

Realization

Experiencing Reality
In a World of Illusion

Edgar L. Owen

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Reality, Information, Consciousness, Mind and Time*

REALIZATION

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In a World of Illusion

Edgar L. Owen

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To my secret muse

PREFACE

This book explains how and why the world we appear to live in is not the real actual world but instead an illusory simulation of reality produced by our own brains. Only when the details of the simulation are understood does the true nature of reality become clear and the path to realization open. The contents of this book have been adapted from the author's work 'Universal Reality' which presents a complete Theory of Everything including the simulation, the nature of reality, and realization (Owen, 2016).

This book assumes a general knowledge of modern physical and cognitive science, at least at the popular level, and some familiarity with the great perennial issues of philosophy will be helpful. But all that's really required is the desire to explore the deepest mysteries of illusion and reality with an open mind.

Anyone interested in the true nature of reality, the illusions that obscure it, and how to realize it should find this book an extremely interesting and entertaining read. It convincingly clarifies the nature of the simulation and its many mysteries in a refreshing new way from an entirely new perspective on the universe. And it leads directly to a new science-based understanding and experience of realization. It's a completely new approach to reality and the nature of illusion based firmly in logic and established science that can't be found anywhere else.

This book was written primarily in an effort to clarify and further develop my own understanding of reality, but hopefully its publication will make it accessible to others as well and generate intelligent criticisms and suggestions for improvement. I personally believe it's the best and most accurate view of the simulation that has so far been discovered, but reality is always full of mysteries and surprises and is always the final arbiter of truth.

To the extent this book is an accurate description of reality it's not something I have created, rather it's reality itself revealing itself to someone who has hopefully been able to observe and study it without projecting too much of his own personal programming and prejudices onto it. Reality is continuously revealing itself to all of us in all its awesome glory, and I believe anyone willing to observe it carefully and objectively will be able to personally verify and experience the truth of

most of what this book contains.

I would like to thank everyone who has helped make this book possible and encouraged me while writing it. Thanks to all of you for putting up with my unusual hermetic life style. And a special thank you to all my wild visitors, including the occasional human, and to the beauty and profundity of nature, which always inspires me with meaning and joy. Thanks to reality itself for continuously revealing itself in all its glory to those who will only look with opened eyes, and thanks most of all to my secret muse. Thank you, thank you. Thank you all!

And finally thanks to all those thinkers, scholars, scientists and visionaries throughout history without whose heroic efforts, genius and cumulative hard work this book could not have been written.

The author welcomes all comments and questions and can be contacted at Edgar@EdgarLOwen.com.

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THE SIMULATION

INTRODUCTION

The bright continually changing world around us in which we appear to live our lives is actually an illusion. All the evidence suggests we live in a running program called a simulation and the true fundamental reality in which we and all things actually exist is hidden from us.

However the illusory nature of the simulation is so completely convincing that we very rarely doubt its reality. Even most of the theories of reality of philosophers and most interpretations of modern science are founded in the mistaken assumption that the simulation accurately represents reality when all the evidence suggests that it doesn't.

This is the main reason that the true underlying nature of reality has long been an unsolved mystery that has baffled generation after generation of philosophers and scientists. Though many have tried neither philosophy nor modern interpretations of science have been able to discover the true fundamental nature of reality.

The simulation is a fundamental fact of our lives but unlike popular movies and even some science-based theories suggest the real simulation is created by our own minds rather than by alien programmers (Wikipedia, Simulation hypothesis). That being said the author even wrote his own science fiction short story titled 'The Livies' on the alien programmer theme back in the early 60's (Owen, c. 1962).

It's an indisputable truth that the apparently physical world in 3-dimensional space we seem to experience around us actually exists only as neural data in our own brains. It exists only as information and it exists only in our own brains. Our minds produce the simulation in which we actually exist and then project it out into a 3-dimensional world in which we believe we exist.

But if the world in which we seem to exist is produced by our mind then clearly our mind can redesign it however it likes just so long as there is sufficient logical correspondence with the underlying logic of actual reality to enable us to function successfully within actual reality.

Thus some sufficient logical correspondence with actual reality is the only restriction in how our mind represents reality to us in the simulation. Other than that it has free rein to redesign it and it does so in a number of specific ways all of which misrepresent the actual nature of reality and thus are illusions that hide the true nature of reality from us.

In particular it's easy to demonstrate that all the *appearances* of things we seem to see in the world are generated within the simulation and this is even confirmed by biology and cognitive science though the implications are rarely understood and never followed to their logical conclusions by the scientists involved.

Second there is compelling evidence that the world is not physical or material in the sense we normally attribute to the universe but is instead a computational structure that our simulation *interprets* as a physical structure.

When we step back and carefully reconsider the nature of reality we quickly discover that it simply can't be physical in the traditional sense. All the evidence suggests it's actually a computational structure and that its apparent physical nature is an *interpretation* of its true *information nature* produced by our simulation.

When the nature of reality itself is clearly understood and seen with new eyes a revolutionary new paradigm emerges that explains both the scientific universe and all other aspects of reality as consistent aspects of a single unified computational structure (Owen, 2016).

This new computational understanding of reality immediately solves all sorts of important scientific and philosophical problems from the nature of existence and consciousness to the underlying structure of the universe, and it convincingly confirms and explains the most fundamental and obvious of all scientific observations, the undeniable existence of consciousness in a present moment through which clock time flows.

A physical universe is clearly not compatible with the non-physical aspects of reality such as consciousness, the present moment, and the laws of nature. For example consciousness is clearly not physical and self-evidently cannot arise in a strictly physical universe so it must have something to do with the nature of reality itself. So to understand consciousness and the other non-physical aspects of reality we must first reanalyze the fundamental nature of reality to discover what reasonable

model would naturally explain them and still be compatible with established science.

This book begins by explaining why the universe is clearly not physical in the ordinary sense of the word but is actually a computational system. This insight is additionally confirmed by analyzing what we really mean when we say something is physical. When the actual meaning of the concept of physicality is understood the reason the universe appears physical even though it isn't becomes clear. At this point the underlying nature of reality begins to emerge and turns out to be automatically compatible with consciousness, the present moment and other clearly non-physical aspects of reality such as the laws of nature.

Universal Reality reveals that rather than being a physical structure the universe is more like a running program that continually recomputes its current data state in the present moment. In this view everything is the complete information of what it is, and there is a common substrate of *existence* within all things that makes those information forms the real actual things of the world.

In this view the apparent physicality of the universe is an adaptive interpretation of the information structure of reality that has evolved to make it easier for human minds to make sense of the world and function within it. Thus the true fundamental nature of all things is information forms given reality by the common existence they all share in. In this view all information forms are *forms of existence that exist within existence* just as ripples, waves and currents are all forms of water that exist within a common otherwise formless substrate of water.

Thus all things are information forms and differ only in the forms of their information. Form is information so all the things of the universe differ only in their information content. They are all just different forms of information in a common substrate of existence, and the existence within them all makes those information forms the real actual things they are the information of.

The common existence within all things self-manifests as their actual reality or being as the real things they are the information of. This is due to the *immanent presence* of their existence. Immanence is the self-manifesting presence of existence in the information forms of everything in the universe including ourselves that makes them real and actual and gives them being. All things that exist have immanence because they all exist within the common substrate or medium of immanent existence. Existence is the common active ingredient of all actual things, of the

universe itself, and of consciousness and the other obviously non-physical aspects of reality in particular.

Everything in the universe, including us, is filled with the immanence of its existence. Thus all information forms can be said to shine with the internal light and life and reality of their existence, and this immanence manifests their being and gives them actual presence in reality. It is this intrinsic immanence of things that is also the key to consciousness. The internal glow of immanence in representations of things in the simulation is not something visible to the eyes but manifests as consciousness of them.

Thus consciousness is not something human minds generate and shine onto things. Consciousness is simply the self-manifesting immanence of the information forms of representations of things manifesting within our minds. Immanence is the invisible glow of being in all things. It's the presence of actual happening existence within things that lights them up with being. Immanence is invisible to our eyes but manifests as consciousness in our minds.

This becomes self-evident when we just look at what reality is actually telling us with open eyes and carefully analyze it in the context of the deep principles underlying established physical and cognitive science. What emerges are secrets that at once are incredibly profound but amazingly obvious when finally recognized for what they are.

The simulation is a vast and complex information structure that completely encompasses the entire world we experience and completely misrepresents every aspect of it. It is so completely pervasive that every aspect of the world around us is almost entirely an illusion produced by our own minds.

Thus if we wish to understand and experience the true nature of reality we must first understand the details of the simulation and how it obscures that true nature. Only by understanding the many layers of illusion produced by the simulation and removing them one by one can we hope to discover the true nature of reality hidden within them.

And finally when the true nature of reality is revealed the path to directly experiencing that true nature in all things opens before us in a science based understanding of realization as the direct experience of the true nature of reality without any metaphysical or religious connotations.

