The Simulation Argument (Write-up)

The Simulation Argument. What the heck is this about. Well it's about this question. How many of you, raise your hand, believe we're living in the Matrix, a virtual-reality? Alright, now how many of you believe we're living in the real world. This is the tension, the conflict that this whole argument is about. Because it's not just crazy people who believe we're living in the Matrix. It's also guys like Elon Musk, and Neil Degrasse Tyson.

You ask tech billionaires from Silicon Valley, they'll laugh at you. They'll say, are you kidding me? The question isn't whether we're living in a simulation or not. It's how do we break out. They're funding scientists right now, saying "Hey, find a way out of this simulation". I'm not making any of this up.

What's the Simulation Argument? Let's ask Nick Bostrom, the founder of the argument. He's a Swedish philosopher, researcher of human super-intelligence, and he wrote his paper on the Simulation Argument 15 years ago, stating that because our technology is rapidly improving, there will be three inevitable fates to humanity, and one is that we'll find out we're living in a simulation. People were like are you kidding me, you crazy when he created this argument. But now they're like oh

crap, he's right. His argument makes a whole lot of sense, because our technology is getting exponentially better. But before we dive right into the simulation argument, we need to go back and understand where the argument came from.

Context

To begin, we have to go back, all the way to the 1600s with Rene Descartes, the father of western philosophy. He said, I can't know if the world I'm living in is real because my perception of reality is based on my senses, and how often do they deceive me. When I go to bed, my dreams feel real, and only when I wake up do I realize that they weren't. If this is possible, how do I know if some deceitful demon is just playing tricks on my brain, and feeding me false experiences. This idea has been modernized with the Brain in the Vat thought experiment which builds upon Descartes ideas and says this: "hey, what we perceive to be reality is what our senses tell us (sight, smell, touch, hearing, taste), and what that is is just electrical signals to the brain. If this is the case, how do we know that our brain isn't in a jar somewhere with an evil scientist stimulating our brain to mimic sensory input, making us perceive a world completely different from the real-world?"

Then we got the Matrix (idea on steroids). Says that we're all just brains in a vat, and that we're being a fed a simulated reality called the Matrix. In reality, the robots are in control, just using us as batteries. These iterations of the Brain in the Vat theory are all strong thought

experiments which haven’t been disproved. However, they only provide the possibility that we’re living in a simulation, they don’t give us any evidence. This is where Science comes in. By observing the universe, especially the quantum world, we’ve found problems that make us say, “Hey, something’s not right”. The belief that this is a physical world, where the building block of everything is matter (known as materialism), doesn’t hold up well. So let’s get into these problems.

Problems

1. The Big Bang is the accepted theory of the creation of our universe. Before the Big Bang, there was nothing. From the Big Bang came something, our universe, from an explosion of matter. But the law of conservation of mass/energy says that matter can’t be created nor destroyed, it can only be transferred. This doesn’t make any sense, and when you try researching this question online, you get massive forums debating this topic, and you end up becoming more confused than when you came into the topic. But when thinking about the world in terms of a virtual construct, this makes perfect sense. Before a computer boots up, there is no space nor time, but afterwards all of that is created when the computer starts up. Each time you turn on a computer it goes through a digital Big Bang. From nothing comes something.
2. The next problem comes with the idea of a speed limit. Nothing in nature can go faster than the speed of light. We’ve gotten close, with

small particles called neutrinos, but we can’t pass it. I talked to my physics teacher about this and he told me that theoretically it should be possible, but that when we start to approach the speed of light everything becomes fuzzy and black holes start appearing and time travel is now possible. It just doesn’t make sense when believing that this world is a physical construct. But when we approach the speed limit with the belief that this is a virtual world, it makes a whole lot of sense. A computer processor can only be so big, it’s finite. So it makes sense that there would be a cap on how fast an object could move. It’s to limit the processing requirements for the simulation.

3. Next we have the Observer Effect, perhaps the most mind-blowing of the problems in modern physics. It’s best explained by a thought experiment done by Erwin Schrodinger. He says imagine we have a cat and we put it inside a box with a bomb that has a 50% chance to go off and kill the cat, and a 50% chance to do nothing. We wait an hour and touch the lid of the box. We’d expect that before opening the box that the cat is either dead or alive, those two possibilities. But according to quantum mechanics, the cat isn’t either or, it’s actually both dead and alive at the same time. This fundamentally disturbed Schrodinger so much that he quit studying quantum physics and became a biologist. In the quantum realm, when you look at a subatomic element such as an electron, it appears as a particle, but when you’re not looking at it, it appears as a wave. It exists in two states at once, like the cat. Basically, just looking at something/observing it, can change what an object looks like and behaves like at the quantum realm. Because everything

in our universe is created from subatomic particles, we can change our reality and the world by just looking at something. This goes against everything when holding the belief that the world is a physical reality. But when we hold the belief that the world is a virtual one, it makes 100% sense. In a computer simulated environment, not everything is rendered at once, only the things which are observed are rendered. When we switch what we're looking at, the things that previously weren't visible become visible to make us believe that the simulated world is real. In reality, the environment in a computer simulation is in two states at all times, and only when we are observing something does our reality change.

