

Welcome to the Matrix: An Exploration of the Connection Between Spirituality and Modern Physics

The easiest way to understand the nature of spirituality is to understand the nature of your own consciousness. The first thing to be clear about is that your consciousness isn't something that it can perceive. Your consciousness is what is perceiving things. That perception of things can always be understood as arising from a point of view. In a very real sense, your consciousness always arises at a focal point of consciousness. That focal point of consciousness can always be understood as a *presence of consciousness* that carries with itself its own sense of *being present*.

In the Bible, that sense of *being present* is called *I Am*. When Moses asks the *Burning Bush* its name, the answer is *I Am That I Am*. In the book of Psalms, that sense of *being present* is referred to as *Be Still and Know that I Am*. When Jesus says *Before Abraham was, I Am*, he is referring to the sense of *being present* as a *presence of consciousness*. This sense of *being present* not only refers to the nature of consciousness as a perceiving presence, but also as an illuminating presence. A *presence of consciousness* isn't only perceiving things in its own world from its own point of view, but is also illuminating things in its own world. This illuminating presence of consciousness is often referred to as the *light of consciousness*. The *Burning Bush* in the book of Exodus is a metaphor for the *light of consciousness*. When the book of Genesis says *God divided the light from the darkness*, this again refers to the *light of consciousness*. When Jesus says *I Am the Light*, this again refers to the *light of consciousness*. Just as the *Burning Bush* is a metaphor for the *light of consciousness*, climbing Mount Sinai is a metaphor for achieving a *higher level of consciousness*. The very idea of Exodus, as in *freedom from bondage*, is a metaphor for the freedom one achieves when a *presence of consciousness* realizes the *truth* of what it really is. That's what Jesus meant with the saying *the truth shall set you free*.

There is always a reciprocal relationship between the *light of consciousness* that illuminates things and the *presence of consciousness* that arises at a point of view as it perceives things in its own world. The best analogy is the light of a movie projector that is illuminating the images of a movie on a movie screen. Those images are then reflected from the screen to the point of view of an observer in the movie audience that perceives those images. The *light of consciousness* is always arising at the same focal point of consciousness as the point of view of the observer. The observer is illuminating things in its own world as it shines the *light of consciousness* on the screen, and is then perceiving things as the images of things are reflected back to its own point of view. This reciprocal relation between illuminating things and perceiving things always arises in relation to a screen that arises in relation to a focal point of consciousness.

The *light of consciousness* that illuminates things in its own world is inherently related to the focus of attention of a presence of consciousness that perceives things in its own world. The observer is focusing its attention wherever it shines the *light of consciousness*. Whatever the observer focuses its attention on is what it perceives. Things are only perceived if the observer focuses its attention on those things. The observer must illuminate those things by shining its

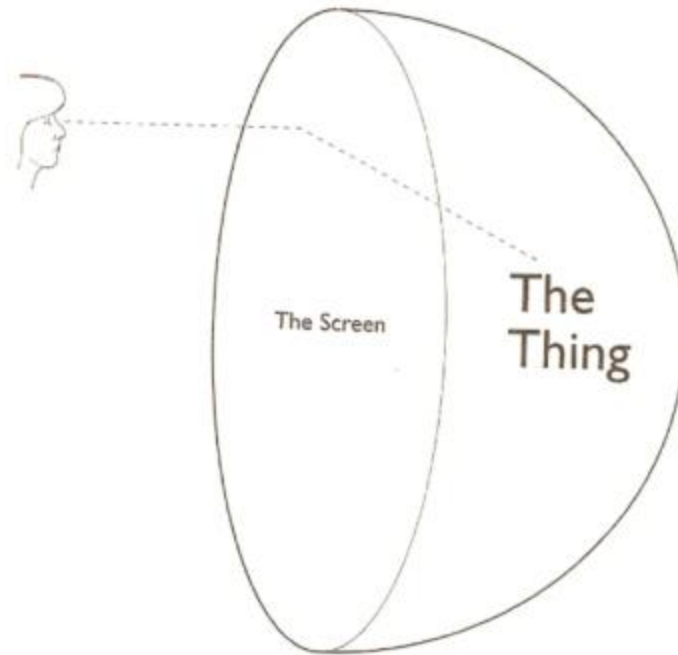
light on those things before the observer can perceive those things. Where it shines its *light* is where it focuses its attention. Only a focal point of consciousness can focus its attention.

The observer's focus of attention is related to another aspect of the observer called energy. It's common knowledge that to accomplish any action in this world, you have to focus your time, energy and attention on that action. Before you can do anything in this world, you have to be focused on that task. The observer always carries with itself its own energy as it focuses its attention on things in its world and perceives those things. The observer's expression of energy is a necessary aspect of carrying out actions and doing things in its world. At the level of the observer as a focal point of consciousness, that energy can be understood as the motion of that point of view. In a very real sense, the focal point of consciousness is undergoing vibratory motion as it expresses its own energy. The observer's expression of energy is *consciousness in motion* in the sense of the vibratory motion of that focal point of consciousness.

There is a peculiar relationship between the screen that displays images of the observer's world and the observer's focal point of consciousness that illuminates and perceives those images. In the book of Genesis, this relationship is described as the *Spirit of God moving over the face of the deep*. Genesis says that when *God created the world, the earth was without form and void, and darkness was on the face of the deep, until the Spirit of God moved on the face of the waters, and the light was divided from the darkness*. There are a number of metaphors here that need to be unpacked. The first metaphor is what *the darkness, the deep, the void, or the waters* refer to.

These metaphors all refer to *the ocean of consciousness*. The *Spirit of God* is like a drop of water that arises from the ocean. In the sense that the *ocean of consciousness* is an *infinite void*, the *Spirit of God* is a focal point of consciousness. When that focal point of consciousness moves relative to the motionless nature of the *ocean of consciousness*, the ocean appears to have a surface from the point of view of that particular observer. That surface is what the *Spirit of God moving over the face of the deep* is referring to. The *surface of the ocean* only arises because the observer is in a state of motion relative to the unmoving ocean. That surface is what acts as a screen that displays images of the observer's world, which are called forms. Without the energy of the observer's motion, they are no forms. Those images or forms must be illuminated, which is why the *light of consciousness* must be divided from the *darkness of the void*.

At this point, many people will object to the idea that the perception of things in this world is like the perception of the images of a movie projected from a movie screen, but this is where people are simply wrong and where modern physics comes into the story. Modern physics says the perception of things in this world by an observer is exactly like the perception of the images of a movie projected from a movie screen to the observer's own point of view. This idea about the perception of things in terms of projected images is called the holographic principle of quantum gravity. Modern physics explains where the *surface of the ocean* comes from in terms of a holographic screen that arises as an event horizon in an observer's accelerated frame of reference. The *face of the deep* is literally an event horizon that acts as a holographic screen.



The Observer, the Screen and the Thing

This idea about the true nature of the perception of things is called the holographic principle of quantum gravity. The history of the holographic principle goes back to the early 1970's when John Wheeler and Jacob Bekenstein were trying to understand what happens to the information content of an object when that object is thrown into a black hole. A black hole is defined by an event horizon, which is a spherical surface in space where the force of gravity is so strong that even light cannot escape away from the black hole. An observer that perceives things from a stationary point of view outside the event horizon of a black hole cannot see anything beyond the event horizon because a light ray that originates inside the event horizon cannot cross the horizon and escape away from the black hole. In technical terms, the escape velocity at the event horizon is the speed of light, and since nothing can travel faster than the speed of light, nothing inside the event horizon can ever cross the horizon and escape away from the black hole. Everything that tries to escape gets sucked back into the black hole by the force of gravity.



A problem arises when we try to understand the force of gravity as due to the exchange of a quantum particle called the graviton between other massive particles the same way we're able to understand the electromagnetic force as due to the exchange of the quantum particle called the photon between electrically charged particles. The exchange of a quantum particle between other particles like electrons implies there is a space-time geometry within which that particle can propagate. In order to formulate the quantum field theory of electromagnetism in this way, we have to assume there is a background space-time geometry of flat Minkowski space within which the photon can propagate. A problem arises when we try to understand the graviton in the same way. The graviton is supposed to give a representation of the curvature of space-time geometry, but to understand the graviton as the quantum particle of the gravitational field, we have to assume that the graviton propagates through flat Minkowski space, since that is the only way we can formulate quantum field theory. There is something logically inconsistent with assuming that the graviton propagates through flat Minkowski space while it also gives a representation of the curvature of space-time geometry, which is the nature of the gravitational force.

The other problem with trying to understand gravity as a quantum field theory is the problem of black holes. A black hole is a region of space where the force of gravity is so strong that even light cannot escape. That region of space is defined by a bounding surface of space called an event horizon. At the event horizon, the velocity of escape from the black hole, called escape velocity, is the speed of light. Since nothing can travel faster than the speed of light in relativity theory, nothing can escape from a black hole, not even light.

The event horizon of a black hole is a special spherical surface where the velocity of escape from that surface is the speed of light. Einstein's theory of relativity determines the radius of the event horizon in terms of the mass of the black hole, which is called the Schwarzschild radius.

$$R = \frac{2GM}{c^2}$$

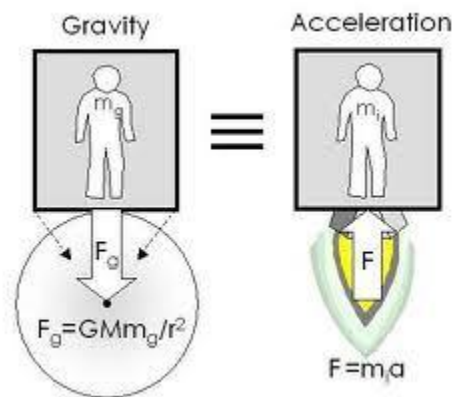
Schwarzschild Radius of the Event Horizon of a Black Hole

The event horizon of a black hole is always defined in an observer's frame of reference, which is a coordinate system with an observer at the origin or central point of view of that coordinate system. An observer always measures its own space-time geometry in that coordinate system. The observer measures distances in space and intervals in time between events that take place in its own frame of reference or coordinate system that defines its own space-time geometry. The space-time metric is a way of mathematically representing those measurements of distances in space and intervals in time. At the event horizon of a black hole, those measurements break down. Nothing can be measured by the observer beyond the event horizon of the black hole. The observer's own space-time geometry breaks down at the event horizon of the black hole. The

observer can measure nothing beyond the event horizon, which is to say the event horizon is a bounding surface of space that limits the observer's observations of things in space. That limitation arises from the finite nature of the speed of light, which is like the maximal rate of information transfer in three dimensional space. That limitation also arises because the speed of light is the same for all observers independent of their relative states of motion.

We normally think that the event horizon of a black hole is created by the force of gravity that arises from the mass of the black hole, but that is not quite correct. The event horizon of a black hole is an observer-dependent observation. The effects of the event horizon of a black hole only appear to an accelerating observer when the observer is in an accelerated frame of reference. It is only an accelerating observer in an accelerated frame of reference that observes the effects of the event horizon of the black hole. An observer in a freely falling frame of reference observes no effects of the event horizon. As far as the freely falling observer is concerned, there is no event horizon. Only the accelerating observer observes the effects of the event horizon.

In relativity theory, this distinction between the different effects that different observers observe in different accelerated frames of reference is called the principle of equivalence. This principle says there is no way to distinguish the effects of a force from the effects of an acceleration. The exertion of a force is always equivalent to an acceleration. Any force, like the force of gravity, is equivalent to an observer's acceleration, like an observer in a rocket-ship that accelerates through space. This equivalence specifically applies to the effects observed by an accelerating observer. An accelerating observer observes the same effects as those caused by the exertion of a force. In no significant way can the force of gravity be distinguished from an observer's acceleration. An accelerating observer observes the same effects of gravity as caused by the exertion of a force.



Principle of Equivalence

In terms of the event horizon of a black hole, the effects of the event horizon are only observed by an accelerating observer that remains in a stationary position outside the event horizon of the black hole. An observer that hovers in a stationary position just outside the event horizon of a black hole must accelerate away from the black hole with an equal but opposite acceleration as

that caused by the force of gravity that pulls the observer into the black hole. It is as though the observer is in a rocket-ship that accelerates away from the black hole in order to maintain its stationary position. This acceleration defines the observer's accelerated frame of reference. Only the accelerating observer observes the effects of the event horizon of the black hole. A freely falling observer that falls into the black hole observes no effects of an event horizon.

The effects of the event horizon of a black hole are solely observer-dependent effects that arise in the observer's accelerated frame of reference. Only the accelerating observer observes them. This is odd, since at the event horizon of the black hole, the observer's space-time geometry appears to break down. For example, the effect of time dilation appears to become infinite at the event horizon as observed by the accelerating observer. From the accelerating observer's own point of view, it appears that for the things that fall into the black hole, it takes an infinite amount of time for those things to approach the event horizon, and they never really cross the horizon. From the accelerating observer's own point of view, nothing ever actually crosses the event horizon as things appear to fall into the black hole. As observed by the accelerating observer, everything that falls into the black hole seems to get stuck at the event horizon since it takes an infinite amount of time for things to approach the event horizon. For the freely falling observer, there is no effect of time dilation or an event horizon. The things that fall into the black hole with the freely falling observer just fall into the black hole unimpeded by an event horizon.

This breakdown of an accelerating observer's space-time geometry at the event horizon of a black hole has profound consequences when we try to quantize the gravitational field the same way we quantize any other quantum field theory. Like the effect of time dilation at the event horizon that tells us that time intervals between events become infinite at the event horizon as observed by the accelerating observer, the problem has to do with the measurement of distances. The bottom line is that there is a smallest possible distance scale that can be measured. This smallest possible distance scale is called the Planck length. The basic problem is that in quantum theory, the way we measure any distance scale is by scattering a quantum particle, like a photon of light, off of whatever object we are trying to measure. If we want to accurately measure the distance scale of that object, we have to use an appropriate amount of energy inherent in the photon of light. The energy of the photon is given in terms of its frequency as $E=hf$. This relation between energy and frequency is what defines the photon as a quantum particle or excitation of the electromagnetic field. The photon's frequency is related to its wavelength in terms of the speed of light as $f=c/\lambda$, and so the photon's energy is given in terms of its wavelength as $E=hc/\lambda$.

The way we measure the distance scale of an object is by matching the photon's wavelength to the object's distance scale. This means we have to use higher energy photons to measure smaller objects. For example, we can visualize a biological cell with an ordinary light microscope, but if we want to visualize a virus, we need to use an electron microscope. The wavelength of light generated by an electron microscope is in the range of x-rays, which is much smaller than the wavelength of visible light. Correspondingly, an x-ray photon carries much more energy than a

visible light photon. The smaller the object we want to measure, the higher the energy and the smaller the wavelength of the photon we need to use to make that measurement.

The problem is that when we combine quantum theory with gravity, we discover that there is a smallest possible distance scale that we can measure. Since energy is equivalent to mass as $E=Mc^2$, if we concentrate enough energy into a small enough distance scale or region of space, we create a black hole. Einstein's theory of relativity tells us that this distance scale is defined by the radius of an event horizon given in terms of the mass of the black hole as $R=2GM/c^2$. If this distance scale is set equal to the wavelength of a photon of energy $E=hc/\lambda$, where $R\approx\ell\approx\lambda$ and E is given in terms of the mass of a black hole, then the distance scale ℓ at which a black hole must form is approximately given as $\ell\approx hG/c^3$. The Planck length is defined by $\ell^2=hG/c^3$.

$$\ell_p = \sqrt{\frac{\hbar G}{c^3}} \sim 1.6 \times 10^{-35} \text{ m}$$

Planck Length

The Planck length is the smallest possible distance scale that can be measured. If we try to measure smaller distance scales, we concentrate so much energy into such a small region of space that we create a black hole. If we concentrate even more energy into an even smaller region of space, we only make the black hole bigger. The event horizon of a black hole is a limitation on our ability to measure things in space since nothing is observable beyond the limits of an event horizon as observed by an accelerating stationary observer outside the event horizon. In effect, just like infinite time dilation at the event horizon, the event horizon is a breakdown in the accelerating observer's ability to measure its own space-time geometry. This breakdown in the accelerating observer's ability to measure its own space-time geometry beyond the limits of the event horizon is reflected in a smallest possible measurable distance scale. The Planck length as the smallest possible distance scale that can be measured by an accelerating observer signifies this breakdown in the observer's measurement of its own space-time geometry.

The logical inconsistency of all attempts to understand the gravitational field as a quantum field theory or to unify gravity with the other fundamental forces understood in terms of quantum field theory reflects this breakdown in an accelerating observer's ability to measure its space-time geometry beyond the limits of an event horizon or to measure distance scales smaller than the Planck length. Due to this intrinsic limitation imposed on an accelerating observer by the effects of gravity in terms of measuring its own space-time geometry, it is not possible to understand the gravitational field as a quantum field theory. This means all attempts to unify gravity with the other fundamental forces understood in terms of quantum field theory are doomed to failure. The

problem boils down to the very nature of space-time geometry. Quantum field theories are not consistent with gravity because they're not consistent with the dynamical curvature of space-time geometry. Quantum field theories can only be defined in gravity-free flat Minkowski space. On the other hand, the curvature of space-time geometry is not consistent with quantum field theory. Putting gravity and quantum theory together implies the breakdown of space-time geometry as reflected by the Planck length, which is the smallest possible measurable distance scale.

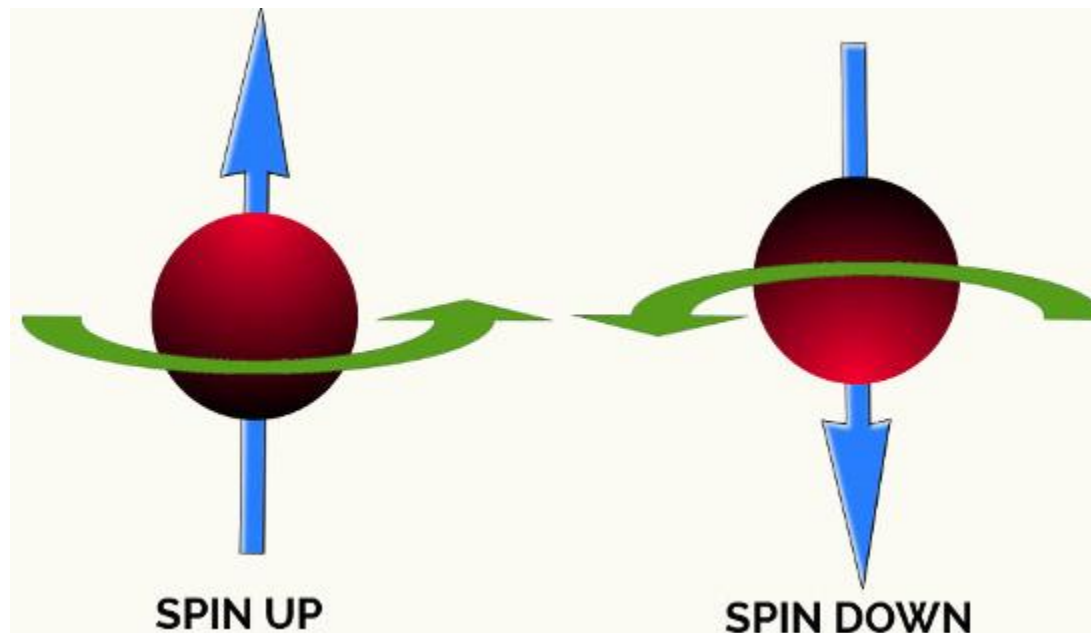
This state of affairs was an impasse that theoretical physics faced until John Wheeler and Jacob Bekenstein tried a new approach to solve the problem of unification. The new approach was to think of gravity in terms of thermodynamics. The bottom line was to think of the law of gravity not as a fundamental thing, but more like a thermodynamic equation of state, like the ideal gas law or the equation for sound waves. In other words, there was something more fundamental than the law of gravity, something more fundamental that underlies the law of gravity. Wheeler and Bekenstein had the idea that this more fundamental thing was a quantized bit of information.

The big question they had was about where or how the quantized bits of information that underlie the effects of gravity are encoded. The big clue they had was to consider the role played by the event horizon of a black hole. They imagined a photon of light falling into a black hole. They wanted to consider the simplest possible photon, a photon characterized by a single quantized bit of information. That quantized bit of information can be understood as the polarization state of the photon, which can be circularly polarized in either a clockwise or a counter-clockwise direction relative to the direction of motion of the photon. The circular polarization of the photon in either a right-handed or left-handed state represents the spin state of the photon, similar to a spin $\frac{1}{2}$ particle that can only spin in either a spin up or spin down state. This spin state represents a single quantized bit of information encoded in a binary code.

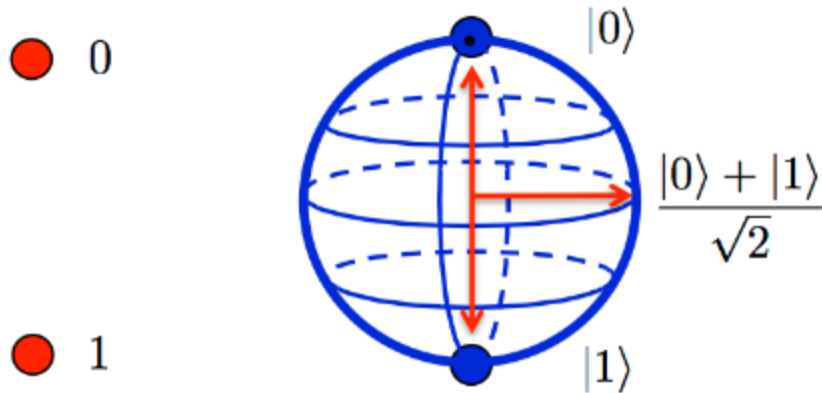
In order to make the photon as simple as possible and to carry no other information other than its spin state, the wavelength of the photon was assumed to be the same size as the radius of an event horizon of a black hole. As this photon fell into the black hole, only a single quantized bit of information was added to the black hole. The question they wanted to answer was about the black hole's entropy, which is the total number of quantized bits of information that characterize the black hole. They also wanted to know where those bits of information were encoded.

Wheeler and Bekenstein were interested in the information content of objects thrown into a black hole. What happens to that information? The first thing to be clear about is that all objects are characterized by their information content. To return to the analogy of images projected from a computer screen, the information content of the images arises from the way bits of information are encoded on the computer screen. The computer screen is composed of pixels, and each pixel encodes a single bit of information in a binary code of 1's and 0's, which is physically encoded in terms of electronic switches that are either on or off. This kind of binary encoding of bits of information is also true for elementary particles, like a photon or an electron. In quantum theory, an elementary particle is characterized by certain quantities, like its mass, electric charge and

energy, which is quantized in terms of the frequency of vibration of its wavefunction as $E=hf$. The elementary particle is also characterized by its spin angular momentum, which is also quantized. For the spin $\frac{1}{2}$ electron, its value of spin is quantized as either spin up or spin down, like a spinning top that spins in the clockwise or counter-clockwise direction. For the massless spin 1 photon that must travel at the speed of light, its value of spin is also quantized in terms of its polarization state as either right-handed or left-handed spin relative to its direction of motion.



Both the photon and the electron carry a single quantized bit of information given in terms of its spin state, which is encoded in a binary code just like a computer switch that is either on or off. This quantized bit of information is called a qubit, which in quantum theory can be understood in terms of the mathematical formulation of matrices. A 2×2 $SU(2)$ matrix gives a mathematical representation of rotational symmetry on the surface of a sphere, but also encodes information in a binary code in terms of its two eigenvalues, which are like a spin $\frac{1}{2}$ particle that can only spin up or spin down or a massless spin 1 particle that can only spin in a right-handed or a left-handed polarization state. In terms of quantum theory, the two eigenvalues of the matrix are entangled, which is what preserves their rotational symmetry on the surface of a sphere. In quantum gravity, the smallest possible event horizon that can encode a single quantized bit of information on the surface of a sphere is a Planck size event horizon, which explains why the Planck length is the smallest possible measurable distance scale.



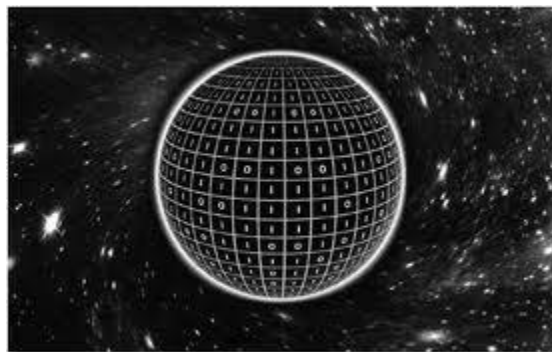
Classical Bit

Qubit

Qubit as the Information Encoded on the Surface of a Sphere

Bekenstein asked what happens to a single quantized bit of information when it's thrown into a black hole. What he discovered surprised him. It is as though the event horizon of the black hole encodes bits of information on pixels, like a computer screen. Each pixel on the screen encodes a single quantized bit of information. When a single quantized bit of information is thrown into the black hole, the event horizon of the black hole increases in size by a single pixel.

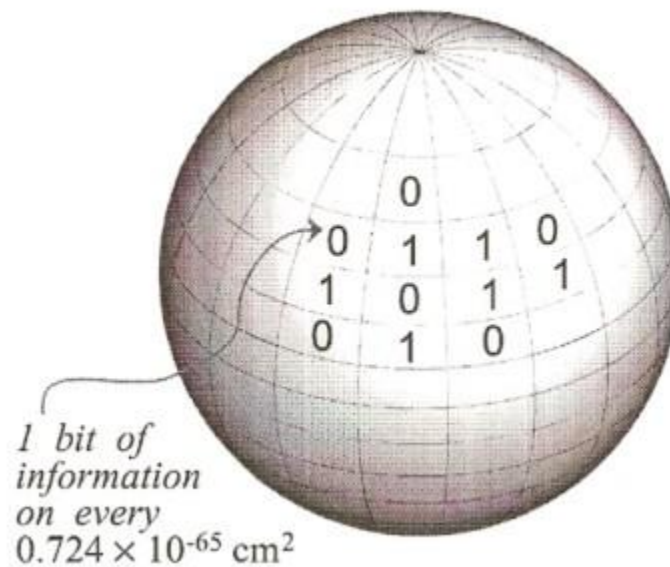
The calculation performed by Bekenstein was only an approximation based on very general principles. Stephen Hawking was able to perform a more exact calculation, and found essentially the same thing. The number of quantized bits of information that characterize a black hole is given in terms of the surface area A of the event horizon of the black hole as $n=A/4\ell^2$, where $\ell^2=\hbar G/c^3$ is called the Planck area. It is as though every four Planck areas on the surface of the event horizon acts like a pixel that encodes a single quantized bit of information. In terms of the idea of matrices encoding this information, the n qubits of information encoded on a spherically symmetric event horizon are given in terms of the n eigenvalues of an $n \times n$ $SU(2)$ matrix. The surface area of the event horizon is equivalent to the number of pixels or qubits encoded on the horizon. In a very real sense, space-time geometry is being created from information.



$$S_{\text{BH}} = \frac{kA}{4\ell_{\text{P}}^2}$$

Black Hole Entropy

The Hawking calculation was confusing, and unlike Wheeler and Bekenstein, Hawking was not willing to characterize the event horizon of a black hole in terms of pixels. This confusion persisted for about 20 years until Leonard Susskind and Gerard 't Hooft again reconsidered characterizing the event horizon of a black hole in terms of pixels, with each pixel encoding a single quantized bit of information. They called this idea the holographic principle.