But we are getting ahead of ourselves here and need to start at the beginning by showing first why the universe is not physical in the traditional sense and then exploring how the simulation misrepresents it as an illusory physical world of appearance. Only then will the true underlying nature of reality become clear.

EVIDENCE REALITY IS NOT PHYSICAL

A computational model is by far the most reasonable and fruitful approach to reality. The computational model of Universal Reality is both internally consistent and consistent with science and the scientific method. This may initially seem counter intuitive but there all sorts of convincing reasons supporting it.

There is overwhelming evidence that everything in the universe is its information or data only and that the observable universe is a computational system:

1. To be comprehensible, which it self-evidently is, reality must be a logically consistent structure. To be logical and to continually happen it must be computable. To be computable it must consist of data because only data is computable. Therefore the content of the observable universe must consist only of programs computing data.
2. The laws of science which best describe reality are themselves logico-mathematical information forms. Why would the equations of science be the best description of reality if reality itself didn't also consist of similar information structures? This explains the so-called "unreasonable effectiveness of mathematics" in describing the universe (Wigner, 1960).
3. By recognizing that reality is a logico-mathematical structure the laws of nature immediately assume their natural place as an intrinsic part of reality. No longer do they somehow stand outside a physical world while mysteriously controlling it. A physical model of the universe is unable to explain where the laws of nature reside or what their status is (Penrose, 2005).
4. Physical mechanisms to produce effects become unnecessary in a purely computational world. It's enough to have a consistent logico-mathematical program that computes them in accordance with experimental evidence.

5. When everything that mind adds to our perception of reality is recognized and subtracted all that remains of reality is a computational data structure. This is explained in detail below and can actually be verified by carefully analyzed direct experience.
6. We know that our internal simulation of reality exists as neurochemical data in the circuits of our brain. Yet this world appears perfectly real to us. If our cognitive model of reality consists only of data and seems completely real then it's reasonable to assume that the actual external world could also consist only of data. How else could it be so effectively modeled as data in our brains if it weren't data itself?
7. This view of reality is tightly consistent with the other insights of Universal Reality, which are cross-consistent with modern science. Total consistency across maximum scope is the test of validity, truth and knowledge (Owen, 2016).
8. This view of reality leads to simple elegant solutions of many of the perennial problems of science and the nature of reality and leads directly to many new insights. Specifically it leads to a clear understanding of the nature of consciousness and also enables a new understanding of spacetime that conceptually unifies quantum theory and general relativity and resolves the paradoxical nature of the quantum world (Owen, 2016).
9. These insights complete the progress of science itself in reducing everything to data by revealing how both mass-energy and spacetime, the last remaining bastions of physicality, can be reduced to data as explained in Universal Reality (Owen, 2016).
10. Viewing the universe as running programs computing its data changes nothing about the universe which continues exactly as before. It merely completes the finer and finer analysis of all things including us into their most elemental units. It's simply a new way of looking at what already exists in which even the elementary particles themselves consist entirely of data while everything around us remains the same. Reality remained exactly the same when everything was reduced to its elementary particles, and it continues to remain the same when those particles are further reduced to their data.

Thus there are many convincing reasons to believe that everything in the universe consists only of its data and that the apparent physicality of things is an illusory interpretation produced by our minds. All the apparently material things of the world around us are our experiences and interpretations of various types of information forms in our mental

simulations of reality and by extension in the interpretations of science based on these human simulations of reality.

First, a computational universe immediately solves the vexing problem of how nonmaterial laws of nature could possibly control a material universe they were not a part of. This is a problem that was intractable in the traditional materialistic view of science (Penrose, 2005). However, if the universe and the laws that govern it are respectively actualized and virtual types of information then it's natural that both would be part of a single computational universe. The laws of nature are simply the programmatic structure of the elemental program that continually recomputes the information state of the universe.

Thus the laws of nature, being forms of information in a reality consisting only of data, are an integral part of nature as real as the data forms that encode actual things, and thus are as real as the things of the world. The laws of nature don't stand apart from nature in some mysterious metaphysical realm while controlling it as traditional science mistakenly assumes. That the laws of nature find a natural place in our computational model of reality is strong evidence for its validity.

Second, it's quite clear that our experience of a seemingly physical universe, and everything in it, actually consists only of information in the neural circuits of our brains. While there is certainly a real universe external to our brains, the seemingly physical universe we experience our existence within is without any doubt an information construct in our brains. So if just information in our brains can produce such a completely convincing illusion of a material universe, why couldn't the actual universe external to our brains also consist only of information?

That would immediately explain why neural computations within our brain's model of reality could enable us to function so effectively within actual external reality. How could our internal mental simulation of the universe so accurately map the actual workings of the universe if the universe itself wasn't also an information structure?

Third, all the laws of science consist only of mathematical equations imbedded in a logical framework, in other words they consist only of information. How could information structures accurately describe the universe if the universe itself didn't also consist of information structures? This immediately solves the mystery of why mathematics works so incredibly well to describe the universe. Of course mathematics and logic would naturally provide the best description of a universe that was itself a logico-mathematical information structure.

Fourth, when we carefully analyze seemingly material things in our minds we find that they actually consist only of the information of what they are, and this is true of everything without exception. They all consist only of their information, the combined information of their colors, textures, forms, structures, chemical compositions and whatever else makes them up. These are all just different forms of information that in combination are interpreted by our brains as material objects. Our brain tells us these combinations of information forms make material objects but even that interpretation is just more information.

This is also confirmed by the designs of robotic control programs and pattern recognition (Wikipedia, Pattern recognition). In robots able to operate effectively within complex environments internal models of themselves within their environments must be laboriously constructed and continually updated from streams of raw data input. That data is then converted into simulations of purposeful action within the model, which are in turn tested, valued and used to control appropriate motor activities. Internally it's all based on internal data models of the robots within their environments that work only due to the data model's logical consistency with the actual data structure of external reality. All living organisms including us operate on identical principles though in much more complex systems.

The information that makes up even a simple physical object, not to mention that of a living being, is not a simple data string like the name or description of an object. It's an incredibly complex hierarchy of forms and multiple hierarchies of subprograms within subprograms, and their ongoing computational interactions and relationships with other forms and programs both internal and external. Think of the hierarchies of total information content of anything down through all its individual systems to its individual cells to the detail of every one of its elementary particles and their interactions, and that is the complete information structure that makes up that thing, and actually is that thing. These are the total running programs that things actually are.

Fifth, even modern science now has now reduced the entire materiality of the universe to just mass-energy, and spacetime. However, in the chapter on Fundamental Principles in Universal Reality, it's shown how spacetime reduces to the information of dimensional relationships, and mass-energy reduces to the information of relative motion (Owen, 2016). So even the universe envisioned by modern science naturally reduces to pure abstract information.

Sixth, accepting a universe consisting only of information doesn't

change the universe that we experience around us in the least. It still appears exactly as it did before, as a material universe. The only difference is that we now realize that its seeming physicality is an interpretation of its information structure produced in our minds, and that the underlying data structure of the seemingly physical world we live in is its actual fundamental structure.

Thus it's reasonable to conclude that the data structure of the universe is its actual fundamental nature and its seeming materiality is an illusion produced by our mind as it combines all the sensory information of things into the semblance of physicality.

Thus in our theory all the programs of things that make up the universe without exception consist only of their data in a continual process of recomputation. These programs have existence because they run in the substrate of existence, and thus they become the real actual things of the world, but the fundamental nature of all these things is information given being by its presence within the substrate of existence of the universe.

Thus at the most fundamental level the things that make up the universe are not material or physical entities, they are simply different information forms that arise in an originally formless sea of existence, as water waves, ripples and currents are different forms of water that arise in an originally formless ocean of water. And since the things of the universe are not physical they have no individual self-substances that make them different things; the only difference between things is the differences in their information forms, the different data that distinguishes them one from another.

Information takes innumerable different forms but the fundamental nature of all the data that makes up the universe is the same; it all consists of abstract data forms that are computationally evolving in a common non-material medium of existence. The only substance of all information forms is existence itself, just as the only substance of all forms of water is water no matter how their different forms may vary.

All things in the universe consist only of information given actuality by existing in the universal medium of existence. It is their common existence, rather than any material substance, that makes them all real things. They become real things by appearing in the virtual medium of existence, just as water waves become real by appearing in water.

THE QUANTUM VACUUM

Note also that an underlying substrate of existence is also consistent with modern science. One can very reasonably equate it with science's quantum vacuum. After all the quantum vacuum is the common substrate of existence of all elementary particles from which they emerge and which continually supports their existence. In this view science has begun to discover the universal substrate of existence in its discovery of the quantum vacuum.

But science's discovery of the substrate of existence is not yet complete because the quantum vacuum is also the only logical location for the complete fine-tuning and the laws of nature to reside. The quantum vacuum is the acknowledged location of the data of virtual particles so it's reasonable to assume it's also the location of the virtual data of the complete fine-tuning and the laws of nature.

