

My Theory of Everything – A Treatise in Non-Duality: for all we can ascertain to be directly from God in this earthly and material world is knowledge, truth, and love.

God is the central node of the quantum entanglements of every particle in the entire universe:

## **The Love Hypothesis**

Dedicated to my beloved wife Isabel for the whole of universe is but a love song.

In loving memory of three who left us early: Dr. Massoud Javadi the Knowledgeable, to be Dr. Roozbeh Aryanpour the True, and Shahrokh Kholdi-Sabeti the kind and beloved.

## Introduction

They asked Buddha who is telling the truth. Buddha replied: the person who says I tell the truth, and only I, is thousands of miles separated from the truth himself; the person who says I may be telling the truth is within reasonable distance of the truth; and the person who says I do not know if I am telling the truth is the closest to it.

“The most difficult subjects can be explained to the most slow-witted man if he has not formed any idea of them already; but the simplest thing cannot be made clear to the most intelligent man if he is firmly persuaded that he knows already, without a shadow of a doubt, what is laid before him.” Leo Tolstoy.

“It ain’t what you don’t know that gets you into trouble. It’s what you know for sure that just ain’t so.” From the movie “The Big Short”.

# Chapter I

## The Start of the Discussion

When I was in middle school, we were told that two hydrogen atoms under high pressure and temperature conditions under go fusion inside the sun and produce radiation energy. I asked myself if the temperature and pressure conditions are high enough to overcome the atomic forces and alter the nuclei, then why stop at the hydrogen-hydrogen interactions and not go further and randomize the combinations with the newly created elements like Helium and have a variety of elements generated in the process. You can imagine my disappointment when I found out some years later that an individual won the Noble prize in physics based on that simple concept having named it “the element factory of the stars”.

Coming forward to some years later, I was very perplexed by the fact that most of the hydrogen atom was empty space. To be exact, “a hydrogen atom is about **99.9999999999996%** empty space. Put another way, “if a hydrogen atom were the size of the earth, the proton at its center would be about 200 meters (600 feet) across”. Some years more down the road, at the insistence of my advisor Dr. Michael Deem, I took a course on statistical mechanics. After the invention of the steam engine during industrial revolution, people started observing laws and limitations that needed explaining, and some scientists developed thermodynamics to explain what was observed. Statistical mechanics was the extension of those laws at fundamental particle levels, which incidentally follow relatively simple rules, since at particle levels interactions and relations are defined in basic categories. In that statistical mechanics class, in which the teaching professor gave me a poor grade to my advisor’s disappointment, I learned that due to the assumptions about a system being laid at fundamental particle levels, you obtain a very powerful tools to test theories as very large number of these particles come together to form macroscopic systems. In fact, the only test that can be done in a simple chemical engineering lab to test quantum mechanics to be real is via statistical mechanics (i.e. chemistry lab discernment between Fermions and Bosons from quantum mechanics using statistical mechanics). This is akin to laying a brick in a certain fashion and examining the top of wall to be vertical at the end utilizing a large number of bricks (my son likes to use googolplex ( $10^{10^{100}}$ ) for a large number, but we do not need that many in this case). Nevertheless, that was not the most mesmerizing aspect of statistical mechanics.

The real surprise came to me when I learned that information theory was computer scientists renaming of statistical mechanics. But how could that be!! Information theory was dealing with information - something virtual. How can physical/real world laws and limitations apply to something inherently virtual. Though I know of some rebuttal answers to this, it does not take away from its weirdness (I call this the spooky application of the real laws to virtual realms which should be a figment of our imagination as information is). To me that was akin to saying gravity applies to a character in a cartoon animation. My ascertaining of information to be imaginary runs parallel to the fact that mathematics is the only unwavering set of rules in the entirety of the universe, yet the universe does not have any literal mathematics. Humans invented mathematics. No where in the universe you find any mathematics, you only see manifestations. Hence mathematics despite its unwavering truth is an imaginary human by product to understand the universe and the world around him.

Continuing along the point of discussion and trying to explain statistical mechanics governing information theory, there is only one way for these physical world scientific laws to apply to an imaginary one. That would be for this physical world to be imaginary and information theory being an image within/on top of another image. That started the discussions with my friend and sparring partner Rahul. At some point by my being a hard fact and sharp boundaries person, I started questioning Rahul's faculties and memory. Though there might be some fact to that, it never fully explained his experience with low probability events. As one might know people of faith believe in miracles. As scientific people, I and Rahul ascribe to the notion that though there are low probability events continuously happening around us, they are not a suspension of any laws of physics or universe, as we do not believe God/universe to have made mistakes in the past that are in need of corrections further down the line. The reason for my questioning Rahul's faculties was his belief that ever since he started being open to considering himself deserving of finding great parking spots, he has never failed to find a great one. Though, I had had a similar experience with my dad years earlier, I started considering Rahul to have become dreamy and starting to lose his faculties. Though perfectly possible to explain by physical laws, that Rahul is capable of finding a great parking spot each and every time, it would defy the odds were it to be true.

## Chapter II

### The Point in the Discussion where Things Started to Get Weird

The point where I started believing him to a certain degree was the introduction of a third party i.e. the observer effect. It was noticed and professed to by another common friend of ours Alec that Rahul had exceptional parking karma. So along with my general discussions with Rahul, I asked him "how did this come about?" He took me back to our earlier discussions, that the higher you go in the depth of world physics the more it sounds like religion and other early texts. His favorite example was to point out the nursery song "row, row, row your boat gently down the stream; merrily, merrily, merrily life is but a dream". So, it was very important to find the direction of the stream as life for us is akin to being a drop in a river where we have free will to go along or against the current generated by all the other drops. The other point was the statement that life is but a dream. Additionally, he stated that once all your innate forces are aligned as to what you want you are a lot more likely to attain it. When I brought up and inquired: what about those with opposing desires to that of ours? he brought up the story of a monk/priest who had attained enlightenment. As he felt oneness with the universe/truth/God, he walked down a narrow street and witnessed an elephant coming the other way. He believed being one with the universe had made his will and that of the universal consciousness one and the same. As he walked down the narrow street, the elephant tossed him to the side wall and hurt him badly. He asked I am the truth and one with the universe and was responded to: "so was the elephant and he happened to be a bigger piece of the truth". So, it is important to note that the drop is an ocean, so long as the drop stays part of the ocean, otherwise the drop is a drop and the ocean is an ocean. That also takes us to the Buddhist concept that the two main sources of unhappiness are first expecting the world to bend to your wishes by demanding me, me, me, me; and the second point being "nothing is as it appears".

This also bears a strange resemblance to the way Knight Templars used to settle things, by pitting their truth against another in mortal combat. Though the logic of their action does not make full sense and can be criticized, one can understand as to their purpose of forcing God or the universe to pick a side. The concept can be generalized to any zero-sum game scenario in general, such as poker or war, or competition in form of a battle.

Rahul said his experience was akin to a light switch coming on in one room of the house that has many rooms, and that he will help me with the experience since we started the whole discussion together. I asked him since we started the discussion together and the only difference was my

strong sense being grounded in facts, what separated us and allowed his unanchored version of reality to help him with the light switch. As my friend, he volunteered to help me and stated that there was only one requirement which was to stop resisting any and all things be it material or possibility, rational or imaginary, perceived positive or perceived negative that come your way. Other words he wanted me to be open and receptive. This tied in to other discussions that we used to have. I used to tell him that my dad always taught me that backgammon is the game of life. There are many decisions and many throws of dice. You are supposed to make the best decisions each and every time, yet even if you play perfectly you are not guaranteed to win, as there is an element of chance in every instance. He tried to guide me not to fight the result if I fell behind, rather focus on making the best decision for the instance depending on the circumstance. If you are ahead you temper your risks, if you are behind you increase them for the ultimate winning result needs to fall within your spectrum of possibilities for you to have a chance to win. Rahul used to term this as “not judging the results”. It is ironic that in judging something, you are fighting it, and if you judge the events of the world you must be fighting them in some form or fashion.

As I stopped judging and resisting, we both kept observing low probability events happen to us and for them to start to stack up. It is very uncomfortable situation from my prospective, since I do acknowledge the physical possibility of low probability events stacking up, I do not consider it normal and can't explain it away. I had observed it happen as a child with my father, and some used to say that he is very lucky, some used to say that God loves him, and my mother used to say that it was my paternal grandmother's prayer at his back. It is very important to notice that from scientific point of view low probability events, also known as outliers, give you a lot more information about the subject being studied than your commonly placed sample points.

As the low probability events stacked up, I felt overwhelmed. Randomly, my father started watching videos of Mr. Firouz Forouzandeh, Dr. Nayeri, and Dr. Holakouee and started making statements about God and proof of God. Based on all that I had learned from the low probability events that had transpired, I told him that some of the statements were incorrect, at which point he considered my statements as to being reactionary since he considered those individuals a lot more learned about the subject of human psychology, sociology, and modern physics than I. That started another chapter of these discussions that comes later as the IV one in this writing.

## Chapter III

### The Soul Challenge by Dr. Kimyai-Asadi.

Earlier to my father's challenge to prove Drs. Holakouee and Nayeri wrong. I watched an interview on VOA Persian program regarding the existence of soul. The neurologist in that program arguing against presence of soul for lack of physical evidence was none other than my Johns Hopkins friends' father, Mithra and Arash. In that discussion, Dr. Kimyai-Asadi successfully challenged and won the debate that there is no physical evidence of interaction of a meta-physical concept with the body, and if there is any such thing would we not see the manifestation of that and trace the source of interaction. He additionally challenged the concept of miracles in religion as being defined by suspension of the physical laws that govern the universe. At that time, I immediately reflected upon string theory, and that the dimensions observed by us are a truncated version of all the dimensions. I thought I had the answer through string theory, and that the answer lied either directly in the physical string theory or had to do with vibrations of a string. A lot of the times, we see and hear an individual make a certain decision or avoid a certain situation by expressing that they are "not getting a good vibe/vibration" on a situation. In the same fashion that observed dimensions are a truncated version of the string theory, our main senses are a truncated version of 50 or so senses that exist in the human body. So, who is to say that we cannot sense the "unseen" dimensions through our other 45 senses that have not been emphasized. This solution to the challenge posed by Dr. Kimyai-Asadi came to be from my mother.

