FRAME FROM THE LEFT, WALKING TOWARD HIS CAR WITH SLUMPED OVER DEFEATED BODY LANGUAGE. HE GETS TO HIS CAR AND STOPS.

(18) CUT TO: INT.

MEDIUM CLOSE UP OF HIS FACE AS IT CHANGES FROM SADNESS TO ANGER.

(19) CUT TO: EXT

CLOSE UP OF THE DOOR, AS THE MAN BANGS ON IT.

(20) CUT TO: INT

POV SHOT OF WOMAN'S HAND OPENING THE DOOR, REVEALING THE MAN.

MAN: " I've gone out of my way for you, and you won't even talk to me. You're a cold unfeeling bitch. You don't deserve my attention!" (HE THROWS THE BEAR AT HER FEET, TURNS HIS BACK AND WALKS AWAY.)

(21) CUT TO: EXT.

WIDE ANGLE SHOT OF THE MAN IN THE FOREGROUND, WALKING TOWARDS THE CAMERA ON THE LEFT SIDE OF THE FRAME. THE WOMAN IS IN THE BACKGROUND, AND RUNS TOWARD THE CAMERA, AFTER THE MAN. THE MAN NOTICES AND TURNS HIS HEAD.

*ALTERNATE SHOT
HE DOESN'T TURN HIS HEAD AT THE END.

(22) CUT TO: EXT.

MEDIUM SHOT OF MAN ON THE RIGHT SIDE AS HE TURNS HIS HEAD. SIMILAR MUSIC AS BEFORE, EXCEPT A CELLO PLAYED WHAT THE PINGU DID, WITH NO DRUMS, AND MORE MELANCHOLY. THE WOMAN JUMPS INTO HIS ARMS AND THEY KISS. FADE TO BLACK.

*ALTERNATE SEQUENCE

CUT TO: EXT

MEDIUM SHOT OF THE MAN ON THE RIGT OF THE FRAME AS HE WALKS TOWARD THE CAR. THE WOMAN RUNS UP TO HIM AND TOUCHES HIS LEFT SHOULDER. THE MUSIC AS DESCRIBED BEFORE FADES IN. SHE TURNS HIM AROUND. THEY KISS. FADE TO BLACK.

(23) FADE TO: INT.

SHOT OF AN ARRANGEMENT OF CLOCKS WITH ALL THE HANDS MISSING, IN A TRIANGLE. THE CAMERA TILTS DOWN, TO A HIGH ANGLE SHOT OF THE MAN AND THE WOMAN. THEY ARE UNDERNEATH THE COVERS, IN A POSE SIMILAR TO A SHIVA AND SHAKTI PICTURE.

VOICE OVER OF WOMAN: “(whispering)
I love you.”

(24) CUT TO: INT.

THE MAN FREAKS OUT AND LEAVES THE FRAME. THE WOMAN BECOMES SAD AND STARTS TO CRY. AUDIO OF THE MAN IS HEARD LEAVING.

FADE TO BLACK

SCENE TWO

(1) FADE IN: EXT.

IMAGE OF A CIRCLE(MAYBE RECYCLING LOGO), THE CAMERA PANS 180 DEGRESS TO THE LEFT. THE SHOT ENDS AT A CAR AT THE RIGHT SIDE OF THE FRAME FACING EAST.

(2) CUT TO: INT.

SHOT FROM THE BACKSEAT. THE WOMAN IS SINGING ALONG AND MOVING TO MUSIC. SHE IS DRESSED CASUALLY, IN A BLACK SWEATER. A LOUNGE VERSION OF BREAK ON THROUGH BY THE DOORS, SUNG WITH A FEMAILE VOICE, ACCOMPANIED WITH AN ACOUSTIC GUITAR, UPRIGHT BASS, AND A THABLA.

(3) CUT TO: INT.

FROM THE PASSENGER SEAT, LOW ANGLE SHOT. SHE IS STILL DANCING AND SINGING ALONG. SHE LEANS BACK A LITTLE AND CLOSES HER EYES. CONTINUES FOR A LITTLE LONGER.

(4) CUT TO: EXT.

MEDIUM SHOT OF THE FRONT PART OF THE CAR, FACING EAST.

(5) CUT TO: EXT.

MEDIUM SHOT OF THE WINDSHIELD.

(6) CUT TO: EXT.

MEDIUM SHOT OF THE FRONT PART OF THE CAR, FACING WEST.

(7) CUT TO: EXT.

LONG SHOT OF THE CAR ON THE RIGHT SIDE OF THE FRAME, FACING EAST. THE WOMAN GETS OUT AND WALKS THE LENGTH OF THE CAR. SHE STOPS A LITTLE AFTER THE REAR BUMPER.