Thus the equivalence of a universal substrate of existence with the quantum vacuum is the obvious conclusion. The quantum vacuum becomes the universal substrate of existence in which the virtual data of the complete fine-tuning and the laws of nature exist as well as all the actualized programs and data of the observable universe.

THE SIMULATION

It's quite clear that the world we experience our existence within is not the actual world but our mind's internal representation of it. In other words the world we experience around us is actually a simulation of the real world that exists entirely in our brains. It's also quite clear that our internal simulation of reality consists entirely of information encoded in our neural structures, as there are certainly no actual physical objects like rocks or trees or other people in our brains.

It's also clear that the basic logical structure of our simulation must sufficiently map the actual logical structures of external reality for us to function within it on the basis of our simulation. However it's fairly easy to demonstrate that all the *appearances* of things in the apparently external world are added by mind and don't actually exist out there. Even

standard cognitive science confirms that colors, sounds, odors etc. are all private internal *interpretations* of our sensory and perceptual *interactions* with the world called qualia rather than part of the external world itself (Wikipedia, Qualia).

Thus the basic logic of the simulation is a highly simplified mapping of the actual logic of external reality but every other aspect of it is added by mind in the simulation. Thus it's clear that our simulation of the world around us consists entirely of information, the information of the actual logic of external processes plus the information of the qualia of our interactions with the world the simulation uses to represent the world in a more meaningful way that makes it easier for our minds to compute.

Thus if the information that makes up the simulation in which we appear to exist seems so real and physical then why couldn't the actual external world also consist only of information? The fact that our simulation can model it so effectively with only information strongly suggests it too must consist only of information.

But if the universe is a computational structure then why does it seem so physical? To answer this question we must first analyze what we actually mean when we say something is a physical or material object. What criteria determine whether something is physical or not?

It turns out all physical means is that something is a *persistent spatial association* of specific types of *information* such as the information of its shape, color, texture, hardness, workability, heft and so forth that our mind is programmed to label as physical or material in combination.

This can be easily confirmed. With a little practice it's not at all difficult to analyze any apparently physical or material object into its separate information components, and when that is done it becomes quite clear everything is its total information content only. This is easily confirmed by successively subtracting all the information components of any seemingly physical object one by one. We always find that after all the information of anything at all is subtracted there is simply nothing left. Therefore all any physical thing is reduces to the association of the specific types of information that in combination our brains interpret and label as something physical.

It's just a matter of becoming aware of what we actually see when we observe things without being fooled by our simulation. If we really take our perceptions and mental models of things apart into their

individual components we find their every component reduces to the information of what it is, and that's all we ever experience because everything without exception is ultimately perceived only in terms of its information. Only information is observable. There simply isn't any way to perceive anything except in terms of its information. Thus the entire observable universe must consist only of the information of what it is and nothing else other than the existence that makes that information real actual things in the world.

Thus all the seeming physicality of the things of the world is actually interpretations of their combined information forms in our minds. The apparently physical world in which we seem to exist is our mind's internal simulation of an actual reality consisting only of the information states of running programs. To this extent the physical world is completely an illusion, though certainly a very convincing illusion. Thus the apparent physicality of the world is an evolutionary adaptation that makes it easier and more meaningful for us to function and nothing more than that.

Thus the evidence is overwhelming that everything that exists is its complete information only. Everything is the complete information of what it is given reality by its presence in existence as a form of existence and other than that there is nothing to it.

So everything is actually just its information or its data, but this is not data in the trivial sense of data on a printed page or in a computer memory. The medium of this data, the data of actual things, is not marks on paper or electronic bits in a storage device. The data of reality exists in the medium of existence, and that's what makes it real and actual. It makes the data of existence into real actual happening things. Their existence gives them immanence and being, it makes whatever form that data has into the real actual thing it's the information of.

All the actual information forms in the universe are filled with the immanence of their existence. The immanence of their existence makes them each into the real actual thing they are the information of. Thus the information of a description of a fox in a book becomes an actual description of a fox in a book. But the information of an actual living fox in the woods becomes a real actual fox in the woods due to the immanence of the existence of its information. The forms are different but the immanent existence that makes those forms real and actual things in the world *according to their forms* is exactly the same. Whatever a form is, the immanent existence of that specific information form gives it exactly that reality in the world.

And since existence continually happens and evolves the information forms of all things are continually being recomputed in interaction with all the other data forms that make up their environments.

So it becomes clear there is convincing evidence the universe is best considered a computational structure and that this is completely compatible with both physical and cognitive science. In fact science explicitly implies it. The very notion that the universe is a physical or material structure is simply an outmoded *interpretation* of science rather than science itself. Since this is an interpretation of the science rather than the science itself it doesn't change the actual science in the least and is entirely compatible with it.

Thus the notion of a physical universe in the traditional sense must be replaced with a new understanding of reality that makes better sense and is naturally compatible with consciousness. A new view of reality in which consciousness is an intrinsic aspect of reality itself is urgently required.

1. The Simulation. All living organisms (living programs) construct internal mental models of themselves within their environments to varying degrees. These simulations are subroutines of the total programs of living organisms that have evolved to enable them to more effectively compute their functioning within their environments.
 - 1.1. Every organism creates a unique individual simulation of itself within its reality that differs by individual and species.
 - 1.2. Every organism believes its simulation is actual reality though it's actually an illusion.
 - 1.3. While the *appearance* of reality in a simulation is an illusion, the *logic* of the simulation is a simplified mapping of the actual logic of reality. This logical correspondence enables organisms to function and survive within their environments on the basis of their simulations
 - 1.4. Simulations interpret the actual non-dimensional immanent data universe as a physical universe of material objects within a pre-existing spacetime. The simulation displays the logico-numeric data of the entanglement network as a bright dynamic physical world in the same manner as the logico-numeric data in a computer program can be displayed as a dynamic interactive environment in dimensional spacetime in a virtual reality headset.

WE LIVE IN A PROGRAM

We all live our whole lives entirely in a simulation rather than the real actual world. But this simulation is not produced by an alien programmer but by our own brains. Every one of us and every individual of every species lives entirely in a world of its brain's own making, a private world largely unknowable to all others. And every one of these private simulations of reality is at least somewhat different and all are completely different than the actual reality they all share.

Of course we all actually live in the same shared reality but every one of us experiences reality differently in our simulation. And every one of us believes their own internal simulation is the true picture of their common actual reality even though none of them actually are.

There must be an actual real external world for us to be able to exist and function. If everything existed only within our own mind as Bishop Berkeley suggested all sorts of fatal contradictions would arise (Wikipedia, Solipsism). There must be considerable *logical* correspondence between our internal simulation of reality and actual external reality since we do manage to function and survive quite effectively within external reality on the basis of our simulation of it. But beyond this logical correspondence it's easy to show there is hardly any similarity at all.

Simulations are dynamic programmatic models of reality that run in the brains of living organisms and are projected back out onto the real actual world. Our simulations are dynamic adaptive programs that begin to develop in childhood as we learn to mentally model our environments and the rules by which they operate (Piaget, 1956, 1960).

Thus the world we see around us and think we are living within is not at all like the real world we are really living in and it never has been. We live entirely within our own private simulation of reality thinking it's the true nature of that reality when nothing could be further from the truth.

The world we seem to see and experience our existence within exists entirely within the neural circuits of our brains, and all it shares with actual reality is some basic correspondence of logical structure. It's

only this logical correspondence that enables us to function reliably within external reality. All the rest of our simulation, in particular its appearance, is a very convincing illusion, an illusion that completely misrepresents the true immensely complex information nature of reality.

Both biological and cognitive science confirm that our mind's internal representation of reality consists entirely of information being computed in the neural circuits of our brains, and it's these computations that produce the semblance of the physical reality we believe we inhabit. Our simulation clearly consists of information designed to convince us we should interpret it as a physical world in a dimensional spacetime populated by individual objects undergoing events even though it isn't.

Thus the very convincing everyday world we live in is actually a world that consists only of information in our brains no matter how physical it seems. This includes our objective concept of ourselves, which is an integral part of our brain's simulation of reality.

However our only possible experience of actual reality is through our simulation. Thus the only possible way to approach the true nature of reality is to examine the illusions of our simulation and how they misrepresent actual reality. Ultimately the information content of our own brain is all we have available to us.

Thus the best method to discover the true nature of reality is to examine what our simulation adds to it and carefully identify and set aside each of those layers of illusion one by one until we finally discover the true nature of reality laid bare before us. We must identify and remove the veils of illusion in the simulation one by one until we finally discover the ultimate truth they conceal. What remains after everything mind adds to our simulation of reality is removed can only be the true nature of reality itself.

There are a number of ways in which our simulation of reality is clearly illusory. They are covered in somewhat greater detail in my previous book (Owen, 2013) and papers (Owen, 2009), and relevant research on the structure and foibles of perception and cognition fills many journals and textbooks, and is even the subject of popular science shows. However none of the authors seem to make the leap of understanding to consider the obvious implications for the nature of reality itself. This book takes that leap. It explores the basic types of illusions in our simulation to discover that all that remains when they are removed is the information structure of reality itself.