When I was a child, I went to her and told her that I did not like this one kid and he was mean to me. She said to me, maybe it is because you don't like him that he is mean to you. To which my factual response was: that cannot be, since I had not said or done anything to him to antagonize him. At that point she taught me one of the biggest lessons of my life. She told me that you need not to do something or say something negative to someone for them to sense that negativity/ill will, for humans have an innate ability to sense if you like/love them or you wish them ill will even if it is only in your mind. She also pointed me out to a couple of other concepts. She told me if you want to win somebody over think good of them, talk good of them, and do good for them. However, there are those who will resist liking you even if you do all these things. If you want to win those guys over despite all the resistance they can muster against liking you, be kind and take care of their children for they cannot help falling in love with you head over heels. And if you want to win God over, you can do good deeds and pray and all that stuff, but if you really want

to win God over there is another way. Take good care of all the people around you, for people are God's children and if you are kind and caring with God's children, he won't be able to help himself but to love you. Regarding love my mother taught me one more concept as well.

My mother asked me once to look at all the children that I knew of in the whole world and pay attention to who was successful/happy. She pointed out that there were poor kids that were successful and there were rich kids that were successful, so money did not bring success/happiness. She pointed out that the same could be said for all the other attributes that can be considered a factor/background/environment. There was only one thing that stood out for a child's happiness and success: "were they truly loved"? For if even one person truly loved them unconditionally the child had an enormously higher chance of success/happiness/peace. The significance of this did not dawn on me for some years until I came across language deprivation experiments some years later:

"An experiment allegedly carried out by [Holy Roman Emperor Frederick II](#) in the 13th century saw young infants [raised without human interaction](#) in an attempt to determine if there was a [natural language](#) that they might demonstrate once their voices matured. It is claimed he was seeking to discover what language would have been imparted unto [Adam and Eve](#) by God."

"The experiments were recorded by the monk [Salimbene di Adam](#) in his *Chronicles*, who wrote that Frederick encouraged "foster-mothers and nurses to suckle and bathe and wash the children, but in no ways to prattle or speak with them; for he would have learnt whether they would speak the [Hebrew language](#) (which he took to have been the first), or [Greek](#), or [Latin](#), or [Arabic](#), or perchance the tongue of their parents of whom they had been born. But he laboured in vain, for the children could not live without clappings of the hands, and gestures, and gladness of countenance, and blandishments."<sup>[5]</sup> "

This went to show that my mother was right, and material needs though necessary were not sufficient for survival of a young human being. For the need to be loved supersedes all other needs towards survival. This was further emphasized by experiments where children were raised by mute mothers where the children were loved but not talked to:

Several centuries after Frederick II's experiment, [James IV of Scotland](#) was said to have sent two children to be raised by a [mute](#) woman isolated on the island of [Inchkeith](#), to determine if language was learned or innate.<sup>[6]</sup> The children were reported to have spoken good Hebrew, but



historians were skeptical of these claims soon after they were made.<sup>[7][8]</sup> This experiment was later repeated by the [Mughal emperor Akbar](#), who held that speech arose from hearing, thus children raised without hearing human speech would become mute.<sup>[9]</sup>

To my disappointment I learned that my solution of string theory and vibrations to the challenge of Dr. Kimyai-Asadi was wrong, but I did not give up - as it is always the difference between life and school: in school you are given the lesson first and the test later, whereas life always gives you the test first and the lesson after.

## Chapter IV

### The Holakouee/Nayeri Challenge

Watching the YouTube videos of Drs. Holakouee and Nayeri two years after the fact, in order to rise to the challenge my father had set for me, I recollected several main themes that I classified in a few bullet points:

1. The Host
2. The Ocean
3. The Dog
4. The Cat
5. The Impulse Response
6. The simple pre-requisite of my theory
7. The complex pre-requisite of my theory
8. Implications of Quantum Entanglement between God and Man
9. Carl Sagan and the "Pale Blue Dot"
10. Dr. Kimyai-Asadi's Late Challenge: Free Will, Illusion of Control, and Hormesis

#### 1. **The Host:**

During the video discussions, the host of the program kept repeating that he is an atheist, and that he divorced God some time ago and buried him for God is dead to him now. To me that was very strange, since even the individuals that I knew of who had reached enlightenment were like that monk and the elephant and God only winked at them from a distance from time to time. So, to me the host was not an atheist. He had become God's wife and in such bizarre understanding and establishing of the relationship between him and God there were bound to be marital problems. It is akin to me marrying an elephant and running out of a relationship for his abuse of rolling over me in bed in the middle of the night which has nearly crushed me to death. Furthermore, in his statements that he divorced God and that God is now dead to him, I sensed a bitter divorcee's complaint that she gave the best years of her life to this individual who did her when she was young and betrayed her for a younger/prettier wife at some later point down the road, expecting him(God) to be in a monogamous relationship with her. So, she divorced him and stated that he is dead to her, keeping in mind that she is fully aware that the individual is alive

and well having fun with a younger bride. The host's beliefs and involvement with God was severely more than that of mine, and I consider myself as not religious but a Godly man. I believe the married relationship imagined by the host between him and God was never meant to be as God can never be monogamous to one drop of the ocean, and in assuming that sort of a relationship he was abusing God and himself in the process, leading to a divorce. Nevertheless, you need to believe in someone to divorce them, and declare them dead as the previously mentioned divorcee example did.

## 2. **The Ocean:**

During the discussions Dr. Holakouee was adamant about two points: one that nobody can prove God, for a physical proof of God would exert controlling powers over him as the meta-physical creator of the universe. In fact, he used the example of proving an ocean as to one's assertion of dominion over the ocean. Secondly, that he believed in a God that created the universe and that this God was meta-physical and did not make a mistake in his creation for him to have a need for interfering in it after the universe's launch.

He is half correct in his second assertion that I will address in the Cat bullet point. However, he is dead wrong about the first assertion made in the fashion that he made it. For the sake of convenience, I shall use his example of the ocean to represent God, and I think it is good example. If I were to explain the ocean to someone, the only literal way for me to do it would be to take them by the hand and go to the beach and have the stand in front of the ocean. I could tell them that ocean is lot of water, but then so is the bath tub and so is the community pool. Furthermore, in my best way of proving the ocean to my sons and other individuals by having them stand against the vastness of the ocean and witness the crushing waves hit at the rocks on the shore, I never heard my sons or anyone for that matter to claim dominion over the ocean. In fact, quite the opposite was true, for myself and anyone else who stands in front of an ocean feels very small and feeble leading to understanding of his nothingness. If Dr. Holakouee claims the contrary and asserts dominion over the ocean by my proving it to him through first witness, I am willing to volunteer him to be dropped from a plane in the middle of the Pacific Ocean and show me his assertion of dominion by swimming back to California shores. In the same fashion that children playing on the shore will never fully comprehend the ocean and all that it entails (despite being fully aware of its existence), Dr. Holakouee is correct that we cannot fully grasp a meta-physical concept through physical means. However, that is very different from claiming that there cannot be a proof of existence and any proof/sensing of God constitutes a dominion over him.

### 3. **The Dog:**

In the discussions also, there was a rejection of common man's understanding and sensing of God by Dr. Nayeri and it being posed as the conundrum by Dr. Holakouee as he rejected God via understandings of a common man and yet himself believed it through his own personal mind. To me in the same fashion that I trust and fully believe my dog's sense of smell when he searches for something under the deck in the back yard, I fully trust common man's sense of pursuing God. For a dog lives by the smell and to him a lot of time has passed if your smell fades and he misses you. The sense of time for a dog is defined through his sense of smell. Nobody questions as to something being under the deck in the back yard when the dog sniffs and barks a lot alerting us as to something being there. It could be his ball, a mouse, or a snake, but the dog knows what it is even if we don't, and we know that there is something there that is triggering the dog. So, the position in the discussion that these individuals had no faith in human mind's fixation with the concept of God as being proof that there is something there was perplexing to say the least. For human minds were the only means of discovery by Green, Ramanujan, Einstein, Schrodinger, Bell, and Hawking. Most of these individuals came by their discoveries through mind experiments – projecting their minds into various realms of the universe (scientists though chose the physical one to project into and not meta-physical, additionally we cannot ascertain projections into mathematics to be physical and are in no-man's land with regard to that).

### 4. **The Cat:**

Most of the greatest minds in entirety of human history, either did not have any schooling prior to their brilliance becoming evident, or did not have formal schooling, or pulled answers out of thin air without any proofs to this day. Green, Ramanujan, Einstein, Bach, Hawking, and Schrodinger were such examples as there were many more. Regarding Schrodinger, I vividly remember my text book saying that there is no proof for the Schrodinger equation, other words it did not come from anywhere, and more precisely it came from Schrodinger's head.

Everybody knows that Schrodinger had a more famous experiment with his cat:

**Schrödinger's cat** is a [thought experiment](#), sometimes described as a [paradox](#), devised by Austrian physicist [Erwin Schrödinger](#) in 1935.<sup>[1]</sup> It illustrates what he saw as the problem

of the [Copenhagen interpretation](#) of [quantum mechanics](#) applied to everyday objects. The scenario presents a [cat](#) that may be simultaneously both alive and dead,<sup>[2][3][4][5][6][7][8]</sup> a state known as a [quantum superposition](#), as a result of being linked to a random [subatomic](#) event that may or may not occur. The thought experiment is also often featured in theoretical discussions of the [interpretations of quantum mechanics](#). Schrödinger coined the term *Verschränkung* ([entanglement](#)) in the course of developing the thought experiment.

Schrödinger intended his thought experiment as a discussion of the [EPR article](#)—named after its authors [Einstein](#), [Podolsky](#), and [Rosen](#)—in 1935.<sup>[9]</sup> The EPR article highlighted the bizarre nature of [quantum superpositions](#), in which a quantum system such as an [atom](#) or [photon](#) can exist as a combination of multiple states corresponding to different possible outcomes. The prevailing theory, called the [Copenhagen interpretation](#), said that a quantum system remained in this superposition until it interacted with, or was [observed](#) by, the external world, at which time the superposition [collapses](#) into one or another of the possible definite states. The EPR experiment showed that a system with multiple particles separated by large distances could be in such a superposition. Schrödinger and Einstein exchanged letters about Einstein's EPR article, in the course of which Einstein pointed out that the state of an [unstable](#) keg of [gunpowder](#) will, after a while, contain a superposition of both exploded and unexploded states.