4. Now you might be thinking, sure all of this theory is great, but I want some hard evidence that we're living in a simulation, that everything is made out of 1's and 0's. Well James Gates, theoretical physicist and researcher on string theory has found computer code, strings of 1's and 0's, hidden inside equations in nature. Deep into quantum theory, we see evidence that bits of 1's and 0's are the backbone of everything.

So we have four pieces of evidence which point to the belief that we're living in a simulation, there are many more that even puzzled Einstein, but we don't need to go there. And you guys might be saying, okay this kind of makes sense, but if we're living in a simulation, how did we get here? Who created the simulation, and how?

How did we get here?

Th theory is that we created the simulation. Not us per say, but a future version of ourselves. The argument goes that right now our procesing power is doubling every 18 months, and our technology is getting exponentially better. This is documented in Moore's Law. 40 years ago we had pong, but now we have photo-realistic VR that some people find indistinguishable from reality. If this is the case, some estimate that we'll have a computer powerful enough to simulate every brain on Earth in 50 years. But even if this process takes 5 million years, we're heading on the path to creating this super computer. And once we have this power, we'll become posthuman (basically think of this as leveling up and having access to all of our science fiction dreams). We'll have the technological power to create an ancestor simulation, which is a fabricated virtual world of our ancestors.

There are a lot of reasons why we'd create an ancestor simulation. One is that creating simulations could become an art form, such as literature. While the purpose of fiction is to transport us into another world through words, we could literally transport people into other worlds by creating simulations. Another reason is that we could learn from our past from these simulations. We could change the variables of the past, such as making it so Hitler won WWII, to see how our world would have changed if this happened. We'd learn a lot about ourselves. And lastly, if we could create a simulation, someone would for like a science project. Once we create this simulation, the people inside the simulation will be conscious because of how detailed the simulation will

be, and once they develop the technological ability, will in the future be able to create their own simulations as well. The cycle will keep continuing until we have an abundance of simulations, but only one reality. So what's the chance that we're living in reality. Really small. This is the simulation argument.

Caveats

But I know what you guys are thinking, hey I see a bunch of loopholes in that argument. And I'll address those. Because it's not a guarantee that we're living in a simulation. There are three caveats.

1. We can't simulate consciousness. The simulation argument assumes that we can create consciousness, which is generally assumed to be possible by the philosophical and psychological community. Why? Because what is this? What's consciousness? It's an awareness of ourselves, to be able to think about ourselves. And while some people have posited that consciousness comes from a soul, and is given to us by God, most people today see consciousness as just a dynamic process with 86 billion neurons. There is no reason that this process couldn't be simulated if the computer program is detailed enough, they argue. It shouldn't matter if a brain is organic or made from a silicon computer chip, the physical construction should be irrelevant. There are some who don't believe that we could simulate consciousness, so we should take this into mind.
2. The next caveat is that there's an "Event". Think apocalypse, such as

from nuclear war or global warming, or the development of technology so powerful that it wipes out all of us (such as artificial intelligence). If every advanced technological species ends up destroying itself before it has the processing power to create a simulation, then we're not living in a computer simulation.

3. The last caveat is that we don't end up wiping ourselves out and we have the processing power to create an ancestor simulation, but we choose not to. There are a variety of reasons why this would be the case. While the world would be virtual, the people inside of it would still be able to experience tremendous pain. The world isn't all sunshines and rainbows. These posthumans may decide not to build ancestor simulations because of ethical reasons. They might not build ancestor simulations too because they might find it a waste of time.

How to test this?

Testing this theory, like any other theoretical physics theory, is pretty difficult. We could know if we're living inside a computer simulation if a pop-up appears in our view saying "HEY, YOU'RE LIVING IN A SIMULATION". We could also conduct studies and see whether new technologies have an existential risk on our survival, and thus conclude whether or not it's likely that most advanced species wipe themselves out.

Does it matter?

I think this is the most important question. If we're living in a simulation, should we care? There are a lot of different answers to this question, and it all depends on personal opinion. Some say we should change how we live our lives to try to please the person who created our simulation. We should try to act morally so that our creator will upload us into an afterlife which he could very well build, or into his reality. This is one interpretation of the simulation argument.

The next interpretation comes from the founder of the argument, Nick Bostrom. Asked the question of whether it matters if he's living in a simulation, he responded no, not really. If it feels real, appears real, and functions as if it were real 99.9% of the time, should we care that it isn't? If we don't have the power to escape the Matrix, which we assume, should we really bother ourselves with trying to change how we live?

Lastly, we get Elon Musk. He says look, either we're in a simulation, or civilization will cease to exist. He assumes that we can create consciousness and that if we have the technology to build a simulation, we'll build it, which are very reasonable beliefs. If this is the case, then either we build simulations and realize we're most likely in one, or we'll wipe ourselves out. In this case, maybe we should hope we're living in the Matrix. Maybe we should be proud of humanity and any advanced civilizations out there. We've leveled up. We've done it. And I think that's an amazing side of the simulation argument.

Thank you.