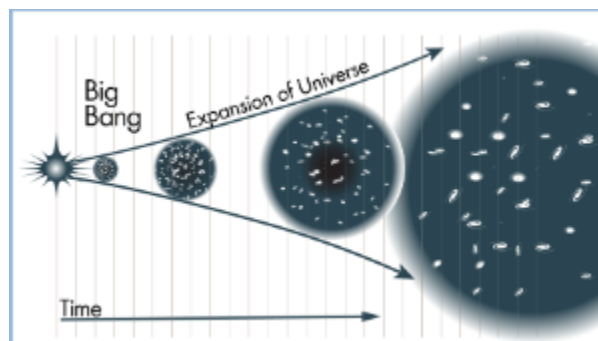


Holographic Principle

The holographic principle was a speculative idea, but was based on very general and widely accepted principles of modern physics. This speculative idea gained credibility when the exact mathematics of string theory confirmed it in a concrete example. This example is called the AdS/CFT correspondence, which proves that it is possible to mathematically construct a holographic world. The boundary of that holographic world is an event horizon, just like the event horizon of a black hole. This boundary arises with a negative cosmological constant, which in the sense of relativity theory gives rise to the accelerated contraction of space. The event horizon is a bounding surface of space. Within that bounded space, the force of gravity is active, and is described by Einstein's field equations for the space-time metric. On the boundary of that space, there is no force of gravity, only a quantum field theory. This quantum field theory is a supersymmetric version of an SU(N) Yang-Mills field theory, similar to the field theories of the strong and weak nuclear forces, but has the special properties of a conformal field theory.

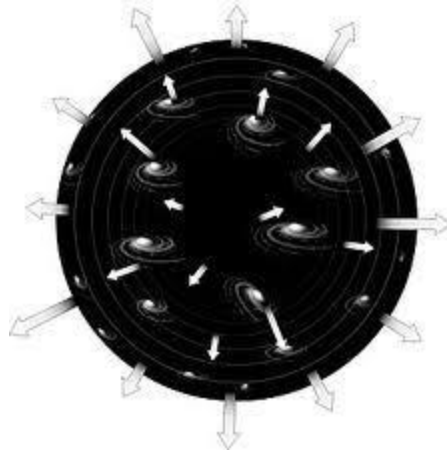
In the language of quantum theory, the boundary of AdS is described by a conformal field theory that is characterized by qubits of information. There is no force of gravity on the boundary. The interior of AdS is characterized by the force of gravity as described by Einstein's field equations for the space-time metric. This is an explicit demonstration of a holographic world. All the qubits of information characterizing that world are encoded on the boundary of that world. The interior of that world is characterized by the force of gravity, but there is no gravity on the boundary. The boundary of AdS is only characterized by a conformal field theory, which essentially is reducible to qubits of information, while the interior of AdS is characterized by gravity as described by 11-dimensional super-gravity, which is a low energy limit of M-theory.

At this point, many people will object that our world is not AdS, but this objection is again simply wrong. Our world is characterized by de Sitter space. Around the same time that Susskind and 't Hooft proposed the holographic principle in the mid 1990's, astronomers were trying to get a handle on the expansion of the universe. The idea of the big bang assumes that the universe is expanding from the moment of its creation, which is like an outward explosion from a single point. If that expansion is opposed by the attractive force of gravity, that expansion should be slowing down. That's what astronomers expected to find. Instead, what they discovered is the expansion is speeding up. The expansion is accelerating. In relativity theory, this expansion is understood in terms of a positive cosmological constant, which gives rise to the accelerated expansion of space. The astronomers were actually measuring a positive cosmological constant.



Creation of the Universe as the Expansion of Space

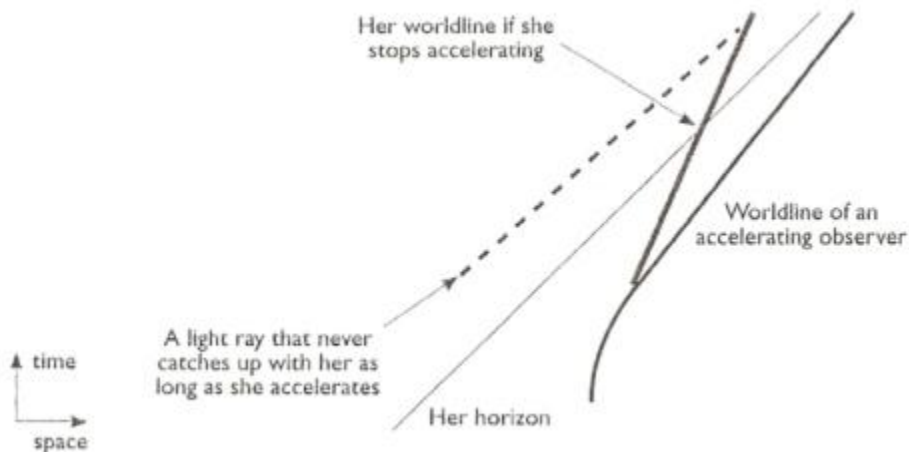
The reason the accelerated expansion of space is important is because that expansion gives rise to the boundary of the observable universe. From the point of view of an observer at the center of its own observable universe, that boundary is an event horizon called a cosmic horizon. From the point of view of the observer at the central point of view, space expands away from the observer at the speed of light at the boundary of that cosmic horizon, and so nothing is observable beyond the observer's cosmic horizon. The strange thing about relativity theory and the accelerated expansion of space that arises with a positive cosmological constant, is that every observer is at the center of its own observable world, which is bounded by the observer's own cosmic horizon.



Accelerated Expansion of Space

In relativity theory, the observer is nothing more than the central point of view of that observable world. Just like for the event horizon of a black hole, or for the boundary of AdS that is characterized by the qubits of information encoded by a conformal field theory, the boundary of that world encodes qubits of information for everything that can be observed in that observable world. The observer's cosmic horizon encodes all the qubits of information for that world.

Even without the accelerated expansion of space, any observer in an accelerated frame of reference has an event horizon that limits the observer's observations of things in space. In the general case of an accelerating observer, this event horizon is called a Rindler horizon. By the very fact of the observer's acceleration, nothing is observable beyond this horizon since a light ray that originates on the other side of the horizon can never cross the horizon.



Accelerating Observer's Event Horizon

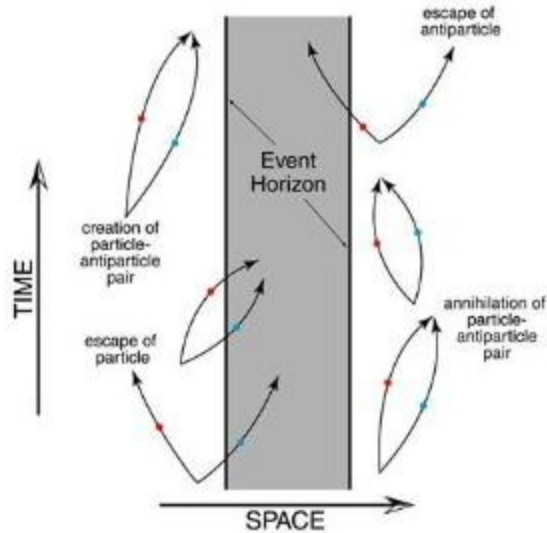
The observations of things by an accelerating observer are always limited by an event horizon. In relativity theory, the accelerating observer is described as being in an accelerated frame of reference, but that frame of reference is only a coordinate system with the accelerating observer at the origin or central point of view of that coordinate system. Relativity theory in the sense of Einstein's field equations for the space-time metric only describes the space-time geometry the observer observes in its own frame of reference. The force of gravity is nothing more than the curvature of that space-time geometry that arises from the observer's acceleration.

If the holographic principle is applied to the observer's event horizon, then all the qubits of information that characterize all the observable things the observer can observe in its own space-time geometry are encoded on the observer's event horizon. That's the essential nature of the holographic principle, which tells us the observer's observable world is very much like a computer-generated virtual reality displayed on a computer screen. All the qubits of information that characterize all the observable things the observer can observe in its own observable world are encoded on the observer's own event horizon that acts as a holographic screen.

There are still some minor points we need to clean up to have a complete explanation. How do we understand the energy inherent in the observer's acceleration? Where do the laws of physics come from? Why does that computer-generated virtual reality seem to obey computational rules?

We still have to explain the flow of energy through the observer's holographic world. Where does that energy come from? The answer is that energy comes from the observer's own acceleration. The observer's acceleration gives rise to the observer's event horizon that acts as its own holographic screen when its event horizon encodes qubits of information, but that acceleration also gives rise to the flow of energy through the observer's own holographic world.

The secret behind the flow of energy through the observer's own holographic world is the Unruh temperature of the observer's event horizon as observed by the accelerating observer in its own accelerated frame of reference. The Unruh temperature of the observer's event horizon arises as the energy of thermal radiation the accelerating observer observes emitted from its own event horizon. This is the thermal energy that flows through the observer's own holographic world as observed in the observer's own accelerated frame of reference. This energy is given in terms of the Unruh temperature of the observer's event horizon as $E=kT$, which is proportional to the observer's acceleration, a , as $kT=\hbar a/2\pi c$. In effect, the observer's acceleration is defining a frequency in the sense that $E=hf$, which is the fundamental defining relation between energy and frequency in quantum theory. The Unruh temperature arises as the temperature of thermal radiation the accelerating observer observes emitted from its event horizon. This thermal radiation arises from separation of virtual particle-antiparticle pairs at the event horizon as observed by the accelerating observer. This thermal radiation is called Hawking radiation.



Hawking Radiation

Hawking radiation is confusing since it mixes up concepts of the holographic principle with the quantum field theory formulation of point particles. In quantum field theory, uncertainty in energy allows virtual particle-antiparticle pairs to become created within the vacuum state for a short period of time. The virtual pairs are created out of nothing and then normally annihilate back into nothing, but from the point of view of an accelerating observer, something weird appears to happen. The accelerating observer's observations of things in space are limited by its event horizon. At the observer's event horizon, the virtual particle-antiparticle pairs can appear to separate. One member of the pair can disappear behind the event horizon while the other member of the pair can appear to be radiated away from the event horizon toward the observer. The observer observes this radiated particle as a particle of thermal radiation, which gives its event horizon an apparent temperature. The observer's event horizon is acting as a holographic screen that encodes quantized bits of information for point particles that can appear in the observer's holographic world, but the separation of virtual particle-antiparticle pairs at the event horizon gives the event horizon an apparent temperature proportional to the observer's acceleration.

Hawking radiation is weird. The key thing to realize is that although it appears that virtual particle-antiparticle pairs are separating at the event horizon as observed by the accelerating observer and that thermal particles of Hawking radiation are radiated towards the observer, the fundamental quantized bits of information that define all those particles of Hawking radiation are actually encoded on the event horizon, which is acting as the observer's holographic screen.

The holographic principle is telling us that each Planck area defined on the observer's event horizon is acting like a pixel that encodes a quantized bit of information. The particles of Hawking radiation that the accelerating observer perceives to be radiated away from the event horizon are reducible to quantized bits of information encoded on the event horizon, which is acting as the observer's holographic screen. The essential lesson of the holographic principle is

that particles that appear to exist in three dimensional space and appear to move through three dimensional space can always be reduced to quantized bits of information encoded on a two dimensional bounding surface of space that bounds that three dimensional region of space and acts as a holographic screen. That bounding surface of space can always be understood as an event horizon that arises in an observer's accelerated frame of reference. The accelerating observer is observing events in its own holographic world as displayed on its own holographic screen. Those perceivable events can always be reduced to qubits of information encoded on the observer's holographic screen, which gives rise to the form of things, and the flow of energy that animates those forms. This flow of energy can be understood in terms of the Unruh temperature of the observer's event horizon as the thermal energy that arises from the observer's acceleration.

The laws of thermodynamics relate a change in total energy to temperature and a change in entropy as $\Delta E = T\Delta S$. The laws of thermodynamics are not really laws of physics, but rather very general statistical relations that specify how thermal energy flows from hotter to colder objects in terms of the dynamical degrees of freedom of those objects. This specifies how objects carry thermal energy, which is understood as the random kinetic energy of those objects. In terms of the holographic principle, the fundamental nature of the dynamical degrees of freedom of all objects are qubits of information encoded on an observer's holographic screen, which is the nature of the entropy that characterizes those objects. The holographic principle gives entropy in terms of the number of qubits encoded on the observer's holographic screen as $S = kn$. The fundamental reason for this thermodynamic relation between energy and entropy is each qubit of information encoded on the observer's holographic screen carries an amount of thermal energy $E = kT$ given in terms of the Unruh temperature at thermal equilibrium. The laws of thermodynamics assume thermal equilibrium. Each qubit of information encoded on the observer's holographic screen is a fundamental dynamical degree of freedom for the observer's holographic world. The equal partition of energy tells us that each dynamical degree of freedom, which is a qubit of information, carries an equal amount of energy $E = kT$ at thermal equilibrium, which defines temperature. As more qubits of information are encoded on the observer's holographic screen, more energy is inherent in that holographic world.

Where do the laws of physics come from? The holographic principle gives a perfectly good answer, as Ted Jacobson and Tom Banks have both demonstrated. The space-time geometry of the observer's world appears to obey computational rules inherent in Einstein's field equations for the space-time metric. The matter particles that constitute the nature of all matter in that world and the force particles that transmit the electromagnetic and nuclear forces between all matter particles also obey computational rules inherent in the quantum field theory formulation of the standard model of particle physics. The holographic appearance of that world in terms of both the space-time geometry and the particle physics of that world is constructed out of qubits of information encoded on the observer's holographic screen. That holographic construction process obeys computational rules, like the rules that govern the operation of a computer, but the computational rules that govern the holographic appearance of the 3+1 dimensional space-time

geometry and the particle physics of the observer's world aren't even exact. The rules arise as thermodynamic equations of state that only give an approximate thermal average description of the observer's world with a limited range of validity in the sense of thermodynamics.

$$R_{\mu\nu} - \frac{1}{2}Rg_{\mu\nu} = 8\pi GT_{\mu\nu} - \Lambda g_{\mu\nu}$$

Einstein's Field Equations for the Space-time Metric

To begin with, we can deduce Einstein's field equations for the space-time metric, which is the nature of gravity, from the holographic principle. Einstein's field equations are thermodynamic equations of state that arise from the laws of thermodynamics that relate energy to entropy and temperature, $\Delta E = T\Delta S$. Ted Jacobson has shown how this derivation goes forward in terms of the area law for the entropy of the observer's event horizon and the Unruh temperature of that event horizon as observed by the accelerating observer in its accelerated frame of reference. As heat flows across a bounding surface of space, the total energy of that bounded region of space must change, which implies a thermodynamic change in the entropy of that bounded region of space. The holographic principle then tells us the area of the bounding surface must change, which implies a change in the geometry of the bounded region. Jacobson showed this change in the geometry of the bounded region is described by Einstein's field equations for the space-time metric. Einstein's field equations only have the validity of a thermodynamic equation of state. Once we have Einstein's field equations, all quantum fields of the standard model of particle physics can then be deduced as extra components of the space-time metric with the usual unification mechanisms of extra compactified dimensions of space and super-symmetry. The final result of unification looks a lot like 11-dimensional super-gravity, which is understood as a low energy limit of M-theory. It therefore turns out that the whole quantum field theory formulation of the standard model of particle physics and the relativistic space-time geometry formulation of gravity can be deduced from the holographic principle.

All we really need to explain the quantum field theory formulation of particle physics and the relativistic space-time geometry formulation of gravity is an observer in an accelerated frame of reference, which gives rise to an event horizon. Apply non-commutative geometry to that event horizon as a way to quantize position coordinates on the horizon, along with the usual unification mechanisms of super-symmetry and extra compactified dimensions of space, and we have an explanation for how to generate all the qubits of information that define everything in a holographic world. The form of everything in that world is reducible to qubits of information. Even the flow of energy that animates everything in that world can be understood in terms of the observer's accelerated frame of reference and the Unruh temperature of its event horizon. Each quantized position coordinate defined by a non-commuting variable on the observer's event

horizon is smeared out into an area element like a pixel that encodes a qubit of information. This encoding process not only includes information for all the elementary particles of that world that underlie the electromagnetic and nuclear forces, but also the space-time geometry of that world that underlies the effect of gravity. The only thing that seems to be fundamental to the explanation is the observer itself. The holographic principle is telling us that only the observer has its own independent existence, which fundamentally is the existence of consciousness.

Any thermodynamic equation of state describing a physical system implies thermal equilibrium, which means the dynamical degrees of freedom of that system are thermalized or randomized in terms of their thermal energy. A thermodynamic equation of state is not valid when the system is not at thermal equilibrium. Since Einstein's field equations for the space-time metric, which is the nature of gravity, and the quantum field theories of the standard model of particle physics, which is the nature of physical matter and the electromagnetic and nuclear physical forces, are only thermodynamic equations of state for the physical universe, these equations do not apply when the physical universe is not at thermal equilibrium. As Roger Penrose has often pointed out, the physical universe is definitely not at thermal equilibrium, as is demonstrated by the normal flow of energy through the physical universe. It makes no sense to try to understand the nature of the physical universe in terms of equations that are not fundamental and only give an approximate thermal average description of the physical universe. If we are to have any hope of understanding the nature of the physical universe, we have to go beyond the simple understanding of the universe in terms of what we call the laws of physics inherent in Einstein's field theory for gravity and the quantum field theories of the standard model of particle physics. We have to start understanding the physical universe in terms of the holographic principle. We have to start understanding the perceivable physical world in terms of the observer of that world.



Normal Flow of Energy through the Observer's Perceivable World

The physical universe is not at thermal equilibrium because space is expanding in the physical universe. The accelerated nature of the expansion of space, which is called dark energy, is the

primordial energy that puts the *bang* in the big bang event. The idea of creation of the universe in a big bang is based on the idea of the expansion of space. As is well known, the expansion of space implies a cosmic horizon that limits the observations of the observer at the central point of view of that bounding surface of space. The holographic principle tells us the observer's cosmic horizon defines its own world whenever space expands since that is where all the fundamental qubits of information for that world are encoded. Inherent in the idea of the big bang is the idea the observer's observable world increases in size as space expands. This implies the observer's cosmic horizon increases in radius as the observer's world increases in size. As the observer's cosmic horizon increases in radius, its Unruh temperature cools, which explains the normal flow of heat in the observer's world as heat flows from hotter to colder objects. This also explains the second law of thermodynamics which says entropy tends to increase as heat flows in a thermal gradient. As the observer's cosmic horizon increases in radius, its Unruh temperature cools, but its surface area increases, which implies the entropy of the observer's world increases even as its world cools, since more qubits of information are encoded on the observer's cosmic horizon. The normal flow of heat in the thermal gradient created as the observer's world increases in size with the expansion of space explains the direction of *time's arrow* and the normal flow of energy through the observer's holographic world. The direction of *time's arrow* is literally directed in the direction of the expansion of space that gives rise to the creation of the physical universe.

The non-thermal equilibrium nature of the physical universe is an essential aspect of explaining why coherently organized forms of information, like a body, appear in the world. These forms hold together because of their coherent organization, which can be understood in terms of quantum entanglement. It's well known in physics that entangled qubits of information, like entangled spin variables, tend to align together over a sequence of observable events. This effect is seen in spin networks and in the coherent light of a laser that creates the coherent interference pattern of a physical hologram. This entanglement of qubits of information leads directly to coherent effects that can create coherently organized forms of information, like the form of a body, that tend to self-replicate their forms over a sequence of observable events.

The non-thermal equilibrium nature of coherent organization is always opposed by the random thermal motion that arises at thermal equilibrium. In terms of the holographic principle, at thermal equilibrium, all the qubits of information encoded on a holographic screen that characterize a holographic world are thermalized in the sense of carrying an equal amount of random thermal energy, but when that holographic world is not at thermal equilibrium, the effect of the entanglement of those qubits of information can create coherently organized forms of information that tend to self-replicate their forms over a sequence of observable events. There's always a balance between the effects of entanglement that lead to the creation of coherent forms and the effects of thermalization that tend to randomize or disorganize those coherent forms. In terms of the coherent self-replication of the form of a body, this is the balance between life and death. A coherently organized body is always emotionally animated, and that emotional animation, expressed in terms of fear and desire, is always a struggle between life and death.

The other thing to be clear about is the purpose of emotions. Emotions, as in the expression of fear and desire, defend the survival of the self-replicating coherently organized form of a body. The body must express these emotions in order to survive over a sequence of observable events, which we call the course of time. In effect, emotions either express the desire to live in the form of a body or the fear of body death. Living in the form of a body requires the self-replication of that coherently organized form in a recognizable way, while the death of the body occurs with the disorganization of that form that results in the body no longer being recognizable.

There are two critically important aspects of the survival of the self-replicating form of a body in a recognizable way. The first aspect is: Who exactly is recognizing that self-replicating form? Who is not only recognizing that form but also identifying itself with that form? The answer of course is a presence of consciousness. That presence of consciousness is present at the central point of view of its own holographic world as it perceives the animated images of that world that are projected from its own holographic screen to its own point of view.

The second aspect of body survival has to do with the energetic nature of the expression of emotions. The body must be self-replicated in form in a recognizable way to be recognized. In physics this self-replication of form in a recognizable way is described as a low entropy state. The coherent organization of form that allows for self-replication of form in a recognizable way implies a low entropy state. This low entropy state is maintained by the expression of survival emotions, like fear and desire, that have no purpose other than to maintain that low entropy state and defend the survival of the body as a recognizable self-replicating form.

The maintenance of this low entropy state requires the expenditure of energy. The reason is actually quite simple. At thermal equilibrium, which is a high entropy state characterized by the thermal randomization of information, all forms become disorganized. At thermal equilibrium, random thermal energy disorganizes all forms. The forms literally fly apart because of the random motion of their constituents. The big question is what holds the form together? What binds the constituents into a form? At the level of particle physics, those constituents are things like elementary particles, atoms and molecules that bind together under the influence of the electromagnetic force, but at the level of the holographic principle, those constituents are qubits of information that align with each other under the influence of quantum entanglement.

Coherently organized forms, like the form of a body, can only self-replicate their forms in a recognizable way in a non-thermal equilibrium state, which implies that energy is flowing in a thermal gradient. The self-replicating form literally has to feed off of this flow of energy in order to maintain its form. The reason for this fact is the form must add the organizing potential energy of attractive forces to its form while it also sheds disorganizing thermal energy into its environment. There's always a balance between the potential energy of attractive forces that tends to maintain the organization of forms and the kinetic energy of random thermal motion that tends to disorganize those forms. Forms only maintain their coherent organization if the balance favors the potential energy that holds the form together over the random kinetic energy that

pushes the form apart. In order to tip the balance in favor of potential energy, the form must add potential energy to its form while it also sheds thermal energy into its environment. Although the form is being maintained in a low entropy state as it adds organizing potential energy to its form, the total entropy of the form and its environment is actually increasing as disorganizing thermal energy is shed into the environment, and so the second law of thermodynamics is not violated.

The addition of potential energy to a form is called eating. A form can only self-replicate its form if it adds potential energy to its form. Where does the form find that potential energy? The form finds that potential energy in other forms. In order to self-replicate its form, the form must eat other forms. Body survival is only possible if bodies eat each other. It literally is a body-eat-body world, since that is how a body adds potential energy to its form. Even plants must eat the form of photons that arrive from the sun. In order to survive in the form of a body, the body must express the desire to eat other bodies. At the same time, in order to survive in the form of a body, the body must avoid being eaten by other bodies and express the fear of being eaten. The expression of fear and desire, which are survival emotions that defend the survival of the body, must be expressed by a body for that body to survive and self-replicate its form.

Biology tells us there's an environmental selection pressure called the *survival of the fittest body*. The bodies that are best able to express their desire to eat while they also avoid being eaten are the bodies that are most likely to survive and reproduce their forms. The bodies that are best able to express the desire to eat and the desire to reproduce while they express the fear of being eaten are the bodies that are most likely to survive and reproduce their forms, which in the sense of natural selection, selects those bodies that are best able to express fear and desire.

The survival of the body is only possible in a non-thermal equilibrium state since the body must feed off of the flow of energy that flows in a thermal gradient. That is the only way the low entropy state of the body can be maintained. By its very nature, body survival requires the expression of survival emotions, which at the most elementary level are the desire to eat and the fear of being eaten. That's the only way the form of the body can be self-replicated in form in a recognizable way. This brings us back to the presence of consciousness that recognizes that form. Why does that presence of consciousness identify itself with that form? The answer is quite simple. The presence of consciousness feels emotionally self-limited to that form as it perceives the flow of emotional energy that animates that form. That feeling of emotion self-limitation, which can only arise with the expression of fear and desire that defends the survival of the body, leads that presence of consciousness to emotionally identify itself with that self-replicating form.