To further illustrate, Schrödinger described how one could, in principle, create a superposition in a large-scale system by making it dependent on a quantum particle that was in a superposition. He proposed a scenario with a cat in a locked steel chamber, wherein the cat's life or death depended on the state of a [radioactive](#) atom, whether it had decayed and emitted radiation or not. According to Schrödinger, the Copenhagen interpretation implies that *the cat remains both alive and dead* until the state has been observed. Schrödinger did not wish to promote the idea of dead-and-alive cats as a serious possibility; on the contrary, he intended the example to illustrate the absurdity of the existing view of quantum mechanics.<sup>[1]</sup> However, since Schrödinger's time, other [interpretations of the mathematics of quantum mechanics](#) have been advanced by physicists, some of which regard the "alive and dead" cat superposition as quite real.<sup>[8][5]</sup> Intended as a critique of the Copenhagen interpretation (the prevailing orthodoxy in 1935), the Schrödinger's cat thought experiment remains a defining [touchstone](#) for modern interpretations of quantum mechanics. Physicists often use the way each interpretation deals with Schrödinger's cat as a way of illustrating and comparing the particular features, strengths, and weaknesses of each interpretation.

When it comes to God, the problem becomes threefold as a trilemma: first whether the cat was there in the box in the first place since no one was there at the beginning to witness. Second whether the cat is alive or dead. Third whether the cat has any entanglements with anything outside the box. As one can see quantum entanglement would complicate Dr. Holakouee's assertions of a non-interfering God quite a bit. Though I agree with his premise of all by God having been taken care of at the origin of creation, I believe his lack of understanding of high level physics limits his understanding of God. Ironic that a man of science misunderstands God due to his lack of full comprehension of science itself.

#### **5. The Impulse Response:**

Another point of discussion that was very prevalent during the videos was the fact that everyone contended that humans seek refuge in religion and God against things that scare them. These used to be great many things and have continuously dwindled with the advent of science. They also ridiculed those who believe that you can reach God by looking inwards as humans. Other than having pointed them to the example of full trust in a dog's sense of smell by nearly all humans, I have another distinctly different point to make. For if humans have innate connections to God this must have been set in place at the time creation and if there are any connections still there they need to be through quantum entanglements. So, for a human who discovers secrets from the depth of the universe through thought experiments, it would not be so strange to look inwards and run thought experiments about the existence of God, and if there is connection between man and God it surely must be from within. I was surprised by this oversight on behalf of Dr. Holakouee as psychologist and a sociologist. He knows full well that a toddler puts everything in his mouth for that is the most potent way for his brain to analyze the object even if it is not food. So, the most potent way for human to sense things is to run thought experiments and look inside to try to process things. Ironically, they mentioned varied perceptions in humans as to the passage of time which directly alludes to the point above. In Persian we have a saying that states: a verifiable fact becomes a truth for you, only when it has happened to you internally (meaning it has been internally processed as a fact by your brain).

My contention as to why humans become more religious or Godly after a scary/shocking event is: as humans know themselves better they understand their connection to God more clearly. As any engineer can tell you the best way to characterize a system is to give it a shock and extract an impulse response, for it will extract information from all the frequencies of his operation (for robust control you use other functions as well to

characterize hidden states). In biology we have a similar phenomenon where for proper development/regulation of the immune system the best method is introduction of parasites to the baby's body, ironically this was part of my PhD. thesis/dissertation.

From a biological stand point, the concept of proving/denying the existence of God is monumental challenge that infers and evolutionary advantage on the person dwelling on it by making him to dig deep, prepare and grow well, and ultimately rise to the occasion either to prove the existence of God or to reject such a notion. Hence, God bestows growth upon men who dwell on him either as friends or foes. Ironically yet again, we have a poem in Persian that says "friendship is beneficial only with the wise, a wise enemy is better than a dim-witted friend, for a wise enemy makes you rise up to the challenge, and dim-witted friend shall only make you complacent and prone to a crash of some sort".

The other implication of the impulse response is that the individual who does not see the answer in the environment looks inside for lack of better alternatives. Once he looks inside, if he actually does it correctly that shall lead to the collapse of the wave-function within him and lead to collapse of the wave function with regard to that specific observation in others/universe as well through the central node of quantum entanglements, which leads to his desired outcome - essentially allowing him to influence the outcome of the event that has given him the stress test/shock/impulse response. I shall elaborate more on this in section 8 of this chapter. The irony of the Green's Function being the impulse response of an inhomogeneous linear differential equation defined on a domain, with specified initial conditions or boundary conditions is now lost on me at in the course my writing of this hypothesis.

## 6. **The Simple Pre-requisite of my Theory:**

### **The Simulation Hypothesis:**

The **simulation hypothesis** proposes that all of reality, including the earth and the universe, is in fact an artificial simulation, most likely a [computer simulation](#). Some versions rely on the development of a [simulated reality](#), a proposed technology that would seem realistic enough to convince its inhabitants the simulation was real. The hypothesis has been a central plot device of many [science fiction](#) stories and films.

### **The Origins:**

There is a long philosophical and scientific history to the underlying thesis that reality is an illusion. This [skeptical hypothesis](#) can be traced back to antiquity; for example, to the "[Butterfly Dream](#)" of [Zhuangzi](#),<sup>[1]</sup> or the Indian philosophy of [Maya](#).

### **The Hypothesis:**

Many works of science fiction as well as some forecasts by serious technologists and futurologists predict that enormous amounts of computing power will be available in the future. Let us suppose for a moment that these predictions are correct. One thing that later generations might do with their super-powerful computers is run detailed simulations of their forebears or of people like their forebears. Because their computers would be so powerful, they could run a great many such simulations. Suppose that these simulated people are conscious (as they would be if the simulations were sufficiently fine-grained and if a certain quite widely accepted position in the philosophy of mind is correct). Then it could be the case that the vast majority of minds like ours do not belong to the original race but rather to people simulated by the advanced descendants of an original race. It is then possible to argue that, if this were the case, we would be rational to think that we are likely among the simulated minds rather than among the original biological ones. Therefore, if we don't think that we are currently living in a computer simulation, we are not entitled to believe that we will have descendants who will run lots of such simulations of their forebears.

— *Nick Bostrom, Are you living in a computer simulation?, 2003*<sup>[2]</sup>

### **Ancestor Simulation:**

In 2003, philosopher [Nick Bostrom](#) proposed a [trilemma](#) that he called "the simulation argument". Despite the name, Bostrom's "simulation argument" does not directly argue that we live in a simulation; instead, Bostrom's trilemma argues that one of three unlikely-seeming propositions is almost certainly true:

- "The fraction of human-level civilizations that reach a posthuman stage (that is, one capable of running high-fidelity ancestor simulations) is very close to zero",
- "The fraction of posthuman civilizations that are interested in running ancestor-simulations is very close to zero",
- "The fraction of all people with our kind of experiences that are living in a simulation is very close to one"



The trilemma points out that a technologically mature "posthuman" civilization would have enormous computing power; if even a tiny percentage of them were to run "ancestor simulations" (that is, "high-fidelity" simulations of ancestral life that would be indistinguishable from reality to the simulated ancestor), the total number of simulated ancestors, or "Sims", in the universe (or [multiverse](#), if it exists) would greatly exceed the total number of actual ancestors.

Bostrom goes on to use a type of [anthropic reasoning](#) to claim that, *if* the third proposition is the one of those three that is true, and almost all people with our kind of experiences live in simulations, *then* we are almost certainly living in a simulation.

Bostrom claims his argument goes beyond the classical ancient "[skeptical hypothesis](#)", claiming that "...we have interesting empirical reasons to believe that a certain [disjunctive](#) claim about the world is true", the third of the three disjunctive propositions being that we are almost certainly living in a simulation. Thus, Bostrom, and writers in agreement with Bostrom such as [David Chalmers](#), argue there might be empirical reasons for the "simulation hypothesis", and that therefore the simulation hypothesis is not a skeptical hypothesis but rather a "[metaphysical hypothesis](#)". Bostrom states he personally sees no strong argument for which of the three trilemma propositions is the true one: "If (1) is true, then we will almost certainly go extinct before reaching posthumanity. If (2) is true, then there must be a strong convergence among the courses of advanced civilizations so that virtually none contains any individuals who desire to run ancestor-simulations and are free to do so. If (3) is true, then we almost certainly live in a simulation. In the dark forest of our current ignorance, it seems sensible to apportion one's credence roughly evenly between (1), (2), and (3)... I note that people who hear about the simulation argument often react by saying, 'Yes, I accept the argument, and it is obvious that it is possibility #*n* that obtains.' But different people pick a different *n*. Some think it obvious that (1) is true, others that (2) is true, yet others that (3) is true."

As a corollary to the trilemma, Bostrom states that "Unless we are now living in a simulation, our descendants will almost certainly never run an ancestor-simulation."<sup>[3][4][5][6]</sup>

### **Criticism of Bostrom's Anthropic Reasoning**

Bostrom argues that, *if* "the fraction of all people with our kind of experiences that are living in a simulation is very close to one", *then* it follows that we probably live in a

simulation. Some philosophers disagree, proposing that perhaps "Sims" do not have conscious experiences the same way that unsimulated humans do, or that it can otherwise be self-evident to a human that they are a human rather than a Sim.<sup>[4][7]</sup> Philosopher Barry Dainton modifies Bostrom's trilemma by substituting "neural ancestor simulations" (ranging from literal brains in a vat, to far-future humans with induced high-fidelity hallucinations that they are their own distant ancestors) for Bostrom's "ancestor simulations", on the grounds that every philosophical school of thought can agree that sufficiently high-tech neural ancestor simulation experiences would be indistinguishable from non-simulated experiences. Even if high-fidelity computer Sims are never conscious, Dainton's reasoning leads to the following conclusion: either the fraction of human-level civilizations that reach a posthuman stage and are able and willing to run large numbers of neural ancestor simulations is close to zero, or we are in some kind of (possibly neural) ancestor simulation.<sup>[8]</sup>

Some scholars categorically reject or are uninterested in anthropic reasoning, dismissing it as "merely philosophical", unfalsifiable, or inherently unscientific.<sup>[4]</sup>

Some critics reject the [growing block universe](#) view of time that Bostrom implicitly accepts and propose that we could be in the first generation, such that all the simulated people that will one day be created [don't yet exist](#).<sup>[4]</sup>

[Sean M. Carroll](#) argues that the simulation hypothesis leads to a contradiction: if a civilization is capable of performing simulations, then it will likely perform many simulations, which implies that we are most likely at the lowest level of simulation (from which point one's impression will be that it is impossible to perform a simulation), which contradicts the arguer's assumption that advanced civilizations can most likely perform simulations.<sup>[9]</sup>

### **Arguments within the Trilemma Against the Simulation Hypothesis**

Some scholars accept the trilemma, and argue that the first or second of the propositions are true, and that the third proposition (the proposition that we live in a simulation) is false. Physicist [Paul Davies](#) deploys Bostrom's trilemma as part of one possible argument against a near-infinite [multiverse](#). This argument runs as follows: if there were a near-infinite multiverse, there would be posthuman civilizations running ancestor simulations, and therefore we would come to the untenable and scientifically self-defeating conclusion that we live in a simulation; therefore, by [reductio ad absurdum](#), existing

multiverse theories are likely false. (Unlike Bostrom and Chalmers, Davies (among others) considers the simulation hypothesis to be self-defeating.)<sup>[4][10]</sup>

Some point out that there is currently no proof of technology which would facilitate the existence of sufficiently high-fidelity ancestor simulation. Additionally, there is no proof that it is physically possible or feasible for a posthuman civilization to create such a simulation, and therefore for the present, the first proposition must be true.<sup>[4]</sup> Additionally there are proofs of [limits of computation](#).

