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**Super-Mega-Meta-Essay**

At the beginning of the term we watched a documentary, that to this day I still believe is connected to mostly everything we have seen. This is why I have chosen to begin with it. The documentary, Nostalgia de la Luz, moved me very much, which is one of the reasons why I am fond of it. It was fascinating to see how two things that, at plain sight, have nothing in common have it all: astronomy and Chile´s civil war, and now so much more things like mathematics, conversations with people, perspectives, and so much more. So this is what I will try to do in this essay.

In the time of the war, there was a big boom in astronomy; helping people see things differently and helping them see the world in another way. If it had not been for astronomy, maybe many of the people would not have been able to survive the jails, the concentration camps, the loss of their loved ones, etcetera. It is also impressive how the connection that exists between these topics is also seen now days, with the people who were affected or the descendants of those affected by the war.

At the end, everything that the documentary is and describes is how everything is based on the past, and how the past affects the future. We are connected to the past, one way or another. This is how I understood it: astronomy like all of the aftermath of the civil war is archeology, they study the past, things that already happened and that people are trying to uncover.

That first week we had a visitor, Gabriel Zanotti, and he made a commentary that I remember well. He mentioned that to understand the present and to be able to make theories about the future, one must understand and know the past. A thing that, I believe is related in almost all of the books we have read so far. A great example of this is how the astronomers look at the past, or at the stars, in order to have more information and bases for their theories about the origins of the stars, the universe and human beings.

Another great example of how the past is used in order to represent the present or even the future is in the book “The Copernican Revolution”. The book, instead of jumping straight in to the theories of Nicholas Copernicus, starts with how some of the ancient civilizations looked at the universe, then continues explaining one of the great theories of the universe that gave birth to Copernicus´ theory: the two-sphere universe. Kuhn mentions that we need to know the past theories in order to know what gave way to the new ones, how the people thought and how it affected everything else.

Another example can be seen in Difficult Conversations, a book that gives us examples and gives us tips on how to solve the problems that arise out of the different perspectives of people. Telling us in order to avoid these kinds of problems we must be able to try to understand the other people. We must try and understand their perspectives on things, instead of criticizing them. We should try to understand that all of these perspectives come from somewhere, perhaps something that affected them before, like a past experience. A clear example of this is in chapter 3 of Difficult Conversations between Toby and his wife Eng-An, who are both fighting because they fail to understand each other, and their past experiences. So, in other words, our past experiences make us who we are and make us see the world in a certain way. And, in order to understand who we are now and who we want to be in the future, looking at our past is a good way to start.

Another example is our study of the camera obscura. Instead of learning modern photography, we started at the beginning of cameras and we looked at old photography books because we were going over the beginning of it all and its history in order to have a broader base for the modern concepts.

This is important to know, especially in Kuhn´s book because with time, concepts change, they acquire new meanings. When one forms concepts, in the isomorphic way, one is connected to its history and to our own past. Our experiences help us form new concepts. But in the case of Copernicus´ theory, how can we understand these concepts completely without knowing where they came from and what it meant then and what it means today?

Now that I have mentioned how concepts can change over time and how some concepts are valid at one point and then are forgotten or are considered false afterwards, I can mention that this reminds me of Emerson´s Self-Reliance. The concepts do not mean the same as they did 40 years ago, for example: the concept of the civil war in Chile doesn't mean the same thing today than it did at the time of the war. But it doesn't matter if the meaning of the concept changes, because the context is not the same anymore, there are other things that affect it, namely time. I relate this to Self-Reliance because Emerson mentions that it doesn't matter if our opinion is not the same today as it was yesterday. It is okay if we change our minds. I believe this also applies to concepts over time; they don't have to be the same today as they were yesterday.

As I have mentioned before and I will mention again, in order to understand our present and future we must be able to understand the origin of things. But then, how do we get these concepts? And how do we give them meaning? One of my theories is that by observation and the study of that observation we are able to create theories and then create different concepts.

In The Copernican Revolution people used to observe the sky and make discoveries by it, and by these discoveries they came to the theory that we now have of the universe. These astronomers were looking for details in the sky. This relates to what we do in Kassandra´s class. Drawing is not only making squibbles with your hand, it is actually observing whatever you are going to draw, searching for the details that compose something, capturing the essence of it. This is how we find our own discoveries of things.

Another way of relating The Copernican Revolution with drawing class is that by observing we attach meaning to things, hence where the meaning of concepts come from. In drawing, we give more importance and we find special meaning in things by observing. In the Copernican Revolution, we can see an example of this in the constellations. Astronomers would observe the sky and later give meaning to the stars, and that is a reason why many of our constellations have certain shapes that relate to animals, persons or objects.