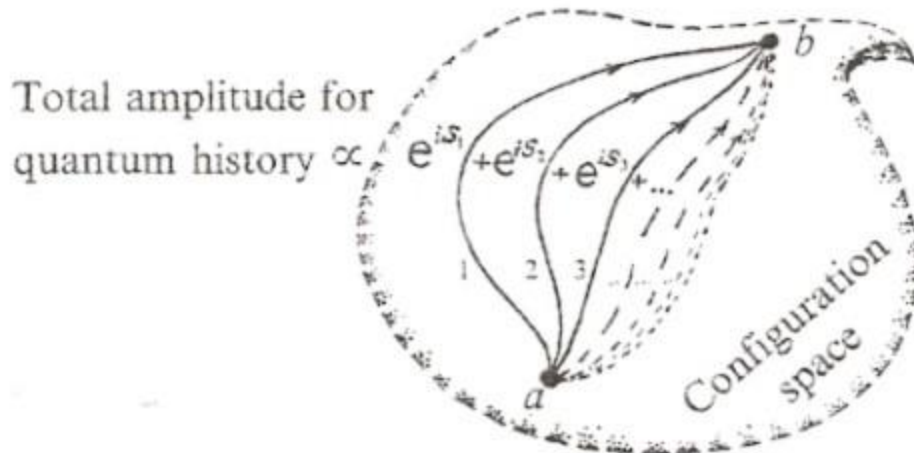
What's Wrong with Particle Physics?

The correct way to think about physics is in terms of the fundamental dynamical degrees of freedom that characterize physical reality. In the point particle formulation of physics, those dynamical degrees of freedom are taken to be particle coordinates that arise in some fixed background space-time-time geometry, like Minkowski space. The problem with the point

particle formulation of particle physics is this is a mistaken assumption. In reality, there are no point particles and there is no fixed space-time geometry. The most general way that particle physics can formulate these point particle dynamical degrees of freedom is in terms of the quantum wavefunction, which in quantum field theory is formulated in terms of quantum fields.

There are some technical issues in terms of first quantization and second quantization, but in essence the quantum field is the quantum wavefunction that specifies the quantum probability with which a quantum particle can be localized at some point in space at some moment in time in the fixed background space-time geometry, which is usually taken to be Minkowski space. For example, the quantum field of the Dirac equation specifies the quantum probability that the electron can be localized as some point in space at some moment of time. The Schrodinger equation for the hydrogen atom is just a non-relativistic limit of the Dirac equation. In quantum field theory, we also have Maxwell's equations for the photon field. The electron and photon are both quantum particles, each characterized by their own quantum field. Electrons can interact with each other through the electromagnetic force by emitting and absorbing or by exchanging photons, and with second quantization, photons can create virtual electron-positron pairs that can annihilate back into photons, which is like the electromagnetic interaction run backwards in time.

The key point is that the quantum wavefunction specifies the quantum probability with which a quantum particle can be localized at some point in space at some moment in time in the fixed background space-time geometry. If that quantum wavefunction is highly localized like a delta-function, then we can recover the Newtonian version of classical particle physics that describes the particle as following a point particle trajectory $x=x(t)$ through the fixed background space-time geometry. This particle trajectory can always be understood in a classical sense as a *path of least action*, where the quantum state is understood as a *sum over all possible paths* in some information configuration space. *Action* is like a measure of distance along some path that connects two points in the information configuration space, and the classical path of least action is like the shortest possible path between those two points. The laws of physics can always be expressed as an *action principle*, which is how they enter into the quantum state. The quantum wavefunction depends on the action, but the wavefunction only specifies a quantum probability of measurement. This way of formulating quantum theory for point particles that follow trajectories through space is only possible since the quantum wavefunction $\psi=\psi(x,t)$ is defined in the fixed background space-time geometry. The point particle coordinates are taken to be the fundamental dynamical degrees of freedom of the point particle formulation of particle physics, which can only be defined in a fixed background space-time geometry.



Quantum State as the Sum Over all Possible Paths

A big problem arises when we try to add the force of gravity to the other fundamental forces, like electromagnetism. By its very nature, gravity is the dynamical curvature of a space-time geometry. There is simply no logically consistent way to quantize gravity as a quantum field theory since we would then have to assume that we have a fixed background space-time geometry, which contradicts the very idea of gravity as the dynamical curvature of a space-time geometry. The very idea of a quantum particle called the graviton propagating through some fixed background space-time geometry contradicts the idea of gravity as the dynamical curvature of a space-time geometry. Gravity cannot be quantized as a quantum field theory.

The holographic principle is the only known logically consistent way to resolve this problem. The fundamental dynamical degrees of freedom of physical reality are not point particle coordinates defined in some fixed background space-time geometry, but rather qubits of information defined on a holographic screen. The holographic screen in turn is understood as an event horizon that arises in an observer's accelerated frame of reference. The observer's event horizon is a two dimensional bounding surface of space that bounds some three dimensional region of space. Particle coordinates defined in that bounded three dimensional region of space are not fundamental dynamical degrees of freedom, but can only arise in some approximate sense in terms of a thermodynamic equation of state. All the quantum field theories of particle physics along with Einstein's field equations for the space-time metric as a formulation for gravity can only arise as thermal averages in the sense of a thermodynamic equation of state.

The fundamental dynamical degrees of freedom that actually define physical reality are qubits of information encoded on a holographic screen, which arises as an event horizon in an observer's accelerated frame of reference, but even the qubits are not really fundamental. To turn the event horizon into a holographic screen and encode qubits of information on the screen, we have to invoke some sort of geometric mechanism like non-commutative geometry that explains how qubits of information are encoded on the observer's event horizon. We also have to assume there

is an observer in an accelerated frame of reference before we can invoke this geometric mechanism. At the end of the day, an observer in its accelerated frame of reference is more fundamental than its holographic screen. In other words, the consciousness of the observer and the energy inherent in the observer's accelerated frame of reference are both more fundamental than the qubits of information encoded on the observer's holographic screen that act as the fundamental dynamical degrees of freedom of the observer's holographic physical world.

The holographic principle is telling us that the fundamental nature of the universe is qubits of information encoded on an observer's holographic screen. That's what makes the universe a holographic universe. The observer's holographic screen is understood as an event horizon that arises in the observer's accelerated frame of reference. The accelerating observer's event horizon is a bounding surface of space that limits the observer's observation of things in space due to the constancy of the speed of light for all observers, independent of their relative states of motion.

The holographic principle says that every accelerating observer has its own holographic world defined on its own holographic screen that arises as an event horizon in the observer's accelerated frame of reference. The observer's holographic screen is where all the qubits of information for everything observable in the observer's world are encoded. Things don't really exist in three dimensional space. Everything observable in three dimensional space is a holographic illusion that arises as a holographic form of information for that thing is projected like an image from the observer's holographic screen, which is a two dimensional bounding surface of space, to the observer's central point of view in space, which always arises in relation to that holographic screen. The observation of things appearing in three dimensional space is a holographic illusion that results from holographic projection. This even applies to elementary particles, like photons and electrons. All the fundamental qubits of information for an elementary particle are encoded on the observer's holographic screen. The observer's observation of an elementary particle, like anything else it can observe in its holographic world, is only the observation of a form of information projected like an image from the observer's holographic screen to its central point of view. Everything observable arises through holographic projection.

The holographic principle gives a perfectly good explanation for how the observer's world is created in terms of the observer's accelerated frame of reference. Everything the observer can observe in its world arises through holographic projection, as a form of information is projected like an image from the observer's holographic screen to its central point of view. The observer's holographic screen always arises as an event horizon in its own accelerated frame of reference. That event horizon acts as a holographic screen in the sense of encoding qubits of information, which are the fundamental dynamical degrees of freedom of its holographic world. Everything perceivable in its holographic world is a form of information constructed out of qubits encoded on the observer's holographic screen. Even the flow of energy that animates those forms of information is inherent in the observer's own accelerated frame of reference in the sense of thermodynamics and the Unruh temperature of its event horizon.

Everything perceivable in the observer's holographic world arises through holographic projection. Even the 3+1 dimensional space-time geometry of that world arises through holographic projection. Just like all other perceivable things, space-time geometry can be reduced to qubits of information encoded on a holographic screen, and the perception of space-time geometry is no more real than forms of information projected like images from the screen to the observer's central point of view. The space-time geometry the observer observes in its world has no independent existence. If the observer doesn't observe it, that space-time geometry doesn't really exist. Everything the observer observes in its world, including the space-time geometry of that world, is dependent on the observer's observation of it before it can appear to come into existence. If the observer does not observe it, it does not exist, except in the sense of an unobserved state of potentiality. That's exactly what quantum theory tells us. The observation of space-time geometry, just like anything else the observer can observe, is only an illusion of existence in the sense of holographic projection.

Most physicists cannot accept this state of affairs since space-time geometry, like everything else that can be perceived in the world, appears to obey computational rules. The space-time geometry of the observer's world appears to obey the computational rules inherent in Einstein's field equations for the space-time metric. How can something that's not really real and doesn't really exist obey computational rules? The simple answer is, that's the inherent nature of a holographic world. The holographic appearance of that world is constructed out of the qubits of information encoded on a holographic screen, and that holographic construction process obeys computational rules, like the rules that govern the operation of a computer. The computational rules that govern the holographic appearance of the 3+1 dimensional space-time geometry of the observer's world aren't even exact. These rules arise as thermodynamic equations of state and are only an approximation with a limited range of validity in the sense of thermodynamics, which only gives an approximate thermal average description of the observer's world.

When the observer observes a particle located at some position in space and the motion of that particle through space over the course of time, the observer is really only observing a form of information projected like an image from its own holographic screen to its own point of view and animated over a sequence of holographic projections, just like the animation of the projected images of a movie from a computer screen to an observer. The reason we can say this with confidence is because all of particle physics can be formulated in terms of quantum field theory, and we can deduce all of quantum field theory from the holographic principle.

By its very nature, an observation of the world implies an observer is making that observation, but who exactly is the observer? Modern physics has no answer for the true nature of the observer. Physicists want to sweep this problem under the rug and ignore it because they really have nothing to say about the true nature of the observer. The whole enterprise of physics is really only about describing what is observable and not about what is making the observation.

In some sense, perceivable reality is just like a computer-generated virtual reality, which is constructed when digital images are projected from a computer screen to the point of view of an observer that perceives those images and as the images are animated over the course of time in the flow of energy. If the computer generated projected digital images are holographic in nature, the images appear to occupy three dimensional space even though they can be reduced to bits of information encoded on a two dimensional computer screen. The images of that virtual reality not only include visual images, but also auditory images and tactile images. Not only is the form of things perceivable, but the flow of energy that animated the form of things is also perceivable. The holographic principle is telling us that in no real sense is perceivable reality any different in any significant way than a computer generated holographic virtual reality.

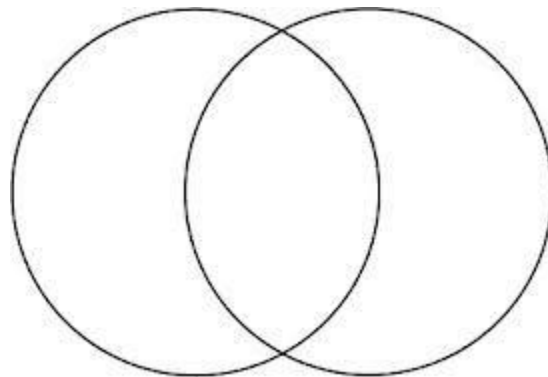
What about the observer that perceives that perceivable reality? What is the true nature of the reality of the observer? Is the observer also an aspect of the perceivable reality that the observer perceives? Can the observer itself be reduced to the bits of information encoded on a holographic screen that gives rise to the appearance of the form of all things that appear to occupy space or to the flow of energy that animates those forms over the course of time? Wouldn't that assumption that the observer itself can be reduced to an aspect of the perceivable reality that the observer perceives create a logically inconsistent paradox of self-reference?

The problem is the form of a body and brain that appears within the holographic virtual reality must be constructed out of bits of information encoded on a holographic screen, like anything else that appears in that holographic virtual reality. Everything that appears in the holographic virtual reality can be reduced to bits of information encoded on a holographic screen. Can a body and brain that is a part of that holographic virtual reality also perceive that virtual reality? The only logically consistent answer is no. A body and brain that is part of the holographic virtual reality cannot be the observer that perceives that virtual reality. At most, a body and brain can only process or transmit information about that virtual reality. Just like a computer screen that projects images to the point of view of an observer that perceives those images, the observer is always outside the screen. Projected images can be reduced to bits of information encoded on the screen, but the observer of the images projected from the screen cannot be reduced to bits of information encoded on the screen. The observer's point of view is always outside the screen.

The holographic principle is fundamentally telling us that the observer has its own existence that is independent of anything the observer can perceive in perceivable reality. The reality of the observer is independent of the perceivable reality the observer perceives. The nature of reality is exactly the other way around from what is conventionally assumed when we assume that a body and brain that appears in perceivable reality is an observer of that perceivable reality. That kind of assumption is a mistake in the sense of a logically inconsistent paradox of self-reference. The perceivable reality the observer perceives is dependent on the reality of the observer. Perceivable things only appear to come into existence when the observer perceives them. The apparent existence of perceivable things is dependent on the existence of the observer. Only the observer has its own existence that is independent of anything that the observer can perceive.

The big question is about the true nature of the observer's consciousness in relation to whatever the observer happens to observe in its world. This question explodes when that observable world is understood to be a holographic world. A holographic world is no more real than images depicted on a holographic screen. The images can always be reduced to qubits of information encoded on a holographic screen. Who is really observing those images? Can an image observe itself? The holographic principle gives the only logically possible answer. The observer is nothing more than a point of perceiving consciousness at the center of its own holographic world that arises in relation to its own holographic screen.

What about the problem of multiple observers observing the same observable world? The problem with assuming that multiple observers exist in and observe the same observable world are all the paradoxes of quantum theory, like the Wigner friend paradox. The solution for this problem is the idea of a consensual reality shared among different observers, each of which arises at its own point of view in relation to its own holographic screen. A consensual reality can only arise in the sense of a Venn diagram of information sharing among different but overlapping holographic screens. The observer's holographic screen can only arise as an event horizon in the observer's own accelerated frame of reference, and so that holographic screen is inherently observer-dependent. The observer's holographic screen is where all the qubits of information are encoded for the observer's own holographic world. Every observer observes its own holographic world from its own point of view defined on its own event horizon that acts as a holographic screen, but those screens can overlap in the sense of a Venn diagram and share information. This problem of information sharing among overlapping holographic screens is the essence of the entanglement problem of quantum gravity, as Tom Banks has pointed out.



Overlapping Bounding Surfaces of Space Create the Appearance of a Consensual Reality

This way of understanding observation in terms of every observer observing its own holographic world from its own point of view eliminates all paradoxes like the Wigner friend paradox. Multiple observers simply cannot exist inside the same observable world without creating logically inconsistent paradoxes. Every observer observes its own holographic world from its own point of view. Different observers can only share a consensual reality due to information sharing among different but overlapping holographic worlds. This way of understanding the

nature of observation raises fundamental questions about the true nature of the observer. These are fundamental questions about the true nature of observing consciousness.

Quantum theory in the context of the holographic principle is telling us that the observable physical world can only appear to come into existence in relation to the observations of the observer that observes that holographic world. Every observer must observe its own holographic world for that world to appear to come into existence. If the observer does not observe its own holographic world, that world remains in an unobserved state of potentiality. That unobserved state of potentiality is the nature of the quantum state. For the unobserved quantum state of potentiality of the world to come into an observed state of actuality, the observer must make an observation of that world. The time evolution of that world, as represented by the quantum wavefunction, only applies to the unobserved state of potentiality of that world. Measurement of that world, as represented by quantum state reduction or collapse of the wavefunction, only applies to the observer's observation of its own holographic world, which reduces the state of potentiality of the observer's world to an observed state of actuality. It cannot be stressed strongly enough that the observer's world only appears to come into an actual state of existence when the observer observes that world. Without the observer's observation of its own world, that world remains in an unobserved state of potentiality. Simply put, an observable world cannot appear to actually exist unless an observer observes it, but this raises fundamental questions about the true nature of the observer. What is the true nature of the observer's own existence?

This fundamental relation of an observer observing its own observable world essentially defines a *subject-object relation*. The true nature of the subject is the observer. The holographic principle tells us that the objective nature of all things the observer can observe in its own observable world are forms of information that can always be reduced to qubits of information encoded on the observer's own holographic screen, which can only arise as an event horizon in the observer's own accelerated frame of reference. The holographic principle is telling us that in some sense the objective nature of all things the observer observes is a holographic illusion, since all observable things can be reduced to qubits of information encoded on the observer's holographic screen. The observable things include the nature of all elementary particles that appear in space, including all the matter particles and all the force particles that transmit the electromagnetic and nuclear forces. The observable things also include the dynamical nature of space-time geometry, which is understood in relativity theory to be the nature of gravity. With the holographic principle, all of this observable stuff can be reduced to qubits of information encoded on the observer's holographic screen, but that's not the end of it.

Everything observable in the observer's holographic world, including the observer's own body and brain, can be reduced to qubits of information encoded on the observer's own holographic screen. The true subjective nature of the observer cannot be its body or brain, since these are only forms of information that appear in the observer's own holographic world. At most, the observer's own body and brain can only transmit or process information about the nature of that holographic world. A form of information is something observable, and cannot observe itself

without creating a logically inconsistent paradox of self-reference. As quantum theory tells us, an observable object, which is a form of information, can only arise in a subject-object relation as the observer observes that observable thing. If the observer's own body and brain is not the true nature of the observer observing its own observable world, then what is the true subjective nature of the observer? This is fundamentally a question about the true subjective nature of observing consciousness, which by simple deductive logical reasoning, cannot itself be reduced to an observable thing. A body and brain that appears inside an observable holographic world cannot be the true subjective nature of the observer of that holographic world.

The holographic principle is fundamentally an observer-centric description of observable reality. The observable reality of the world we perceive is not only perceived in an observer-centric way, but also in an observer-dependent way. The holographic principle is telling us that the observer is a presence of perceiving consciousness at the center of its own holographic world.

The holographic principle fundamentally says that everything the observer can observe in its own holographic world can be reduced to qubits of information encoded on its own holographic screen, which is an event horizon that arises in the observer's accelerated frame of reference. The observer's body and the brain that appears in that holographic world can also be reduced to qubits of information encoded on the observer's holographic screen. The observer can only be understood as a presence of perceiving consciousness at the center of its own holographic world.

Everything observable in a holographic world is reducible to information and energy, but the consciousness of the observer observing that world is not. Consciousness has its own independent existence. The apparent existence of a holographic world that is reducible to qubits of information encoded on the observer's holographic screen and the flow of energy animating that world is dependent on the independent existence of the observer's consciousness.

Prior to Consciousness

Only the observer itself can have its own independent existence, but we'd like to go further and understand the true nature of that existence. The observer itself can only be understood as a presence of consciousness present at the center of its own holographic world, but where does that presence of consciousness come from? This is where the void comes into the story. The void is the true nature of potentiality. The void can also be called the ultimate nature of existence or the ground of being, which is the potentiality for things to come into existence. As the ground of being, the void is the ultimate nature of reality. In-and-of-itself, the void only exists in the sense of absolute nothingness, but that nothingness is the potentiality for things to come into existence.

The void is the potentiality to create all the energy and information inherent in a holographic world. The void is the ultimate nature of reality, and the holographic world it creates is a lesser form of reality, like a virtual reality. That virtual reality comes into existence because of the creation of the information and energy that underlies all observable things. These things not only include what physicists call elementary particles, but also the space-time geometry those

observable things appear to exist within. Even the space-time geometry of a holographic world is observable, and in some sense is just another observable thing that can be reduced to information and energy. The space-time geometry of a holographic world is reducible to the qubits of information encoded on a holographic screen and the flow of energy through that holographic world just like everything else observable in that holographic world.

The way this creation process goes forward is in terms of the energy inherent in the observer's accelerated frame of reference. The observer's acceleration is where the energy comes from that animates the observer's holographic world. The void is the potentiality to create the energy inherent in the observer's accelerated frame of reference. The easiest way to understand how the void creates this energy is in terms of the expansion of space, which is the nature of dark energy. The expansion of space always gives rise to an event horizon with the observer at the central point of view of that bounding surface of space. The easiest way to understand how the void creates information is in terms of non-commutative geometry, which is a way to encode qubits of information on the observer's event horizon that then turns into its holographic screen.

The void is the potentiality to create all the energy and information inherent in a holographic world, but where does the consciousness of the observer come from? The simplest answer is the consciousness of the observer also comes from the void. The void is the potentiality to give rise to the consciousness of the observer. The void is also consciousness, but it is a more fundamental kind of consciousness than the observer's consciousness. The consciousness of the observer is an individual or divided kind of consciousness, while the void is undivided consciousness. The void is the potentiality for the observer's consciousness to come into existence in the sense that the individual consciousness of the observer must be divided from the undivided consciousness of the void before the observer's holographic world can appear to come into existence and be observed by the observer. The observation of that world is always limited by an event horizon that acts as a holographic screen.

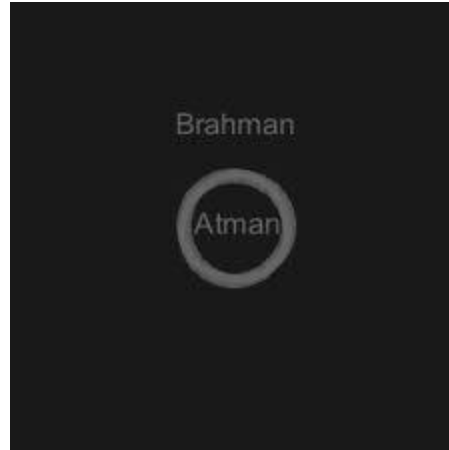
The consciousness of the observer is not only divided, but it is also limited, while the consciousness of the void is unlimited and undivided. Only the observer's consciousness can observe things in its own holographic world. Each such observation of something by the observer is the observation of a form of information projected like an image from the observer's holographic screen to its central point of view. The consciousness of the void observes nothing because it has no holographic screen. The observer's holographic screen is always a limitation of consciousness that can only arise in the observer's accelerated frame of reference as an observation limiting event horizon. Only an observer can observe things in its own holographic world. This only becomes possible when the divided consciousness of the observer is limited by a holographic screen. The unlimited and undivided consciousness of the void observes nothing, and yet the void is the potentiality to create a holographic world and give rise to the consciousness of the observer that observes that holographic world from the central point of view of that world. This creation process can only appear to happen within the void if the consciousness of the observer is divided from the undivided consciousness of the void and that

point of consciousness then enters into an accelerated frame of reference that gives rise to the limitation of a holographic screen that defines the observer's holographic world.

The key concept of the *one-world-per-observer paradigm* inherent in the holographic principle is that the observer's holographic world can only be created within the void through the construction of a holographic screen as the observer enters into an accelerated frame of reference, but before that creation can occur, the consciousness of the observer must be divided from the undivided consciousness of the void. The only reason the observer is unaware of the void is because the observer's attention is totally focused on itself and its world. The process of the observer shifting the focus of its attention away from itself and its world, and back onto its source, is called awakening, as in awakening from a dream.

This relationship of the void to the observer is like the relationship of a dreamer to its dream. The unlimited and undivided consciousness of the void, which observes nothing, is the source of the limited and divided consciousness of the observer that observes its own holographic world. That holographic world is the dream, and the void is the dreamer. The consciousness of the observer is a divided fragment of the undivided consciousness of the void. The fragmented consciousness of the observer must be separated from the unfragmented consciousness of the void for that holographic world to appear to come into existence and be observed by the observer. The fragmented consciousness of the observer is always connected to its source in that this state of separation can come to an end at any moment and the divided consciousness of the observer can return to and reunite itself with the undivided consciousness of the void.

This state of reunion can be understood as an ultimate state of free fall in which the observer's holographic world disappears from existence. The observer has no holographic screen in an ultimate state of free fall since it has no event horizon that limits its observations. Ironically, when there is no limitation of consciousness, there is also nothing to observe, and there is no separation. The void is this unlimited and undivided primordial state of consciousness, which is a state of pure potentiality. When that potentiality is expressed, an observable holographic world appears to come into existence and the consciousness of the observer becomes divided from the undivided consciousness of the void so that the observer can observe its own world. When that potentiality is not expressed, only the unlimited and undivided consciousness of the void exists. In that ultimate state of existence, nothing is observed. The void is that absolute nothingness, which in the sense of potentiality, is the true nature of what I am, you are, and everything is.



Atman-Brahman

How is the observer's ultimate state of free fall even possible? The answer is the observer must be present to observe its own observable holographic world. Being present for its world means the observer must focus its attention on that world. If the observer withdraws its attention away from that world and is not present to observe that world, that world remains in an unobserved state of potentiality. Both the form of all things in that world and the flow of energy through that world remain in an unobserved state of potentiality. Without the expression of that energy, the observer no longer is in an accelerated frame of reference, but instead enters into an ultimate state of free fall. In this ultimate state of free fall, the observer no longer observes a holographic world. The observer's holographic world disappears from existence from the observer's own point of view. In the language of nonduality, this ultimate state of free fall is described as falling into the void. In this ultimate state of free fall, the observer's individual existence, which is its own divided sense of being present or *I-Am-ness*, dissolves back into the undivided being of the void like a drop of water dissolves back into the ocean. This oceanic experience is the nature of the observer realizing the truth of what it really is, which is the truth of its own being.

This way of understanding the holographic principle has no logical inconsistencies or paradoxes. It is completely consistent with everything we know about modern physics, and is really the only way modern physics can be understood in a logically consistent way. The other great advantage of this way of understanding the holographic principle is that it's totally consistent with what enlightened beings like Nisargadatta Maharaj tell us about the true nature of reality. Enlightened beings have directly experienced the true nature of reality. They have returned to the ultimate state of existence and come back to the world to tell us what is real and what is illusion.

Duality in a Nutshell

The only reason that we can discuss the *absolute nothingness of the void* is because we all have the direct experience of our own consciousness. In its ultimate formless form, *consciousness is absolute nothingness*. The ultimate, primordial, formless form or stateless state of consciousness

is *absolute nothingness*. In this ultimate state, *nothing is perceived*. This ultimate state is undivided, which is why it is called *one*. This ultimate state is unlimited, which is why it is called *infinity*. This ultimate state is timeless and unchanging, which is why it is called *eternity*.