### **Consequences of Living in a Simulation:**

Economist [Robin Hanson](#) argues a self-interested high-fidelity Sim should strive to be entertaining and praiseworthy in order to avoid being turned off or being shunted into a non-conscious low-fidelity part of the simulation. Hanson additionally speculates that someone who is aware that he might be a Sim might care less about others and live more for today: "your motivation to save for retirement, or to help the poor in Ethiopia, might be muted by realizing that in your simulation, you will never retire and there is no Ethiopia."<sup>[11]</sup>

### **Testing the Hypothesis Physically:**

A long-shot method to test one type of simulation hypothesis was proposed in 2012 in a joint paper by physicists Silas R. Beane from the University of Bonn (now at the University of Washington, Seattle), and Zohreh Davoudi and Martin J. Savage from the University of Washington, Seattle.<sup>[12]</sup> Under the assumption of finite computational resources, the simulation of the universe would be performed by dividing the continuum space-time into a discrete set of points. In analogy with the mini-simulations that [lattice-gauge theorists](#) run today to build up [nuclei](#) from the underlying theory of [strong interactions](#) (known as [Quantum chromodynamics](#)), several observational consequences of a grid-like space-time have been studied in their work. Among proposed signatures is an [anisotropy](#) in the distribution of ultra-high-energy [cosmic rays](#), that, if observed, would be consistent with the simulation hypothesis according to these physicists.<sup>[13]</sup> A multitude of physical observables must be explored before any such scenario could be accepted or rejected as a theory of nature.<sup>[14]</sup> In 2017, Campbell et. al propose several experiments aimed at testing the simulation theory in their *On testing the simulation theory* paper.<sup>[15]</sup> In 2018 they intend to crowdfund the experiments through a Kickstarter campaign.<sup>[16]</sup>

### **Other Uses of Simulation Hypothesis in Philosophy:**

Besides attempting to assess whether the simulation hypothesis is true or false, philosophers have also used it to illustrate other philosophical problems, especially in [metaphysics](#) and [epistemology](#). [David Chalmers](#) has argued that simulated beings might wonder whether their [mental](#) lives are governed by the [physics](#) of their environment, when in fact these mental lives are simulated separately (and are thus, in fact, not governed by the simulated physics).<sup>[17]</sup> They might eventually find that their thoughts fail to be physically [caused](#). Chalmers argues that this means that [Cartesian dualism](#) is not necessarily as problematic of a philosophical view as is commonly supposed, though he does not endorse it.

Similarly, Vincent Conitzer has used the following computer simulation scenarios to illuminate [further facts](#)—facts that do not follow logically from the physical facts—about [qualia](#) (what it is *like* to have specific experiences), [indexicality](#) (what time it is *now* and who *I* am), and [personal identity](#).<sup>[18]</sup> Imagine a person in the real world who is observing a simulated world on a screen, from the perspective of one of the simulated agents in it. The person observing knows that besides the [code](#) responsible for the physics of the simulation, there must be *additional* code that determines in which colors the simulation is displayed on the screen, and which agent's perspective is displayed. (These questions are related to the [inverted spectrum](#) scenario and whether there are further facts about personal identity.) That is, the person can conclude that the facts about the physics of the simulation (which are completely captured by the code governing the physics) do not fully determine her [experience](#) by themselves. But then, Conitzer argues, imagine someone who has become so engrossed in the simulation that she has *forgotten* that it is a simulation she is watching. Could she not still reach the same conclusion? And if so, can we not conclude the same in our own daily lives?

## 7. The Complex Pre-requisite of my Theory

As we all know Einstein had problems with quantum mechanics, as he insisted that “God does not throw dice”. Later on, Hawking said: “Not only does God play dice, but... he sometimes throws them where they cannot be seen.” To a biomedical person that is an obvious answer as we look at heredity, DNA, and genetics. But Hawking was not talking about any of those – he was talking about physics (though I cannot help but think that he had his own genetic condition in mind simultaneously). The concept that really bothered Einstein and made him feel really weird was quantum entanglement. Based on quantum entanglement there is no inherent value, rather a distribution of possible values. That is

akin to a person having no inherent weight until they step on a scale. Additionally, with quantum entanglement any change in one part of the system affects the rest of the system at the exact same time no matter how large of the distance between the different parts of the system. That violates the speed of light boundary that exist in Einstein theories of relativity.

## **Free Will, Video Games, and the Most Profound Quantum Mystery**

By [David Kaiser](#) May 9, 2018

(The Big Bell Test probed quantum mechanics using crowdsourced inputs from volunteer video-game players.)

The word “predictable” first entered the English language two centuries ago. Its début came in neither a farmer’s almanac nor a cardsharp’s manual but in *The Monthly Repository of Theology and General Literature*, a Unitarian periodical. In 1820, one Stephen Freeman wrote a dense treatise in which he criticized the notion that human behavior—seemingly manifest “amidst the conflicting, boisterous, unreasonable wills of men, all acting, as they feel they do, their various parts with complete freedom of choice”—somehow existed outside the domain of cause and effect. Freeman (“free man,” no less!) argued, instead, that human consciousness and our perception of free will must be subject to chains of causation. “What but this certainty, this necessity, can render any event, even such as depends on the free-will of intelligent agents, predictable?” he asked.

This week, in the journal *Nature*, a collaboration of more than a hundred quantum physicists, distributed across twelve laboratories in eleven countries on five continents, [turned Freeman’s formulation on its head](#). With the help of high-powered lasers, superconducting magnets, and state-of-the-art machine-learning algorithms, they concluded that “if human will is free, there are physical events . . . that are intrinsically random, that is, impossible to predict.” The group dubbed their experiment the Big Bell Test, after the renowned twentieth-century physicist John S. Bell.

The question at the center of Bell’s work is whether objects in the real world, including elementary particles, have definite properties of their own, independent of whether anyone happens to measure them. Quantum theory holds that they do not—that the act of performing a measurement doesn’t so much reveal a preëxisting value as summon it forth. (It as though you had no definite weight until you stepped on your bathroom scale.) The Danish physicist Niels Bohr, writing in the nineteen-thirties, argued that the outcomes of quantum measurements were thus truly, inherently random.

The idea rankled Albert Einstein. He had particular trouble with the notion of quantum entanglement, which posits that two particles, if prepared in a certain way, remain linked with each other, no matter how far apart they roam; measure the properties of one and you know the properties of the other. Einstein argued that this should be impossible, since, according to his own [theory of relativity](#), nothing—not even secret messages between particles—can travel faster than light. The entangled particles, he explained, must carry certain hidden instructions that govern their activity; anything else would be “spooky action at a distance.” And, if the particles had definite properties of their own, then there was a limit to how similar their measurements could be. Bell, on the other hand, demonstrated that quantum physics predicts scenarios that exceed this limit. He also showed that the inequality between the two paradigms—Einstein’s and Bohr’s—could be explored in the laboratory.

Since Bell did his critical work, physicists have tested his inequality in dozens and dozens of experiments. In every published case, the results have agreed with the predictions of quantum physics, putting tremendous strain on the commonsense notion that objects have properties all on their own. But, as Bell himself conceded, these results wouldn’t be so surprising if the measurements to be performed on each entangled particle could be predicted ahead of time. As the physicist Erwin Schrödinger remarked, in 1935, one would hardly be surprised that “a schoolboy under examination” had aced a test if he had the list of questions in advance. But how to make the selection of measurements as random as possible?

Some groups, including my own at the Massachusetts Institute of Technology (in collaboration with colleagues in Vienna and California), have turned to the stars, performing real-time astronomical observations of distant objects to determine which measurements to perform on Earth-bound entangled particles. [In our recent test](#), the properties of the starlight that determined each measurement had been fixed hundreds of years before, quadrillions of miles from Earth.

For the Big Bell Test, the physicists gathered random inputs from online volunteers, whom they called Bellsters. The team first developed an original video game, which the Bellsters could play on a variety of platforms. The volunteers’ task was to exercise their free will by producing an unpredictable string of zeroes and ones; while they played, a machine-learning algorithm analyzed each Bellster’s first few entries and tried to predict what the next one would be. With real-time feedback from the algorithm, the players could improve their scores by making their selections less predictable. Some of the Bellsters’ ones and zeroes were directed to the participating laboratories via high-speed networks,

where the numbers determined which measurements would be performed, right then and there, on various particles. In the course of a single day—November 30, 2016—the volunteers generated nearly a hundred million entries.

Every experiment performed as part of the Big Bell Test, using these creatively crowd-sourced inputs, found statistically significant violations of Bell's inequality, precisely as quantum theory predicts. Moreover, the groups subjected seven different types of entangled systems to the test. Several used entangled photons, or particles of light, while others performed measurements on entangled photon-atom systems or other, more exotic arrangements.

Which brings us back to Stephen Freeman and the question of free will. If humans really can make choices that are not predetermined, then some large fraction of those hundred million game-generated zeroes and ones should qualify as appropriately free and independent of the other elements of the experiments. And, if that freedom is granted, then this super-collection of experiments—conducted in labs from Australia to Shanghai, Vienna to Barcelona, Buenos Aires to Boulder, Colorado—indeed demonstrated that the outcomes of those measurements were intrinsically random, inherently unpredictable. Any alternative explanation of the results, along the lines that Einstein and Schrödinger would have preferred, would need to posit *both* that the activities of a large fraction of the Bellsters were somehow swayed by some unseen force *and* that the same mechanism was able to affect the outcomes of measurements on different types of particles, in different laboratories, dotted clear around the Earth. Given those odds, I'll take my chances with quantum theory.