EVOLUTIONARY ORIGIN

Originally at the level of inanimate processes all experience in the sense of computational changes produced by interactions with other forms is actual but unconscious. Only gradually have living organisms evolved sensory, perceptual, and cognitive systems able to begin to represent their local realities. Thus it's no surprise that our human simulations of reality are still imperfect and unable to represent the world as it actually is. Nor would that even be desirable because it's much more adaptive that our simulation represents the world in the most useful and easy to compute manner possible rather than the most comprehensively accurate manner imaginable.

The notion that we simply open our eyes and the see the world as it actually is should seem incredibly naïve to anyone who understands the function and operation of our perceptual and cognitive systems yet even specialists in cognitive science rarely recognize its quite obvious and profound implications for the nature of reality as they explore the individual aspects of perception and cognition in isolation.

Our mind's simulation of reality is an evolutionary adaptation that makes it easier to compute successful functionality in the external world and thus increase our odds of survival. By greatly simplifying the logical structure of reality to its relevant essentials and dressing them up with appearances and valuations based on our interactions with them our simulation presents us with a world consisting of individual things and events that is much easier and more meaningful for our minds to compute than the enormous seething mass of raw data it actually is.

All biological organisms of all species have their own variant simulations that have evolved to help them better adapt to their own particular environments and lifestyles. Thus every organism experiences its existence in a world whose appearance is of its own mind's making, and all these simulations differ in significant ways between species and even considerably among members of the same species. Every organism lives in a reality of its own making including us humans and it's a little appreciated fact how different these various simulated realities can be even as they all must share some of the logical mapping of actual external reality sufficient for them to function within it.

All these simulations are enormously complex programs that

continually compute their individual representations of reality, and their organism's functioning within them, and they are continually updated via the great variety of sensory inputs among species.

The fundamental programmatic and information structures these simulations are based on are encoded in an organism's DNA and passed from generation to generation. There is no other possible source for the basic structural components of an organism's operational software other than DNA, a fact that seems to have been totally overlooked by modern biology, which has yet to recognize that organisms are computational systems, that they are running programs.

This DNA encoded information includes the basic instinctual imperatives such as survival, reproduction, pain avoidance, and pleasure seeking, that are common to all beings, as well as instinctual routines of more limited scope such as suckling in mammals, neonatal standing and walking instincts in herbivores, and the pursuit and avoidance instincts of predators and prey.

DNA transmitted software also includes sophisticated learning routines and a dynamically updatable simulation model of self within environment, the ability to identify and project current trends to imagine future options, the ability to value and probability weight options in terms of instinctual imperatives, the ability to make intelligent decisions among imagined options, and the operational routines that translate decisions into effective bodily actions and evaluate their effectiveness via feedback circuits. Together all such routines constitute the complete simulation or *mental software of an organism* that enables species to function purposefully in their environments.

These are the running simulation programs of organisms, and they come in an enormous variety of species-specific variants. However they all operate on the basis of the common logic of things, which is sufficiently consistent with the underlying logic of the laws of nature to enable organisms to function effectively within their environments (Owen, 2016).

This mental software is encoded and transmitted in DNA along with the basic software that controls the development, functioning and maintenance of bodily growth, maintenance and repair. These programs themselves are not transmitted in their full forms as at least some undergo considerable development in infancy so that the programs passed are actually programs that develop these programs on the basis of DNA transmitted learning routines rather than the fully formed programs

themselves.

The structural details and operation of the simulation program is a complex subject best explored by computer simulation models of the functionality of various organisms, a subject still in its infancy. Much of what has been learned about how living organisms operate at the functional level has been learned from practical experience in designing AI and robotic systems. We will home in on the issues most relevant to the nature of reality in this chapter but how organismic programs are actually implemented in biological structures is another vast and complex subject well beyond the scope of this or any one book.

SIMULATION STRUCTURE

Though all members of the same species have significant differences in their simulations they all inhabit the same collective simulation to the extent that their individual simulations share the same structure, and all living beings live in the same shared simulation to the extent of their common perceptual and cognitive structures and their common dependence on the logic of things that describes the forms things take and how they function at the emergent level.

The logical scaffolding of our simulation is an extremely simplified and selective mapping of the external logic of reality but all the rest, especially the appearances, meanings and valuations, is entirely a product of our brains. And in many cases the logical scaffolding can clearly be wrong, as in the case of delusional belief systems, or when its information is simply inaccurate or incomplete.

In all cases the logical scaffolding is a vastly simplified sampling of information structures deemed useful or interesting to the organism in question. This information is acquired through perceptual and cognitive *filters* adaptively tuned by evolution as *antennae* to extract information from external reality pertinent to the particular organism's function. Due to the extremely limited information capacity of any organism this necessarily leaves most of the information of reality unknown.

The simulation is a vast mostly unconscious mental model of the structure and details of an organism's local environment, only a very small portion of which is conscious at any moment. It's the complete model of how a particular organism thinks the world works and

everything it contains stored as remembered information. It includes the stored logical structures and individual specific meanings that the organism uses to make sense of its perception of the current flow of experiences.

These are all wrapped around the organism's instinctual imperatives inherited from its ancestors but fleshed out into all the current desires, aspirations and goals the organism uses to purposefully direct its current moment by moment thoughts and actions.

A major part of the simulation is the organism's model of itself. How it conceives itself as part of the world in which it exists, and the interleaved logical structure of its relationships with aspects of the external world, and all the encoded details of those relationships.

The simulation also includes a valuation system that assigns relative values to events and its own past actions and intentions. The organism uses these and the probabilities of desired outcomes to compute its current actions. This valuation system involves a combination of meanings and feelings, both emotional and somatic to help assign values to prospective actions.

The simulation also includes the entire input and output system of the organism. This includes all the internal and external sensory input that constantly updates the simulation down to the communications between every cell and neuron and chemical gradient within the body. And it includes the sensory feedback from all the actions an organism performs within its environment.

All of these are part of the total computational system of an organism. And the current state of the computational system of an organism is its total simulation of reality, both external and internal. All organisms are programs, computational systems of immense complexity. The total integrated information of an organism's program is the complete organism itself. And the organism's total internal information model of itself in its environment produced by this program is its simulation. Every organism is the program that computes the entire data of what it is including the data of its simulation of what it is in the world around it.

The simulation produced by every organism is the reality in which it actually seems to experience its existence. This is true of all organisms of all species, and to the extent robots have simulations of their actions in their environments, of robots as well. Every observer constructs its own

particular simulation of reality and experiences living its entire life within its simulation.

Every organism thinks the world in which it lives is the true view of the actual world but this is impossible because every observer's simulation is different, even those of the same species. Only the logical structure of the simulation has any correspondence with the true nature of the actual external world, and even that we must struggle to keep consistent.

The actual world is a world of data and computational interactions. Within this world at the emergent level exist multitudes of living organisms, each continually projecting its own internal simulation model of the world out onto the world as if it's the only real world in which all other beings exist. Every organism projects its own simulation model of the world out onto a world of other observers, and every observer lives within its own simulation of the world believing it's the actual world in which all live.

But nothing could be further from the truth. The real world in which all observers live together is a world of programs computing data, all part of the universal program that continually recomputes the current state of the entire universe. Through the long process of evolutionary adaptation the programs of individuals of all species have developed the individual simulations that best enable them to function within their particular environments.

All these programs of individual organisms now act purposefully to compute their individual existences based on their instinctual imperatives and their simulation models of themselves within their environments. This is true in an emergent sense, but at the fundamental level the actions of all observers, including ourselves, is all being computed as a part of the single universal program of the universe of which our programs are all integrated parts.

We manifest purpose, and freedom and intelligence because our programs have adaptively evolved designs that do so, and because of the richness of randomness at the quantum level that injects meaning and life into what would otherwise be a deterministic universe.

We all live entirely in our own personal simulation of reality. Without it we could not function and could not exist. Though enormously useful in an adaptive sense our simulations obscure the true nature of reality from us. Since we are forever trapped within our simulations we

can only discover the true nature of reality within by carefully analyzing what our simulation adds to the nature of reality itself. We accomplish this by progressively identifying and subtracting these veils of illusion one by one to discover the truth that lies behind them all.

When this is done we discover the only thing remaining after all illusory appearances are stripped away is the logical structure of the simulation. Thus once again we must conclude that the true nature of reality itself is a logical structure consisting only of data and its logico-mathematical relations, and the programs that compute them. Every road leads to this inevitable conclusion.

PERSONAL PROGRAMMING

Though we humans are all members of the same species, there are enormous differences in how we view and relate to the world. This is the personal programming that makes each of our simulations unique derived from differences in our personal experiences and how we relate to them. Our personal programming is constructed over time by our program's learning routines and continually updates and informs our simulation.