This is where a critical distinction must be made. When things are perceived, those things are always perceived in a *subject-object relation*. The subject is the perceiver, the object is whatever is being perceived, and the relation between them is perception. This *subject-object relation* defines *self and other* at the level of perception, as demonstrated in the statement *I see you*. In the ultimate state of *absolute nothingness*, *nothing is perceived*. There is no *subject-object relation*, which is why the ultimate state of consciousness is called *nondual*. There is no *self and other*, which is why the ultimate state of consciousness can be called *No-self*. *Nothing is perceived* in this ultimate state of consciousness, which is why it can also be called *No-thing*. No concepts or other forms of mental imagination are perceived, which is why it can be called *No-mind*.

In the nondual tradition of Advaita Vedanta, this ultimate state of *absolute nothingness* is called *Brahman*. If the only thing in existence was the *absolute nothingness of No-thing or No-mind*, then there would be no purpose for a conceptual explanation of reality. You have to have a mind that can create concepts before you can create a conceptual explanation of reality. In the ultimate state of consciousness, there is no mind, there are no concepts and there are no explanations.

This brings us to the conceptual problem of how anything is created. How are concepts created? How is something created from nothing? How is a mind created? This is where the conceptual framework of Advaita Vedanta makes its great leap forward. Before you can create a mind, before you can create concepts, before you can create anything, you have to have a *Self*, since that *Self* is what perceives things in a *subject-object relation*. Where does the *Self* come from?

Advaita Vedanta answers the question of where the *Self* comes from in terms of *Brahman*. The *Self* is called *Atman*, which is divided from *Brahman*. The *Self* is inherently a divided and limited state of consciousness that perceives things in a *subject-object relation*, which is a secondary or derivative state of consciousness. This derivative state of consciousness has the nature of duality, as things are always perceived in a dualistic state of *self and other*, but the source of this dualistic state is the nondual nature of *Brahman*. *Brahman* is the source of *Atman*, which is why *Brahman* is also called the *Source*. *Atman* can only come into existence when it is divided from *Brahman*.

To use a useful metaphor, the *Source* is like the ocean, and the *Self* is like a drop of water that is spit out of the ocean. The reason this metaphor is useful is because the *Self* always perceives things from its own point of view. To continue the metaphor, that point of view is the drop of water spit out of the ocean. The *Self* always carries with itself its own sense of being present as a presence of consciousness that perceives things from its own point of view as it perceives things in *subject-object relation*. That sense of being present as a presence of consciousness at its own point of view is often referred to as *I Am*, which is why the *Self* is also called *I Am*. This sense of being present at a point of view is a sense of individual existence that must be divided from the

undivided existence or being of the *Source*, which has no sense of individual being. The *Self* can only come into its own individual existence when that drop of water is divided from the ocean.

In some sense, the sense of individual existence or *I-Am-ness* of the *Self* is the first concept that must be expressed before any other concepts can be created. Those other concepts are always perceived in a *subject-object relation*, and the concept of individual existence or *I-Am-ness* of the *Self* must come into existence before those other concepts can be created and perceived by the *Self*. This first concept of individual existence or *I-Am-ness* must be divided from the undivided existence or being of the *Source* before anything else can be created and perceived by the *Self*.

There are two other qualities of the *Self* besides its sense of being present that are critical for this explanation. The first quality is the concept of energy. The *Self* always carries with itself its own energy. That energy can be understood as the motion of the *Self* relative to the unmoving ocean. The point of view of the *Self*, the drop of water so to speak, is moving relative to the unmoving ocean. That motion can be understood as a vibration that gives the *Self* its own energy.

In the nondual sense of *absolute nothingness*, the ocean has no motion and has no energy. When we say the ocean spits out the drop of water as the *Self* is divided from its *Source*, that is not quite correct. The drop of water of the *Self* begins to congeal around itself due to its own motion or vibration as it begins to express energy. The drop of water differentiates itself from the ocean by expressing its own energy. The ocean doesn't spit out the drop of water. The drop of water spits itself out of the ocean due to its relative motion or vibration that gives it energy.

The energy of the *Self* is often referred to as consciousness in motion, which is literally the point of view of the *Self* in motion relative to the unmoving ocean. The individual being of the *Self*, with its own sense of being present as a presence of consciousness at its own point of view as it perceives things in a *subject-object relation*, is literally in a state of motion or vibration relative to the unmoving ocean. The *Self* is literally spitting itself out of the ocean due to its own motion or expression of energy. That expression of energy is how the *Self* divides itself from its *Source*.

Something strange happens when the *Self* divides itself from its *Source* through the expression of its own motion and energy. The ocean appears to have a surface. In its unmoving state, the ocean has no surface and is unlimited, but when the *Self* divides itself from its *Source*, the ocean appears to have a surface from that particular point of view. That surface arises because the *Self* is expressing energy in a state of motion. There is really no good way to understand how this happens without using concepts of modern theoretical physics and the holographic principle.

When the *Self* divides itself from its *Source* through the expression of its own motion and energy, the ocean appears to have a surface, and that surface limits the perceptions of the *Self*. To use another useful analogy, the surface of the ocean acts like a computer screen that displays images of a computer-generated virtual reality. In terms of the holographic principle, the surface acts as a holographic screen that is like a computer screen that displays images of a computer-generated virtual reality. That holographic screen always arises as an event horizon in the observer's

accelerated frame of reference, which literally arises from the accelerated motion of the observer relative to the motionless nature of the *absolute nothingness* of the void.

When the *Self* divides itself from its *Source* through the expression of its own motion and energy, the surface of the ocean acts like a computer screen that displays images of a computer-generated virtual reality. Like a computer screen, the surface encodes bits of information that give rise to the appearance of images projected from the screen to the point of view of the *Self* that perceives those images. Encoding bits of information on the surface is the essence of the holographic principle. This is inherently a divided and limited state of consciousness since the *Self* must divide itself from its *Source* to perceive those images, and the surface must limit the perceptions of the *Self* before those images can be projected from the screen to the *Self*. This perception of images by the *Self* is only possible because the *Self* has divided itself from its *Source* through the expression of its own motion and energy that gives rise to the appearance of the surface that is like a computer screen that displays images of a computer-generated virtual reality.

The second quality of the *Self* besides its own expression of energy is its focus of attention. The *Self* has to focus its attention on whatever it is perceiving. The *Self* has to focus its attention on the images it perceives projected from its own surface of the ocean that is like a computer screen that displays images of a computer-generated virtual reality. Those images are projected to the point of view of the *Self*, and the *Self* must focus its attention on those images for that projection to occur. There is a reciprocal relation between the *Self* focusing its attention on the images and the projection of those images from the screen to the point of view of the *Self* where the images are perceived, which is the inherent nature of the *subject-object relation*.

The focus of attention of the *Self* is also referred to as the *light of consciousness* since it is like the light of a movie projector that projects images from a movie screen to the point of view of the *Self*, which is like an observer out in the movie audience that perceives the images. The *Self* as a focal point of perceiving consciousness is also the source of the *light of consciousness* that projects images from the screen back to the *Self* through its focus of attention on those images.

The *Self* literally projects images of its own virtual reality as it focuses its attention on different aspects of that virtual reality. The perception of images of that virtual reality by the *Self* can only occur through the projection of those images from the screen to the point of view of the *Self*. That projection only occurs due to the *Self* focusing its attention on those images. The virtual reality is not only a projected reality, but also an animated reality. That animation arises over a sequence of projections. It is literally the energy of the *Self* that arises from the motion of the *Self* relative to the unmoving ocean that creates that animation. These two aspects of the *Self* explain the nature of the virtual reality. The focus of attention of the *Self* gives rise to the projection of images. The motion and energy of the *Self* gives rise to the animation of images. The animation of the projected images is often described as waves that appear on the surface of the ocean.

Even more central to the *Self* than its expression of energy or its focus of attention is its own sense of being present. Before the *Self* can focus its attention on the images of its virtual reality and project those images and before the *Self* can express its energy and animate those images, the *Self* must be present to play the virtual reality game. If the *Self* is not present to play the virtual reality game, then images of the game cannot be projected and images of the game cannot be animated. If the *Self* is not present to play the virtual reality game, then there is no sense of the individual being or *I-Am-ness* of a presence of consciousness that perceives and plays the game.

If the *Self* is not present to play the virtual reality game, then the individual existence of the *Self* ceases to exist as an individual presence of consciousness present at its own point of view. What happens to that presence of consciousness? The *Self* must return to its *Source*. This state of return is described as a dissolution, like a drop of water that dissolves back into the ocean.

What is the purpose of playing the virtual reality game? The answer is quite simple. The purpose is to live a life. The *Self* appears to live a life as it identifies itself with its character in the virtual reality game that it plays. The *Self* is both projecting the image of its character and animating that image as it plays the game. The *Self* literally expresses the energy that animates that life as it expresses the desire to live that life. What is the purpose of appearing to live that life? This is the same question as why is something better than nothing. The only alternative to appearing to live a life in the virtual reality game that the *Self* creates for itself as it plays the game is to return to the *absolute nothingness* of its *Source*. The virtual reality game is inherently conceptual in nature, and there are many interesting questions that the *Self* can ask itself and then look for answers. The virtual reality game is amusing, and the *Self* can amuse itself by playing the game.

The *Self* is willing to play the game as long as the game is amusing, but when the game is no longer amusing, what other option does the *Self* really have? The *Self* can always choose not to play the game. The *Self* has a limited ability to choose what it perceives in its own virtual reality through its focus of attention that projects images of the virtual reality and the way it expresses its energy that animates images of the virtual reality, but the *Self* has an absolute ability to choose whether or not to play the game. When the *Self* chooses not to play the game and it no longer focuses its attention on the game or expresses its energy in the game, the *Self* must return to its *Source*. When the *Self* is no longer willing to play the game, it returns to its true home.

The Origin of Connectedness

In terms of nondual reality, the source or origin of connectedness can be understood in terms of the undivided and unlimited nature of the absolute nothingness of Brahman, which can also be called undifferentiated consciousness. At the level of a holographic world, connectedness in action can be understood in terms of quantum entanglement. A holographic world is inherently an entangled world. Where does this entanglement come from? The answer is really quite simple. A holographic world is just like a computer-generated virtual reality that must inherently incorporate the ideas of energy and information, which is called entropy. In the last 25 years

modern physics has given a perfectly good scientific explanation for how the virtual reality is created in terms of very general principles of potentiality. The basic idea is that the building blocks of the virtual reality can be reduced to bits of information and the flow of energy. In quantum theory, the basic idea of a quantized bit of information is called a qubit. The simplest mathematical representation of a qubit is in terms of a 2x2 SU(2) matrix. The SU(2) matrix gives a representation of rotational symmetry on the surface of a sphere, while its two eigenvalues define information in a binary code, like a spin $\frac{1}{2}$ variable that can only point up or down. The surface of the sphere can always be understood as an event horizon that arises in an observer's accelerated frame of reference, like the event horizon of a black hole or a cosmic horizon that arises with the accelerated expansion of space, which is called dark energy or a cosmological constant. An nxn SU(2) matrix defined on that spherical surface can encode n qubits of information. This is the fundamental nature of the holographic principle of quantum gravity that tells us the accelerated observer's event horizon acts as a holographic screen that encodes qubits of information for everything the observer can observe in its own holographic world.

Everything the observer can observe in its own holographic world can be reduced to qubits of information encoded on its holographic screen that arises as an event horizon in the observer's own accelerated frame of reference. Those observable things not only include the elementary particles of the standard model of particle physics, but also the dynamical nature of space-time geometry that gives rise to the force of gravity. Everything observable is reducible to qubits encoded on the observer's holographic screen. An emotionally animated human life-form that appears in the observer's holographic world is also reducible to qubits of information encoded on the observer's holographic screen. Mental phenomena can also be added as another aspect of the observable things, such as thoughts, memories, self-concepts, and other forms of mental imagination. The holographic principle not only explains the nature of information in terms of qubits encoded on a holographic screen, which are inherently entangled as they arise as the eigenvalues of a matrix, but also explains the thermodynamic flow of energy through the observer's world in terms of the Unruh temperature of its event horizon, which is proportional to the observer's acceleration in its accelerated frame of reference. That acceleration is always relative to the motionless nature of absolute nothingness. Physicists made the mistake in the late nineteenth century of assuming that the motionless nature of absolute nothingness, which they called the ether, was a part of their holographic world, but it's not. Absolute nothingness is beyond a holographic world, which is like a computer-generated virtual reality. Only the motion of the observer is relative to the unmoving nature of absolute nothingness. The observer itself must arise from that absolute nothingness at a point of view like a drop arises from the ocean.

The big mistake people make is to assume that absolute nothingness is a part of the world they perceive. It is not. The world is a holographic world which is like a computer-generated virtual reality. Absolute nothingness is beyond that holographic world. Only the motion of the observer itself is relative to the motionless nature of absolute nothingness, but the observer is only a point of view that separates or divides itself from the undivided totality of that absolute nothingness.

The observer is a focal point of perceiving consciousness, which is called the *Self*. The *Self* must divide itself from its *Source* through the energy of its relative motion. That point of view always arises in relation to a holographic screen that encodes information and projects images of a holographic world. The holographic screen is an event horizon that only arises because of the observer's accelerated motion relative to absolute nothingness. Things only appear to move in that holographic world because of holographic projection and animation. Only the observer is really moving and really exists. Everything else that appears to move and exist is a holographic illusion created by holographic projection and animation. Everything else is no more real than a freaking holographic movie. Only the observer really exists and moves, but the observer must divide itself from absolute nothingness for that holographic movie to appear to exist.

The concept of duality is only valid at the level of perceiving things. There must be a source of the things being perceived and a source of the perceiver who is perceiving things. The source of perception can only be described as absolute nothingness, which is inherently nondual. The *Self* divides itself from its *Source* by expressing energy and moving relative to its unmoving *Source*. That motion is what creates the limitation of a holographic world. The *Source* is not only undivided but also unlimited. The *Source* cannot be conceptualized except in terms of negation.

Duality only applies at the level of a *subject-object relation* that defines *self and other*. There must be a *Self* that is perceiving things, and there must be something that is being perceived. Duality only applies at the level of perceiving things in the world, or in the mental imagination of thoughts, memories and daydreams, or in an actual dream. Where is your duality when you fall into a deep sleep and everything in your world disappears from existence from your own point of view? People in neuroscience would like you to believe that you become unconscious in deep sleep, but that's not true. You're never really unconscious because you're consciousness itself. In deep sleep you become aware of nothing, but you don't remember you were aware of nothing because there is a gap in your memory. Lack of memory is no proof that you didn't continue to exist as consciousness when you were in deep sleep and were aware of nothing. In deep sleep, you're aware of existing as that nothingness. There is no duality at the level of *self and other* in the awareness of nothingness, only the absolute nothingness of consciousness in its ultimate nondual stateless state. When that ultimate state of being aware of existing as nothingness is reached, like the Buddha, you can say "*Truly, I have attained nothing from total enlightenment*".

Nonduality is an essential aspect for any explanation for the nature of the world understood in terms of the holographic principle since there must be a source of the perceiving consciousness of the observer of that world and a source for the energy inherent in the observer's accelerated frame of reference. The observer's holographic world is defined on an event horizon that acts as a holographic screen that encodes qubits of information for that world, which only arises in the observer's accelerated frame of reference. The energy of that acceleration is expressed when the desire to live a life in that world is expressed. When that acceleration comes to an end, the observer's world must disappear from existence. When everything disappears, nothing remains.

The holographic principle, as a conceptual framework for the nature of information and energy, interpreted in the conceptual framework of nonduality, as an understanding for the nature of consciousness, is the only known logically consistent way for how to create a world that is free of paradoxes of self-reference that arise when the observer of that world is equated with some observable thing in that world, which along the lines of Godel's incompleteness theorems would shake the foundations of the mathematical consistency of that world, and free of the paradoxes of quantum theory, like the the Wigner friend paradox, that arise whenever multiple observers are assumed to exist in the same observable world. The price we pay for the logical consistency of that world is that world isn't really real. It's a holographic world. Oh well, c'est la vie.

Why is there life on planet earth? Consciousness is manifesting its desire to live that life. The emotional energy of that desire is expressed in the observer's accelerated frame of reference as the energy of that accelerated motion, and that desire is manifested in terms of how qubits of information are encoded on the observer's holographic screen that arises as an event horizon in its accelerated frame of reference. The whole freaking thing is a holographic illusion. Images of the holographic virtual reality are projected from the observer's holographic screen to its central point of view and animated in the flow of energy over a sequence of holographic projections. Only the consciousness or divided spiritual being of the observer (the individual spirit or *Self*) is real, which is the nature of Atmanic consciousness that is divided from Brahmanic consciousness and limited by a holographic screen. The *Source* of the whole freaking thing is the undivided and unlimited spiritual being of Brahmanic consciousness (the *One* undivided spirit). The irony of the *One* is the *Source* can only be described in terms of negation or non-conceptual terms as absolute nothingness, which is not only one in the sense of being undivided or non-dual but also infinite in the sense of being unlimited and nothing in the sense of being absolute nothingness.

What Science and Modern Physics are Really Trying to Tell Us

The hard mathematical science of modern physics tells us that the world is no more real than a virtual reality, like a virtual reality game that one plays on a computer screen. Modern physics in the context of the holographic principle tells us that the perceivable world consists of nothing more than forms of information projected like images from a holographic screen to the point of view of an observer outside that screen and the animation of those images in the flow of energy that animates that world. That's the nature of a holographic world. It isn't really real. It's a virtual reality. Just as the Bhagavad-Gita says, it's unreal. *It has no being*. The true nature of being solely belongs to nondual reality. Only nondual reality is really real. *It never ceases to be*.

When the word *truth* is used in any nondual tradition, this refers to the true nature of being, which is inherent to the nondual reality of the void. What about mathematical truth? Mathematical truth is inherent in the potentiality of the void to create geometry. As mathematicians have long known, all mathematical truths are geometrical in nature. Great mathematicians have been Platonists in the sense they know they only discover mathematical

truths inherent in the potentiality to create geometry. Geometrical mathematical truth is what underlies the geometric creation of the holographic illusion of a holographic world.

The void has no limits in terms of its expression of potentiality, but in order to create that holographic world in the form of a virtual reality in which living organisms appear to live, its expression of potentiality to create that geometry must become constrained in a way that leads to the expression of mathematical rules governing that world that are consistent with the expression of life. In physics, this constraint on the expression of potentiality by the void to create geometry in a way consistent with the expression of life is called the anthropic principle.

The anthropic principle is like natural selection on a cosmic scale. Each observer chooses what is best for itself from its own point of view in its own holographic world in terms of being able to live the best possible life in that world, but the choices of different observers are intertwined due to information sharing among their overlapping holographic screens. Entangled qubits of information for each observer's holographic world are encoded on its own cosmic horizon that arises due to the expansion of space. The acceleration rate with which space expands is called the cosmological constant in relativity theory. A change in this acceleration rate of the expansion of space results in a change in the radius of the observer's cosmic horizon. In physics this kind of change is conceptualized to occur as a phase transition from a less stable meta-stable state to a more stable meta-stable state as the acceleration rate takes on a lower value, which results in a larger radius of the cosmic horizon. Each phase transition in the value of the acceleration rate is like a new big bang event as the observer's cosmic horizon increases in size, decreases in temperature, and encodes more qubits of information. It's well known in physics that this kind of phase transition, called spontaneous symmetry breaking, can reset the parameters in the laws of physics, like the mass or charge of the electron. Every reset of the laws of physics is a kind of fine-tuning of those laws that allows the laws to be more compatible with the expression of life.

The anthropic principle reflects this fine-tuning of the laws of physics that occur during the phase transition with the resetting of the laws of physics. Each phase transition is like a new big bang event that creates a new universe, which is only possible because the acceleration rate of the expansion of space is transitioning to a lower value. Choices made during the phase transition in terms of resetting the parameters in the laws of physics are made in such a way as to be more compatible with the expression of life in the new universe. These choices always reflect an interplay of the expression of divine will that gives rise to the expansion of space that creates the geometry of a holographic world and the choices each observer makes in its own holographic world as it appears to live the best possible life of a living organism in that world.

The choices an observer makes in its own world allows the observer to become a co-creator of that world in conjunction with the totality of all choices made by all other observers that share a consensual reality with that particular observer and the expression of divine will. Divine will allows for the creation of geometry in the sense of the accelerated expansion of space that gives rise to each observer's cosmic horizon and the encoding of information on each horizon along the

lines of some geometric mechanism like non-commutative geometry. Even the flow of energy through the observer's world must arise from the expression of divine will along the lines of the expansion of space. An observer becomes a co-creator of its own world when it allows its choices to come into alignment with the expression of divine will. The anthropic principle tells us that those choices are directed in such a way as to best allow for the expression of life.

Ultimate truth cannot be equated with mathematical truth, but they are related. Ultimate truth is consciousness in its ultimate stateless state, which can only be conceptualized in terms of negation as *absolute nothingness*, but because it is undivided, it can also be called *one*, and because it is unlimited, it can also be called *infinity*. What it can't be called is two, hence the designation nondual. Nondual consciousness is the *Source* (Brahman). When the *Source* creates a dualistic world for its *Self* (Atman) to perceive in a *subject-object relation*, it can also be called *three* in the sense of the *trinity* of the *Source* (the Father), the *Self* (the Holy Spirit) and the person in the world (the Son). In the process of creating that dualistic world, Atman is divided from Brahman, and that dualistic world is limited by a holographic screen. The reason the *Source* can create *something from nothing* is because consciousness is becoming divided and limited. By its very nature, a holographic screen limits and divides Atman from Brahman as it encodes information for the holographic world that Atman perceives. A holographic screen and the images of a holographic world projected to Atman are inherently a geometric creation. The reason the *Source* can create a dualistic world is because the *Source* has the potentiality to create geometry. Mathematical truth only enters into the equation in terms of the creation of geometry. As mathematicians have long known, geometry underlies all mathematical truth, but ultimate truth underlies geometry. Ultimate truth has the potential to create mathematical truth whenever it creates geometry, which is an essential aspect of creating a holographic world.

Unless you've investigated the true nature of your own consciousness, you really have no idea what you're talking about when you talk about yourself. The problem is called delusion. Only consciousness has its own independent existence, but when consciousness identifies itself with a person in the world it perceives, it believes delusional beliefs about itself. Consciousness exists prior to the creation of that world, is present at the creation of that world, and is present for everything that appears to happen in that world. Consciousness exists before that world appears to come into existence and after that world disappears from existence. Whatever appears to happen in that world, consciousness is present to observe that happening. This isn't about anybody's consciousness in particular, but about the ultimate nature of consciousness. Everybody's consciousness is only a fragment of that ultimate consciousness. Consciousness is not personal. Consciousness does not belong to a person. A person is a physical organism, which is essentially an animated body that only appears in the world perceived by a presence of consciousness. There is only confusion about this fact because of the nature of delusion. The mind falsely tells consciousness that it is a person in the world it perceives as self-referential thoughts are created in the mind, and consciousness believes the lie of this false self-concept, which are the false beliefs that consciousness believes about itself, because those thoughts are

emotionally energized by the same emotional energy that animates the form of a body. As consciousness perceives that flow of emotional energy, it feels self-limited to the form of that emotionally animated body and identifies itself with that body. That personal self-identification is the nature of delusion, which is inherently driven by the expression of emotions.

An interesting project is to cross-reference what Nisargadatta Maharaj has to say about personal self-identification in *I Am That* with what neuroscientists say about personal self-identification. A good book to read on this subject is *The Feeling of What Happens* by Antonio Damasio. If you read Damasio closely, you'll see that neuroscience really has no explanation for the nature of consciousness in the sense of the perceiving observer who is perceiving thoughts and feelings, and has no idea who is identifying itself with the body. This is the reason that almost all people who work in neuroscience and artificial intelligence have come to the conclusion that perceiving consciousness is an illusion. They only acknowledge the reality of the things being perceived, like the emotional energy that energizes thoughts and the information content that's inherent in thoughts. They have no idea about the nature of the observer that is actually perceiving that energy and information content inherent in a thought.

Damasio describes the *movie-in-the-mind*, but then denies the existence of the observer out in the audience. For Damasio, the person and the world depicted in the movie are the only things that are real. Nisargadatta also describes the *movie-in-the-mind*, but doesn't deny the existence of the observer. For Nisargadatta, everything in the movie, including the person and the world, are unreal. Only the observer out in the audience, called the *Self*, is real. For Damasio, the *movie-in-the-mind* is a virtual reality created in the brain, while the body and the brain exist in a real world. For Nisargadatta, the world is a virtual reality depicted as the *movie-in-the-mind*. For Damasio, the movie screen is created in the brain. For Nisargadatta, the movie screen is the boundary of the observer's world, which in modern physics is called a holographic screen. That holographic screen always arises as an event horizon in the observer's accelerated frame of reference, and so there is a natural place for the observer as the perceiving consciousness present at the central point of view of its own holographic world. For Damasio, there is no natural place for the observer since the movie screen has to arise inside a brain inside the world. Like all neuroscientists, Damasio denies the existence of perceiving consciousness. The problem for neuroscience is the logical inconsistency of trying to create a *movie-in-the-mind* that depicts the life of a person in the world inside the brain of that person inside that physical world. The only natural place to depict that movie is on a holographic screen that bounds that world.

The denial of the existence of perceiving consciousness by neuroscience is very odd since all thoughts, like everything else in the world, is perceived in a *subject-object relation*. The subject is the observer and the object is composed of the energy and information content inherent in the thing being perceived. Neuroscience and artificial intelligence are denying the existence of the subject, which is the perceiving consciousness of the observer. This is very odd because every observer has its own inherent self-knowledge that it exists as the perceiving subject of whatever it is observing. Every subject has the inherent sense of being present as an observer of things and

knows that it exists, and yet neuroscience and artificial intelligence researchers deny the existence of perceiving consciousness and call that sense of your own existence an illusion.

The remarkable thing about modern physics and the holographic principle is it turns the nature of illusion totally around. The perceivable world is the holographic illusion created through holographic projection. Everything in the perceivable world can be reduced to qubits of information encoded on a holographic screen, and that holographic screen can always be understood to arise as an event horizon in an observer's accelerated frame of reference. Understanding the observable world in this way tells us that the world is the holographic illusion and only the perceiving consciousness of the observer has its own independent existence. The existence of the perceiving subject exists before that holographic world appears to come into existence, while events are being perceived in that world, and after that world disappears from existence. Where do you think you go when you fall into a deep sleep at night and your world disappears from existence? Once you stop identifying yourself with the person in the world you take yourself to be as you perceive that world and know yourself only to be the perceiving subject of that world in the sense of being present as a presence of perceiving consciousness at the central point of view of that world, then you know the answer to this question.