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## 8. Implications of Quantum Entanglement between God and Man

I start this section by repeating a paragraph from the article that constituted section 7 above for it is of immense importance:

The idea (of quantum entanglement) rankled Albert Einstein. He had particular trouble with the notion of quantum entanglement, which posits that two particles, if prepared in a certain way, remain linked with each other, no matter how far apart they roam; measure

the properties of one and you know the properties of the other. Einstein argued that this should be impossible, since, according to his own [theory of relativity](#), nothing—not even secret messages between particles—can travel faster than light. The entangled particles, he explained, must carry certain hidden instructions that govern their activity; anything else would be “spooky action at a distance.” And, if the particles had definite properties of their own, then there was a limit to how similar their measurements could be. Bell, on the other hand, demonstrated that quantum physics predicts scenarios that exceed this limit.

The most important implication of quantum entanglement being true for a human being is: “two particles, if prepared in a certain way, remain linked with each other, no matter how far apart they roam; measure the properties of one and you know the properties of the other”. This takes us back to the scientists’ argument that man imagines God in his own image (rather than the other way around) which is actually distinctly true. As it is observed that the Gods (physical idols) of people in Oceania are short and stubby like themselves, and those of the Gods of the people in Amazon jungles are tall and slim like themselves. Also in the book “Pale Blue Dot” I believe Carl Sagan says that if you ask a lion to draw a picture of God, he would draw a lion. I shall quote Carl Sagan separately in section 9 as well for his insight. Nevertheless, what scientists claim to be man creating God in his own image (rather than the other way around) by giving God human qualities is duality that goes away for the most part once you accept quantum entanglement as established science. For once we assume quantum entanglement between any creature/organism that is given free will, the easiest way for the creature to probe the properties of God is by probing himself/itself. As Bell established, measure the properties of one entangled particle and you know the properties of the other. Since all free willed creatures/organisms can be in quantum entanglement with God, they try to understand God better by learning about themselves, and ultimately they will fully know themselves which implies that they ultimately fully realize themselves as part of God. Hence if you ask a lion to draw God, he will draw a lion. If you ask a short man to draw God, he shall draw a short man. If you ask a tall man to draw God he shall draw a tall man. If you ask the white man to draw God, he will draw a white man (even though in the Bible it is evident that Jesus was middle eastern refugee with bronze skin). Though apparently contradictory, this is a very logical conclusion from quantum entanglement between free willed creatures/organisms and God.

Incidentally, that is the exact story of the creation of the magical/meta-physical creature phoenix (Simorgh in Persian which means thirty birds) for then the thirty birds reached the final destination they saw a mirror and told themselves we see



phoenix/Simorgh/thirty birds in the mirror and yet we ourselves are the same and they themselves coalesced to form phoenix.

## 9. Carl Sagan and the “Pale Blue Dot”

During a public lecture at [Cornell University](#) in 1994, [Carl Sagan](#) presented the image to the audience and shared his reflections on the deeper meaning behind the idea of the *Pale Blue Dot*.<sup>[21]</sup>

We succeeded in taking that picture [from deep space], and, if you look at it, you see a dot. That's here. That's home. That's us. On it, everyone you ever heard of, every human being who ever lived, lived out their lives. The aggregate of all our joys and sufferings, thousands of confident religions, ideologies and economic doctrines, every hunter and forager, every hero and coward, every creator and destroyer of civilizations, every king and peasant, every young couple in love, every hopeful child, every mother and father, every inventor and explorer, every teacher of morals, every corrupt politician, every superstar, every supreme leader, every saint and sinner in the history of our species, lived there on a mote of dust, suspended in a sunbeam.

The Earth is a very small stage in a vast cosmic arena. Think of the rivers of blood spilled by all those generals and emperors so that in glory and in triumph they could become the momentary masters of a fraction of a dot. Think of the endless cruelties visited by the inhabitants of one corner of the dot on scarcely distinguishable inhabitants of some other corner of the dot. How frequent their misunderstandings, how eager they are to kill one another, how fervent their hatreds. Our posturings, our imagined self-importance, the delusion that we have some privileged position in the universe, are challenged by this point of pale light.

Our planet is a lonely speck in the great enveloping cosmic dark. In our obscurity – in all this vastness – there is no hint that help will come from elsewhere to save us from ourselves. It is up to us. It's been said that astronomy is a humbling, and I might add, a character-building experience. To my mind, there is perhaps no better demonstration of the folly of human conceits than this distant image of our tiny world. To me, it underscores our responsibility to deal more kindly and compassionately with one another and to preserve and cherish that pale blue dot, the only home we've ever known.

— *Carl Sagan, speech at Cornell University, October 13, 1994*

Sagan also titled his 1994 book [Pale Blue Dot: A Vision of the Human Future in Space](#) after the photograph.<sup>[22][23]</sup>

In 2015, NASA acknowledged the 25th anniversary of *Pale Blue Dot*.<sup>[24]</sup>

Twenty-five years ago, Voyager 1 looked back toward Earth and saw a 'pale blue dot,' " an image that continues to inspire wonderment about the spot we call home,

— *Voyager project scientist*<sup>[24]</sup>

## 10. Dr. Kimyai-Asadi's Late Challenge: Free Will, Illusion of Control, and Hormesis

"You may not control all the events that happen to you, but you can decide not to be reduced by them." Maya Angelou – the writer of the book "I Know Why the Caged Bird Sings".

Dr. Kimyai-Asadi posed a challenge to me as I imposed on him to critique this writing despite his busy schedule. His challenge was with regard to my use of free will as a basis of discussions, as he referred me to sources that claimed free will to be an illusion. I pointed out the section 7 of this chapter as evidence of existence of free will. My reasoning for that is as follows: the experiment performed in section 7 was a physical experiment based on Bell's original design. This was a quantum physics experiment the idea which was examined by Einstein and Schrodinger. Furthermore, it was performed in labs using hundreds of quantum physicists spread around many countries and continents all over the globe (the pale blue dot). It just happens that the results from this experiment have philosophical implications as well as actual physical ones which were the intended results of the experiment itself.

Considering that convincing Dr. Kimyai-Asadi a top neurologist who has published and translated many books on the human brain and thinking is a relatively monumental task, I owe it to him to rise to the challenge beyond the mere results of a single physics experiment even if it was designed by Bell himself and conducted by hundreds of scientists. I hope to learn a lot from Dr. Kimyai-Asadi by reading his books as I see no better critique of this work when it comes to the brain and the relationship between the conscious and the subconscious of a human being.

I shall give my understanding of the concept first and then move on to support it: I believe in free will for all living creatures in the world be it a virus (on the borderline of life) or a human. I believe most of the time the illusion of control (extensively addressed by Taoism and Buddhism) gets confused as illusion of free will. For any organism it is important to establish the extent of free will (finding the direction of the river current for the human

being, or any general tracing of the environment). The concept of control for any living creature is nothing but an illusion. Since we are but drops in the ocean, there is no way for any creature to claim dominion over the physical universe, let alone the meta-physics and God. The most powerful people in the world did/do not have control over their bowel movements when suffering from diarrhea. So, no matter how mighty a person, an organism, or creature/creation, the need/belief for full control is nothing but an illusion. Most of us also have heard the saying "that does not kill you, just makes you stronger", as to this later quote I have my own satirical version which says: "that does not kill you, may make you maimed". This refers to anti-fragility in physics and hormesis in biology. For an anti-fragile or hormetic organism is aware of its free will, is aware of the limits of its free will, and he/she/it makes a determination not be reduced by something/the environment that is imposed on it. I conclude that this is the basis for hormesis. Though I shall return to hormesis and dedicate a good discussion to it later in this section. The only true way for me to convince a neurologist of great stature like Dr. Kimyai-Asadi is to pit him against another great neurologist who happens to be none-other than Viktor Frankl.

**Viktor Emil Frankl** (26 March 1905 – 2 September 1997)<sup>[1][2]</sup> was an [Austrian neurologist](#) and [psychiatrist](#) as well as a [Holocaust survivor](#). Frankl was the founder of [logotherapy](#), which is a form of [existential analysis](#), the "Third Viennese School of [Psychotherapy](#)". His best-selling book [Man's Search for Meaning](#) (published under a different title in 1959: *From Death-Camp to Existentialism*, and originally published in 1946 as *Trotzdem Ja Zum Leben Sagen: Ein Psychologe erlebt das Konzentrationslager*, meaning *Nevertheless, Say "Yes" to Life: A Psychologist Experiences the Concentration Camp*) chronicles his experiences as a [concentration camp](#) inmate, which led him to discover the importance of finding meaning in all forms of existence, even the most brutal ones, and thus, a reason to continue living. Frankl became one of the key figures in [existential therapy](#) and a prominent source of inspiration for [humanistic psychologists](#).<sup>[3]</sup>

### **Life Before 1945**

Frankl was born in Vienna into a Jewish family of civil servants (*Beamtenfamilie*). His interest in psychology surfaced early. For the final exam ([Matura](#)) in [Gymnasium](#), he wrote a paper on the psychology of philosophical thinking. After graduation from [Gymnasium](#) in 1923, he studied medicine at the [University of Vienna](#) and later specialized in neurology and psychiatry, concentrating on the topics of depression and suicide. His early development was influenced by his contacts with [Sigmund Freud](#) and [Alfred Adler](#), although he would later diverge from their teachings.<sup>[3][4]</sup>

## Physician, Therapist

During part of 1924 he became the president of the *Sozialistische Mittelschüler Österreich*, a [Social Democratic](#) youth movement for high school students throughout Austria.<sup>[1]:59</sup>

Between 1928 and 1930, while still a medical student, he organized and offered a special program to counsel high school students free of charge. The program involved the participation of psychologists such as [Charlotte Bühler](#), and it paid special attention to students at the time when they received their report cards. In 1931, not a single Viennese student committed [suicide](#). The success of this program grabbed the attention of the likes of [Wilhelm Reich](#) who invited him to Berlin.<sup>[2][4][5]</sup>

From 1933 to 1937, Frankl completed his residency in neurology and psychiatry at the [Steinhof Psychiatric Hospital](#) in Vienna. He was responsible for the so-called *Selbstmörderpavillon*, or "suicide pavilion". Here, he treated more than 3000 women who had suicidal tendencies.<sup>[2]</sup> In 1937, he established an independent private practice in neurology and psychiatry at Alser Strasse 32/12 in Vienna.<sup>[2]</sup>