This programming is a complex mix of accurate and inaccurate information, prejudices and ideologies, emphases and omissions, and attachments and desires. These constitute our personal reality and our personal view of broader reality and our relationships to it. In particular it includes our own personal varieties of the classic Buddhist veils of ignorance, desires and attachments that so often lead to suffering.

Our simulation is heavily programmed by our parents, culture, schools, media, and personal experiences throughout our lives but especially in childhood as it's initially constructed (Piaget, 1956, 1960). Our personal programming is so pervasive it's difficult even to begin to grasp its extent, yet it heavily colors our perception of the world we think we live in. And it often contains objective inaccuracies and varying degrees of irrational, delusional, and dysfunctional thought patterns, not to mention it's often quite limited in scope to largely parochial detail.

The software we inherit in our DNA contains extensive learning routines that construct most of the details of our simulation from our experiences. Unfortunately these formative experiences are usually far from optimal and end up programming our minds with all sorts of

irrational and dysfunctional thought patterns many often passed from generation to generation within one's native culture. These are often filled with prejudices and delusional belief systems that color individual realities, and painful early experiences can also lead to neurotic and even psychotic modes of thought.

And unfortunate experiences, exposure to the success of the more fortunate, and ordinary human covetousness can easily lead to the unreasonable attachments and desires that Buddhism correctly recognizes as the root of suffering (Suzuki, 1956). All this exists as specific individual programming in people's simulations of reality.

Thus much of our individual views and relationships to reality are aspects of our own personal programming rather than attributes of actual reality. External observer independent reality is essentially neutral with respect to our existence, but is often imbued with personal attributes and attitudes it doesn't possess in our simulations. The personal realities of most people seem to consist mostly of the vagaries of their personal relationships with other people, their emotional states, their opinions about events and other people, and their internal representations of their mundane realities and their concerns about them. Thus most people are living extensively in dramas of their own making that can have little to do with objective reality.

Personal programming includes the full spectrum of often misinformed and even delusional belief systems, prejudices, ideologies, ethnic identities, religious beliefs, gender affiliations, and political and interest affiliations. All these become incorporated into people's simulations of reality and projected back onto external reality as if they were actually attributes of external reality when of course they are not. These heavy personal overlays make it increasingly difficult for people to recognize the true nature of reality within their overly cluttered simulated worlds. And because people think their simulations are the actual nature of reality they naturally tend to act in accordance with it.

The good news is that since our personal programming is learned during our lives, it's potentially subject to reprogramming through correction by objective facts, reeducation and what Buddhism terms right thought. However in practice human prejudices and mindsets are often very difficult to change even when clearly delusional as we sadly see all around us.

With respect to personal programming there are two kinds of people, those who understand their minds have been programmed and

who try to understand and transcend their programming, and those who think they *are* their programming. The later have little chance of achieving a true knowledge of reality. They are so completely submerged in their personal feelings, prejudices, ideologies and emotional constructs, and their mundane daily lives that they have little interest in the actual structure of reality, and little ability to discern it.

Sadly most people believe the world actually is as it exists in their simulation and they have no doubt at all they are right. In fact they tend to identify their personal identities so strongly with their often dysfunctional simulations that they habitually go to great and sometimes violent lengths to defend them.

The take away is that what we imagine is the objective reality in which we live is almost inevitably heavily programmed by our personal experience. The result is that our simulation doesn't accurately represent reality, and this makes it very difficult to discern its true nature. However this personal programming is not immutable and with understanding and work can be reprogrammed to achieve a much clearer and accurate simulation of the true nature of the reality in which we exist.

Our personal programming strongly affects our functional intelligence and the degree of dysfunction in our lives and thus the balance of suffering and happiness we experience. We are all burdened to varying degrees by the dysfunctional aspects of our programming, which can adversely affect our physical and mental health, and our ability to lead happy and successful lives. This is the source of the neuroses and other aspects of irrational thinking that negatively affect so many lives.

From ancient times to modern cults and psychology there have been countless methods tried to remedy such problems with varying success and many books have been written on this subject. But the key to success is understanding that most of these problems are the result of dysfunctional subroutines in our personal programming that can be reprogrammed.

When we realize we are our running program we find we have considerable ability to reprogram our program to what we want it to be and make it happier, healthier, more effective, and successful. We can potentially change our personal programming as much as we want, within the constraints of reality of course. We can reprogram our personal thought processes but not the laws of nature.

The first step is to realize we are the programs of ourselves and that we have been extensively programmed by our personal histories. Without understanding this it's enormously difficult to escape the problems our programming impose.

The second step is to identify and analyze the details of our dysfunctional subroutines to understand how they work, how they reinforce themselves, and how they lead to suffering. Then we need to discover a simple key or keys that changes the dynamics of the subroutine into a healthier one.

Take desires and attachments that lead to suffering for example. We must first realize *we* are not our desires or attachments, these are simply routines in our personal programming and we have considerable power to retain, discard or change them as we wish.

An effective approach is to recognize attachments for what they are but not to dwell on them when they arise, as that tends to reinforce them. Let them arise and fade away naturally without dwelling on them or worrying about them or following them. Recognize that attachments are to some extent part of the human condition, but the trick is not to be attached to one's attachments. Over time this weakens them.

Our programming is learned and thus can be corrected. Mind has the potential power to correct or reprogram itself by right thought and by exposure to the truth. Functionally these are programs running in individual minds rather than basic structural aspects of mind. For example suffering due to not having something one unreasonably desires can be eliminated by simply discarding the unreasonable desire. This enables one to drop a veil that unnecessarily separates oneself from reality and thus see the reality of what is and what is not obtainable more clearly. As a result one begins to see reality not in terms of the forms of one's desires and suffering but to see one's suffering as the result of unrealistic thought sequences that can be reprogrammed.

We then no longer see the world from within the veil of that desire mistaken for a necessity but recognize it as a code sequence we can choose to let run or not. One no longer identifies with the thought sequences that perpetuate the suffering but finds these are only thoughts that one no longer needs to pay attention to. The attachment may still appear but one is no longer attached to the attachment. One no longer identifies with one's desires or attachments. They become personal baggage one can choose to discard or carry as one wishes. Thus they cannot be part of the true nature of reality. External reality has no

emotional content or valuations, no desires or attachments. Because they do not exist in the real external world, by abandoning them we automatically see that external reality more clearly.

A second category of programmable illusion is the vast category of false beliefs about reality. No matter how trivial, every mistaken thought obscures the true nature of reality and if one is to experience reality must be discarded and replaced by accurate understanding. To understand reality correctly it's self-evident that the logical structure of our internal model of it must be made as accurate and extensive as possible. This is simply a matter of educating ourselves to the true nature of the facts and logical structure of reality insofar as possible. It is refining our internal model of reality so as to more accurately reflect the actual logical structure and facts of reality. Even the most trivial of mistaken beliefs about reality obscure its true nature from us.

Of course human knowledge is an evolving process and even at its best is not a totally accurate or complete understanding of reality, so a totally accurate simulation model of reality is simply not yet possible. There are inevitably many things that no one currently understands. However the important point is that we do correctly understand what is known and so eliminate ignorance and false beliefs insofar as possible. Even worse delusion is maintaining false beliefs in the face of convincing evidence to the contrary and the deluded mind can never know the true nature of reality.

It is appalling how wide spread clearly delusional beliefs are in the world as a result of being programmed into people's minds beginning as children and then maintained by a host of dysfunctional social memes. Only universal education with broad and accurate knowledge can effectively diminish if not eliminate this aspect of programmed illusion and bring humanity closer to the direct experience of reality as it actually is. It is my hope this book may contribute a little to this effort.

Everyone tends to view reality in terms of their own histories, worldviews, interests and prejudices. This inevitably skews the views of reality that various people and even other organisms hold. They are all structures and relationships of interest or usefulness to the observers in question. One observer will think of the world in one way in terms of his beliefs and interests while another will think of the same aspects of the world in an entirely different way. Both believe their view is how reality actually is but both are inevitably wrong.

Actual external observer independent reality does not contain the relationships observers' mental models impose upon it. These are not aspects of observer independent reality but aspects of the *relationships* various individual and very different observers have to reality.

Some of these are personal, some cultural, some gender based, and many are species based. The take away is there is an enormous very complex difference in the way various observers view their reality at this level. All of these obscure the true nature of the external observer independent reality we seek.

Another effective technique is to replace dysfunctional unattainable attachments and desires with healthier activities that are positive and attainable. Replacing negative with positive programs is much easier than trying to directly erase or change negative ones.

Another approach is to unclutter the mind through meditation or healthy physical activity. The mind's continual engagement with processing the often unimportant details of our daily lives can obscure the joy of a deeper experience possible when we engage more with the things that are truly important and beneficial to our existence.

Also the near constant flow of thoughts, worries and fantasies through most people's minds inevitably distracts consciousness away from the actual state of reality as it exists around and within us in the present moment. Meditation is the best approach to reducing these to a minimum so that consciousness can be directed back to actual reality insofar as possible.