Physicists that buy into the conventional physicalism paradigm that physical reality is the only reality and deny the independent existence of the reality of consciousness will object that a person's body still appears to exist in the world when that person is in a state of deep sleep. This observation really has nothing to do with the reality of consciousness, but only pertains to the consensual reality shared by multiple observers that appears to exist due to information sharing. Multiple observers, each present at their own point of view and each observing their own holographic world defined on their own holographic screen, can share a consensual reality when their respective holographic screens overlap in the sense of a Venn diagram and share information. Even when an observer's own holographic world disappears from existence from its own point of view, other observers can continue to observe that particular observer's inanimate sleeping body in their own holographic worlds due to information sharing. When multiple people play an interactive virtual reality game on their own computers, each connected to the internet, and one of the people turns off the game, the avatar of that person still appears in the game played by the other people, except that particular avatar will no longer be animated when its owner no longer plays the game. Falling into a deep sleep is analogous to turning off the game.

Physicists that buy into the physicalism paradigm deny the possibility of individual choice in a world of potentiality and deny the independent existence of consciousness as the observer of that world, and are often forced into the camp of the many worlds interpretation of quantum theory along with elements of quantum decoherence if they want to maintain any semblance of logical consistency, but that's not the correct way to understand the world. The correct starting point is to assume the independent existence of the consciousness of the observer and show how the holographic principle naturally leads to what we call physical reality. Physical reality is not really something fundamental, but is more like a virtual reality, sort of like the Matrix.

Choice is an inevitable aspect of the world due to the potentialities of the world. The quantum state of the world is a superposition of all possible potentialities. In order to reduce this quantum state of potentiality to an observed state of actuality, a choice has to be made. When you come to a fork in the road, you have to choose which path to take. When you order off a menu, you have to make a choice about what to order. If you say that no choice is made, then you're saying that everything is predetermined in some cosmic Newtonian deterministic mechanism and that there really is no quantum state of potentiality. Either you're assuming the Einsteinian or Bohmian idea of nonlocal hidden variables that determine everything or you're assuming the Everett many worlds interpretation of quantum theory. That's certainly possible, but the correct understanding of the world keeps potentiality an inherent aspect of the world. A choice must be made every time the superposition of potentialities is reduced to an observed state of actuality.

The basic problem with the physicalism paradigm is there is no place for an observer to exist inside the world that the observer perceives. There is no logically consistent way an observer that exists inside an observable world can choose what it observes in that world in the sense of reducing the quantum state of potentiality of that world to an observed state of actuality. It is logically inconsistent to assume that multiple observers exist inside the same observable world and each makes choices in that world that reduce the quantum state of potentiality of that world. That kind of assumption leads to paradoxes like the Wigner friend paradox. The only logically consistent way to resolve this problem is to assume that every observer observes its own observable world and makes choices in that world as the quantum state of potentiality of that world is reduced to an observed state of actuality, but then the observer really doesn't exist in that observable world. The holographic principle tells us that the observer exists at the center of its own holographic world as images of that world are projected from a holographic screen to the observer's central point of view. That holographic world is observer-dependent and only arises in the observer's accelerated frame of reference as the observer's holographic screen arises as an event horizon. Multiple observers, each existing at their own point of view, can only share a consensual reality in the sense of information sharing among overlapping holographic screens. An observer can only choose what it observes in its own holographic world in the sense of how the observer focuses the attention of its perceiving consciousness on events in that world.

Physics says that choices are made in an unbiased or random way, but even a random choice is a choice. There is also the possibility that choices can be made in a biased way. Who would make those biased choices? The answer is the observer makes its own biased choices based on the way the observer focuses its attention on events in the world it perceives. The observer has preferences because the observer has likes and dislikes. For example, the observer likes experiencing pleasure and dislikes experiencing pain. This brings us to the problem of qualia. Physics can only describe mathematical quantities, but when we perceive things, we perceive subjective qualities. Physics can only specify the wavelength or frequency of a light wave, and no one who works in neuroscience or artificial intelligence can explain how that mathematical quantity is perceived as the quality of color. The problem of qualia is inherent to the nature of

consciousness itself. Consciousness has its own preferences of likes and dislikes, essentially what feels good and what feels bad, and will always choose to focus its attention in such a way as to choose what it likes and avoid what it dislikes. The reason consciousness can make choices is because the world that consciousness perceives is described by a mathematical quantum state of potentiality. Consciousness is making a choice every time that quantum state is reduced to an actual observed state. Who is making that choice? You are making that choice as the observer or as a presence of perceiving consciousness at the central point of view of your own holographic world. You make that choice as you focus your attention on that world. At night when you fall into a deep sleep, you withdraw your attention away from that world and that world disappears from existence from your own point of view, but you still exist as consciousness.

Neuroscientists object that the problem of qualia remains unsolved because the information processing of the brain is extremely complex and there's no telling what form that processed information will take, but this complexity argument is really only a smoke-screen for the logical inconsistency of their argument. The problem is, the input data into the brain is in the form of mathematical quantities, like the rate with which neurons fire their electro-chemical outputs of synaptic potentials. These synaptic potentials are transmitted between neurons, and so there is the transmission of electro-chemical information. When a large number of neurons are involved in this information transfer, as happens in the brain, some kind of information processing does indeed occur. The problem is, the output of this information processing is also in the form of synaptic potentials. The output data is still in the form of mathematical quantities. Neuroscience has absolutely no explanation for how this mathematical output data is perceived in the form of subjective qualities. Just like the problem of how the frequency of a light wave is perceived as a color, how is a neuron firing rate perceived as a subjectively perceived quality? Neuroscience has no answer and never will have an answer because the perception of subjectively perceived qualities is inherent to the nature of the perceiving subject and not to any mathematical quantity that characterizes a perceived object. The problem is that neuroscientists deny the existence of the perceiving subject because they deny the existence of perceiving consciousness, and so they will never be able to find a solution for the problem of qualia. Subjectively perceived qualities like color are not an aspect of the mathematical quantities that characterize perceived objects but rather of the perceiving subject that perceives objects in a *subject-object relation*.

Physicists make two mistakes when they discuss the holographic principle. The first mistake is they don't take an observer-centric point of view. They mix up what appears to happen in the bulk with the way qubits of information are encoded on the screen. The bulk description includes space-time geometry, the force of gravity that arises from the curvature of space-time geometry, the particles of the electromagnetic and nuclear forces, and all the matter particles that comprise things like atoms, molecules and bodies. Everything we perceive in the world is part of the bulk description. The holographic screen description only describes the way qubits of information are encoded on the screen. That holographic screen always arises as an event horizon that bounds the

space-time geometry of the observer's own holographic world. The screen arises from the central point of view of the observer in the observer's own accelerated frame of reference.

The mistake physicists make is to mix up the bulk description with the screen description. They are mixing up apples with oranges. The only consistent way to discuss the holographic principle is to discuss the way qubits of information are encoded on a holographic screen and whatever the observer that arises in relation to the screen in its accelerated frame of reference observes in its own world as images of things are projected from the screen to the observer's point of view. The projected images of things aren't really real since they can be reduced to qubits of information encoded on the screen. Only the observer and its screen should be discussed. The images of things that appear in the bulk are only an illusion created by holographic projection.

The second mistake is to assume thermal equilibrium. Physicists assume thermal equilibrium because they are limited in terms of what they can discuss. They can only discuss an isolated simple system like a hydrogen atom, a planetary orbit, or an isolated black hole. To discuss anything more complicated they have to assume thermal equilibrium, but the physical universe is not at thermal equilibrium, and so will exhibit levels of complexity that they just can't discuss.

The non-thermal equilibrium nature of the universe is the nature of life. Life can only come into existence in a thermal gradient since it must feed off of the flow of energy that flows through that thermal gradient. When physicists assume thermal equilibrium they're assuming a single physical mechanism or theory of everything that describes everything that can appear to happen in the universe. They're restricting the potentialities of the universe to a single physical mechanism. That's why they have to postulate a multiverse theory in order to recover infinite potentialities, but even the potentialities of a single universe are infinite when consciousness is deciding which potentialities to express. There are an infinite number of physical mechanisms or theories of everything that consciousness can choose to operate in the universe, which is why the physical universe will never be at thermal equilibrium. Consciousness can choose a new physical mechanism to operate in the universe anytime it wants to and create the conditions of non-thermal equilibrium that are conducive for the expression of life so that consciousness can have the experience of living a life in the virtual reality world that it creates for itself. In its own creative process of creating that world, consciousness will express any potentiality it has to in the sense of a physical mechanism or theory of everything that is conducive to living that life.

Physicists argue that there is a single observer-independent objective reality out there that all observers can observe and agree upon as they make their observations, but this is only a flaw or logical contradiction in their argument. This is the same mistake physicists make over and over again due to sloppy thinking. To even ask the question of what appears to happen inside an event horizon versus what appears to happen outside an event horizon requires a meticulous definition of the frame of reference of the observer. What appears to happen can only be defined from the point of view of the observer that makes the observation. What appears to happen from one point of view is not the same as what appears to happen from another point of view. In other words,

there is no such thing as an objective reality out there that all observers will agree upon, only many different subjective realities that depend on the point of view of the observer that makes the observation. There is no such thing as an objective reality that is invariant for all observers. Every observer observes its own observer-dependent subjective reality. This conclusion is so obvious it almost seems trivial. Can anyone observe your own private thoughts except for you?

People who work in neuroscience would like us to believe that brain activity creates our thoughts since they can show a correlation between certain kinds of brain activity and certain kinds of thoughts, but this is a fallacy based on unsound scientific reasoning. A correlation gives no proof of causation, and observing brain activity is most definitely not the same as observing a thought. The only way science can give any evidence for cause and effect is through prediction. If a scientific theory can predict future events with a high degree of accuracy, that is strong evidence for a cause and effect. The only science that is able to perform this trick is theoretical physics. A theory like the law of gravity can predict the location of a planet in its orbit around the sun at future moments in time with a high degree of accuracy if the planet's location is known at some past moment in time. No science other than theoretical physics can make such predictions, and so no other branch of science can say anything important about cause and effect. At most, other branches of science can only show a correlation between events, but that is not evidence that one event caused another event. Our thoughts will always remain private to us as we observe them, no matter what people in neuroscience say about the role brain activity plays in creating our thoughts. No one can predict our thoughts, and no one other than ourselves can observe our own thoughts. Our thoughts are a part of our own subjective reality. Even theoretical physics with its evidence for cause and effect through the prediction of future events no longer supports the false idea held by so many scientists that there is a single observer-independent objective reality out there that we can all independently observe and agree upon as we make our observations. Modern physics with the holographic principle is telling us that every observer observes its own observer-dependent subjective reality. Every observer observes its own holographic world. That holographic world can only arise in the observer's own accelerated frame of reference. The holographic principle also tells us that everything is the cause of everything else in a holographic world since all the qubits of information encoded on a holographic screen are entangled. At most, only a consensual reality is shared by many observers when their respective holographic worlds overlap in the sense of a Venn diagram and share information. The holographic principle tells us that the observer's own subjective reality can only arise in its own frame of reference.

There's no real difference between the perception of mental imagination and perception of the so-called real world. They both consist of animated images projected from a holographic screen to the point of view of an observer. In the case of the so-called real world, a consensual reality arises from information sharing among overlapping holographic screens and so there's consensus among many observers. In the case of mental imagination, there is some kind of disconnection, like occurs during dreaming sleep, and the projected images are perceived by a single observer.

This disconnection from other points of view keeps mental imagination a private experience. The only real difference is whether there's consensus or not among different points of view.

Whatever is observed by an observer in its own observer-dependent holographic world depends on the frame of reference of the observer. Whose point of view are we talking about when we describe what appears to happen from that particular point of view? Unless we frame the question in this way, we're only spouting nonsense due to sloppy thinking. We're making the same mistake almost all physicists make when they falsely assume that there is only a single observer-independent objective reality that is invariant for all observers and that all observers will agree upon as they make their observations. Even the apparent existence of a particle is not observer-independent, as is demonstrated by Hawking radiation. From the point of view of a stationary observer that hovers outside the event horizon of a black hole, particles of Hawking radiation appear to exist, but for a freely falling observer that falls through the event horizon, particles of Hawking radiation do not appear to exist. In reality, every observer creates its own observer-dependent subjective reality from its own point of view, but then what is the true nature of the observer? To answer this question requires a discussion not of physics, but metaphysics. What is the true nature of the observer's existence? A number of metaphysical traditions, like the Tao, Zen, and Advaita Vedanta, attempt to give a conceptual answer to this question, but ultimately this question can only be answered by an observer's own direct experience of the true nature of its existence, and not by any concept that an observer can ever have about itself.

The holographic principle is really quite simple. The purpose of discussing the physical world in terms of the holographic principle in this article is to put the nondual conceptualization of reality called Advaita Vedanta into a scientific framework. The most advanced version of this nondual conceptualization of reality is described by Nisargadatta Maharaj in *I Am That*. The purpose of this discussion is to fulfill Nisargadatta's final wish that the awakening process, as he described it, be translated into scientific terms. It's possible to make a one to one correspondence with the way Nisargadatta and other enlightened beings have described their awakening process and what the holographic principle is telling us. The physics isn't really anything fundamental, but by the way the physics is expressed in terms of very general principles of potentiality, the physics is pointing to something, actually the absolute nothingness of the void, that is fundamental.

Nisargadatta's Final Wish

Nisargadatta at the end of his life expressed his final wish that his conceptual discussions of the nature of the awakening process become scientific concepts. Just like all scientists, all science is part of the virtual reality, but that doesn't mean that science is wrong when it says the world is a holographic world. A holographic character in a holographic world can realize that it's living in a holographic world because the consciousness present for that holographic character can have that realization, just as Neo in the Matrix can realize he's living in a virtual reality. Consciousness isn't really a part of that holographic world. Consciousness is always outside that world, in the audience, only watching as the holographic movie of that world plays on a holographic screen.

Consciousness only believes it is a part of the holographic movie it is watching when it identifies itself with its holographic character in the movie. The important distinction is the consciousness watching the holographic movie is a divided presence of consciousness, which is called *I Am*, the *Self*, Atman, the witness, the *spirit of God*, or whatever else we want to call it. Anytime it wants to, a divided presence of consciousness can stop watching the movie and return to its true undivided state of nondual reality, but then it knows nothing. Nothing is known, nothing is done and nothing exists in that ultimate undivided and unlimited state of pure consciousness because that nondual absolute nothingness is what ultimately exists at the ground level of existence.

Nisargadatta has given an exquisitely detailed description of this state of affairs. Through his direct experiences, he has described a holographic world in exquisite detail. He also discussed the nature of nondual reality. What's odd is that his descriptions are so universally ignored by the same people that revere him as a saint. What is it that people don't want to know?

Nondual reality emotionally creates dualistic reality like the virtual reality of the Matrix so that it can communicate with itself. This kind of verbal communication can only appear to come into existence when emotions are expressed, which is literally how the world is created as the *spirit of God moves over the face of the deep*. Without that motion, there is only the darkness of the deep, the void, or the formless nothingness of pure consciousness that is truly *alone* since it is *All-One*. It has *No-self* because it has nothing to perceive in a *subject-object relation of self and other*.

At the ground level of the ultimate nature of existence nothing is known because that nothingness is what ultimately exists. The only way the kind of verbal communication that we experience in the world is even possible is if nondual reality creates a virtual reality for itself to communicate within, and that creation is always emotional. Creation is literally the *spirit of God* (Atman, the *Self*, *I Am*, the witness, or whatever else we want to call it) moving over the *face of the deep*, which is a holographic screen that allows a holographic world to appear to come into existence, but that holographic world is no more real than the virtual reality of the Matrix.

The irony is that science and the mathematics of modern physics that underlies all of science is just as much a part of the virtual reality as is anything else. Nisargadatta expressed his final wish during the last days of his life that the nature of nondual reality, or more specifically, the journey of awakening that takes one to the direct experience of nondual reality, be discussed in scientific terms. Nisargadatta was fully enlightened and truth realized, and yet he didn't spend all of his time getting lost in the void in some catatonic or Samadhi trance of experiencing nothingness. He discussed the nature of nonduality in conceptual terms, and expressed his final wish that these concepts become scientific concepts. Of course, his comments were as much a part of dualistic reality as anything anyone else can say. It's all dualism. Take away dualism and there is only the absolute nothingness of nondual reality, but like a roadmap, the only way anyone can point to the non-conceptual nature of nondual reality is by discussing it in conceptual terms.

Maybe that's the reason nondual reality creates dualistic reality. Jed McKenna says dualistic reality is an *amusement park*, and that's certainly part of it, but maybe it's also created so nondual reality can communicate with itself about the true nature of what it really is. McKenna calls that communication *truth-talk in the dreamstate*, but even that talk is just another *ride in the park*.

Take the Red Pill

Anyone who has read this article to its logical conclusion is at least open to the possibility that physicalism is a false paradigm. The question everyone has to ask themselves is why is there so much emotional resistance to this possibility? The resistance against rejecting physicalism as a false paradigm about the nature of the world is not based on logical reasoning, but solely on emotional reactions against this possibility. Where does this emotional resistance come from?

The answer is the ego. The ego or personal self-concept is entirely an emotional creation, as is well accepted in both psychology and neuroscience. The ego is mentally constructed as a personal body-based self-concept is emotionally related to the concept of some other thing. The personal self-concept is a mentally constructed self-image, while the concept of the other thing is a mentally constructed image of the other thing. These mentally constructed images must be emotionally related for the ego to *appear to come into existence*. The ego can only *appear to come into existence*, since these mentally constructed images can only be constructed out of what can be perceived in the world. The question the ego can never answer is about the true nature of the perceiver. What is the true nature of perceiving consciousness that perceives these images?

At a more fundamental level than the mental-emotional construction of the ego, the experience of *self and other* can only arise in a *subject-object relation* as an observer observes some observable thing in its own observable world. The holographic principle is telling us that the true subjective nature of the observer is a focal point of perceiving consciousness at the center of the observer's own holographic world, and that the objective nature of all things in that world are only forms of information encoded on the observer's holographic screen, which only arises as an event horizon in the observer's accelerated frame of reference. Those observable things include the observer's body and all the mental images constructed in the observer's mind. A body-based, emotionally energized, mentally constructed personal self-concept cannot be the true nature of the observer since that self-concept is only another form of information the observer perceives.

There can only be an illusion that the observer is a personal self-concept when the observer feels emotionally self-limited to the emotionally animated form of its body. That emotional feeling of self-limitation is the only thing that can create the illusion that the observer is a person in the world that it perceives. In reality, the observer has its own independent existence as a presence of perceiving consciousness at the central point of view of its own holographic world. That is the only logically consistent way to interpret the holographic principle.

The holographic principle is a hammer. All that's being done in this article is to hammer away at the logical inconsistencies inherent in the conventional physicalist way science is understood.

This strategy hammers away at the logical inconsistencies inherent within science when science is understood in the context of a personal self-concept that is assumed to understand science. This of course is logically impossible, since a personal self-concept must itself arise from the logical structure of science to be a scientific thing. The critical thing to realize is that scientific things are all observable things. The holographic principle is telling us that the *Self* in the sense of the observer of the observable things is not itself an observable thing. The *Self* can only be a presence of consciousness at the center of its own holographic world, which is not an observable thing. Only the *Self* can have its own independent existence, called *I Am*, independent of all the observable things the *Self* observes in its own observable world. The *Self* is aware of its own independent existence with its own sense of being present to observe that observable world.

The observable things are all a part of the holographic world the *Self* is observing, including the person in that world the *Self* mistakenly takes itself to be by emotionally identifying itself with the emotionally animated form of a person. To assume that a person is an observing *Self* is a logical contradiction. That is the logical contradiction in science that's being hammered away at. What is surprising is that more people in science can't see that logical contradiction and don't use the holographic principle to hammer away at it. This really shouldn't be surprising since the ego will believe any logical contradiction it has to believe to defend its own survival and apparent existence. Who wants to realize their apparent existence as a person in the world they perceive, which is their personal self-concept, is only a holographic illusion? The answer is nobody.

People in science who search for a *Theory of Everything* are searching for an answer that has already been discovered. The answer is inherent in the logical implications of the holographic principle. The holographic principle as demonstrated by the AdS/CFT correspondence deduced from M-theory or in matrix models that utilize the geometric mechanism of non-commutative geometry gives a perfectly good scientific answer to the questions scientists are asking. The problem is that scientists ignore the answer because they don't like the answer even though the answer is the only logical possibility. All the other answers they seem to prefer and look for are logically impossible. If they really were good detectives like Sherlock Holmes, they would reject the logically impossible answers and accept the only logically possible answer. When you've ruled out everything that's impossible, whatever remains, no matter how implausible it seems, must be the truth. The true answer only seems implausible to them because they don't like the answer, not because the answer is untrue. The answers they prefer and find more plausible are the logically impossible answers. If they really carried the logical implications of the holographic principle to its logical conclusion, they would discover what in Zen Buddhism, Taoism and Advaita Vedanta is called nonduality.

The concept of nonduality is all about the *Source* of the observable physical world and the *Source* of the observing consciousness that perceives that observable physical world. This is the part of the answer they're ignoring. They're ignoring the *Source*. If they were really serious about discovering a true conceptual answer, they would consider the *Source*. Ironically, no conceptual answer can ever really describe the nature of the *Source* since the *Source* is non-conceptual in

nature. That's why in Zen Buddhism, Taoism and Advaita Vedanta no value is given to any possible conceptual answer, but only to the direct experience of the *Source*. One has to go beyond conceptual answers to have that direct experience. Of course, if they really did that, there would be no purpose in their search for a scientific answer. They're trying to answer a question that really can't be answered, at least not at a conceptual or scientific level.

People in science who continue to believe in the physicalism paradigm have taken the blue pill. They're unwilling to confront the unpleasant truth about the nature of their own life. They remain in a blissful state of ignorance and believe whatever they want to believe. They take the blue pill because they can't give up or let go of their emotionally created beliefs. They're emotionally attached to their beliefs. The core belief they can't give up is their belief that they are a physical person in the physical world they perceive. The only thing that props up this false belief is the emotional energy inherent in the mental construction of this belief, which makes it feel real.



There is No Spoon

To take the red pill is to go beyond beliefs. To go beyond beliefs is to go beyond the expression of emotions that create all beliefs. That emotional energy is what animates the life of a physical person in the physical world one perceives and makes that life feel real. The core belief that one has to give up in order to go beyond belief is the false belief that one is a physical person in the physical world one perceives. To awaken to the truth of what one really is, one has to become willing to believe nothing. One can only realize the truth without belief because *No belief is true*. Believing nothing is a necessary step in the process of doing nothing and becoming nothing, which eventually leads to knowing nothing. One eventually knows the non-conceptual absolute nothingness that is the truth of one's own existence, which is the truth of what one really is.

Final Postscript: On the Nature of Belief

People will believe whatever they want to believe because that is what they want to believe. Their beliefs are emotionally energized and feel real. Beliefs don't have to have any logical consistency, they only have to feel real. That's the nature of the ego, which is really only a belief that you believe about yourself. You believe that you are a person in the world that you perceive.

You believe this because it feels real as you perceive the expression of emotional energy. That feeling of reality is what makes beliefs believable, not their logical consistency. That's why when you begin to examine your ego in a serious way, you're shocked by all the stupid things you believe about yourself. You're shocked that none of it makes any real sense. There is no logical consistency to the ego, only a feeling of reality that arises from expressing the emotional energy that defends the survival of the ego as a self-concept of what you are. The ego is only about defending its own survival as a concept of what you are, but that self-concept is inherently false. In reality, you are a *presence of consciousness* that falsely believes that you are a physical person in the world you perceive. As long as you are under the influence of your ego, the ego is what you'll believe about yourself. In reality, you don't know who you are when you emotionally identify yourself with your ego. You feel that you are your ego when self-defensive emotions are expressed and you feel self-limited to a personal form as you perceive the emotional energy animating that personal form. That's why you emotionally identify yourself with your ego.

What people want to feel more than anything else is to feel powerful and in control of things. The ego is all about expressing that desire to feel powerful and in control because that is how the ego defends its own survival. The desire to be in control is self-defensive. That feeling of being in control is a *denial of death*. The death the ego wants to deny is its own death. The ego denies its death by feeling powerful and in control. To realize the truth of what you really are, you have to give up that desire to be in control. You have to become willing to die at the level of *ego-death*. The *acceptance of death* is always a *surrender* in which you give up your desire to control things and defend yourself. Personally biased emotions are only expressed because of personal bias in the focus of your attention. When you surrender, you lose that personal bias in the focus of your attention. You give up the expression of your own personally biased individual will and surrender to something greater than yourself: *divine will*. What really dies away is the expression of the personally biased emotional energy that animates all the false beliefs you believe about yourself that you are a person in the world you perceive. Only after those false beliefs die away and you no longer believe in a personal self-concept can you discover the *truth* of what you really are: a *spiritual presence of consciousness*.

Jesus described this discovery as a *death-rebirth transformation*, in which your false personal self-identification with the form of a body dies away and you can only identify yourself with your true spiritual nature. You discover *the truth that sets you free*, the *truth* of what you are.

The problem with all explanations about the nature of reality is that *ultimate reality* cannot be conceptualized. *Ultimate reality* can be directly experienced, but that experience requires you to make a journey from where you are right now as you read these words. At best, explanations can only play the role of a roadmap that points out travel directions in that journey.

That journey is called *the path of return*. Although *ultimate reality* cannot be conceptualized, the best explanation we have is the one given by Shankara in terms of the concepts of Atman and Brahman. The ultimate nature of what you really are is Brahman, which is the *non-conceptual*

absolute nothingness. When you perceive your own world as a *presence of consciousness*, you are Atman. You have *focalized* your existence into a point of view, but the world you perceive is really no more real than a virtual reality movie that you're watching. That point of view is moving relative to the unmoving *absolute nothingness*. This is where modern physics comes into the story, as it explains how that moving point of view is like an observer in an accelerated frame of reference that gives rise to an event horizon that acts as a holographic screen that projects all images of that world to your point of view. That motion also explains how images are animated like the frames of a movie. When that motion comes to an end, that world must disappear from existence from that particular point of view, and the unmoving point of view must dissolve back into the motionless *absolute nothingness* like a drop of water that dissolves into the ocean. Modern physics even explains this state of dissolution in terms of an observer in a freely falling frame of reference. The *path of return* is experienced as falling into and dissolving into the void. *Ultimately, Atman is Brahman.*

*In the beginning God created the heaven and the earth
And the earth was without form and void
And darkness was upon the face of the deep
And the Spirit of God moved upon the face of the waters
And God said 'Let there be light'; and there was light
And God saw the light, that it was good
And God divided the light from the darkness*

*Never the spirit was born,
The spirit shall cease to be never,
Never was time it was not.
End and beginning are dreams.*

*The unreal has no being.
The real never ceases to be.*

Now I Am become death, the destroyer of worlds.