Beginning with the [Nazi takeover of Austria](#) in 1938, he was prohibited from treating "Aryan" patients due to his Jewish identity. In 1940 he started working at the [Rothschild Hospital](#), where he headed its neurological department. This hospital was the only one in Vienna to which Jews were still admitted. His medical opinions (including deliberately false diagnoses<sup>[6]</sup>) saved several patients from being euthanised via the [Nazi euthanasia program](#). In December 1941 he married Tilly Grosser.<sup>[2][3]</sup>

## Prisoner, Therapist

On 25 September 1942, Frankl, his wife, and his parents were deported to the Nazi [Theresienstadt](#) Ghetto. There Frankl worked as a general practitioner in a clinic. When his skills in psychiatry were noticed, he was assigned to the psychiatric care ward in Block B IV, establishing a camp service of "psychohygiene" or mental health care. He organized a unit to help camp newcomers to overcome shock and grief. Later he set up a suicide watch, assisted by [Regina Jonas](#).<sup>[2][7]</sup>

On 29 July 1943, Frankl organized a closed event for the Scientific Society at Theresienstadt, and with the help of [Leo Baeck](#), offered a series of open lectures, including "Sleep and Sleep Disturbances", "Body and Soul", "Medical Care of the Soul", "Psychology of Mountaineering", "How to keep my nerves healthy?", "Medical ministry", "Existential Problems in Psychotherapy", and "Social Psychotherapy".<sup>[7]</sup> His father Gabriel died of pulmonary edema and pneumonia at Theresienstadt.<sup>[2][3][7]</sup>

On 19 October 1944, Frankl and his wife Tilly were transported to the [Auschwitz concentration camp](#), where he was processed. He was moved to [Kaufering](#), a camp affiliated with [Dachau](#), on 25 October, where he spent five months working as a slave laborer. In March 1945, he was offered a move to the so-called rest camp, [Türkheim](#), also affiliated with Dachau, where he worked as a physician until 27 April 1945, when the camp was liberated by American soldiers.<sup>[2][3]</sup>

Frankl's mother Elsa and brother Walter were killed at Auschwitz. His wife was moved to [Bergen-Belsen](#), where she was killed. The only other survivor of the [Holocaust](#) among Frankl's immediate family was his sister, Stella, who had emigrated from Austria to [Australia](#).<sup>[2][3]</sup>

### **Life After 1945**

Liberated after several months in concentration camps, Frankl returned to [Vienna](#), where he developed and lectured about his own approach to psychological healing. Frankl believed that people are primarily driven by a "striving to find meaning in one's life," and that it is this sense of meaning that enables people to overcome painful experiences. Frankl wrote his world-famous book entitled, *Trotzdem Ja Zum Leben Sagen: Ein Psychologe Erlebt das Konzentrationslager* ("Saying Yes to Life in Spite of Everything: A Psychologist Experiences the Concentration Camp"), known in English by the title [Man's Search for Meaning](#) (1959 title: *From Death-Camp to Existentialism*).<sup>[8]</sup> In this book, he described the life of an ordinary [concentration camp](#) inmate from the objective perspective of a psychiatrist.<sup>[3][9]</sup>

After enduring the suffering in these camps, Frankl concluded that even in the most absurd, painful, and dehumanized situation, life has potential meaning and that, therefore, even suffering is meaningful. This conclusion served as a basis for his [logotherapy](#) and [existential analysis](#), which Frankl had described before World War II. He said, "What is to give light must endure burning."

An example of Frankl's idea of finding meaning in the midst of extreme suffering is found in his account of an experience he had while working in the harsh conditions of the Nazi concentration camps:

We stumbled on in the darkness, over big stones and through large puddles, along the one road leading from the camp. The accompanying guards kept shouting at us and driving us with the butts of their rifles. Anyone with very sore feet supported himself on his neighbor's arm. Hardly a word was spoken; the icy wind did not encourage talk. Hiding his mouth behind his upturned collar, the man marching next to me whispered suddenly: "If our wives could see us now! I do hope they are better off in their camps and don't know what is happening to us."

That brought thoughts of my own wife to mind. And as we stumbled on for miles, slipping on icy spots, supporting each other time and again, dragging one another up and onward, nothing was said, but we both knew: each of us was thinking of his wife. Occasionally I looked at the sky, where the stars were fading and the pink light of the morning was beginning to spread behind a dark bank of clouds. But my mind clung to my wife's image, imagining it with an uncanny acuteness. I heard her answering me, saw her smile, her frank and encouraging look. Real or not, her look was then more luminous than the sun which was beginning to rise.

**A thought transfixed me: for the first time in my life I saw the truth as it is set into song by so many poets, proclaimed as the final wisdom by so many thinkers. The truth – that love is the ultimate and the highest goal to which Man can aspire. Then I grasped the meaning of the greatest secret that human poetry and human thought and belief have to impart: *The salvation of Man is through love and in love.* I understood how a man who has nothing left in this world still may know bliss, be it only for a brief moment, in the contemplation of his beloved. In a position of utter desolation, when Man cannot express himself in positive action, when his only achievement may consist in enduring his sufferings in the right way – an honorable way – in such a position Man can, through loving contemplation of the image he carries of his beloved, achieve fulfillment. For the first time in my life I was able to understand the meaning of the words, "The angels are lost in perpetual contemplation of an infinite glory."<sup>[10]</sup>**

Frankl's concentration camp experiences shaped both his therapeutic approach and philosophical outlook, as reflected in his seminal publications.

**He often said that even within the narrow boundaries of the concentration camps he found only two races of Men to exist: decent ones and unprincipled ones. These were to be found in all classes, ethnicities, and groups. "Under such conditions, who could blame them for trying to dope themselves?" "These were the men who were employed in the gas chambers and crematoriums, and who knew very well that one day they would have to leave their enforced role of executioner and become victims themselves."<sup>[9]</sup>**

In 1946, he was appointed to run the Vienna Polyclinic of Neurology. He remained there until 1971. In 1947 he married his second wife Eleonore Katharina Schwindt. She was a practicing Catholic and the couple respected each other's religious backgrounds, going to both church and synagogue, and celebrating Christmas and [Hanukah](#). They had one daughter, Gabriele, who went on to become a child psychologist.<sup>[2][3][11]</sup>

In 1948, Frankl earned a Ph.D. in philosophy. His dissertation, [The Unconscious God](#), is an examination of the relation of psychology and religion.<sup>[12]</sup>

**(The term "the unconscious God" refers to a "hidden relationship with the hidden God".<sup>[2]</sup> In his work, Frankl advocates for the use of the Socratic dialogue or "self-discovery discourse" to be used with clients to get in touch with their "Noetic" (or spiritual) unconscious.<sup>[3]</sup> Human religiousness is a deeply individual decision; it cannot be derived from a collective type (as Jung would argue).<sup>[2]</sup> Frankl contends that a mature involvement with a religious group increases the sense of purpose in life.<sup>[4]</sup>)**

In 1955, he was awarded a professorship of neurology and psychiatry at the [University of Vienna](#), and as visiting professor, he resided at [Harvard University](#) (1961), at [Southern Methodist University](#), Dallas (1966), and at [Duquesne University](#), Pittsburgh (1972).<sup>[4]</sup> He lectured and taught seminars all over the world and received 29 honorary doctoral degrees.<sup>[4][11]</sup> Frankl published 39 books, which were translated into as many as 40 languages.<sup>[4]</sup>

The [American Psychiatric Association](#) awarded Frankl the 1985 [Oskar Pfister Award](#) for important contributions to religion and psychiatry.<sup>[13]</sup>

Frankl died of heart failure on 2 September 1997. He was survived by his wife Eleonore, his daughter Dr. Gabriele Frankl-Vesely, his grandchildren Katharina and Alexander, and his great-granddaughter Anna Viktoria.<sup>[14]</sup>

## Legacy

Frankl's [logotherapy](#) and [existential analysis](#) is considered the third Viennese School of Psychotherapy,<sup>[14]</sup> among the broad category that comprises [existentialists](#).<sup>[15]</sup> For [Irvin Yalom](#), Frankl, "who has devoted his career to a study of an existential approach to therapy, has apparently concluded that the lack of meaning is *the* paramount existential stress. To him, existential neurosis is synonymous with a crisis of meaninglessness".<sup>[15]</sup>

He is thought to have coined the term, *Sunday neurosis*. The term refers to a form of anxiety resulting from an awareness in some people of the emptiness of their lives once the working week is over.<sup>[16]</sup> Some complain of a void and a vague discontent.<sup>[15]</sup> This arises from an existential vacuum, or feeling of meaninglessness, which is a common phenomenon and is characterised by the subjective state of boredom, apathy, and emptiness. One feels cynical, lacks direction, and questions the point of most of life's activities.<sup>[15]</sup> (see [noogenic neurosis](#)).

People without a meaning in their life are exposed to aggression, depression and addiction.<sup>[9]</sup>

Viktor Frankl once recommended that the [Statue of Liberty](#) on the [East Coast of the United States](#) be complemented by a [Statue of Responsibility](#) on the [West Coast](#):

**Freedom, however, is not the last word. Freedom is only part of the story and half of the truth. Freedom is but the negative aspect of the whole phenomenon whose positive aspect is responsibility. In fact, freedom is in danger of degenerating into mere arbitrariness unless it is lived in terms of responsibility. That is why I recommend that the Statue of Liberty on the East Coast be supplemented by a Statue of Responsibility on the West Coast.**<sup>[17][18]</sup>



Coming back to the original discussion I shall expand on hormesis:

**Hormesis** is any process in a cell or organism that exhibits a [biphasic](#) response to exposure to increasing amounts of a substance or condition.<sup>[1]</sup> Within the **hormetic zone** there is generally a favorable biological response to low exposures to [toxins](#) and other [stressors](#). Hormesis comes from Greek *hórmēsis* "rapid motion, eagerness", itself from ancient Greek *hormáein* "to set in motion, impel, urge on". A pollutant or [toxin](#) showing hormesis thus has the opposite effect in small doses as in large doses. Hormetics is the term proposed for the study and science of hormesis. A related concept is [Mithridatism](#), which refers to the willful exposure to toxins in an attempt to develop [immunity](#) against them.