(8) CUT TO: EXT.

LOW ANGLE SHOT OF THE WOMAN, ONLY SHOWING FROM WAIST UP. SHE STARTS TO BECOME MORE RELAXED. SHE BEGINS TO CLOSE HER EYES. THE INSTRUMENTAL OF BREAK ON THROUGH, REPLACING THE GUITAR WITH A CELLO, AND NO PERCUSSION FADES IN. AS HER EYES CLOSE. A GUST OF WIND BLOWS THROUGH HER HAIR. THIS STAYS FOR A WHILE.

(9) CUT TO: EXT

SHOT OF DOOR. THE WOMAN ENTERS THE FRAME FROM THE RIGHT. SHE TAKES A DEEP BREATH.

(10) CUT TO: EXT.

A CLOSE UP OF A DOORBELL. THE WOMAN'S FINGER COMES INTO VIEW AND PRESSES IT.

(11) CUT TO: INT.

POV SHOT OF THE DOOR. MAN'S HAND OPENS IT TO REVEAL WOMAN HOLDING FLOWERS.

THE MAN SHUTS THE DOOR IN HER FACE.

(12) CUT TO: EXT

SHOT OF THE DOORBELL. THE WOMAN PRESSES THE BUTTON.

(13) CUT TO: EXT.

MAN'S HAND OPENS THE DOOR REVEALING THE WOMAN, DRESSED IN A SLINKY BLACK DRESS, HOLDING A PLATE OF COOKIES.

THE MAN SHUTS THE DOOR IN HER FACE.

(14) CUT TO: EXT.

SHOT OF THE DOORBELL. A FINGER PRESSES IT.

(15) CUT TO: INT.

POV OF MAN'S HAND OPENS THE DOOR, REVEALING THE WOMAN WEARING A TRENCH COAT. SHE OPENS IT A LITTLE TO REVEAL BLACK LINGERIE. THE DOOR SHUTS IN HIS FACE.

(16) CUT TO: EXT

SHOT OF WOMAN AT THE DOOR LOOKING SAD, ON THE RIGHT SIDE OF THE FRAME. SHE LEAVES THE FRAME TO THE LEFT.

(17) CUT TO: EXT

LONG SHOT WITH THE CAR FACING WEST TO THE LEFT OF THE FRAME. SHE WALKS TOWARD THE CAR WITH SLUMPED OVER BODY LANGUAGE, LOOKING DEFEATED. SHE GETS TO HER CAR AND STOPS.

(18) CUT TO: EXT.

MEDIUM CLOSE UP OF WOMAN AT HER CAR, FACING WEST. THE EXPRESSION ON HER FACE TURNS FROM SADNESS TO A SMIRK. SHE GETS IN THE CAR.

FADE TO BLACK.

(19) CUT TO: EXT
SHOT OF THE DOOR AS THE WOMAN'S HAND BANGS ON IT.

(20) CUT TO: INT

POV SHOT OF A MAN, TO REVEAL THE WOMAN, WEARING A T-SHIRT, WITH NO MAKE UP, WITH HER HAIR IN A PONY TAIL.

WOMAN: “I don’t’ understand. You’ve been chasing me all this time, and when you get me, you don’t want me anymore? I don’t get it. I don’t have anything to offer you. I’d just like to talk.”

(21) CUT TO: EXT.

TWO SHOT. HE SMILES AND OPENS THE DOOR AND MOVES OUT OF THE WAY. SHE WALKS IN. FADE OUT.

(22) FADE TO: INT

MEDIUM SHOT OF AN ARRANGEMENT OF CLOCKS WITHOUT THE HANDS, IN A FORM OF A TRIANGLE POINTING DOWNWARD. THE CAMERA TILTS DOWN TO REVEAL THE MAN AND WOMAN, IN A POSE SIMILAR TO THE SHOT IN THE LAST SCENE, BUT THERE BODIES ARE REVERSED.

VOICE OVER OF MAN: “(whispering)I love you.”

(23) CUT TO: INT.

FLAT ANGLE MEDIUM SHOT OF THE COUPLE. THE WOMAN IS ON THE RIGHT, AND THE MAN ON THE LEFT.
THE WOMAN FREEZES AND BECOMES TENSE. SHE LEAVES THE FRAME TO THE RIGHT. AUDIO OF HER IS HEARD LEAVING THE ROOM. FIRST THE EXPRESSION ON HIS FACE IS SAD, BUT THEN TURNS INTO PERPLEXION.

(24) CUT TO: EXT.

THE WOMAN IS LEAVING THE HOUSE. SHE IS WALKING TOWARD THE CAMERA ON THE LEFT SIDE OF THE FRAME. ANOTHER WOMAN WALKS INTO THE FRAME, PASSING THE FIRST WOMAN. SHE TURNS HER HEAD AND WATCHES AS SHE WALKS TOWARD HIS HOUSE.