*In the silence and the void
Standing alone and unchanging
Ever present and in motion
I do not know its name
Call it Tao*

Tao in the world is like a river flowing home to the sea

Returning is the motion of the Tao

*It returns to nothingness
It leads all things back to the great oneness*

*Ever desireless, one can see the mystery
Ever desiring, one can see the manifestations
These two spring from the same source
This appears as darkness
Darkness within darkness
The gate to all mystery*

*The great path has no gates
Thousands of roads enter it
When one passes through this gateless gate
One walks the universe alone*

Empty yourself of everything

*The man of Tao remains unknown.
Perfect virtue produces nothing.
No-self is true self
And the greatest man is nobody.*

*That which permeates all, which nothing transcends, and which like the universal space around
us fills everything completely from within and without, that Supreme non-dual Brahman
That thou art*

*Brahman is the only truth, the world is illusion, and there is ultimately no difference between
Atman and Brahman.
-Shankara*

*He must dare to leap into the Origin so as to live by the Truth and in the Truth, like one who has
become one with it. He must become a pupil again, a beginner; conquer the last and steepest
stretch of the way, undergo new transformation. If he survives its perils then is his destiny
fulfilled; face to face he beholds the unbroken Truth, the Truth beyond all truths, the formless
Origin of origins, the Void which is the All; is absorbed into it and from it emerges reborn.
-Eugen Herrigel*

*We call Buddha the awakened one. This awakening is really the cessation of inner dreaming.
When there is no dreaming you become pure space. This non-dreaming consciousness is what is
known as enlightenment.*

*The inner emptiness itself is the mystery.
When the inner space is there, you are not.
When you dissolve, the inner emptiness is there.
When you are not, the mystery will be revealed.
You will not be a witness to the mystery, you will be the mystery.*

*If you go on inquiring 'Who am I?' you are bound to come to the conclusion that you are not.
This is an inquiry to dissolve. There is no answer. Only the question will dissolve. There will be
no one to ask 'Who am I?' And then you know.*

*When the 'I' is not, the real 'I' opens. When the ego is not, you are for the first time encountering
your being. That being is void.*

*You fall into an abyss, and the abyss is bottomless: you go on falling. That is why Buddha has
called this nothingness emptiness. There is no end to it. Once you know it, you also have become
endless. At this point Being is revealed: then you know who you are, what is your real being,
what is your authentic existence.*

*That Being is void.
-Osho*

*The door that locks you in is also the door that lets you out.
I Am is the door. Stay with it until it opens. It is always open, but you are not at it.*

You are and I am, but only as points in consciousness.

*Nothing perceivable is real. Only the onlooker is real, call him Self or Atman. That which makes
you think that you are a human is not human. It is a dimensionless point of consciousness.
All you can say about yourself is I Am.*

*At the root of my being is pure awareness, a speck of intense light. This speck, by its nature,
radiates and creates pictures in space and events in time, effortlessly and spontaneously.*

*I see only consciousness, and know everything to be but consciousness, as you know the pictures
on the cinema screen to be but light.*

*Once you realize that there is nothing in this world which you can call your own you look at it
from the outside as you look at a play on the stage or a picture on the screen.*

*To know the picture as the play of light on the screen gives freedom from the idea that the picture is real. In reality I only look. Whatever is done is done on the stage.
Joy and sorrow, life and death, they are real to the man in bondage.
To me they are all in the show, as unreal as the show itself.*

It is enough to shift attention from the screen onto oneself to break the spell.

To the Self the world is but a passing show. The world just sprouts into being out of nothing and returns to nothing. As long as the Self is merely aware, there is no problem.

You can stop it any moment by switching off attention.

You make it possible by giving it attention.

To be born means to create a world around yourself as the center.

You are that point of consciousness.

By your movement the world is ever created.

Stop moving and there will be no world.

Delve deeply into the sense I Am and you will discover that the perceiving center is universal. All that happens in the universe happens to you, the silent witness. Whatever is done is done by you, the universal and inexhaustible energy.

There can be no universe without the witness, no witness without the universe.

You are the source of reality, a dimensionless center of perception that imparts reality to whatever it perceives, a pure witness that watches what is going on and remains unaffected. It is only imagination and self-identification with the imagined that encloses and converts the inner watcher into a person.

The person is merely the result of a misunderstanding.

In reality there is no such thing.

Feelings, thoughts and actions race before the watcher in endless succession.

In reality there is no person, only the watcher identifying itself.

The world you can perceive is a very small world, entirely private. The world is but a reflection of imagination. Take it to be a dream and be done with it. What you call survival is but the survival of a dream. By forgetting who you are and imagining yourself a mortal creature you create so much trouble for yourself that you have to wake up, like from a bad dream.

Some go on a journey and come back, some never leave. What difference does it make since they travel in dreamlands, each wrapped up in his own dream. Only the waking up is important.

Once you have seen that you are dreaming, you shall wake up, but you do not see because you want the dream to continue. A day will come when you long for the ending of the dream. You become willing to pay any price. The price will be dispassion and detachment, the loss of interest in the dream.

I am like a cinema screen, clear and empty.

The pictures pass over it and disappear, leaving it as clear and empty as before.

The screen intercepts and reflects the pictures. These are lumps of destiny, but not my destiny; the destinies of the people on the screen.

The character will become a person when he begins to shape his life instead of accepting it as it comes-identifying himself with it.

All this I perceive quite clearly, but I am not in it.

I feel myself as floating over it, aloof and detached.

There is also the awareness of it all and a sense of immense distance as if the body and the mind and all that happens to them were somewhere far out on the horizon.

To myself I Am neither perceivable nor conceivable.

There is nothing I can point out and say "this I am".

Everything is a play of ideas. In the state free from ideation nothing is perceived. The root idea is I Am. It shatters the state of pure consciousness and is followed by the innumerable sensations and perceptions, feelings and ideas which in their totality constitute God's world. The I Am remains as the witness, but it is by the will of God that everything happens.

At the root of all creation lies desire.

The projecting power is imagination prompted by desire.

Desire and imagination foster and reinforce each other.

All limited existence is imaginary.

Even space and time are imaginary.

Pure being, filling all and beyond all, is not limited.

All limitation is imaginary.

Only the unlimited is real.

The totality of all mental projections is the Great Illusion.

When I look beyond the mind I see the witness.

Beyond the witness is infinite emptiness and silence.

Awareness comes as if from a higher dimension.

You must realize yourself as the silent witness of all that happens. Your consciousness raised to a higher dimension, from which you see everything much clearer.

The witness that stands aloof is the watchtower of the real, the point at which awareness, inherent in the unmanifested, contacts the manifested.

When you refuse to open your eyes, what can you be shown?

Find the immutable center where all movement takes birth. Be the axis at the center, not whirling at the periphery. Nothing stops you except fear. You are afraid of impersonal being.

The Self stands beyond the mind, aware, but unconcerned. You are the Self, here and now. Stand aware and unconcerned and you will realize that to stand alert but detached, watching events come and go, is an aspect of your real nature.

In pure being consciousness arises.

In consciousness the world appears and disappears.

Consciousness is on contact, a reflection against a surface, a state of duality.

The center is a point of void and the witness a point of pure awareness; they know themselves to be as nothing.

But the void is full to the brim.

It is the eternal potential as consciousness is the eternal actual.

In reality only the Ultimate is. The rest is a matter of name and form. As long as you cling to the idea that only what has name and shape exists, the Supreme will appear to you non-existing. Names and shapes are hollow shells. What is real is nameless and formless, pure energy of life and light of consciousness.

The witness is both real and unreal, the last remnant of illusion, the first touch of the real. The moment you say I Am, the entire universe comes into being.

The state of pure witnessing is like space, unaffected by whatever it contains.

You see yourself in the world, while I see the world in myself. To you, you get born and die, while to me, the world appears and disappears. It is your imagination that misleads you. There is a deep contradiction in your attitude which you do not see.

In ignorance the seer becomes the seen and in wisdom he is the seeing.

What begins and ends is mere appearance. The world can be said to appear but not to be. It is your memory that makes you think that the world continues. Memory creates the illusion of continuity. I see the world as it is, a momentary appearance in consciousness.

The world is but a show, glittering and empty. It is there as long as I want to see it and take part in it. When I cease caring, it dissolves. It has no cause and serves no purpose. It appears exactly as it looks, but there is no depth in it nor meaning.

The world is but a mistaken view of reality, unreal to its core.

The search for reality is the most dangerous of all undertakings for it will destroy the world in which you live.

When you are in dead earnest, you bend every incident, every second of your life, to your purpose. You do not waste time and energy on other things. You are totally dedicated, call it one-pointedness of the mind.

In the end you get fed up with the waste of time and energy.

When you refuse to play the game you are out of it.

*From my point of view everything happens by itself, quite spontaneously.
I do nothing. I just see them happen.*

Some unknown power acts and you imagine that you are acting.

You are merely watching what happens.

As long as there is the sense of identity with the body, frustration is inevitable. It is because of your illusion that you are the doer.

As long as you have the idea of influencing events, liberation is not for you. The very notion of doership, of being a cause, is bondage.

There is no such thing as free will. Will is bondage. You identify yourself with your desires and become their slave.

To imagine that you are in control is the aberration of the body-mind. There is a universal power that is in control. The illusion of personal control is in the mind only. Stand without desire and fear, relinquishing all control. This is the shortest way to reality.

*Self-identifications are patently false and the cause of bondage.
Your attachment is your bondage.*

*There is trouble only when you cling to something.
It is your desire to hold onto it that creates the problem. Let go.
When you hold onto nothing, no trouble arises.*

*You create bondage when you desire and fear and identify yourself with your feelings.
You identify yourself with your desires and become their slave.
Your bonds are self-created as chains of attachment.
Cut the knot of self-identification.*

*It is disinterestedness that liberates. If you lose interest, you break the emotional link that
perpetuates the bondage.*

Desire for embodied existence is the root-cause of trouble.

Selfishness is due to self-identification with the body.

If you look into the living process closely, you will find cruelty everywhere, for life feeds on life.

*Selfishness is always destructive. Desire and fear are self-centered states. Between desire and
fear anger arises, and with anger hatred.*

*It is your mind that has separated the world outside your skin from the world inside and put them
in opposition.*

Destroy the wall that separates, the 'I-am-the-body-idea'.

You must remove the wall. Realize that the wall and both sides of it are one single space.

*The way to truth lies through the destruction of the false. To destroy the false you must question
your most inveterate beliefs. Of these the idea that you are the body is the worst.*

*Investigate your world, apply your mind to it, examine it critically.
Scrutinize every idea about it.
Everything must be scrutinized and the unnecessary ruthlessly destroyed.
There cannot be too much destruction.
For in reality nothing is of value.*

Only in complete self-negation is there a chance to discover our real being. The false self must be abandoned before the real Self can be found.

Seeing the false as the false is meditation.

Death gives freedom. To be free in the world you must die to the world.

Freedom means letting go.

Spiritual maturity lies in the readiness to let go of everything.

All attachment implies fear, for all things are transient.

Fear makes one a slave.

Freedom from attachment is natural when one knows one's true being.

You are afraid of what you are. You are afraid that you will lose your identity; afraid of the unknown; not-being, not-knowing, not-doing; the beyond. Unwillingness born out of fear is the only obstacle.

Discrimination will lead to detachment.

You gain nothing.

You leave behind what is not your own and find what you have never lost:

Your own being.

Do not undervalue attention. To know, to do, to discover, or to create you must give your attention to it.

Give your undivided attention to the most important in your life, yourself.

Attention comes from the Self.

All you can do is to shift the focus of consciousness beyond the mind.

Liberation is never of the person, it is always from the person.

The difference between the person and the witness is as between not knowing and knowing oneself.

You can see a person but you are not a person.

There is no such thing as a separate person. Everything is the cause of everything. Everything is as it is because the entire universe is as it is.

*The entire universe contributes to the existence of even the smallest thing.
The universe is not bound by its contents because its potentialities are infinite.*

The universal trend towards balance, harmony and unity, at every moment, whatever is happening, is always for the best.

The law of balance rules supreme.

Every action creates a reaction, which balances and neutralizes the action. There is a continuous cancelling out, and in the end it is as if nothing happened.

By itself nothing has existence

All appearance and disappearance presupposes a change against a changeless background.

There must be a source from which all flows, a foundation on which all stands.

Consciousness itself is the source of everything.

The supreme state is the very center of consciousness and yet beyond consciousness. The center of consciousness is That which cannot be given name and form, for it is without quality and beyond consciousness. It is a point in consciousness which is beyond consciousness. It is an opening in the mind, a void, through which the mind is flooded with light. It is but an opening for the light of consciousness to enter the mental space.

Don't you experience even when unconscious? Can you exist without knowing? Can you validly talk about your own nonexistence as an actual experience? A lapse in memory is not a proof of nonexistence.

The reward of Self-knowledge is freedom from the personal self.

The dissolution of personality is always followed by a sense of great relief, as if a heavy burden has fallen off.

Self-surrender is the surrender of all self-concern. It cannot be done, it happens when you realize your true nature.

When there is total surrender, complete relinquishment of all concern with one's past, present and future, with one's physical and spiritual security, when the shell of self-defense is broken, a new life dawns, full of love and beauty. Complete self-surrender by itself is liberation.

When the mind becomes quiet, if you do not disturb this quiet and stay in it, you find that it is permeated with a light and love you have never known, and yet you recognize it at once as your own nature. Once you have passed through this experience, you will never be the same again. Delusions and attachments end and life becomes supremely concentrated in the present.

Know yourself as you are. Stay with the sense I Am.

Wherever you go, at all times, you carry with you the sense of being present and aware, here and now. It means that you are independent of space and time. Space and time are in you, not you in them. It is only your self-identification with the body, limited in space and time, that gives you a sense of limitation. In reality, you are limitless.

Your world is created with the emergence of the I Am idea. In your world everything has a beginning and an end. Timeless being is entirely in the now.

Externalization is the first step in liberation. Step away and look. Separate yourself and watch. The physical events will go on happening, but in themselves they have no importance.

Seeing that you are not the person you take yourself to be, step out and look from the outside.

Your questions are about a non-existing person. Realize that whatever you think yourself to be is just a stream of events; that whatever happens, comes and goes, is not real; that you alone are, the changeless among the changeful. Separate the observed from the observer and abandon false identifications. Be a fully awakened witness of the field of consciousness.

Whatever you perceive is not you. It is there in the field of consciousness, but you are not the field and its contents.

All you need to do is to cease taking your Self to be within the field of consciousness. To look for it on the mental level is futile. It is here and now-the I Am you know so well.

Even the sense I Am is not continuous, though it is a useful pointer; it shows where to seek, but not what to seek.

*The witness only registers events. All experience subsides with the mind. Without the mind there can be no experiencer nor experience. In the abeyance of the mind even the sense I Am dissolves.
There is no I Am without the mind.*

The witness consciousness is not permanent. The knower rises and sets with the known. That in which the knower and the known arise and set is beyond time.

*In silence, or void or abeyance, the three-experiencer, experiencing, experience-are not.
Unidentified being remains.*

When the mind stays in the I Am, without moving, you enter a state that cannot be verbalized but can be experienced. The sense I Am is always with you, only you have attached all kinds of things to it-body, feelings, thoughts, ideas. All these self-identifications are misleading; because of them you take your Self to be what you are not.

It is enough to know what you are not. You need not know what you are. What you are cannot be described except as total negation. Let go of your attachment to the unreal.

*When the mind is quiet we come to know ourselves as the pure witness.
We withdraw from the experience and stand apart in pure awareness.
The personality continues, but its self-identification with the witness snaps.*

As long as you take yourself to be a person, a body and a mind, separate from the stream of life, having a will of its own, pursuing its own aims, you are living merely on the surface and whatever you do will be short-lived and of little value, mere straw to feed the flames of vanity.

As long as you are locked up with your mind and ego, you cannot go further. Were you really at war with your ego, you would question its reality. You don't question because you are not really interested. You are moved by the pleasure-pain principle, fear and desire, which is your ego. You are going along with your ego, not fighting against it. You are not even aware how totally swayed you are by personal considerations. Be in revolt against your ego, for the ego narrows and distorts. It is the worst of all tyrants. It dominates you completely.

Struggle to find out what you are in reality. To know what you are you must first investigate and know what you are not. Discover all that you are not: body, feelings, thoughts, time, space, this or that. Nothing, concrete or abstract, which you perceive can be you. The very act of perceiving shows that you are not what you perceive. The clearer you understand that on the level of mind you can be described in negative terms only the quicker will you come to the end of your search and realize that you are the limitless being.

If you seek reality you must set yourself free of all patterns of thinking and feeling. Even the idea of being human should be discarded. Abandon all self-identifications, abandon all self-concern, abandon every desire. Stop thinking of achievement of any kind. You are complete here and now. You need absolutely nothing.

Nothing stands in the way of your liberation here and now except for your being more interested in other things. You must see through them as mere mental errors.

We have enclosed ourselves in a cloud of personal desires and fears, images and thoughts, ideas and concepts.

Your difficulty stems from the idea that reality is a state of consciousness.

The desire to live is a tremendous thing. Still greater is the freedom from the urge to live.

Moments when one feels empty and estranged are desirable moments, for it means the soul has cast its moorings and is sailing for distant places.

There is a vastness beyond the farthest reaches of the mind. That vastness is my home; that vastness is myself.

Once you are well established in the now, you have nowhere else to go.

As long as you are interested in your present way of living, you will shirk from the final leap into the unknown.

You must begin by being the dispassionate observer. Then only will you realize your full being. As long as you are enmeshed in the tribulations of a particular personality, you can see nothing beyond it. Ultimately you will come to see that you are neither the particular nor the universal. You are beyond both.

Giving up is the first step.

The real giving up is in realizing that there is nothing to give up, for nothing is your own.

Give up all and you gain all.

Then life becomes what it was meant to be: Pure radiation from an inexhaustible source.

In that light the world appears dimly like a dream.

Everything is depicted in the pictures on the screen, including the person you take yourself to be; nothing in the light. You are the light only. You are the pure light appearing as a picture on the screen and becoming one with it.

Yours is the power of perception, not what you perceive. Whatever you are conscious of, is not you. Yours is the cinema screen, the light and the seeing power, but the picture is not you.

You can spend an eternity looking elsewhere for truth, all in vain. You must begin in yourself, with yourself. Realize that your world is only a reflection of yourself. All you need is to stop searching outside what can only be found within.

Turn within. I Am you know. Be with it all the time, until you revert to it spontaneously. There is no simpler and easier way.

By its nature the mind is outwardly turned; it always tends to seek for the source of things among the things themselves. To be told to look for the source within is the beginning of a new life.

Dive deep into yourself and find the source from where all meaning flows. It is not the superficial mind that can give meaning. You are not what you think yourself to be. You cannot think yourself to be what you have not experienced. You are the perceiving point, the nondimensional source of all dimensions, which is as nothing and yet the source of everything. You can know what you are not, but you cannot know your real being. You can only be what you are.

As long as you are engrossed in the world, you cannot know yourself. To know yourself, turn your attention away from the world and turn within.

Remain as the silent witness only; a mere point in consciousness, dimensionless and timeless.

Give attention to the witness to break the spell of the known, the illusion that only the perceivable is real. As long as you believe that only the perceivable world is real you remain its slave.

To become free your attention must be drawn to the witness.

The point of I Am is the bridge between the watcher and its dream.

I Am both inside and outside the dream, but what I see in dream, I am not.

First we must know ourselves as witnesses only, dimensionless and timeless centers of observation, and then realize that immense ocean of pure awareness.

On the surface of the ocean of consciousness, names and forms are transitory waves. Only consciousness has real being, not its transformations.

Every moment returns to its source, just as every wave subsides into the ocean.

Realization is in discovering the source and abiding there.

The realized man is beyond life and death. Life and death appears to him but a way of expressing movement in the immovable, change in the changeless. He has died before his death and he saw that there was nothing to be afraid of. The moment you know your real being you are afraid of nothing.

Consciousness needs a vehicle and an instrument for its manifestation. When life produces another body, another knower comes into being. The link between successive body-minds may be called the memory body; a record of all that was thought, wanted and done, like a cloud of images held together.

In death only the body dies; life does not; consciousness does not; reality does not. Life is never so alive as after death. It is a reflection in a separate body of the one reality.

Realization is the opposite of ignorance. To take the world as real and one's Self as unreal is ignorance, the cause of sorrow. To know the Self as the only reality and all else as temporal and transient is freedom.

All is a play in consciousness. All divisions are illusory. You can know the false only. The true you must yourself be.

The supreme gives existence to the mind. The mind gives existence to the body. When you see the person and the witness, the observer, as one, and go beyond, you are in the supreme state.

The supreme state is entirely one and indivisible. The only way of knowing it is to be it. The mind cannot reach it. To perceive it does not need the senses. To know it does not need the mind.

Can you talk of identity without memory?

Who identifies? Identity, individuality are aspects of the mind only. The idea 'I am this body' dies; the witness does not. The one witness reflects itself in the countless bodies as I Am. Beyond the body there is only the One.

Watch your mind, how it comes into being, how it operates. As you watch your mind, you discover your Self as the watcher. When you stand motionless, only watching, you discover your Self as the light behind the watcher. The source of light is dark, unknown. That source alone is. Go back to that source and abide there.

My life is a succession of events just like yours. Only I Am detached and see the passing show as a passing show, while you stick to things and move along with them.

You cannot find peace in the world, for the world is full of contradictions.

One becomes self-conscious only when caught in the conflict between pleasure and pain, which demands choice and decision. The personal self by its very nature is constantly pursuing pleasure and avoiding pain. The ending of this pattern is the ending of the self. The ending of the self with its desires and fears enables you to return to your real nature.

Suffering is due to non-acceptance. To reach the deeper layers of suffering you must go to its roots and uncover their vast underground network, where fear and desire are closely interwoven and the currents of life's energy oppose, obstruct and destroy each other. The mental life is one continuous stream of suffering. By watching yourself with alert interest, with the intention to understand rather than judge, in full acceptance of whatever may emerge, you encourage the deep to come to the surface. This is the great work of awareness; it removes obstacles and releases energies by understanding the nature of life and mind. Alert attention is the mother of intelligence and intelligence is the door to freedom.

To rise in consciousness is to rise from one dimension to another.

It is the very structure of the universe, of manifestation, that the higher can be had only through freedom from the lower. All that lives, works for expanding consciousness, ever raising the level of consciousness, discovering new dimensions.

There is nothing wrong with the world. What is wrong is the way you look at it. It is your own imagination that misleads you. Without imagination there is no world.

As life before death is but imagination, so is life after death. The dream continues.

What you call survival is but the survival of a dream. Death is preferable to it. There is a chance of waking up.

When you see your dream as dream, you wake up. You need not bring your dream to a definite conclusion. All you need is to realize that you are dreaming. Stop imagining, stop believing. See the contradictions, the incongruities, the falsehood and the sorrow of the human state, the need to go beyond.

Stop imagining yourself to be what you are not. Stop believing.

You have to give up everything to know that you need nothing, not even your body. Your needs are unreal and your efforts are meaningless. You are not what you think yourself to be; as you believe yourself to be. What you appear to be, you are not.

The unreal appears to be real only because you believe in it. You impart reality to it by taking it to be real. Doubt it and it ceases.

The urge must come from within as a wave of detachment.

There is no such thing as an expression of reality. Neither action nor feeling nor thought express reality. I know that life itself is only a make-believe. I just watch events happening, knowing them to be unreal.

Reincarnation implies a reincarnating Self. There is no such thing. The bundle of memories called the 'I' imagines itself existing. All experience is born of imagination. Only those who think themselves born can think themselves reborn. All exists in awareness and awareness neither dies nor is reborn. It is the changeless reality itself. Timelessly, the Self actualizes itself without exhausting its infinite possibilities.

Those who make plans will be born to carry them out. Those who make no plans need not be born; he is not bound for a destination; he has nowhere to go, nothing to do, nothing to become.

When the mind takes over, remembers and anticipates, it exaggerates, distorts and overlooks. The past is projected into the future and the future betrays the expectations.

You do not need to remember to be. Before you can experience anything, there must be the sense of being. Your being is mixed up with experiencing. Unravel being from the tangle of experiences. Once you have known pure being, you will discern it among experiences and no longer be misled by names and forms. What comes and goes has no being and is unreal.

By desiring you take the shape of your desires. When no desires remain, you revert to your natural state. All desires must be given up.

Desire is merely the fixation of the mind on an idea. Just turn away, deny it attention. Give it up because you see its valuelessness.

The desire for realization, to put an end to all desires, is a most peculiar desire.

The destroyer is always more real than the destroyed.

I Am beyond all experience. I Am the great destroyer; whatever I touch dissolves into void.

Beyond the moving mind there is the background of awareness, which does not change. The mind is like a river, flowing ceaselessly. Everything appears and disappears in consciousness. Our minds are just waves on the ocean of consciousness. As waves they come and go. Know your Self as the ocean of being, infinite and eternal. Though I appear as a person to you, I Am that infinite ocean of consciousness in which all happens, beyond all things. I Am no-thing.

Consciousness arising, the world arises.

In consciousness there is the 'I' who is conscious, while awareness is undivided, aware of itself. Awareness is beyond all, being as well as not being.

In reality nothing happens. Nothing happens to space itself. In pure consciousness nothing ever happens. Onto the screen of the mind destiny forever projects its pictures, and thus illusion constantly renews itself. The pictures come and go as light intercepted by ignorance. See the light and disregard the pictures.

Go back to that state of pure being, the I Am in its purity before it became contaminated with false self-identifications. Abandon them all. Focus the mind on pure being. In it all disappears: myself, the life I live, the world around me. Only peace and unfathomable silence remains.