In [toxicology](#), hormesis is a [dose response](#) phenomenon characterized by a low dose stimulation, high dose inhibition, resulting in either a J-shaped or an inverted U-shaped dose response. Such environmental factors that would seem to produce positive responses have also been termed "[eustress](#)". The hormesis model of dose response is vigorously debated.<sup>[2]</sup> The notion that hormesis is important for chemical risks regulations is not widely accepted.<sup>[3]</sup>

The biochemical mechanisms by which hormesis works are not well understood. It is conjectured that low doses of toxins or other stressors might activate the repair mechanisms of the body. The repair process fixes not only the damage caused by the toxin, but also other low-level damage that might have accumulated before without having triggered the repair mechanism.

## History

German [pharmacologist](#) [Hugo Schulz](#) first described such a phenomenon in 1888 following his own observations that the growth of yeast could be stimulated by small doses of poisons. This was coupled with the work of German physician [Rudolph Arndt](#), who studied animals given low doses of drugs, eventually giving rise to the [Arndt-Schulz rule](#).<sup>[2]</sup> Arndt's advocacy of [homeopathy](#) contributed to the rule's diminished credibility in the 1920s and 1930s.<sup>[2]</sup> The term "hormesis" was coined and used for the first time in a scientific paper by [Chester M. Southam](#) and J. Ehrlich in 1943 in the journal: *Phytopathology*, volume 33, pp. 517–541. Recently, [Edward Calabrese](#) has revived the concept of hormesis.<sup>[4][5]</sup> The evidence for and importance of hormesis in physiology and health was advanced by [Mark Mattson](#), who elucidated cellular and molecular mechanisms by which the nervous system responds adaptively to mild bioenergetic stresses such as fasting and exercise.<sup>[6]</sup> Cells respond to such challenges by increasing their production of [neurotrophic factors](#), DNA repair proteins and antioxidant

enzymes.<sup>[7][8][9]</sup> Mattson also proposed that the reason that vegetables, fruits, tea and coffee can improve brain health is that they contain 'noxious' chemicals that are produced by the plants to protect themselves from being eaten by insects and other organisms.<sup>[10][11]</sup> Such phytochemicals trigger hormetic responses in brain cells which can improve brain function and may increase the resistance of neurons to injury and age-related neurodegenerative disorders such as [Alzheimer's disease](#) and [Parkinson's disease](#).

## Examples

### Physical exercise

Individuals with low levels of physical activity are at risk for high levels of [oxidative stress](#), as are individuals engaged in highly intensive exercise programs; however individuals engaged in moderately intensive, regular exercise experience lower levels of oxidative stress. High levels of oxidative stress have been linked by some with the increased incidence of a variety of diseases.<sup>[12]</sup>

It has been claimed that this relationship, characterized by positive effects at an intermediate dose of the stressor (exercise), is characteristic of hormesis.<sup>[12]</sup> However, it is important to point out that there is evidence that the oxidative stress associated with intensive exercise may have long-term health benefits. This would imply that oxidative stress, itself, provides an example of hormesis (see section on [Mitochondrial hormesis](#)), but physical exercise does not.<sup>[13]</sup>

### Alcohol

Main articles: [Alcohol consumption and health](#), [Alcohol and cancer](#), and [Alcohol and cardiovascular disease](#)

[Alcohol](#) is believed to be hormetic in preventing heart disease and stroke,<sup>[14]</sup> although the benefits of light drinking may have been exaggerated.<sup>[15][16]</sup>

In 2012, researchers at UCLA found that tiny amounts (1 mM, or 0.005%) of ethanol doubled the lifespan of [Caenorhabditis elegans](#), a round worm frequently used in biological studies, that were starved of other nutrients. Higher doses of 0.4% provided no longevity benefit.<sup>[17]</sup> However, worms exposed to 0.005% did not develop normally (their development was arrested). The authors argue that the worms were using ethanol as an

alternative energy source in the absence of other nutrition, or had initiated a stress response. They did not test the effect of ethanol on worms fed a normal diet.

### Methylmercury and mallard eggs

In 2010, a paper published in the journal *Environmental Toxicology & Chemistry* showed that low doses of [methylmercury](#), a potent neurotoxic pollutant, improved the hatching rate of [mallard](#) eggs.<sup>[18]</sup> The author of the study, Gary Heinz, who led the study for the [U.S. Geological Survey](#) at the [Patuxent Wildlife Research Center](#) in [Beltsville](#), Md., stated that other explanations are possible. For instance, it is possible that the flock he studied might have harbored some low, subclinical infection and that mercury, well known to be antimicrobial, might have killed the infection that otherwise hurt reproduction in the untreated birds.<sup>[18]</sup>

### Effects in aging

One of the areas where the concept of hormesis has been explored extensively with respect to its applicability is aging.<sup>[19][20]</sup> Since the basic survival capacity of any biological system depends on its [homeostatic](#) ability, [biogerontologists](#) proposed that exposing cells and organisms to mild stress should result in the adaptive or hormetic response with various biological benefits. This idea has now gathered a large body of supportive evidence showing that repetitive mild stress exposure has anti-aging effects.<sup>[21][22]</sup> Exercise is a paradigm for hormesis in this respect.<sup>[22]</sup> Some of the mild stresses used for such studies on the application of hormesis in aging research and interventions are [heat shock](#), irradiation, [prooxidants](#), [hypergravity](#) and food restriction.<sup>[21][22][23]</sup> Some other natural and synthetic molecules, such as [celasterols](#) from medicinal herbs and [curcumin](#) from the spice [turmeric](#) have also been found to have hormetic beneficial effects.<sup>[24]</sup> Such compounds which bring about their health beneficial effects by stimulating or by modulating stress response pathways in cells have been termed "hormetins".<sup>[21]</sup> Hormetic interventions have also been proposed at the clinical level,<sup>[25]</sup> with a variety of stimuli, challenges and stressful actions, that aim to increase the dynamical complexity of the biological systems in humans.<sup>[26]</sup>

### Mitochondria

[Mitochondria](#) are sometimes described as "cellular power plants" because they generate most of the cell's supply of adenosine triphosphate (ATP), a source of chemical energy. [Reactive oxygen species](#) (ROS) have been regarded as unwanted by-products of [oxidative](#)

[phosphorylation](#) in mitochondria by the proponents of the free-radical theory of aging promoted by [Denham Harman](#). The [free-radical theory](#) suggests that the use of compounds which inactivate ROS, such as [antioxidants](#), would lead to a reduction of oxidative stress and thereby produce an increase in lifespan.

ROS may perform an essential and potentially lifespan-promoting role as [redox signaling](#) molecules which transduce signals from the mitochondrial compartment to other compartments of the cell.<sup>[27]</sup> Increased formation of ROS within the mitochondria may cause an adaptive reaction which produces increased stress resistance and a long-term reduction of oxidative stress. This kind of reverse effect of the response to ROS stress has been named mitochondrial hormesis or mitohormesis and is hypothesized to be responsible for the respective lifespan-extending and health-promoting capabilities of glucose restriction and physical exercise.<sup>[27]</sup>

Hormesis may also be induced by [endogenously](#) produced, potentially toxic agents. For example, [mitochondria](#) consume [oxygen](#) which generates [free radicals](#) ([reactive oxygen species](#)) as a by-product. It was previously proposed on a hypothetical basis that such free radicals may induce an endogenous response culminating in increased defense capacity against exogenous radicals (and possibly other toxic compounds).<sup>[28]</sup><sup>[unreliable medical source?]</sup> Recent experimental evidence strongly suggests that this is indeed the case, and that such induction of endogenous free radical production extends [life span](#) of a model organism. Most importantly, this extension of life span is prevented by [antioxidants](#), providing direct evidence that toxic radicals may mitohormetically exert life extending and health promoting effects.<sup>[29]</sup> Since mitochondrial activity was found to be increased in the previously mentioned studies, this effect cannot be explained by an excess of free radicals that might mark mitochondria for destruction by [lysosomes](#), with the free radicals acting as a signal within the cell to indicate which mitochondria are ready for destruction, as proposed by [Nick Lane](#).<sup>[30]</sup>

Whether this concept applies to humans remains to be shown, although recent [epidemiological](#) findings support the process of mitohormesis, and even suggest that some [antioxidant](#) supplements may increase disease [prevalence](#) in humans.<sup>[31]</sup>

Ionizing radiation

See also: [Radiation hormesis](#)

Hormesis has been observed in a number of cases in humans and animals exposed to chronic low doses of ionizing radiation. In Taiwan recycled [radiocontaminated](#) steel was inadvertently used in the construction of over 100 apartment buildings causing the long-term (10 years) exposure of 10,000 people. The average dose rate was 50 mSv/year and a subset of the population (1,000 people) received a total dose of over 4,000 mSv over ten years. In the widely used [Linear No Threshold](#) (LNT) theory used by regulatory bodies, the expected cancer deaths in this population would have been 302 with 70 caused by the extra ionizing radiation with the remainder caused by natural background radiation. However the observed cancer rate was quite low at 7 cancer deaths when 232 would be predicted by the LNT theory. Ionizing radiation hormesis appears to be at work. Described by Professor Charles L. Sanders, Korea Advanced Institute of Science and Technology.<sup>[32]</sup>

Taiwan's National Cancer Registry (first study)

Cancer risks in a population with prolonged low dose-rate gamma-radiation exposure in radiocontaminated buildings, 1983–2002. The results suggest that prolonged low dose-rate radiation exposure appeared to increase risks of developing certain cancers in specific subgroups of this population in Taiwan.<sup>[33]</sup>

Taiwan's National Cancer Registry (second study, two years later)

A significant radiation risk was observed for leukemia excluding chronic lymphocytic leukemia (HR(100mGy) 1.19, 90% CI 1.01-1.31). Breast cancer exhibited a marginally significant dose response (HR(100mGy) 1.12, 90% CI 0.99-1.21). The results further strengthen the association between protracted low-dose radiation and cancer risks, especially for breast cancers and leukemia, in this unique cohort population.<sup>[34]</sup>

Chemical and ionizing radiation combined

No experiment can be performed in perfect isolation. Thick lead shielding around a chemical dose experiment to rule out the effects of ionizing radiation is built and rigorously controlled for in the laboratory, and certainly not the field. Likewise the same applies for ionizing radiation studies. Ionizing radiation is released when an unstable particle releases radiation, creating two new substances and energy in the form of an [electromagnetic wave](#). The resulting materials are then free to interact with any environmental elements, and the energy released can also be used as a catalyst in further ionizing radiation interactions.<sup>[35]</sup>