This also relates to design thinking, when we did our empathy interviews, we had to observe the person we were interviewing in order to see how they react and really get to understand them. We would try to give a certain meaning to their reactions.

The way I see it, all of this is just another form of isomorphism, in the sense that we give something a certain meaning, or we relate something with something else that we already know and we get the meaning from there. In this way, it also relates to the formal system of Gödel, Escher, Bach. In a formal system we have variables, which we need to fill in with something (they are open spaces waiting to be filled), which we can fill with concepts or isomorphisms.

Another way by which we have seen observation is by perspectives and perceptions. Was that by observing we get perspectives. Everyone has different perspectives for everything. A clear example of this was when we talked about the chair in The Fire in the Equations; there are infinitely many ways in which we can observe the chair, we can see the chair from where we stand, from up close, from somebody else’s point of view, from the chair-as-in-itself, as a termite, etcetera. We can also see this with Escher’s drawings. You can see them from many different perspectives, in a sense that you see one thing, but then if you can change it to see another. This can also be related to Crito’s dialogue, when they were all talking about values and it turned out that everyone has different values.

Another of these examples is the famous Fire in the Equations dialogue that we had, in which we discussed objective truth. In this dialogue we could see how people can have different ideas and believe that their idea is the one that is true. On one had we had those who believed that objective truth is real and on the other that no objective truth existed. Both sides were very passionate on what they believed, and would not change their minds.

One can also see this in The Copernican Revolution. Before Copernicus had given us his theory, most people based themselves on the Ptolemaic system. But even though they based themselves in the same system, they all believed in different modifications of the of the system, depending on what they observed and their perception of the world.

In Gödel, Escher, Bach there is another example. In chapter 12 there is an example of a map, one had to draw a map of their own country and them compare it to the maps that others drew of the same country. We tried this exercise in class, we all had to draw a map of Guatemala, with the departments, rivers highways, etcetera. This made me realize that even though we all live in the same country we all have a different perspective of it, we all know different parts of it. We perceive things differently, even though we are looking at the same thing.

Another of these examples is in the book The Fire in the Equations, chapter 4. This chapter tells us about the origins of the universe, and it gives us many theories about it. Which one is the real cause for the origin of the universe? Could it be the Big Bang? Could it be that the universe just is? Or could it be that some supreme being like God created it? How do we know which one of these theories is the correct one? Some people believe in one theory, while others in another.

It is really impressive how sometimes we have so many different views on things, that everyone has a different perspective. Each person has a personal view on the world. And it is because of this that it is hard to realize which one of these views is the truth, that is if we can ever realize it. What one person thinks as right might not mean right to us. So this creates a lot of contradictions. But in order to be in peace with the world do we need contradictions? Well, according to Zen philosophy we do.

That is why the importance of interpretation of things is also very important. We can see this mentioned in many of the books that we have been reading and other activities: The Fire in the Equations, 12 angry men, dialogue with Armando de la Torre, patterns, and Gödel, Escher, Bach, Difficult Conversations and On Dialogue.

It is important that we take into account our own interpretations of things, as well as to other people’s interpretations, even if it causes contradictions. But, how do we know that we know? How do we know which interpretation is the correct one? What can we rely on in the universe in order to give us facts and truth? If everyone has his or her own interpretation how can the world ever agree on anything?

Maybe we can all agree by autopoiesis and allopoiesis; by demonstrating mastery in something, and trying to prove that we do know something. But this still doesn’t show that we know completely. One example of this can be 12 angry men; we never know that we really know something. In the movie there was always a possibility for having doubt that the kid did not kill his father, a reasonable doubt. And like that doubt, there is doubt in everything we believe and think we know.

These are difficult situations because we can never know who has the absolute truth. For example, in the case of the movie Agora, we don’t know if the ones who were right were the Christians, the Jews or the Greeks. I can relate this with something that Armando de la Torre said in class, that everything is an approximation to reality and nothing can be proved. We will only try to infinitely reach that truth without actually ever reaching it. For example, if we ever come to reach a conclusion about the creation and of the universe, at the end it will still be only an approximation to the real truth, not the whole.

Is there any way that we can prove something? I believe we can’t. We always need that first leap of faith. We can never prove that something is absolutely right, especially in the case of science, natural law and religion. Usually, we are taught that this leap of faith can’t be questioned and this is something that makes religions and different branches of science clash.