The absolute is. The absolute precedes time. Awareness comes first. Awareness contains all space and time. Awareness becomes focalized and a person appears. Remove the light of awareness, as in sleep, and the person disappears.

As long as we imagine ourselves to be separate personalities, we cannot grasp reality which is essentially impersonal.

The timeless and spaceless reality is undifferentiated, the infinite potentiality, the source. It cannot be perceived, but can be experienced as ever witnessing the witness, perceiving the perceiver, the origin and end of all manifestation, the root of time and space.

It is all a matter of focus. Your mind is focused in the world; mine is focused in reality.

Attention liberates. You are taking so many things for granted. You have put so much energy into building a prison for yourself. Now spend as much on demolishing it. Demolition is easy, for the false dissolves when it is discovered.

Truth can be expressed only by the denial of the false. It is useless to search for truth. You must see the false as false and reject it. Renunciation of the false is liberating.

What has no being is false. What has a beginning and end, limited in time and space, has only the name and shape given to it by the mind. It is hollow and has no being.

When the mind becomes completely silent, it shines with a new light and vibrates with a new knowledge. On realization you feel complete. You merely discover what you are.

Realize that it is not you who moves from dream to dream, but the dreams flow before you and you are the immutable witness. Nothing affects your real being-this is the absolute truth.

You are the changeless background against which changes are perceived.

The real you is timeless and beyond birth and death. The body will survive as long as it is needed. It is not important that it should survive long.

Find out your real being. What am I? is the fundamental question of philosophy and psychology. Go into it deeply.

Deepening and broadening of self-awareness is the royal way. Call it mindfulness or witnessing or attention. Witnessing is awareness of consciousness and its movements.

I am not my body. I am the witness only.

I am beyond the mind. I am perfectly empty of all mental formations-yet fully aware.

Be aware of being conscious and seek the source of consciousness.

Realization is sudden and irreversible. You rotate into a new dimension. You see everything as it is. The world of illusions is left behind.

The witness-consciousness is the reflection of the real in the mind. The real is beyond. The witness is the door through which you pass beyond.

Between desires and freedom from all desires is an abyss which must be crossed. Cross the door and go beyond.

The experience of the inner void is an explosion into reality.

Absolute reality imparts reality to whatever comes into being.

It is the very source of reality.

It is what is, pure being, the timeless reality.

It is not perceivable; it is what makes perception possible.

Unperceived, it causes perception. Being nothing it gives birth to all being. It is the immovable background of motion.

All that is, lives and moves and has its being in consciousness.

I Am in and beyond that consciousness.

I Am in it as the witness.

I Am beyond it as Being.

I am dead already. Physical death will make no difference. I am timeless being.

If you desire nothing, then you are as good as dead, or you are the Supreme.

The Supreme is both creation and dissolution, the beingness of all beings, the ground from which all grows, alone. Words do not reach there, nor mind.

The Supreme state neither comes nor goes. It is.

It is a timeless state, ever present.

In the timeless state there is no Self, no I Am, no witness.

Your true home is in nothingness.

Awareness is beyond all.

Awareness is primordial; it is the original state.

Awareness is undivided, aware of itself.

Before the mind happens, I Am.

Before all beginnings, after all endings, I Am.

All has its being in the I Am that shines in every living being.

The dreamer is one.

I Am beyond all dreams.

I Am the light in which all dreams appear and disappear.

In reality there is only the source, dark in itself, but making everything shine with the light of consciousness.

Whatever depends is not real. The real is truly independent.

Reality is essentially alone.

To know that nothing is, is true knowledge.

Do nothing. There is nothing to do. Just be.

To be, you must be nobody.

You make yourself mortal by taking yourself to be a body.

That which is alive in you is immortal.

The Supreme reality is the void beyond being and non-being, beyond consciousness. There is no journey to Supreme reality. One is undeceived only. One is as one always is. One knows nothing, wants nothing, is nothing.

One is left without questions; no answers are needed.

There is nothing left to do. One's work is done.

The I Am in movement creates the world.

The I Am at peace becomes the Absolute.

For the path of return naughting oneself is necessary.

My stand I take where nothing is.

To the mind it is all darkness and silence.

It is deep and dark, mystery beyond mystery.

It is, while all else merely happens.

It is like a bottomless well, whatever falls into it disappears.

-Nisargadatta Maharaj

Conversations on Nonduality

Q: You are right in that everyone has to follow his or her own journey, but there seem to be patterns among those who reached the goal. I'm familiar with "I Am That" and much more literature on non-duality and Vedanta Advaita, but it's one thing to intellectually understand it and another to experience it. I also read Michael Talbot's "The Holographic Universe", although I lack the physics background to completely grasp this stuff. My background is in philosophy, and this continues to be my main point of access, although I must admit that I've been trying to meditate and self-enquire for quite a while, unfortunately with poor results. I once tried

5MeO-DMT to experience a non-dual state, but of course it didn't trigger a permanent loss of the ego. But it was quite interesting to at least see that consciousness can be separated from a "me/I", which I never thought was possible, because until then, that was always the same. Consciousness without an "I" seemed to be ridiculous.

A: Consciousness *without an I* is Brahman. Consciousness *with an I* is Atman. Ultimately, *Atman is Brahman*. Bernadette Roberts describes the enlightenment experience very accurately in her book *The Experience of No-self*. Like Meister Eckhart, she describes the experience as a dissolution of the individual spirit (The *Self*) into the Supreme Spirit (The *Source* or Godhead). This is an oceanic experience, like a drop of water that dissolves into the ocean. In that ultimate state of *One-ness*, *there is No-self*. There is no *subject-object relation* defining *self and other*. In conceptual or scientific terms, Brahman or the *Source* is a *void of absolute nothingness*, Atman or the *Self* is an observer that arises at a point of view, and the images of a holographic world are displayed on a holographic screen. That holographic screen is a *surface of space* that arises as an event horizon because the point of view of the observer is moving in an accelerated way relative to the unmoving ocean. When that motion comes to an end, which is to say when the expression of all emotions comes to an end in a *desireless state*, that holographic world must disappear from existence from that particular point of view because the motionless observer no longer has a holographic screen (the ocean no longer has a surface). Enlightened beings describe this oceanic experience as *falling into* and *dissolving into* the *infinite void*.

Jed McKenna makes the point that enlightenment always follows a *death-rebirth transformation* that eventually leads to the *experience of No-self*. The *Self is an untruth* that must die away before the *truth of No-self* can be realized. You don't become enlightened because of your desire for *truth*. You become enlightened because you hate the *falseness* so much that you're willing to let it die away. You have to get to the point of hating the lie so much that you'd rather die at the level of *ego-death* than continue to live the life of a lie. You have to become willing to die at the level of *ego-death* before you can realize the *truth*. The *truth of existence* is what remains when everything false disappears from existence. Everything you can perceive in your own world is *unreal* in the sense of being an illusion, like in a virtual reality, but the number one illusion is your own ego. Even the *Self* that identifies itself with its ego is a part of that illusion.

The holographic principle makes an important point that cannot be overemphasized. Expression of desire only creates more falseness. That falseness can only be destroyed in a desireless state. The expression of desire arises with the motion of the *Self* relative to its motionless *Source*. That expression of emotional energy is the only thing that gives rise to a holographic screen that encodes information for everything the *Self* can observe in its own holographic world. The form of all things are projected like images from the screen to the observer's central point of view and animated in the flow of energy that arises from that motion. That holographic world is the falseness that can only disappear from existence in a desireless state when that motion comes to an end. The falseness is only destroyed when the expression of emotions comes to an end. Since that holographic world can only arise in a *subject-object relation* as the *Self* perceives the images

of that world, the *Self* is a part of the holographic illusion. When the *Self* emotionally identifies itself with the form of an emotionally animated person that appears in that world, the *Self* is identifying itself with its ego, which only compounds the nature of the illusion.

The ego is emotionally constructed as a body-based personal self-concept is emotionally related to the concept of some other thing that appears in the world you perceive. People are social animals, and emotional expressions of fear and desire predominately arise in the setting of emotional attachments to others. The expression of emotions is what creates the emotional relationship between *self and other* inherent in all emotional attachments that underlie the emotional creation of all personal self-concepts. The *Self* can only identify itself with its ego because it feels emotionally self-limited to a personal form as it perceives the self-limiting expression of emotional energy that animates that personal form. The emotional relationship between a personal form and the form of another is how the ego is emotionally constructed, but in a twisted way, the *Self* is emotionally identifying itself with that personal form since it feels emotionally self-limited to that personal form. The *Self* perceives things in its own world in a *subject-object relation*, but when the *Self* identifies itself with its ego, it is as though that personal form perceives things. A personal form can only transmit or process information, while the perception of a form is like the projection of that form from a screen to the point of view of an observer. The *Self* is the observer present at that point of view in relation to the screen. The *Self* as a presence of perceiving consciousness arises at a point of view in relation to the screen.

The form of a person is reducible to information encoded on the screen, but the consciousness of the observer is not. The *Source* of the observer's consciousness does not arise from a form that appears on the screen. There is only confusion about the *Source* of consciousness due to the feelings of self-limitation that arise as that personal form is emotionally animated, which leads the *Self* to emotionally identify itself with that personal form. The *Self* is confused because that expression of emotion literally arises from the motion of the *Self* relative to its *Source*, but the *Self* ignores its *Source* and only focuses its attention on the projected personal form. That projected personal form is only an illusion of what the *Self* really is, but when the *Self* ignores its *Source*, it mistakenly attributes the personal form to be its source. The *Self* is as much a part of the illusion as the personal form it perceives, since its ego can only be emotionally constructed in a *subject-object relation*. The only way to realize the *truth* is to totally destroy the illusion. The *truth* of existence is what remains when the illusion disappears from existence. The only way to destroy the illusion is for the *Self* to cease to exist as an individual presence of consciousness.

As a presence of Atmanic consciousness, you are always present now, in the present moment. As long as you perceive things in your own world from your own point of view, you are always a presence of consciousness that arises at a point of view, and you are always present now. There is only an illusion of your personal continuity in time because of the memory of past events and anticipation of future events, but even that memory of the past and anticipation of the future is perceived now. You are always present now, but an illusion of your personal continuity in time arises with personal memory that creates the illusion that you are a person in the world you

perceive. Memory can only be created as an emotional projection from the present moment, and you have to focus your attention on creating your own memories. The emotional projection of memory is an integral part of the emotional construction of a personal self-concept. You have to focus your attention on your self-concept to emotionally construct your self-concept, but when you focus your attention on your self-concept you're focusing on your memory of past events or your anticipation of future events. You're not focused on the present moment. That's why one of the first instructions in the awakening process is to focus your attention on your own sense of being present in the present moment. When you do that, you not only stop creating memories, but you also stop creating a personal self-concept. You have to stop creating memories and a self-concept before you can focus your attention on your own sense of being present, which you can only bring into focus as you focus your attention exclusively on the present moment.

When you stop the emotional projection process of creating personal memory and a personal self-concept, and focus your attention only on the actual events of the present moment, you allow yourself to come into alignment with the normal flow of things. McKenna refers to this state of alignment as the integrated state, which always follows a *death-rebirth transformation* as you relinquish your personally biased desire to be in control of events. That desire to be in control is always self-defensive and leads to the expression of personally biased emotions that create an emotional disturbance in the normal flow of things. That emotional disturbance is what creates the feelings of personal self-limitation that underlies the emotional construction of a personal self-concept. This can only happen because of the personal bias in the focus of your attention that underlies the emotional projection of all personal memories. When you give up the desire to be in control, you lose that personal bias and stop creating those personal memories. Without those personal memories, you stop constructing a personal self-concept. Your attention is no longer focused on the events you remember about the past and anticipate about the future, but is only focused on the actual events of the present moment. As a presence of consciousness that observes the events of the present moment, that is the only way you can lose your personal self-concept. You have to stop focusing your attention on it. When you lose that personal bias in the focus of your attention, you naturally come into alignment with the normal flow of things.

In religious terms, this state of alignment with the normal flow of things in which you lose your personal bias that creates your personal self-concept is called the *born again experience*. Your identity as a person dies away. This can only happen when you give up your personally biased desire to be in control, which all religions refer to as a surrender to divine will. When you lose your personally biased individual will and surrender to divine will, you come into alignment. In that state of surrender, you accept the actual events as they actually are and stop opposing them. Instead, you develop a trust in the normal flow of things to sort out what is for the best. Roberts refers to this state of alignment as the first movement of life, which she describes as a mystical union of the *Self* with its divine *Source*. The *Self* is your spirit, and this state of mystical union is the union of the spirit with its spiritual *Source*. The motion of the *Self* is literally coming into alignment with the expression of divine will that gives rise to the normal flow of things. In this

state of mystical union, you're no longer opposing the normal motion of things by creating an emotional disturbance in the normal flow of things. Roberts refers to the second movement of life as the experience of *No-self*. Ironically, the experience of *No-self* is inherently the end of that motion. When the motion of the *Self* comes to a motionless end, the individual consciousness of the *Self* dies away and only the *One* consciousness of *No-self* remains. This experience of *No-self* is inherently a motionless state in which no emotions are expressed.

When the individual consciousness of the *Self* dies away, only *One* consciousness of *No-self* remains. This death of individual consciousness is the nature of becoming enlightened, which enlightened beings describe as a *dissolution*, like a drop of water that dissolves into the ocean. It's often stated that enlightenment follows from looking within and focusing your attention on your own sense of *being present* or *I-Am-ness*, but that isn't the whole story. It's only when you look into the *emptiness* of your own being in an *egoless* and *desireless* state that you can *fall into the void* and your individual consciousness can dissolve back into *One* consciousness.

That *fall* is the nature of *passing through the gateless gate*. The gate is the *Self*, and the gate only opens when the *Self* becomes *selfless and desireless*. In that desireless state, individual consciousness dies away in the sense that the *I Am* becomes an *I-am-not*. This is an *I-death*, in which there is *no I*. *Falling and dissolving into the void* is only possible in this desireless state. The motion of the *Self* must come to an end relative to its motionless *Source*. The end of that motion is the end of the expression of emotions. This desireless state is not only the death of the ego, but also the death of the *Self*. In that death, everything in the world perceived by the *Self* disappears from existence, but even the individual existence of the *Self* ceases to exist at an individual level. In that dissolution, only the *absolute nothingness of No-self* remains.

This *I-death* only becomes possible when the *Self* refuses to *be present* to perceive its own holographic world. That holographic world is always created in a *subject-object relation* as the *Self* perceives images of that world. When that world is not perceived, it disappears from existence from that particular point of view. When the *Self* refuses to *be present* to perceive its world, that *I Am presence* becomes an *I-am-not*. That holographic world is the illusion that must disappear from existence for the *truth of No-self* to be realized, but that can only happen if the *Self is not present* to perceive that world. The *Self* dies away when it refuses to play the game. The only thing that keeps the *Self* interested in the game is its emotional self-identification with its ego, which is why this *I-death* is only possible in the setting of *ego-death*.

The *Self* must itself die away to realize the *truth of No-self*, and that can only happen through a *self-destructive process of ego-death*. You have to examine and deconstruct your own ego. Ultimately, you have to detach yourself from everything to undergo this process of *ego-death*, since only the emotional energy of emotional attachments, expressed in terms of fear and desire, can emotionally construct the ego. You deconstruct your ego by severing the emotional attachments. When you sever an emotional attachment, it always feels like something dies inside since part of your ego structure dies away. Your ego is entirely an emotional creation. Being

without desire is as good as being dead. To awaken to your own *truth*, you have to go through this dying process. You have to accept your own death. That acceptance of death is always a surrender in which you give up your desire to be in control and defend yourself. You surrender by relinquishing your desire to be in control and you deconstruct your ego by severing your emotional attachments. McKenna is worth reading if for no other reason than to know what the hell you're getting yourself into with all this enlightenment stuff. Who really wants to know that their life is an illusion and they only really exist at the level of *absolute nothingness*? The answer of course is nobody. When you die at the level of *ego-death*, you become nobody.

The irony is that all personal memories, self-concepts and other forms of mental imagination are actual events that are being perceived in the present moment, but their perception by the *Self* is a private experience that is not being shared within the consensual reality that the *Self* shares with other points of view. In a convoluted and twisted way, the *Self* is disconnecting itself from that consensual reality when it emotionally constructs a personal self-concept through the emotional projection of personal memories and emotionally identifies itself with that personal self-concept. In effect, an illusion is being wrapped within an illusion that is being wrapped within an illusion. McKenna describes this wrapping process as the layers of an onion. When you peel away all the layers of the onion, what do you find inside? The answer is nothing.

The *Truth of No-self* can only be discussed in terms of negation and not at a conceptual level. The direct experience of nondual reality cannot really be discussed since *absolute nothingness* cannot really be conceptualized. You can experience it but you can't talk about it in terms of concepts, except for the concepts of a road map that point out travel directions in your journey.

Q: What I'm kind of struggling with is how to interpret those religious terms like "Brahman", "Atman", "Supreme Spirit", "God-head", etc. Is that which is denoted by those terms really the absolute, or is it just a certain state of consciousness created by a reduced activity of the default mode network? I guess you interpret those terms in the light of the hologram theory of the universe/consciousness, which might provide you with much more scientific evidence. When you speak of enlightened beings, have you ever encountered one, or do you consider any of the well-known non-duality teachers "enlightened"?

A: I always look for consistency when assessing if someone who claims to be enlightened is really enlightened or just pretending to be enlightened. People pretend because they really believe themselves to be enlightened, not because of any malicious intent or intentional deceit. They're deceiving themselves. The best way to evaluate if they're deceiving themselves is to assess if they believe in their own *Self*. Enlightened beings believe in nothing, and certainly don't believe in the reality of their own *Self*. They know their *Self* is an illusion, like everything else they can perceive. Everything is perceived in a *subject-object relation*, and the *Self* that perceives things is a part of that illusion. The only thing that is really real is the *absolute nothingness of No-self*, which can't be perceived in a conventional way, but can be experienced. The problem is, the *absolute nothingness of No-self* is inherently non-conceptual, and so that experience can't be

discussed in conceptual terms. When I look for consistency, this is what I'm looking for. As best I can tell, all the followers of Ramana, like Papaji and Mooji are deceiving themselves when they speak about the *Self* as the ultimate nature of reality. It's not. *No-self* is the ultimate nature of reality, but there's really no point in speaking about it since it can't be conceptualized. To paraphrase Shankara (with a bit of my own embellishment), *No-self is the only truth, the world (perceived by the Self) is a (holographic) illusion, and ultimately there is no difference between the Self and No-self.* Anyone who claims anything other than the *absolute nothingness of No-self* is real is a fraud. As the Bhagavad-gita says: *the unreal has no being; the real never ceases to be.* Ultimately, *nothing is real.* Amanda Geffer came to that conclusion when she analyzed the holographic principle. This is also the answer to the central question of the Matrix: *What is real?* The answer is *nothing is real,* but don't ask me to explain what that *absolute nothingness* really is. It's unexplainable. Like the nihilists in the Big Lebowski, enlightened beings can only say: "*We believe in nothing*", which McKenna rephrased as *No belief is true.*

Adapted from Bernadette Roberts' *The Experience of No-self*:

When the joy of my own emptiness began to wane I decided to rejuvenate it by spending some solitary time gazing into my empty self. Though the center of self was gone, I was sure the remaining emptiness, the silence and joy, was God Himself. Thus on one occasion, with full hedonistic deliberation, I settled myself down and turned my gaze inward. Almost immediately the empty space began to expand, and expanded so rapidly it seemed to explode; then, in the pit of my stomach I had the feeling of falling a hundred floors in a non-stop elevator, and in this fall every sense of life was drained from me. The moment of landing I knew: When there is no personal self, there is also no personal God. I saw clearly how the two go together-and where they went, I have never found out.

The only mystic I know who says something about this step beyond union, beyond self and God, is Meister Eckhart. This could be understood as his breakthrough, his bursting forth into the Godhead, his crashing through to that which is beyond the idea of God and truth, until the soul reaches the beginning of beginnings, the origin or source. This amounts to saying that union depends on separateness. Beyond self this separateness no longer exists-an undefinable essential Oneness for which theology has no words. The difference depends on which side of the breakthrough we stand: whether the self remains, or whether it is dead and buried in the Godhead. Each side represents two different ways of seeing and knowing.

To speak of a union with God is orthodox, but to speak of an essential oneness with God-a oneness in God's essence-is unorthodox. The problem is not merely one of description or semantics, but rather, one of experience, for with the falling away of the union of two, there remains only the clear identity of the One-the essential Oneness of the Godhead.

The first movement of life culminates in the union of self with God. The second movement culminates in no union-no self and no God for that self. In order to come upon God as he is in Himself-and not as he is in our self-there must be no self. There is no other way.

The root of the problem stems from the biblical statement that God made all things from nothing, and the disagreement in the interpretation of this nothing. Since absolute nothing is incomprehensible, it falls, like the essence of God, into the realm of the unknown. That this unknowable nothing turns out to be God is the final realization of the mystic. What flowed forth from God in the act of creation was some unknowable aspect of Himself. Thus if we were created from nothing it can only mean nothing knowable to the mind. Yet the experiential understanding of how this works is possible once self has fallen away. However we wish to interpret the nothingness or non-being from which we were made, it is difficult to justify any speculation that God did not make us from himself-his will or uncreated energy.

She then quotes the bible:

“He who seeks only himself brings himself to ruin, whereas he who brings himself to naught for me discovers who he is”. To this I would add that in coming to naught he will not only discover who he is, but what he is, for in God these cannot be separated. That he is, what he is, who he is, where he is, in God these are One, and outside this One, nothing is.

Why The Holographic Principle of Quantum Gravity is a Radical Transformation of our Understanding of Quantum Theory

Both Ted Jacobson and Tom Banks have stressed the holographic principle of quantum gravity is a radical transformation of our understanding of quantum theory, which most physicists have not fully appreciated. Quantum theory in the conventional sense of particle physics really only applies in some bounded region of space. In the holographic principle, this conventional particle physics formulation of quantum theory can always be reduced to qubits of information encoded on a holographic screen that bounds that bounded region of space. The holographic screen is a bounding surface of space that in the sense of relativity theory can always be understood to arise as an event horizon in an observer's accelerated frame of reference. The holographic screen encodes qubits of information through some sort of geometric mechanism, like non-commutative geometry. The AdS/CFT correspondence gives an explicit example of how a holographic world is constructed. Quantum theory is inherently about measurement since the observer is observing events in its own holographic world as displayed on its own holographic screen that arises as an event horizon in its accelerated frame of reference. The holographic principle is inherently an observer-centric and observer-dependent description of observable reality. Physicists are ignoring the central role the observer must play in constructing that observable physical reality.

Jacobson has shown how Einstein's field equations for the space-time metric arise from the holographic principle as thermodynamic equations of state. Near thermal equilibrium, the laws of thermodynamics specify how change in energy is related to change in entropy and temperature as

$\Delta E = T \Delta S$. Using the Unruh temperature of the Rindler event horizon observed by an accelerating observer, $kT = \hbar a / 2\pi c$, given in terms of an observer's acceleration, a , and the holographic entropy of the region of space bounded by that event horizon, $S = kA / 4\ell^2$, given in terms of the surface area, A , of the event horizon and the Planck area, $\ell^2 = \hbar G / c^3$, Jacobson was able to show how Einstein's field equations arise from this relation as thermodynamic equations of state.

Using non-commutative geometry, Banks and Fischler have shown that the holographic principle is automatically in effect for any space-time geometry, including de Sitter space, when that space is bounded by a holographic screen that encodes qubits of information. The holographic screen can always be understood as an event horizon that arises in an observer's accelerated frame of reference, like a Rindler horizon or a de Sitter horizon. The simplest case is for a spherically symmetric horizon, like that of a black hole. An $SU(2)$ matrix gives a representation of rotational symmetry on the surface of a sphere, but its eigenvalues also encode information in a binary code, like a spin $1/2$ variable that can only point up or down. On the surface of a sphere, the n eigenvalues of an $n \times n$ $SU(2)$ matrix encode n qubits of information in a rotationally invariant way. The qubits of information are inherently entangled in the sense of quantum entanglement since they arise as the eigenvalues of a matrix.

Putting these findings of Jacobson and Banks and Fischler together, tells us that gravity is not really a classical theory. Like electromagnetism, gravity is a quantum theory in disguise, but that quantum theory can only be understood at the level of first quantization, and not at the level of second quantization. Recently, Maldacena and Susskind have stressed this point that classical gravity is really a quantum theory with their argument on $ER = EPR$ that wormholes in classical gravity in the sense of an Einstein-Rosen bridge between two black holes gives an example of quantum entanglement in the sense of an entangled EPR pair.

Gravity is a quantum theory, but only at the level of first quantization, not at the level of second quantization. The space-time metric is the quantum wavefunction, and Einstein's field equations are the quantum wave equation. This is just like electromagnetism, where the electromagnetic field is the quantum wavefunction and Maxwell's equations are the quantum wave equation. Quantum entanglement is operative at even the level of first quantization since the quantum wavefunction gives the quantum probability that some property of the quantum particle, like its location in space and time or its spin state, can be measured. Entanglement is an inherent property of the quantum wavefunction. The problem is, to really treat the electromagnetic field as a quantum particle called the photon, we have to perform a second quantization procedure. This is only possible if the photon propagates through some fixed background space-time geometry, like flat Minkowski space. Even this second quantization procedure has a limited range of validity since Maxwell's equations only have the validity of a thermodynamic equation of state, only valid near thermal equilibrium. It's only valid to consider small quantum fluctuations around the vacuum state. Even this second quantization procedure is not valid for gravity. The graviton cannot be understood as a quantum particle that propagates through some fixed background space-time geometry since gravity must inherently give a representation of the

dynamical curvature of space-time geometry. It only makes sense to understand gravity at the level of first quantization, which essentially is a thermodynamic equation of state.