Thus the realization of the true nature of our self can be aided by simplifying and clarifying our mental processes, and especially by eliminating any dysfunctional personal programming that is causing suffering, stress or ill health. When our personal programming is realized for what it is this becomes much easier.

And because our true self is not our personal programming but our deeper nature it's much more important how one feels inside than how one looks outside. But if the inside feels right the outside will have a healthier appearance as well.

LANGUAGE & MENTAL SYNTAX

One level below individual and cultural programmable illusions are illusions of language. The very syntactical structure of the human mind and human language imposes its own structure on the actual structure of reality, which there is no reason to believe actually exists at least in the exact same form. For example the grammatical structures of the parts of speech, which vary from language to language, impose a view of reality in terms of objects, subjects, actions, qualities, qualifications and their relationships which while meaningful in terms of how humans and other organisms relate to reality likely does not exist in external observerless reality itself at least not in the same form.

There is an extensive volume of work on how language structures reality with several basic competing theories (Chomsky, 1965) but it's quite clear that humans do structure their internal views of reality in terms of their languages and their underlying mental structures and thus that the actual structure of external reality itself is likely quite different (Wikipedia: Philosophy of language). And of course other organisms will also structure their internal simulations of reality in their own terms as well (Wikipedia: Animal cognition). Every organism will impose its internal logical structure onto the external reality it experiences.

Human language, and by extension human mathematics and the various forms of media, do not just model reality, they are generalized structures able to model *unreality* as well and they do this with great facility. The various forms of fiction and propaganda bear obvious witness to this, but the truth is that all human expressions coded in human language are inaccurate in the sense that they impose structures and relationships on reality that are not necessarily there.

The very fact that human language is able to model unreality as well as reality clearly raises well-founded suspicions that it differs from the actual logical structure of reality, which obviously computes only reality.

The actual logical structure of reality then must be sought in specific modifications to human logic and syntax that are able to model only reality and not unreality. This is a necessity in a reality that is apparently a logical structure that can only encode things that are actually able to be real. Gregory Chaitin is one mathematician whose work may be relevant here (Chaitin, 2006).

The study of the fundamental structures of language elucidates the structures in terms of which humans tend to model reality. One must carefully examine these structures one by one to determine to what extent they actually exist in external reality itself.

However it's quite clear that the underlying syntax of universal grammar common to all language must have considerable correspondence with the logic of things that governs the descriptions of reality at the emergent level.

Nevertheless it's also clear that there are subtle differences in the way Chinese and English speakers view reality, and certainly even more for an ancient Egyptian or Babylonian, due just to their mind's internal syntax being formed around their languages. All these aspects of the simulation must be teased apart to accurately understand the true nature of reality independent of human language, and of course the underlying syntax of the minds of other species as well.

These are all reasons why learning a programming language is so valuable in training the mind to think exactly and rationally.

THE ILLUSION OF A VERBAL REALITY

We tend to think of the structure of reality as being largely isomorphic to how we describe it in language but this is far from the truth. When we understand how language encodes meaning this becomes quite clear. Language uses single exact words to stand for forms structures that are inherently amorphous and overlapping even in our own mental models of reality and thus the relationship of the structure of language to that of external reality is even less exact.

Information about the structural nature of forms comes from understanding non-verbal forms of meaning. Many animals clearly know many things about their environments including the states, actions and relationships of things in great detail. However since these animals lack the complex symbolic languages of humans how is that knowledge organized and stored since it is clearly not verbally?

Humans tend to think that their knowledge of reality is verbal, or at least primarily verbal, but there are many aspects of human knowledge that are similar to that of other animals which is not surprising since

human verbal abilities are add-ons to the more primitive representational knowledge we share with our animal relatives.

As with animals much of human knowledge is stored as perceptions, which are, organized sensory memories. Recognition of individual faces is a good example. Humans have the ability to distinguish far more individual faces than they are able to describe verbally and this is true of many other types of knowledge as well. Clearly tagging a face with the name of the person is one type of knowledge but while the name of the person can call up the representation of the face it's clearly not the knowledge of the description of the face, which is stored separately and merely labeled with a person's name in a type of identity relationship.

Again it is artificial intelligence that sheds light on how knowledge of this sort is extracted from raw sensory input and stored. Facial recognition systems extract and combine measurements of a number of standard features of human faces deemed most useful in distinguishing individual faces to seek the best match from databases of known faces. Humans no doubt use a functionally similar method to identify faces though they are still much better at it than computers.

The point is that 'Bill's face' is not stored verbally as those two words but as the representations those two words label. The actual stored representation in human memory is an extremely complex set of associated individual data, which even includes how Bill's face changes with his various moods and emotions and how it has changed through the time Bill has been known as well.

Thus most of human knowledge consists not of verbal structures but of verbal structures overlaid on very complex representational structures built up from organized perceptual complexes. And animal knowledge consists primarily of this though there is certainly a considerably symbolic verbal overlay as well since many animals do associate particular calls with particular representational knowledge.

Many animals express feelings vocally and these vocalizations are the language expressions of those feelings. Such vocalizations also communicate those feelings to other animals quite effectively even to animals of other species. Take the growl of a dog for example. And some feelings arise in response to specific environmental information and are expressed by vocalizations, which thus are the words, or phrases that communicate that external information as well as the feeling it elicited.

The warning cries of birds of the presence of a specific type of predator for example are effectively the words for the presence of that type of predator in the language of the bird that utters them. And other animals clearly do understand each other's language to a considerable extent, in general much more fluently than most humans do.

Human language is just a further development of this. Early humans would simply have vocalized the feelings elicited by social situations such as hunting or other group activities in more and more detail as they performed them with the meaning reinforced by accompanying body movements as other animals also do. In this way symbolic language would have gradually developed as a natural outgrowth of animal vocalizations.

The point is that knowledge, the structure of the mental models of organisms, is mainly representational. Though it does, especially in humans, partially consist of verbal structures in the form of the syntactical logic of language, its vast substratum consists of very complex representational structures in which each individually verbally labeled 'thing' exists as a convenient label for a complex stored structured set of individual perceptual data.

This is the internal structure of the forms in organisms' mental models of reality, and thus it is this representational form structure that brings us closer to the actual form structure of external reality. The external form structure of reality is clearly not verbal. It does not consist of individual verbally tagged 'things' that stand in English language syntactical relationships to each other.

Nor is it representational in the form it exists in animal mental models of reality. These are extractions of emergent structures of their interaction with a reality that consists more of great fluid masses of continuously interacting waveforms tuned by the organism's interactions with them to extract information useful to their functioning.

Thus the structure of the reality of the world of forms clearly is not at all similar to the human syntactical structures of language nor is it representational in the same sense that most human and animal knowledge of the world of forms is. Rather it's an enormously complex continuous interaction of fluid waveforms from which the representational and verbal forms of organismic beings can be extracted. Thus all of the individual things, actions, properties and relationships that make up organismic models of reality are useful artificial internal constructs. Though these all exist only in internal mental models of

reality, they tend to be based on natural structural boundaries of various domains in the world of forms rather than being completely arbitrary.

Take the example of a wave in an ocean. The wave is actually part of the continuous form of the ocean and its precise boundaries and duration of existence are to a great extent arbitrary and observer defined, however there clearly are natural boundaries upon which the discrimination of the wave from the ocean can be based. This is generally true of all of what humans think of as ‘things’.

With their technologies humans are able to construct thing forms with sharper than natural boundaries so they more clearly exist as distinguishable individual things with easily identifiable and useful functions. This in fact is the function of technology, the construction of forms with precise specific boundaries in a world consisting primarily of less precise natural forms.

BIOLOGICAL PROGRAMING

Our biological programming is our species-specific programming due to the DNA coding of our software and is clearly less subject to reprogramming. However it can still be recognized and transcended to some extent. Our view of reality is enormously different from the view of reality of a fox, a bird, a cuttlefish, or an earthworm. Yet all these views of reality are equally valid to the species involved and enable them all to function quite well in a common external reality. These obvious differences demonstrate the enormous divergence in our mind’s simulation of reality from what external reality must actually be.

The great differences between species are reflected in very significant differences in their internal simulations of a common external reality. On this basis alone no single species’ simulation of reality, including our own, can claim to be the only correct one. Nevertheless all species do have one thing in common, and that is the ability to reasonably compute their functioning within their actual environments on the basis of their simulations. Thus their simulations of reality must all share some common logical structure that maps fairly accurately to the actual logical structure of the external world. All organisms function on the basis of the common logic of things that describes the emergent universe insofar as they understand it.

It's clear that all organisms' simulations of reality must share some common logical structure with external reality to enable them all to function effectively. This is strong evidence that the universe and everything in it, including the programs of biological organisms are all programmatic structures that obey similar rules of logic.