Like Popper says, you can only know when something is not true, but you can never know if something is 100% true. So I guess we will only reach Episteme, which is knowledge that is certain, about things that we don't know. What is the objective truth outside the impression we have on it? Should we have a reasonable doubt on reality? Never forgetting that we always have to keep in mind that there are many perspectives, perceptions and an objective truth.

What would happen if we doubt everything? We always need a leap of faith, like in The Fire in the Equations. The main or first leaps of faith, mentioned above, that we need to have in order to believe in everything else are that we exist and that we are sane, after that we can have a leap of faith in everything else. This is the only way that knowledge can be acquired.

Even thought we cant reach it, the seeking of the truth, is not a dead end in which there is no point in trying to follow. It is a road or a goal that we will never reach, but while trying to reach it we will acquire certain things or knowledge that will help us comprehend the world better. So, even though we don’t have the complete truth, we will have a better understanding.

I believe that one of the main reasons why we cant reach the truth is that we are in this reality in which we can never know the objective truth. Because we can’t pop-out of the system we are in, in order to get a bigger view of the whole truth. It’s outside our reality.

But objective truth is not the only thing that we cant pop-out of in order to gain understanding of itself. Many of the things in this world have superior levels that just keep on going, in the sense that if we are able to pop-out of one system, there is always another level on top. This is what Hofstader talks about when he mentions GOD, in the world of the Djinns; GOD meaning GOD over Djinn, so it never ends.

Another thing which we cant really know for certain is mathematics. Gödel thought that mathematics was a system; that it was incomplete but consistent. The only reason that made it incomplete was because we had no real way of proving math, because we cannot prove mathematics with mathematics. We would need a greater, more robust system to try to explain the mathematical system. Which we cannot do. Math would need to be a meta-system. So in short, for us to understand mathematics we must take a leap of faith.

Fire in the equations also mentions this, by saying that mathematics can be seen as a religion, in which we believe in a lot of but cannot really prove (that leap of faith). Religion also has this leap of faith in which we only accept certain facts and don’t know where they come from. The same also happens in science with theories. Chapter 3 of A Philosopher looks at science also expands on this.

An interesting question that arises from this in in Fire in the equations in the matter of mathematical consistency. Ferguson talks about how the world could’ve been made by mathematical consistency or that if at the time of the Earth´s creation, if God could have been constrained by this mathematical consistency. Ultimately she reaches the question that if this mathematical consistency could be God. Consistency is what makes mathematics beautiful and more believable.

Another thing that I think was also considered to be beautiful, in the same sense as mathematics, was Ptolemy´s solar system. Although this one was complete but inconsistent. This was one of the reasons why people had a hard time accepting the Copernican solar system; they had already seen the beauty in Ptolemy´s proposal and could not see it in Copernicus’.

I think that this beauty deal has a lot to say about what appeals to our senses. For example, we have managed to interpret the universe throughout our senses, we can see this clearly in The Ascent of Man and in The Copernican Revolution. But there is a problem in this, and this is maybe why we can’t see beauty in everything. It is that our senses can also limit us. Take for example Ptolemy´s solar system, in The Copernican Revolution, Kuhn mentions that people used to think that everything outside of the earth, the universe, rotated around it. Our senses told us that this was true; we can see the stars in the same place every night, at the same hour and also when we jump we land in the same place. In all of this, our senses tell us that the earth is still. This proved to be wrong, that our senses were wrong and that there are other things that our senses can`t make out.

Out of what our senses tell us, we come up with theories, and these theories can be like spectacles, we start to look at everything through that theory (like Ptolemy’s solar system again). So depending on what kind of spectacles we have on, we have a different perspective.

We should be open to try new spectacles, to modify the ones we have on, to not put on any spectacles, or to try to put on all of the spectacles at the same time. I found especially interesting the anecdote in Fire in the Equations that mentions a room drawn from various perspectives: from a kids, an adults and a cubist painter. I liked that the cubist painter is like having all of the spectacles on at the same time, in one drawing he can have different perspectives of different objects. I wonder what it would be like if we apply the view of a cubist painter in the field of theories in science. Maybe then can one reach a theory of everything, that is mentioned so often in The Fire in the Equations.

The reason I believe we have different spectacles in science is because of experience that we have had in the past (what makes us us), in a way, chooses the spectacles that we will be using. But then we reach another question, how do we know that the spectacles that we are wearing are the correct ones? This is another things that me probably will never know, just because we cant pop-out of the system or of our world view.