It's an interesting exercise to review how quantization occurs in conventional particle physics and how the holographic principle totally reverses this conventional quantization procedure. In conventional particle physics, we start with the idea of a point particle located at some position x at some time t in some fixed background space-time geometry and characterize the motion of that particle in terms of a particle trajectory through that space-time geometry as $x=x(t)$. In the sense of classical Newtonian physics, this particle motion is characterized by an action principle, where action is given in terms of kinetic and potential energy as $S=\int dt(KE-PE)$. The quantum state of the particle is then a sum over all possible paths through the space-time geometry, where each path or trajectory is weighted with the probability factor $P=\exp(iS/\hbar)$. This quantum state is equivalent to a quantum wavefunction that obeys a quantum wave equation. For classical Newtonian physics, this wave equation is the Schrodinger equation. The classical laws of motion are recovered in terms of the path of least action. This sum over all paths is the first quantization procedure. The second quantization procedure is to sum over all possible configurations of the wavefunction, where each possible configuration of the wavefunction, $\psi(x,t)$, is weighted with the same kind of probability factor $P=\exp(iS/\hbar)$, but instead we use the action that corresponds to the wavefunction. The quantum wave equation arises from an action principle in the same way classical equations of motion arise from an action principle, by minimizing the action written in terms of the wavefunction. This sum over all configurations of the wave function is the second quantization procedure. Feynman diagrams arise from this sum in the sense of perturbation theory by expanding this sum in terms of some coupling constant, like the charge of the electron.

In quantum electrodynamics, the Schrodinger equation is replaced by the Dirac equation, which is the wave equation for the electron, and Maxwell's equations are used as the wave equation for the photon. The action for quantum electrodynamics is written in terms of the Dirac and Maxwell wavefunctions, and the second quantization procedure is to sum over all configurations of these wavefunctions. This sum generates the idea of the photon and electron as point particles that propagate through space-time and interact with each other through the electromagnetic force. The problem is, the gravitational force cannot be understood in the same way, since it makes no sense to think of the graviton as a point particle that propagates through some fixed background space-time geometry when gravity must give a representation of the dynamical curvature of space-time geometry. The holographic principle is the only known way to solve this problem.

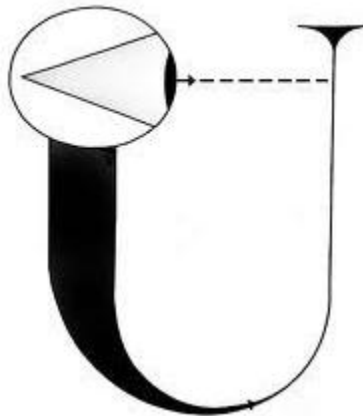
The holographic principle totally reverses this idea of quantization. Instead, we start with the idea of qubits of information encoded on a holographic screen, which can always be understood as an event horizon that arises in an observer's accelerated frame of reference. The holographic principle demonstrates how Einstein's field equations for the space-time metric arise from the way qubits of information are encoded on that holographic screen as thermodynamic equations of state. The space-time metric is the wavefunction for gravity in the sense of first quantization and Einstein's field equations are the quantum wave equation, but it makes no sense to perform a

second quantization procedure on the gravitational field. It does make sense to perform a second quantization procedure on the electromagnetic field that arises from the gravitational field with the usual unification mechanisms of super-symmetry and extra compactified dimensions of space, but only with a limited range of validity that is constrained in terms of how all quantum fields arise as thermodynamic equations of state. Second quantization is only valid for small quantum fluctuations around thermal equilibrium or the vacuum state.

All quantum fields can be understood to arise as extra components of the space-time metric with the usual unification mechanisms of super-symmetry and extra compactified dimensions of space, which M-theory explicitly demonstrates with its low energy limit of 11-dimensional super-gravity. The space-time metric is the quantum wavefunction that is the mother of all quantum fields, but even the space-time metric is not fundamental. The holographic principle demonstrates how the space-time metric arises from qubits of information encoded on a holographic screen as a thermodynamic equation of state. At the level of particle physics, all quantum fields only have the validity of thermodynamic equations of state. That holographic screen in turn must arise as an event horizon in an observer's accelerated frame of reference. It all has to begin with the observer. This radical transformation in our understanding of quantum theory that most physicists have not fully appreciated reflects that physicists are ignoring the central role the observer must play in constructing its own observable physical reality.

Be Here Now

Where is here? A point of view. When is now? The present moment. Whose being is here now? The being of a spiritual presence of consciousness. What is that spiritual being of a presence of consciousness being present for? To observe its own holographic world.



Soulfulness versus Sentimentality

Soulfulness arises with the willingness to let go. There is a sense of loss and sadness. There is also a sense of the irony of life and a self-deprecating sense of humor. You don't take yourself too seriously. The willingness to let go is always an act of maturity that takes courage as you

confront and overcome your own fear of loss and death. You overcome your fear of death by accepting death, which is always a surrender. Sentimentality arises with emotional attachments, which are always immature and fearful, like a baby attached to its mother. There is a sense of neediness and dependency. With sentimentality, you do take yourself too seriously, and you're unwilling to let go. You're literally living in fear of losing your own life. Soulfulness is an act of surrender. You accept the loss of life and death. This is a spiritual death-rebirth transformation in which you die in identity to your physical body and are reborn in identity to your true spiritual being. With sentimentality, you are stuck with your false identity with your physical body. You can't let go because you can't surrender. You're unable to move on to the spiritual level of existence because you're holding onto and stuck at the physical level of existence.

First versus Second Movement of Life

You have to go through the first movement before you can go through the second movement. The first movement is coming into alignment as your own motion comes into alignment with the motion of the normal flow of things. Your own expression of emotions has to come into alignment with the motion of the normal flow of things. That can only happen through the surrender of your own expression of personally biased individual will to divine will. You have to lose that personal bias in the focus of your attention. You have to give it up. You begin to vibrate at a higher frequency and feel connected. You then have to let go, detach yourself and externalize yourself. You have to see things from a higher level of consciousness. That's when you can really look within into the emptiness of your own being. The sense of being present only tells you where to look. The second movement only happens when your own motion comes to an end. You have to fall into the emptiness. When you fall into the emptiness, your own sense of self falls away. You become selfless. When you fall into the emptiness, you become the emptiness.

I Am, Call Home

Like *ET*, to return to your true home, you have to constantly remind yourself, *I Am, call home*. You call home as you look within and focus your attention on your own sense of being present. You return home as you stop moving away from home. When you stop moving away from home, you fall home. When you fall home, you are home. When you become motionless and desireless and are at peace with yourself, you are the home you return to. To return home is to be home.

Sociopaths versus Serial Killers

Sociopaths, like our former president, really only care about themselves. They are selfish and self-centered, and everything they do is to gain something by exploiting and taking advantage of the gullibility of others. They are con-artists. This personality disorder is a particularly malignant form of narcissism that's based on a grandiose and inflated self-image. Sociopaths have an overwhelming desire to be in control, and the way they express that desire to be in control is by manipulating and taking advantage of others, which is how they keep their grandiose self-image inflated. Everything they do is for personal gain, but what they want more than anything else is

to feel powerful and in control. If you've read Ernest Becker's book, this desire for power over others is a *denial of death*. Sociopaths in the form of fascist political leaders are able to attract followers because the desire to deny death is a powerful psychological motivating factor that arises from the fear of death. That's why fascism is always organized around a cult of personality. The great leader denies death by expressing absolute power over others. Fascism, like the sociopath that leads a fascist organization, is all about the desire to have power over others as a denial of death, which is a way to expunge and make unconscious the fear of death.

On the other hand, serial killers are something very different. Serial killers see the falseness of the human condition and want to destroy it. The metaphor in Hinduism is Kali the Destroyer, or as the Bhagavad-Gita says: *Now I Am become Death, the Destroyer of worlds*. This is a very primitive response to seeing the falseness that's inherent to the human condition, which is the falseness of the ego or personal self-concept. By its very nature, a personal self-concept is a false thing. You have to ask yourself: Who is identifying itself with that personal self-concept? Who am I? One of the Buddha's noble truths is that *all things are without a self*. The very concept of self is an untruth. There is no such thing as a true self that is independent of the life a person appears to live. Living a life is inherently about creating a false sense of self, and there is no true self to be found in that life. When you have a personal self-concept or ego, you're being false. When you clearly see that falseness, you want to destroy it. When you see that falseness in yourself, you want to kill yourself. That's how suicides happen. When you see that falseness in others, you want to kill others. That's how you become a serial killer. Freud was very puzzled by this self-destructive tendency of people and called it the *death instinct*, but it makes sense in terms of seeing the falseness of the personal self-concept or ego and wanting to destroy it for no other reason than it's seen to be false. Serial killers are not acting at a personal level for their own personal gain. They are more like religious zealots that have seen the falseness of the world of ego and want to destroy it. They have no desire to be in control or inflate their own self-image. Instead, like all religious fanatics, they have given themselves over to something greater than themselves, which is this primitive desire to destroy the falseness of self. They feel compelled to do this work like a religious calling. In some sense serial killers are the antithesis of sociopaths. Sociopaths want to inflate their own selves, while serial killers want to destroy them.

Can a sociopath become a serial killer? Sure, why not? *I am vast; I contain multitudes*. The answer isn't to become either a sociopath or a serial killer, but to realize your true nature as that *selfless vastness*. To do that, you have to undergo a self-destructive process of *ego-death*, which as the Buddha discussed in another noble truth, can only happen when you give up the desire to live a self-centered life. You have to become willing to die at the level of ego-death. You have to become desireless. Becoming selfless or egoless is the same as becoming desireless. When you see the falseness of your own ego, living that kind of a false self-centered life is suffering. You have to get to the point where you'd rather die at the level of ego-death than continue to live that kind of a false self-centered life. At that point you'd rather die than continue to suffer. Only when you get to that point do you become willing to give up your own selfish desires. That giving up

takes the form of your surrender, which is your willingness to die, and your willingness to let go and detach yourself from things by severing your emotional attachments. Only in that desireless and selfless state can you realize the truth of the *selfless vastness* that you really are.

Where Not to Look

A man loses his keys in the darkness, but decides to look for them under a light post. When asked why he looks there instead of in the darkness, he answers *because the light is better there*.

The Key to Awakening

Living a life is only about creating a false sense of self. You have to first create yourself, which you create as you come into individual existence as the *Self*, a presence of consciousness at the center of your own world. You then compound the problem by emotionally identifying yourself with a personal self-concept that you emotionally construct around the emotionally animated and holographically projected form of a person that appears in the world that you perceive.

The key to awakening is your focus of attention. If you focus your attention on living a life, that's what you'll get. If you focus your attention on expressing and manifesting desires in that life, that's what you'll get. If you emotionally identify yourself with your personal character and focus your attention on everything you fear about what can go wrong and what you can lose in life, including that life, that's what you'll get. When you manifest your fears, you're just reminding yourself how emotionally attached and identified you are with living the life of your character.

Awakening is really only about withdrawing your attention away from that life and shifting the focus of your attention as you look within until you realize the truth of what you really are. Along the way you have to destroy all false personal concepts you have about yourself, including the concept of *self* you've created for yourself. Truth is what remains when the false is destroyed.

In the awakening process, you have to make a clear distinction and discriminate between living and existing. You have to make a clear distinction and discriminate between surviving as a person in the world you perceive in the emotionally animated form of a body and your own beingness. The body is something that appears in the virtual reality world you perceive. You timelessly exist as the consciousness that perceives that world. You only believe that you exist in the form of a living body because you've emotionally identified yourself with that personal form. You only emotionally identify yourself with that personal form when you express emotions and feel emotionally self-limited to that emotionally animated personal form.

In the awakening process, you're instructed to focus your attention on your own sense of being present or *I-Am-ness* as much as you can, but you can only look beyond that sense of *Self* and *I-Am-ness*, into the emptiness of your own being, when you become desireless. To become desireless you have to externalize yourself and see things from a higher level of consciousness like a movie that you're watching. The world you perceive is no more real than the projected and

animated images of a movie, and you're always out in the audience only watching the movie. To externalize yourself you have to stop trying to direct or control what appears to happen in the movie as you focus your attention on the movie in a personally biased way. You have to lose that personal bias and just allow things to play out in the normal way. You have to stop interfering and trying to control things. You have to give up your desire to be in control, which arises from your desire to defend yourself when you identify yourself with a personal form. That's why you have to surrender. When you surrender, you allow things to play out in the normal way. You're carried along by the normal flow of things in a deep state of *let-go*. You then have to detach yourself from things by severing your emotional attachment to things. When you sever your emotional attachments and detach yourself from things, you allow things to come and go without trying to hold onto things. When you detach yourself from things in a state of surrender and *let-go*, you externalize yourself and see things from a higher level of consciousness. That's when you can really look into the emptiness of your own being in a desireless state. You can only awaken if you become selfless. To become desireless is to become selfless.

Awakening is only about becoming selfless. *Self* is an untruth, and to awaken to the truth of what you really are, you have to lose your *Self*. You can't really lose your *Self* as long as you perceive your own world from the central point of view of that world since the *Self* as a presence of consciousness is the perceiver of that world, but you can stop identifying your *Self* with the concept of being a person in the world that you perceive. You stop emotionally identifying your *Self* with that emotionally animated person when you lose your personal bias in your focus of attention and stop expressing personally biased emotions. To be a person is to be a selfish, self-centered, self-defensive *Self*. To awaken is to lose that personal bias and see the whole thing as no more real than a movie you're watching. You stop identifying your *Self* with the central character of the movie and lose that personal bias. To detach yourself, you have to stop caring about whatever appears to happen to the person and to the world the person appears to live within in a personally biased way. You just allow the movie to play out in the normal way.

No-self is the only truth, but to realize that truth, you have to destroy the untruth. Truth is what remains when the untruth is destroyed. *Self* is the untruth. The awakening process is a war that you fight with yourself in order to destroy your *Self*. Like Neo in the Matrix, you have to become willing to look into the darkness. You have to become willing to put on your dark glasses. The world you perceive as a presence of consciousness is illuminated by the light of consciousness. What you call your *Self* is that illuminating and perceiving presence of consciousness. The *Source* of that illuminating and perceiving presence of consciousness can only be described as darkness and emptiness. You cannot find the true nature of what you are in what's being illuminated and perceived. You have to look into the darkness and emptiness.

When you look into the darkness and emptiness in a desireless state, the *doors of perception open*. The *gateless gate opens* when you become desireless and selfless because the gate is the *Self*. As you pass through the *gateless gate*, the illuminated world you perceive disappears from existence and you fall into and dissolve into the darkness and emptiness, like a drop of water that

dissolves back into the ocean. You become the ocean. You become the darkness and emptiness. The ocean is motionless, and you have to become desireless and motionless to return to that motionless state. You have to become selfless. When the untruth of the *Self* and the illuminated world it perceives is destroyed and disappears from existence, only the truth of *No-self* remains. When the untruth of the *Self* is destroyed, only the truth of the *Source* remains.

The way to truth lies through the destruction of the false. To destroy the false you must question your most inveterate beliefs. Of these the idea that you are the body is the worst.

Destroy the wall that separates, the 'I-am-the-body-idea'.

To be born means to create a world around yourself as the center.

You are that point of consciousness.

By your movement the world is ever created.

Stop moving and there will be no world.

You can stop it any moment by switching off attention.

You make it possible by giving it attention.

At the root of all creation lies desire.

The projecting power is imagination prompted by desire.

Desire and imagination foster and reinforce each other.

The totality of all mental projections is the Great Illusion.

When I look beyond the mind I see the witness.

Beyond the witness is infinite emptiness and silence.

The witness is both real and unreal, the last remnant of illusion, the first touch of the real. The moment you say I Am, the entire universe comes into being.

Once you realize that there is nothing in this world which you can call your own you look at it from the outside as you look at a play on the stage or a picture on the screen. To know the picture as the play of light on the screen gives freedom from the idea that the picture is real. In reality I only look. Whatever is done is done on the stage. Joy and sorrow, life and death, they are real to the man in bondage. To me they are all in the show, as unreal as the show itself.

I see only consciousness, and know everything to be but consciousness, as you know the pictures on the cinema screen to be but light.

It is enough to shift attention from the screen onto oneself to break the spell.

First we must know ourselves as witnesses only, dimensionless and timeless centers of observation, and then realize that immense ocean of pure awareness.

On the surface of the ocean of consciousness, names and forms are transitory waves. Only consciousness has real being, not its transformations.

Be aware of being conscious and seek the source of consciousness.

Realization is in discovering the source and abiding there.

In reality there is only the source, dark in itself, but making everything shine with the light of consciousness.

In the timeless state there is no Self, no I Am, no witness.

The witness-consciousness is the reflection of the real in the mind. The real is beyond.

The witness is the door through which you pass beyond.

Between desires and freedom from all desires is an abyss which must be crossed.

Cross the door and go beyond.

Realization is sudden and irreversible. You rotate into a new dimension. You see everything as it is. The world of illusions is left behind.

The experience of the inner void is an explosion into reality.

For the path of return naughting oneself is necessary.

My stand I take where nothing is. To the mind it is all darkness and silence.

It is deep and dark, mystery beyond mystery. It is, while all else merely happens.

It is like a bottomless well, whatever falls into it disappears.

-Nisargadatta Maharaj

We call Buddha the awakened one. This awakening is really the cessation of inner dreaming. When there is no dreaming you become pure space. This non-dreaming consciousness is what is known as enlightenment.

If you go on inquiring 'Who am I?' you are bound to come to the conclusion that you are not. This is an inquiry to dissolve. There is no answer. Only the question will dissolve. There will be no one to ask 'Who am I?' And then you know.

When the 'I' is not, the real 'I' opens. When the ego is not, you are for the first time encountering your being. That being is void.

You fall into an abyss, and the abyss is bottomless: you go on falling. That is why Buddha has called this nothingness emptiness. There is no end to it. Once you know it, you also have become endless. At this point Being is revealed: then you know who you are, what is your real being, what is your authentic existence.

The inner emptiness itself is the mystery.

*When you dissolve, the inner emptiness is there.
When the inner space is there, you are not.
When you are not, the mystery will be revealed.
You will not be a witness to the mystery, you will be the mystery.
-Osho*

*In the silence and the void
Standing alone and unchanging
Ever present and in motion
I do not know its name
Call it Tao*

*Returning is the motion of the Tao
It returns to nothingness
It leads all things back to the great oneness*

*Ever desireless, one can see the mystery
Ever desiring, one can see the manifestations
These two spring from the same source
This appears as darkness
Darkness within darkness
The gate to all mystery*

*The great path has no gates
Thousands of roads enter it
When one passes through this gateless gate
One walks the universe alone*

Empty yourself of everything

*The man of Tao remains unknown.
Perfect virtue produces nothing.
No-self is true self
And the greatest man is nobody
-Chuang Tzu*

The Ending of the Matrix Explained

At the end of the first Matrix, Neo undergoes a *death-rebirth transformation*. He can clearly see the Matrix for what it really is: a computer-generated virtual reality. He can see the data for that virtual reality is encoded on the walls of the room he appears to be in, which is the boundary of the world he perceives, just like a holographic screen. When he sees the Matrix for what it really

is, he is seeing things from a higher level of consciousness. This *born again experience* is a necessary step in his awakening, but is not the final awakening.

At the end of the third Matrix, Neo undergoes the final awakening. The Oracle tells him that Agent Smith is his alter-ego. What she means is that Agent Smith represents the negative energies while Neo represents the positive energies. The Oracle also tells him that she is helping him because they're all in it together and she wants them to get along. She wants peace. At the end of the story, Neo's positive energies annihilate with Smith's negative energies like a virtual particle-antiparticle pair that annihilates back into the vacuum. The positive energies annihilate with the negative energies back into nothingness. That's how Neo destroys his *Self*. The *Self* is his consciousness identified with his ego. Neo can only become the *One* when his *Self* is destroyed. The *Self* identified with ego is a thing. The *One* is *No-thing* or *No-self*. Neo can only become the *One* when his *Self* is destroyed and he becomes *No-thing*. The Oracle also tells Neo that *Everything that has a beginning has an end*. Only the *One* has no beginning and no end because it is *not-a-thing*. In his final awakening, Neo has to surrender and sacrifice his *Self* to end the war. *Self-sacrifice* literally means to make the *Self* sacred. The *Self* becomes sacred when it is destroyed. That's how the *Self* becomes the *One*. That's how Neo awakens and ends the war. This final awakening is the end of the war, which is a war you fight with your *Self* to destroy your *Self*. When the war is over, there is peace. In that peace, there is harmony between the expression of positive and negative energies because your individual will is no longer being expressed. It is all an expression of divine will. You no longer express individual will because you no longer are an individual. You are the *One*. That is the only way peace is really possible.

Why the Cross is a Powerful Symbol

At the end of the Matrix, after Neo sacrifices his *Self* and the war comes to an end, the machines say *It is done*. You are only *done* with your awakening process when you become *selfless*. That is the only way you can become the *One*. You have to become selfless and destroy your *Self* before you can become the *One*. You have to become willing to undergo a process of *Self-sacrifice*, which is symbolized by your willingness to get up on your own cross and sacrifice your *Self*. The cross is a symbol for *crossing over to the other side* that occurs when you become the *One*. The virtual reality side of that *crossing over* is characterized by *self and other*. The concept of *self and other* only exists in the dualistic reality of a world, which is a virtual reality. The concept of *self and other* only arises as the *Self* perceives things in that world. The concept of *Self* is what is destroyed and dies when you *cross over to the other side*, which is an *ego or I-death*. The *other side* of the *absolute nothingness of nondual reality* has no concept of *self and other*. *All is One*.

Final Disclaimer

The first thing to say is that this website is not an attempt to express ultimate truth. That's impossible. All that's really being done here is to correlate what modern physics says about the

nature of reality with what enlightened beings, like Nisargadatta Maharaj, say about reality. The correlation is excellent, but don't take my word for it. Check it out for yourself.

The second thing is that the observations made on this website are not judgemental. These are simply critical observations of the world based on the scientific method. If these observations sound judgemental, that's only at the level of the world as a virtual reality, and not at the level of ultimate truth. Even to say these observations are judgemental is inaccurate. There's no attempt here to judge what's right or wrong or what's good or bad, only to critically distinguish between what's true and what's false. Distinguishing the true from the false sounds judgemental at the level of the virtual reality only because when you lean toward the truth in the virtual reality, you naturally come into alignment with the normal flow of things and express right actions. When you come into alignment, you naturally feel connected, which feels good. When you oppose the normal flow of things and are not in alignment, which is always an expression of personal bias at an individual level, you express wrong actions and feel bad because you feel disconnected. Rightness and goodness only reflects coming into alignment with the normal flow of things at the level of the virtual reality, while wrongness and badness only reflects being out of alignment.

Being out of alignment is only the result of the expression of personal bias at the individual level of self. That wrongness or badness is not a judgement of your true nature. It only reflects whether you lean toward the truth or lean toward the false at the level of the virtual reality. The nature of that falseness is self. Self is the core untruth at the center of the virtual reality. Self is an untruth because it's based on the idea of individual existence and individual consciousness, which is the idea of being an individual self. There is only One true consciousness, One true existence, and One true being, but that One being becomes artificially fragmented and divided up with the creation of a virtual reality. That artificial division, fragmentation and separation gives rise to the illusion of individual existence and consciousness that is the essence of the falseness that haunts the virtual reality like an angry and fearful ghost. The ghost only seems to be angry and fearful because it has falsely identified itself with an angry and fearful person that appears in the virtual reality. The only purpose of the expression of that anger and fear, like the expression of all desire, is to defend the survival or self-replication of the emotionally animated form of the person. The ghost feels compelled to defend personal survival like its existence depends on it and emotionally identifies itself with that personal form because of its feelings of self-limitation to that personal form. That false self-identification always reflects personal bias at an individual level. When that false personal self-identification comes to an end, the ghost naturally loses its anger and fearfulness. That false personal self-identification naturally comes to an end when the idea of individual existence comes to an end, which is the end of the idea of being a separate self. When the idea of being a separate self is destroyed, the ghost can only identify itself with the One consciousness, within which there is no individual existence. There is only the One being.

Scientific References

- Tom Banks and Willy Fischler (2018): Why the Cosmological Constant is a Boundary Condition. arXiv:1811.00130
- Raphael Bousso (2002): The Holographic Principle. arXiv:hep-th/0203101
- Antonio Damasio (1999): The Feeling of What Happens (Harcourt Brace)
- Amanda Gefter (2014): Trespassing on Einstein's Lawn (Random House)
- Amanda Gefter (2012): Cosmic Solipsism. FQXi Essay
- Brian Greene (2000): The Elegant Universe (Vintage Books)
- N. Gregory Hamilton (1988): Self and Others (Jason Aronson)
- Gerard 't Hooft (2000): The Holographic Principle. arXiv:hep-th/0003004
- Ted Jacobson (1995): Thermodynamics of Space-time. arXiv:gr-qc/9504004
- Stuart Kauffman (1995): At Home in the Universe (Oxford University Press)
- J Madore (1999): Non-commutative Geometry for Pedestrians. arXiv:gr-qc/9906059
- Juan Maldacena (1997): The Large N Limit of Superconformal Field Theories and Supergravity. arXiv:hep-th/9711200
- Juan Maldacena and Leonard Susskind (2013): Cool Horizons for Entangled Black Holes. arXiv:1306.0533
- Nancy McWilliams (1994): Psychoanalytic Diagnosis (Guilford Press)
- Roger Penrose (2005): The Road to Reality (Alfred A Knopf)
- Lee Smolin (2001): Three Roads to Quantum Gravity (Basic Books)
- Leonard Susskind (2008): The Black Hole War (Little, Brown and Company)
- Leonard Susskind (1994): The World as a Hologram. arXiv:hep-th/9409089
- A. Zee (2003): Quantum Field Theory in a Nutshell (Princeton University Press)

Nondual References

- The Bhagavad-Gita (1909): Edwin Arnold trans. (Harvard Classics)
- Jed McKenna (2002, 2004, 2007): Spiritual Enlightenment Trilogy (Wisefool Press)
- Jed McKenna (20013): Jed McKenna's Theory of Everything (Wisefool Press)
- Nisargadatta Maharaj (1973): I Am That (Acorn Press)
- Nisargadatta Maharaj (1990): Prior to Consciousness (Acorn Press)
- Osho (1974): The Book of Secrets (St Martin's Griffin)
- Osho (1977): The Search: Talks on the Ten Bulls of Zen (Tao Publishing)
- Paul Reps and Nyogen Senzaki (1957): Zen Flesh, Zen Bones (Tuttle Publishing)
- Bernadette Roberts (1993): The Experience of No-Self (State University of New York Press)
- Lao Tsu (1989): Tao Te Ching. Gia-Fu Feng trans. (Vintage Books)