The point is that different species have vastly different ways of seeing the world. The ways spiders, deer, snakes and people view the world is clearly enormously different. Yet individuals of all species naturally assume the world they experience must be the way the world actually looks and functions. Because the world appears different to all species it's quite obvious it can't be the way it appears to us.

Every species builds its internal simulation model of reality based on sensory inputs, and sense organs vary greatly from species to species. And of course the basic mental software of each species is vastly different so it's inevitable that a fox's internal model of reality will be very different than a human's. Nevertheless there is enough evolutionary similarity and adaptation to the common logic of things that each species is able to function effectively on the basis of their vastly different views of reality.

Again the take away is that the appearance of the world we think we live in is completely an artifact of our existence in human form. The world would appear quite different to us if we were lizards. Yet both are equally valid views of a common reality that consists not of appearance but the common information and logical structure upon which the different simulations of different species are based. Thus it must be only the data and logic of reality that is the true nature of reality rather than its widely variable appearances to different species.

Though the appearances of the world to different species varies greatly, the basic logic of things remains fairly consistent though different species abilities to compute it varies considerably based on their computational capacities and the information structures most important to their species.

PERCEPTUAL ILLUSIONS

We assume the world around us is actually as we perceive it in our simulation, but this is clearly an illusion. We see only a very limited

range of electromagnetic wavelengths, hear only limited frequencies of sound waves, smell only a minute fraction of airborne chemicals, taste only 5 tastes, feel only a very limited range of skin contacts, and we lack altogether senses that other species have such as bat echolocation and the lateral lines and electroreceptors of fish. Thus we are blind and deaf to much of the actual information of reality and cannot be said to perceive reality as it actually is.

Our simulation of reality is based only on our very limited and species-specific inputs, so it's obviously impossible for the world we experience around us to actually represent the complete reality of the world as it actually is. Any notion that the world actually is as we perceive it is an obvious illusion.

Another example is that we see reality in terms of focused objects thanks to the lenses of our eyes, but the light of external reality itself is not focused so its actual reality is a blur of light at best in which the identity of individual things quickly fades, and even that depends on the existence of light sensitive capacities of an observer. Therefore actual observerless reality can't consist of visible things. The entire notion of reality as a visible entity is false.

This is also true of the other senses. Without observers reality has no sounds, odors, tastes or touch feelings. Without an observer reality is unobservable and completely imperceptible. Reality completely vanishes without the existence of observers, but every observer has its own different simulation of its observability, all of which are true for the individual observer but none of which are true descriptions of the actual intrinsic nature of reality itself. All these apparent aspects of reality exist only in individual observer simulations of reality rather than in reality itself.

More conclusive evidence that it's the information and computational logic of reality that is its true nature, and that all *appearances* are artifacts of how the programs of individual observers interact with external reality, rather than external reality itself. The real external world just cannot be as it appears to us.

These are all illusions of perception, how our sensory systems selectively filter and model what we think we perceive. There is a vast body of good research on the many aspects of how perception works from researchers in a variety of fields and popular science channels frequently run programs exploring the nature of perception and how it can be tricked and manipulated (braingames.nationalgeographic.com).

This type of illusion also includes the fact that our world appears 3-dimensional when our retinas are 2-dimensional and similarly with regards hearing, and in other species olfaction and infrared reception. Other examples are the perceptual selection of edges and movement at the expense of backgrounds, the eye's blind spot being filled in, the eyes' adjustment to light levels, optical illusions, and many more perceptual illusions too numerous to list (Wikipedia: Illusion). Even a cursory understanding of the nature of perception convinces us that the perceptual world in which we experience our existence is almost entirely the product of our minds rather than the real world we believe it to be.

Since there is so much information readily available on the many ways our perceptions very selectively sample reality leaving almost all of it unregistered and how easily they can be fooled due to their constructing reality as they expect it rather than as it actually exists, we won't explore the innumerable aspects of perceptual illusions other than to put them into the context of our discussion.

Magic tricks also demonstrate how our mind easily fools itself into false representations of reality. Here the logic of our simulation of reality is misled by event structures in reality outside the normal range of the expected. A usual the mind sees and experiences what it expects to see and experience (Wikipedia: Magic (illusion)).

How the mind is fooled by magic and illusion is well studied and supports the theory that the world we experience ourselves living in is entirely an internal simulation of reality with just enough correspondence to tie its logic to the actual logic of external reality and enable us to function. Nevertheless almost nothing of how we experience the world actually reflects its true reality, which is fundamentally only a computational structure.

Psychedelic drugs such as LSD and belladonna also shed considerable light on how our minds can construct vastly different various realities at will, and thus on the very questionable nature of the usual reality it constructs. Once such realities are experienced one is in a position to better understand how our usual everyday reality is also very much an internally programmed construct as well.

Mind's continuous construction of its model of reality is a process that involves both filtering out vast amounts of reality but also the addition of detail that isn't actually there. Our mind continually fills the gaps in the reality it perceives with what it expects to be there. An

important example is the illusory continuous space between dimensional events (Owen, 2016). But mind also constantly fills in expected speech, missing letters in words, hidden motives and nearly every other aspect of reality it can with what it expects. In fact this phenomenon is so pervasive that most of what we think we see and experience in the world around us is actually just what we expect to see unless and until corrected by contradictory input.

The important point to understand is that all the many ways researchers demonstrate that perception can be fooled and go wrong actually expose all the mechanisms that generate an experience of a reality which is not actually there in the external world. The researchers correctly tell us that when the logical structure of illusions contradicts reality that our perceptions have been fooled, but in general they fail to recognize that even when the logical structure of perception is consistent and what we expect, it is still almost entirely a construct of mind and of our sensory-perceptual systems.

THE ILLUSION OF INDIVIDUAL THINGS

We know from studies of developing minds and the science of robotic intelligence that the identities of individual things are laboriously constructed in the mind from very complex locally repetitive associations of sensory inputs such as colors, textures, forms under rotation and translation, behaviors, functions and other attributes. The concept of individual identifiable things develops fairly rapidly in childhood (Piaget, 1956, 1960) but has taken much effort over a number of years to begin to perfect in robotic systems (Wikipedia, Pattern recognition). Individual things and events as we perceive them are clearly not necessarily an intrinsic characteristic of observerless reality.

Instead the existence of individual things and events is largely a construct of our simulations of reality, and external reality is quite different since what actually exists is masses of computationally interacting particles composing the single universal program of the universe. The concept of a reality composed of completely discrete individual things is largely an illusion of our simulations because at the level of elementary particles the boundaries of things are in continual interaction and transition and never perfectly distinct.

Nevertheless, at the classical level of multicellular biological

organisms, the simulation's representation of a reality consisting largely of individual things works quite well. Biological organisms function quite effectively on the basis of the emergent logic of things that describes the classical world and almost all of science is based on these laws as well. However actual reality is quite different, as it has no such preferred thing-oriented scale, but includes all scales at once. Thus the world of individual things we seem to see around us is simply not a representation of the true nature of reality.

What actually exist are computational domains. Domains are emergent areas of computational density in the universal nexus of data and observers tend to base their concepts of individual things on natural domain boundaries. However domains overlap both hierarchically and interactively so there are no precise actual individual things existent in reality, with the exception of the most elemental. At the emergent level there simply are no exactly defined individual things or programs, there is only the universal program within which domains exist as intrinsically fuzzy overlapping areas of computational density.

Thus a surfer views the ocean in terms of individual waves, a smelt experiences it in terms of tides, and an oceanographer in terms of currents. But these are all domain-based views of a single ocean, and they all overlap. Leaves, leaf lobes, twigs, branches, trees, tree species and forests are another example of hierarchical overlapping domains that humans selectively identify and compute as individual things on an *ad hoc* basis.

Humans, and no doubt other species, tend to view the world in terms of individual things, properties, events and relationships. These are the basic elements of the logic of things. And of course they and their logic are also encoded in the elements of grammar with which humans describe their concepts of reality (Chomsky, 1965). This very simplified world is very much easier for humans to compute than the actual world of enormous fluid computational complexity and overlapping domains and programs.

So we humans see the world in terms of individual things and their characteristics and interactions but this is not the true nature of the world around us. It's another convenient illusion that makes it easier for us to live within reality. Our simplified cartoon simulation operates on the basic of the emergent logic of things, but this is far from the computational logic of reality that actually computes it.

This is another illustration of how the world we think we live in is

not the true nature of the actual world. The great miracle is the super-consistency of the universal program that enables us to function effectively on the basis of the emergent logic of things when individual things don't even actually exist, at least in the sense we imagine.

So the whole notion of reality consisting of individual things is at least partly an illusion based in the classical scale of humans and other organisms. And there are other critically important ways in which our simulations don't accurately represent external reality.