Since almost nothing can be proved, in science and religion, it ends up forming a risk to our own identity. We reach the point in which we can’t prove anything, and that we are based on leaps of faith and we end up believing in what we like the most and in what we believe to be the most beautiful, like Kitty Ferguson mentions in Fire in the Equations. If we could prove everything with certainty, there wouldn’t be any space for faith.

But how can this affect our identity? Our identity is our essence, what makes us us, so how does this fit in?

What is the essence of the human being, its identity? This has been mentioned in many of the books we have, in Gödel, Escher, Bach, Meno, and The Ascent of Man. What is it that makes us more human? Or more specifically, what makes me be me?

An interesting answer to this question that my classmates gave was that we are constantly changing and evolving. So maybe this is the human essence that we are looking for. But I don’t think this is it, I mean every animal also changes and evolves. The only change that makes us different is our cultural change that other animals don’t have. But this is because we have a certain kind of culture that the rest of the animals don’t.

For me, what makes us human, the human essence relies in the experiences we have had. If we relate this to Nozick´s Closer Continuer Theory, I would say that experience is what makes us different from our copies or clones that we can have, especially in the case of a transporter, and from any other animal. Here is an example of this: In the case that we are still alive but we have a copy of ourselves somewhere else. Both the real one and the copy will have different life experiences, and the experiences that the copy will have, wont affect my personality, thought and identity in any way. So for me, what makes me different, my human essence is the experiences that I have had that make me think the way I do, that make we see the world the way I see it. No one else can have my experiences but me.

But how can we ever get to know what is going on with us? How can we get to know ourselves? I have come to think that this is mostly impossible, because in order to really get to know ourselves we would need to, you probably guessed it, pop-out to an outer level. We wont be able to understand ourselves if we are in ourselves. Sometimes I have noticed that people seem to know me much better than I know myself, and coming to think of it, it doesn’t sound so crazy. They are not in our same level, they are in another level, a higher one; so they can see things that I am probably missing.

We need people that know us very well in order to get to know ourselves. Sometimes we have assumptions of ourselves and we believe things about ourselves that might not be reflected to someone else. In order to really remove these assumptions and be aware of them, we need proprioception of ourselves. To be conscious of what we see as assumptions and what is the true self that we portray to everyone else. Always considering that it is mostly impossible to get to know one self totally.

But when trying to do this we can’t expect to understand people right away; it is a process of trial and error. Kind of like the process we had with the rubrics. We built them at the beginning and over time we have been adding or taking some away. The more we experience in dialogue the more we know what we need and where we need to improve. The same can be said with this process of understanding people, but a great way to start this is by suspending assumptions.

When it comes to suspending assumptions, I believe that there is a complication to this: our mind. It can be hard because sometimes (at least in my case) there are occasions in which we know that our opinions are just assumptions, but still we can’t change the way we think and we end up believing our assumptions. I find it extremely interesting how we know something is not true and yet we believe it is. This leads me to think about the power of the mind.

How powerful can our mind be? How powerful does this make us? These are some of the things that we discussed in class and shocked me when coming to talk about the mind: How come we don't ever run out of memory space? Will there ever be a limit to how much we can learn, kind of like a USB which has a certain capacity of memory? It is amazing how we can store so much. Another thing is how the mind is powerful enough to make us believe in things that are not there. An example of this is when some of our classmates were trying out Google Nose, and how they actually believe they were smelling something when really it was all a joke. This just shows that we can imagine what we want, and sometimes we are not aware of when we are imagining or if it is real. Like Hoftsader says “In everyday thought, we are constantly manufacturing mental variants on situations we face, ideas we have, or events that happen, and we let some features stay exactly the same while others ‘slip’.”

Probably we will never know all of these answers to these questions about the mind. For this we might need to pop-out to another level, in order to see the big picture and be able to understand many of the things we don't.

Many of the things I have talked about and also how many of them can’t really be known or explained, unless we pop-out of the system, has brought me to think of something much greater; that when you think of it, it might be able to explain the reason of many of these things and we just cant reach the truth.

What if everything we are is just a program? What if everything in the world is just a program? We could be programed to be the way we are, to think the way we think. Nature could be programed to follow something and to act the way it is, and to be the way it is. It doesn't matter who you attribute this program to, it could be as Kitty Ferguson says, God, just a program that is or a program that follows the rules of logical and mathematical consistency.