The resulting confusion in the low dose exposure field (radiation and chemical) arise from lack of consideration of this concept as described by Mothersill and Seymory.<sup>[36]</sup> Mothersill and Seymory state "Most of the arguments about whether radiation is 'good for you' or 'bad for you' fail due to lack of consideration of the hierarchical level at which the effect occurs and because most of the arguments are [anthropocentric](#). For example cell death is seen as a 'bad' effect but if it removes a potentially carcinogenic cell from the population of cells in a tissue it could prevent cancer starting and could be seen as 'good'."<sup>[citation needed]</sup>

## Controversy

Whether hormesis is common or important is controversial. At least one peer-reviewed article accepts the idea, claiming that over 600 substances show a U-shaped [dose-response](#) relationship. Calabrese and Baldwin wrote: "One percent (195 out of 20,285) of the published articles contained 668 dose-response relationships that met the entry criteria."<sup>[37]</sup> The idea that low dose effects may be (sometimes strikingly) different is accepted, but that the low dose effect is positive is questionable.<sup>[citation needed]</sup>

The hypothesis of hormesis has generated the most controversy when applied to [ionizing radiation](#). This theory is called [radiation hormesis](#). For policy making purposes, the commonly accepted model of dose response in radiobiology is the [linear no-threshold](#) model (LNT), which assumes a strictly linear dependence between the risk of radiation-induced adverse health effects and radiation dose.<sup>[citation needed]</sup>

The [United States National Research Council](#) (part of the [National Academy of Sciences](#)),<sup>[38]</sup> the [National Council on Radiation Protection and Measurements](#) (a body commissioned by the [United States Congress](#))<sup>[39]</sup> and the United Nations Scientific Committee on the Effects of Ionizing Radiation (UNSCEAR) all agree that radiation hormesis is not clearly shown, nor clearly the rule for radiation doses.

A report commissioned by the French National Academy concluded that there is sufficient evidence for hormesis occurring at low doses and that LNT should be reconsidered as the methodology used to estimate risks from low level sources of radiation, like [deep geological repositories](#) for [nuclear waste](#).<sup>[40]</sup> On the other hand, the United States-based [National Council on Radiation Protection and Measurements](#) states that there is insufficient evidence for radiation hormesis and that radiation protection authorities should continue to apply the LNT model for purposes of risk estimation.<sup>[39]</sup>

Once again, I conclude that anti-fragile or hormetic organism is aware of its free will, is aware of the limits of its free will, and he/she/it makes a determination not be reduced by something/the environment that is imposed on it.

## Chapter V

### My Theory of Everything: The Love Hypothesis

I base my theory on the simulation hypothesis for I believe this world to be based a series of simulation rules and criteria rather than solid full occupied space of matter. Another reason for this is the expansion of the universe after the big bang. That goes to show that all the matter in space can collapse into a very small space. To me the big bang is equivalent to pushing the start button on a simulation, and the simulation is running in parallel universes and through myriad of systems and creatures. In religious text also we read that God created the universe in his own image and that means we and the universe are only projections of something real that existed originally. As it is with an image in the mirror, we are only projections or simulated characters. Furthermore, if we are in a simulation how do we discern if there is anything real around us. Additionally, can we in any fashion cross the mirror plane.

To answer the first question, I bring your attention to most potent set of regulations applicable to this world which is mathematics. Scientifically, mathematics has never been violated. If I have three apples and give you two, I remain with one apple and you end up with two. There are three things in this universe that violate mathematics, and all of those are within the internal processing of our brains. First is knowledge, the second is the truth, and the third is love. Any one of these things becomes more by you giving it away. The only way for such a positive feedback to come about without causing an issue in the physical world is to place a real object between two mirrors facing each other. So we can infer two things from this:

1. These three things – knowledge, truth, and love – have properties that do not belong to this universe.
2. Our connection to anything real (meaning not part of the simulation/projection in the universe) is through the projections of our brain. As these projection of human brains can reach the depths of the universe and decipher secrets of things many light years away, they also seem to have a connectivity to three things that are not part of this simulation/universe.

Hence there are only three Godly things in this whole universe that do not belong to the simulation and humans can sense. Ironically, these three things are identical to Trinity in Christianity. As we read in John 1,1: first there was the word, the word was with God, the word was God. “Word” is a mistranslation from the Greek expression Logos which means knowledge. Hence the correct version of John 1,1 is: First there was knowledge, knowledge was with God,



knowledge was God. Second is the truth which is the Holy Spirit (as you cannot be Holy if you are false). Third is Jesus, and we have heard time and time again that Jesus is love.

Where I depart from the simulation hypothesis is as to why various characters were placed as live and conscious creatures here or anywhere else. The insertion of the characters can only be explained through love and is evident that a human infant will die without love even if fully taken care of materially. There is also another point of departure, as I do believe that the universe is the simulation, but the simulator is God. Since every live and conscious character can be taken out at anytime as stipulated by the original hypothesis the keeping of the character is for entertainment value or praise worthiness. This idea is parallel to mine, but not necessarily the same. Though fun and games are definitively a part of the simulation, I believe the simulator had purpose behind running this simulation. That would take us to the question of whether God the creator of the universe is an interfering God.

As you can read in part 7 of the last chapter, Einstein, Schrodinger, and Bell all found quantum entanglement odd or unacceptable and were more comfortable with the idea of a force being applied to all particles. In essence quantum entanglement to them was stranger than God himself. Yet the only entanglement a human being can sense is love. Continuing along the original idea of part 7, we end up running into unintended consequences if we agree with the scientists. As quantum entanglement is a two-way street, not only you can characterize/measure properties of God by characterizing/measuring the properties of free willed creatures/organisms, but also any changes in one end affects the other end in real time as it collapses the wave function on a specific situation or event. If the real thing, that created this simulation which we call universe, at the time of creation put in place quantum entanglements between himself (or place holder as the center node of all quantum entanglements) and every particle of any kind in the universe, then if we change ourselves or other things through our free choice that we are permitted to have, it would directly affect the center node of all quantum entanglements and through that change every particle in the universe immediately with regard to those specific matters or events. In essence every change creates a new world as one move at one end can affect everything else in the entirety of the universe. This is something that Zoroaster alluded to in that creation is to be completed through our actions along with Mazda (God). Hence God is not an interfering God, yet everything is connected and realignments are made in real time. From a scientific stand point whether it is quantum entanglement or a force that applies for all particles of the universe of any kind, all I have to say is that the end result is the same with the only difference being that God did not make a mistake at the time of creation to need to come back and correct it so long as we stick with quantum entanglement as the explanation.

Incidentally, the word "Gita" exists in Persian and Hindi. In Persian "Gita or Giti" both mean "the world/all that exists in the universe", but in Hindi it is referenced as "Bhagavan Gita" which means

“the song of the supreme soul”. Considering the severe overlap of the Indo-Iranian language the meanings of the same word “Gita” must be interchangeable. If we take love as the main reason for the creation of humanity and the universe that would imply that the whole of the universe is but a love song.

## Conclusion

Dr. Holakouee was close in his description of the relationship between God and man. He used the example of a new born baby and stated: To a new born infant, mother is milk, mother is food. The infant does not comprehend what mother is. He is absolutely right. Nevertheless, I will take a crack at correcting a couple of rough edges of this analogy by means of expanding on it.

As most people know, the woman becomes a mother when she gets pregnant, whereas the man becomes a father when the baby is born, and he holds the baby. That is why Dr. Holakouee is misled about the time frame of analysis. The zygote is your original start point, that has been given a message to consciously execute. The zygote if given a high-fidelity message and placed in right environment conditions and successfully execute the message and become a baby. As the baby is developing, it is given a host of other messages in the womb. So, when the baby goes through the turmoil of birth as the biggest shock of his newly found stage of life in the world, there is an immediate impulse response characterization. Additionally, the new born immediately starts to look for possible signs of relations between the new world he has entered and the one he is familiar with. A mother's singing in the womb is usually a soothing mechanism after birth for the infant if repeated. The sound of any human's heart beat is also soothing to the baby, as he is placed on someone's chest. There was even a story about the baby's older brother who was not admitted into NICU and singing the song he used to sing during the pregnancy that saved the new born sister's life as she was critically close to dying. Though the internet account of the events are not corroborated this much has directly come from the mother of the aforementioned children: I know that this version that you have posted is not correct. I do not know how that one ever got out into the cyber space. Back in 1992, rules were different than they are today regarding siblings and NICU. Our son was not going to be allowed into the area where Marlee was, and that is a fact. She was at "death's door" more than once. She had to have emergency surgery to place a tube in her chest to drain off the air that was escaping into her abdomen from the tears in her lungs.

As the zygote is given a complete set of mission statements that it needs to execute as error free as possible to become a fully developed fetus, the baby is given implicit messages about the next world to come by means of the heart beat and the voices and songs of the mother and those around. Once born the human mind is given even more implicit messages about what is to come next after death. Some ascribe to afterlife, some ascribe to incarnation, and some ascribe to death being the end point of some sort. The point that Dr. Holakouee missed was the central theme of love, for the baby may not know what mother is but the love between a baby and the mother cannot be lost on the most dim-witted individuals. This entanglement that we call love

as human beings, is imparted at creation the same as that of fundamental particles. There is no way in the world that baby is confused as to the mother's love, though he may not yet comprehend the full meaning of what mother is. The proof of mother to the baby is love, though milk and food and cleaning comes with it, the baby senses that he is in at the right destination and in the right world by sensing the love and perishes without it despite all being fine materially as those in the language deprivation experiments. So, to the baby mother is love and proof in of itself. This also related to the trilemma of God as the Schrodinger's cat. The baby is in the box, yet it has quantum entanglement with the outside through the mother. Hence, I find the description of the observable universe as a love song that gives us implicit messages as to what is to come (be it reincarnation, afterlife, a long sleep, or whatever it may be) very appropriate.

Since quantum entanglement to a human translates as love, we are left with the fact that these quantum entanglements existed from the Big Bang and shall remain to the end of the life of the universe – despite our lack of knowledge of before the Big Bang and after the end of this physical universe we accustomed to living in. If these entanglements survive beyond our deaths, first how do we physically describe them, and second so long as these entanglements exist we exist in one form or another as well.

Life is not about waiting for the storm to pass, it is about learning to  
dance in the rain.

Vivian Greene

Do not be daunted by the enormity of the world's grief. Do justly, now.  
Love mercy, now. Walk humbly now. You are not obligated to complete  
the work, but neither are you free to abandon it.

Rabbi Tarfon