(25) CUT TO: EXT

CLOSE UP SHOT OF THE WOMAN. WE HEAR THE AUDIO OF HE SECOND WOMAN ENTERING THE HOUSE. THE EXPRESSION ON THE WOMAN'S FACE GOES FROM SADNESS TO PERPLEXION.

(26) CUT TO: EXT

LONG SHOT OF THE WOMAN STANDING FACING THE CAMERA. SHE TAKES ONE STEP FORWARD AND STOPS. THIS HOLDS FOR A FEW SECONDS. SHE LEAVES THE FRAME TO THE RIGHT.

(27) CUT TO: EXT

MEDIUM SHOT OF THE GARDNER FROM SCENE ONE IS WORKING ON A GARDEN. THE WOMAN WALKS INTO THE FRAME FROM THE LEFT SIDE OF THE FRAME, AND NOTICES THE PLANTS. THE GARDNER SPEAKS WHILE WORKING: "The perennials are coming in nicely this year. They reached full maturity much faster this time around. For several seasons there were problems with the soil, but each season I mixed together different types of fertilizer, to see what worked best. I saw slow progress. The soil is much different now then when I started years ago, and as a result the plants are different. Much care and awareness was needed to break the loop."

THE WOMAN SMILES AND RESPONDS: “They look lovely.” SHE EXITS THE FRAME TO THE RIGHT. THE GARDNER LOOKS INTO THE CAMERA.

CUT TO BLACK

THE END

9.3 Coils : Shot List

August 25, 2007

(1)Scene 1- Shot 23
- clocks in a pointing down v, tilts down to reveal Michael and Michelle in Shiva and Shakti pose, Michelle is on the top part of the bed

(2)Scene 2 – shot 22
- clocks arranged as a triangle, tilts down to reveal Michael and Michelle in Shiva and Shakti post, with Michael on the top part of the bed

(3)Scene 1 – shot 24
- 2 shot of Michael and Michelle, with Michael on the right side, he leaves the bed and the room

(4)Scene 2 – shot 23
- 2 shot of Michael and Michelle, Michelle is on the right, and leaves the bed

(5)Scene 1 – shot 9
- Michael dressed in a suit, approaches door

(6)Scene 1 – shot 10, 12, 14
- finger presses the doorbell

(7)Scene 1 – shot 11
- POV shot of door opening, to reveal Michael, dressed in a suit, holding flowers. Michelle slams the door shut.

(8)Scene 1 – shot 13
- POV shot of door opening, to reveal Michael, dressed casually, holding a box of chocolates. She slams the door in his face.

(9)Scene 1 – shot 15
- POV shot of door opening, to reveal Michael, dressed in business casual attire, holding a teddy bear. She slams the door in his face.

(10)Scene 1 – shot 20
- POV shot of the door, opening, Michael, dressed in business casual, says his lines, and walks away.

(11)Scene 1 – shot 16

- Michael in front of door, dressed in business casual, leaves the doorstep

(12)Scene 1 – shot 19
- Michael, dressed in business casual, bangs on the door

(13)Scene 1 – shot 21
- Michael walks towards the camera, dressed in business casual. Michelle approaches Michael from the background, wearing a black shirt, with blue jeans.

(14)Scene 1 – shot 22
- they kiss

(15)Scene 2 – shot 11
- POV of door opening, to reveal Michelle wearing black sweater, blue jeans, and holding one flower. Door slams in her face.

(16)Scene 2 – shot 13
- POV shot of door opening, to reveal Michelle wearing a black dress, holding a plate of cookies. Door slams in her face.

(17)Scene 2 – shot 15
- POV shot of door opening, to reveal Michelle wearing a long coat. She smiles and slightly opens the top of her coat, to show a little lingerie. The door slams in her face.

(18)Scene 2 – Shot 20
- POV shot of door opening to reveal Michelle, wearing black shirt and jeans. She says her lines.

(19)Scene 2 – shot 21
- Michael, dressed in white shirt and blue jeans, lets Michelle – who's wearing a black shirt and blue jeans – inside.

(20)Scene 2 – shot 16
- Michelle, wearing the long coat, leaves the doorstep

(21)Scene 2 – shot 9
- Michelle, dressed in a black sweater and blue jeans, approaches the door.