I believe mostly everyone has had to come up with these ideas of just being an “experiment” in the universe at some point of their lives. Like The Fire in the Equations says: “Perhaps the universe is someone’s scientific experiment.” At least I have thought of it. I have sometimes imagined the world as an experiment kind of like ant farms. Us, humans, being like those ants in the glass containers so that someone could see how they act and react to things. Maybe there is some greater being that is doing the same thing with us. Just trying to see how we act and survive.

We can consider that many of the things in the world are programmed to be a certain way, in order to carry out the experiments that are said to take place. After reading Gödel, Escher, Bach one can start to think as the mind or brain is as a program. Like if it was pre-programmed to do certain things and to think a certain way.

We can look at various brains and see that they all have more or less the same shape, the same characteristics. So physically brains are all more or less the same. Now when it comes to the mind, some people say that everyone is different, that everyone thinks differently from the rest and no two persons are alike. I think this may be true until some level. Everyone has different tastes and likes but there are certain problems in our mind that I believe most humans share, like if the mind is programmed to be a certain way. You can see this in many books like Gödel, Escher, Bach, On dialogue, Copernican Revolution and Difficult Conversations, The Fire in the Equations, The Ascent of Man; and also in many of the things that I have talked about previously.

Gödel, Escher, Bach mentions the following. “Are there highly repetitious situations which occur in our lives time and time again, and which we handle in the identical stupid way each time, because we don't have enough of an overview to perceive their sameness.” (Chapter 18) Just as a program, our minds cant step out of themselves to see what is really happening, like a program who never gets tired of adding and can go on forever. Also this has happened to me, and I have seen it happen to other people, so it is like a whole bunch of people are programmed to think this way. This might also explain many of the things that happen in Difficult Conversations. So its like if all humans were programmed not to see whatever is beyond our level, like if we weren’t capable of seeing it.

If everyone thinks differently, then how can there exist books like Difficult Conversations and On Dialogue, which talk about certain problems that they assume happen to most people. If we didn't think in certain occasions the same, these books wouldn't generalize the problems.

Its interesting to consider in On Dialogue, how mostly everyone moved from participatory thought to literal thought. Its like if it was all programmed to happen, to see the different outcomes that could come from it. Also the way that sometimes people like to look up to a leader.

We all have, at some point, more or less the same identity issues mentioned in Difficult Conversations. And also people have an instinct to blame others for things. Also how everyone perceives things differently and are always trying to defend what we believe is right.

Also in The Copernican Revolution, how is it that mostly everybody liked to stick to one theory and had a hard time accepting another? Its like if everyone just follows what some big guy says, until new evidence is found. Which was what happened with Copernicus, Brahe and Kepler. Also because they fount it beautiful. Like I mentioned before, mostly everyone likes things that are coherent and make sense, this is what they consider beautiful. So what else could it be but that we are programmed to believe things that are this way to be more beautiful and more truthful?

These are just but few of the examples that are mentioned in the books, where many more of these could be found.

After reading The Fire in the Equations one can really start thinking about questions such as: are we a program of God? What if God just created a program to let us choose freely but at the end only let the ones that resemble his ideal survive?

This former question could be true if you consider humans as systems that are already programmed to do certain things. We can consider Kitty Ferguson’s basic ingredients for a system to adjust itself, in order for this theory to thrive.

1. It has to have the ability of something to make copies of itself.
2. Replicators must make occasional mistakes when copying themselves.
3. Something about the replicators has to have an influence over how likely they are replicated.

Lets consider these one by one.

Human beings do have an ability to make copies of themselves. Maybe not exact copies but they do have kids, and at the end the kids have their DNA, which means that they are 50% a copy of someone. Or we can take into consideration just the basic process of the replication of DNA inside our own bodies. (This can be read more deeply in Chapter 16 of GEB).

Replicators do make occasional mistakes when copying themselves. Sometimes there are human beings with problems, and this is sometimes do to mistakes in their genetic code or in the process of creating a human.

And for the third one, what else could it be than something that is already programmed? Or that someone programmed it that way.

All of what was mentioned above are just but ideas that at the end could be true or could not. It is nothing more than a speculation. But I believe it is an interesting idea to think that we are just programs with some greater purpose. However we cant reach the truth because of the simple, yet complicated, notion that we cant pop-out of this system. So I guess that people will keep on living on a leap of faith, with their own perspective of life, being influenced by their past experiences that make them who they are.

“As dearly as we may hold those assumptions and as well as they’ve served us in the past, when it comes to arguing for the validity of a proposal for the origin of the universe, these are self-serving arguments—good arguments maybe for hoping a theory is correct, but no arguments for deciding it is. Such a decision would be an act of faith.” – The Fire in the Equations, chapter 4.