(22)Scene 2 – shot 10, 12, 14
- finger presses the doorbell

(23)Scene 2 – shot 19

- Michelle's hand bangs on the door

(24)Scene 2 – shot 24
- Michelle wearing black shirt and blue jeans, walks towards the camera. Cynthia walks into the frame and Michelle notices and turns her head. They make eye contact, and Cynthia keeps walking

(25)Scene 2 – shot 25
- cu of Michelle's face, as it turns from anger, to sadness, to perplexion

(26)Scene 2 – shot 26
- long shot of Michelle, wearing black shirt and blue jeans, taking 2 steps forward, and then leaves the frame

August 26, 2007

(1)Scene 1 – shot 1, 7
- shot dirt, zoom out, and pan left to car
- Michael, dressed in a suit, gets out of car, and walks to the end of the car

(2)Scene 1 – shot 8
- Michael does stylized walking, wearing the suit

(3)Scene 1 – shot 2
- medium shot of the front of the car, facing west

(4)Scene 1 – shot 3
- close up of the front windshield

(5)Scene 1 – shot 4
- Medium shot of the front of the car, facing east.

(6)Scene 1 – shot 17
- Long shot of Michael, dressed in the suit, walking to his car. He gets in.

(7)Scene 1 - shot 18.
- Michael's expression changes from sadness to anger

(8)Scene 1 – shot 5
- low angle from the passenger seat, Michael in a suit, inside the car(audio of Andy)

(9)Scene 1 – shot 6

- flat angle from the back seat of the car(cont. audio of Andy)Michael in a suit

(10)Scene 2 – shot 1, 7
- trash and recycling is in the frame. Pan right to a shot of a car to the right of the frame, facing east.
- Michelle, dressed in a black sweater and pants, gets out of the car and walks to the edge of the bumper.

(11)Scene 2 – shot 8
- Michelle is behind her car. She closes her eyes and a gust of wind picks up her hair.

(12)Scene 2 – shot 4
- shot of the front of her car, facing east.

(13)Scene 2 – shot 5
- Front windshield of her car

(14)Scene 2 – shot 6
- front part of her car, facing west.

(15)Scene 2 – shot 2
- from the backseat of the car, she's dancing to the music(audio of break on through)

(16)Scene 2 – shot 3
- from the passenger seat of the car, low angle. She leans back.

(17)Scene 2 – shot 17
- Michelle gets to the car, and stops.

(18)Scene 2 – shot 18
- cu of Michelle's face, as the expression of sadness leaves. She gets into her car

(19)Scene 2 – shot 27
- Michelle walks up to Andy. Andy says his lines. Michelle says hers and she leaves the frame. Andy looks into the camera.

9.4 Coils: Prop List

Scene 1
- seeds
- one car
- flowers
- box of chocolates
- teddy bear
- 6 clocks

Scene 2
- garbage, recycling box
- 1 car
- fan
- a flower
- plate of cookies
- 6 clocks
- garden, or flowers

9.5 Coils: Call Sheet

August 25, 2007

Time	Cast	Shot
12 pm	Michael, Michelle	Scene 1- shot 23 Scene 2 – shot 22 Scene 1 – shot 24 Scene 2 – shot 23
2 pm	Michael	Scene 1 – shot 9 Scene 1 – shot 10,12,14
2:40	Michael, Michelle	Scene 1 – shot 11 Scene 1 – shot 13 Scene 1 – shot 15 Scene 1 – shot 20
3:40	Michael	Scene 1 – shot 16 Scene 1 – shot 19
4: 00	Michael, Michelle	Scene 1 – shot 21 Scene 1 - shot 22
4:30	Michael, Michelle	Scene 2 – shot 11 Scene 2 – shot 13 Scene 2 – shot 15 Scene 2 – shot 20

		Scene 2 – shot 21
5:30	Michelle	Scene 2 – shot 16 Scene 2 – shot 9 Scene 2 – shot 10,12,14 Scene 2 – shot 19
6:15	Michelle, Cynthia	Scene 2 – shot 24
6:30	Michelle	Scene 2 – shot 25 Scene 2 – shot 26

Location – start at *** ********** Circle
- at 4:30 ** ******* Street

Crew Call – 11am

August 26, 2007

Time	Cast	Shot
1pm	Michael, Andy	Scene 1 – shot 1, 7 Scene 1 – shot 8
1:30	Michael	Scene 1 – shot 2 Scene 1 – shot 3 Scene 1 – shot 4 Scene 1 – shot 17 Scene 1 – shot 18 Scene 1 – shot 5 Scene 1 – shot 6
3:00	Michelle	Scene 2 – shot 1, 7 Scene 2 – shot 8 Scene 2 – shot 4 Scene 2 – shot 5 Scene 2 – shot 6 Scene 2 – shot 2 Scene 2 – shot 3 Scene 2 – shot 17 Scene 2 – shot 18
5:00	Michelle, Andy	Scene 2 – shot 27

Location – TBA

Crew Call – 12 pm

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