THE ILLUSION OF AN OBJECTIVE SELF

One of the most significant 'things' constructed by mind, at least for human observers, is the concept of an objective self. Rather than being an actual component of reality the thing we call our self arises in our reality model like all other things do as consistent fuzzy and flexible stable associated perceptions. It's constructed from repeating occurrences of specific categories of associated perceptions that move with us and with our internal proprioceptive feelings. Associated with the concept of a physical body are models of ourselves in terms of our emotive and thought histories and our memories of actions and how we evaluate ourselves. All of this constitutes an internal model of how we conceptualize our existence within the world of not-self things.

Only gradually does the division of reality into self and not-self arise in children usually in late infancy (Piaget, 1956, 1960). And only gradually does the realization arise of a self that 'has' perceptions of all the things that make up both the self and not-self. It is thought that in many other species this process never develops to the extent it does in humans but nevertheless they manage to function quite effectively in their own simulations of reality.

So the notion of self does not seem to be a necessary and certainly not an actual aspect of reality. However it's quite clear that most organisms must categorize their own characteristics separately from those of not-self things on the basis of actions, feelings and meanings. If they didn't distinguish self from not-self aspects of reality in some manner they obviously could not survive or function as all the instinctual imperatives are dependent on this distinction.

In the actual reality of the present moment the flow of raw

experience occurs antecedent to its discrimination and categorization into individual things and specifically prior to their categorization as parts of self or other non-self things. Thus we can reasonably think of all experience without exception as part of a greater or 'true' self consisting of the entirety of an observer's fundamental experience without exception. This is of course obvious when one considers that all experience, even of seemingly 'not-self' things is actually part of the observer.

From this perspective every experience of an observer is actually part of that observer and what defines an observer. Whether these experiences are then categorized in the internal model as part of self, not-self or simply ignored they are all part of the total observer experience and thus part of the whole being of the observer prior to the division it makes between self and not-self.

Thus every detail of every experience is properly part of the 'self' of the observer because every bit of it without exception occurs within the observer as part of its simulation, and thus the entirety of experience is the true self of the observer.

This is compatible with the view that consciousness itself rather than the fleeting individual contents that appear within it is one's 'true' self but this is just a matter of perspective. From an external perspective consciousness is reality from the point of view of an individual observer, but from the point of view of that consciousness itself there is no individual observer, there is just consciousness and everything that appears within that consciousness is part of it including the construct of the objective self of that observer.

So things are constructed by our simulations out of raw perceptual data and encoded and stored as objective concepts and the objective self is one of those things. In our direct experience there is only conscious experience and no objective self and the objective self must be constructed by our minds as a concept we then identify our subjective self of direct experience with (Piaget, 1960).

This is also true of other species to varying degrees and robotic programs must also be coded to recognize their objective selves in distinction to their surroundings in order to function effectively as well.

However raw experience itself is prior to any distinction of self and not self. Only as experience is encoded and analyzed in terms of the

simulation is it categorized as part of self or not self. In particular this includes the concept of self as the physical body.

It's likely the strong human sense of an objective self in the form of a physical body only developed to its current level with the advent of mirrors and later photography and video, which allowed people to see themselves objectively from the outside, a view they rarely had previously. With the current flood of personal images of everyone, especially those deemed most beautiful, has come a much stronger identification of self with the physical body as demonstrated by the modern obsession with personal appearance. This tends to obscure the fact that our true self is the totality and harmony of our directly experienced inner feelings rather than our visual image and objective concept of our self.

Prior to our current obsession with objective self we thought of ourselves much more as animals do in terms of the subjective self of our direct experiences, perceptions, feelings, actions and thoughts as experienced from the inside. That is of course much closer to our true identity, which is the totality of our direct experience.

So our concept of our selves as an objective thing with a physical body is as much an illusion as are all other classical level things. These are useful concepts that are effective in computing our functioning in reality but they are fundamentally misleading illusions that obscure the true deeper nature of reality.

SINGULARITY ILLUSIONS

There is also the very basic problem that our perception of reality is always from the point of view of ourselves as individual observers. Our simulation's representation of reality is totally dependent upon us as the single observer of that reality. For example we are at only one place at a time, but reality is everywhere, and every aspect of our representation of reality is necessarily in terms of its relation to our location and our physical properties.

A truly accurate description of external reality must be observer independent, and most certainly cannot depend on the location and characteristics of any particular human observer. We always imagine reality as having some particular position, orientation, scale, and clock

rate, but these are all things our simulation adds to reality relative to ourselves.

Absent an observer, reality simply cannot be said to have any position, orientation, size or clock rate whatsoever, because these are all relative to our own position, orientation, size and biological clock rates. If we even try to imagine an observer independent reality from all points at once, all scales at once, and all orientations at once, it's simply impossible. Yet that is what is precisely what is required to accurately represent reality in an observer independent manner.

The only possible accurate representation of an observer independent reality is a mathematical representation independent of a particular coordinate system of measurement. Only in this way can we represent an observer independent view of reality because everything is expressed in relative terms to each other in such a mathematical model.

In fact one of the great advances of science was the ability to represent reality independent of particular observers in this way. This is precisely why relativity is called *relativity*, because it describes matter and energy in spacetime in an observer independent manner on which any observer can then overlay his own coordinate metric to make sense of it. And all such metrics are equally valid observer perspectives (Wikipedia, Theory of relativity).

Thus relativity itself conceives the universe of mass-energy in spacetime as an abstract mathematical structure upon which any observer's frame of reference can be validly overlaid to incorporate his individual *view* of that reality. However this is only possible with the recognition that observer independent reality must be reduced to an abstract mathematical construct that exists from no particular view at all, and is independent of the view of any observer. This is yet another convincing reason to believe that the true nature of reality must be a logico-mathematical structure consisting only of programs and information since only this type of structure can represent reality in an observer independent manner.

Universal Reality adds one refinement to this relativistic view by introducing a single preferred universal frame in which the data structure of the observable universe is actually computed and with respect to which actual rotation and world lines are relative. However observers still see the universe in terms of their own individual frames (Owen, 2016).

This may seem like an obvious and irrelevant point when it comes to describing the reality we seem to see around us, but it's of critical importance. It's absolutely fundamental to understanding the true nature of reality as it actually is because the true nature of reality must be independent of any particular observer. The true nature of reality must be completely independent of the existence of any particular observer within it including us. Reality's true nature is everywhere at once from no viewpoint at all, and all viewpoints at once, and it consists only of relative relationships among its parts with no reference to any single preferred observer. This is just the opposite of our own mental simulation of the surrounding world in which we seem to live, and which we mistake for the actual nature of reality.

Thus the evidence is clear that actual reality must be a logico-mathematical structure, a universal program that is observer independent. So the universe consists not of things in space and time as we see them from our own perspective, but of an information structure upon which our simulation overlays our personal frame centered on our own personal coordinates to make sense of it.

The world we think we live in has an up and down, an orientation, an apparent rate of clock time, and everything in it has a particular size. But every one of these characteristics is completely dependent on us as an observer and every one is relative to us and our perceptual systems. Every one of these characteristics we think belong to the actual world would be completely different from the perspective of a housefly observer. Thus none of them can be actual characteristics of reality itself.

For example a fly sees the world much larger and only closer things, slower because of its faster reflexes though that varies with temperature, probably in terms of facets, and in a different color spectrum. And of course its world is full of odors and sounds completely imperceptible to us. And it also flies in a much denser air with much stronger winds and much larger raindrops. And there is no doubt the fly believes all this is the actual nature of reality though it clearly can't be.

Actual reality has no size, no orientation, no intrinsic apparent clock rate, and it has no location at all. It is not actually anywhere! All these are entirely characteristics of relative relationships among things within the universe and without an observer don't even exist.

And of course because of relativity actual reality has no single clock rate. Clock rates vary widely across the universe. Thus there is no single clock against which the rates of all processes are experienced.

Thus there can be no sense of passage of clock time in external reality itself without reference to some observer clock. Thus external reality cannot be correctly conceived as having an experienced rate at which events happen.

As a consequence reality has no innate velocities or speeds of any kind for any physical processes since these are observer experiences relative to their internal clock rates and size scales. Actual reality has no such actualization of velocity. Velocity is entirely the experience of some observer and there are no inherent velocities in reality except relative to each other.

So reality itself absent the observer becomes very strange indeed. Reality loses all of its familiar aspects of physicality and dimensionality. Actual reality becomes more and more an abstract logico-mathematical structure rather than the familiar physical universe it appears to be to human observers. It is only when an observer observes the universe from its singular perspective and measurement frame that these most familiar and necessary aspects of physicality appear. Thus all the familiar basic physical aspects of reality are clearly added by mind in its simulation of reality and are not actually characteristics of external observer independent reality itself.

The human mind may attempt to transcend its own singularity view of reality but it is impossible for the human mind to imagine reality from all positions and orientations at once especially since we would also have to allow for those points to be every size and velocity at once as well. The best we can do is try to imagine some God like perspective but since that too is a single perspective it is completely false and inadequate to capture the true nature of reality. Again reality becomes less and less physical and more and more only an abstract logical structure.

The only valid approach is to construct an abstract logico-mathematical model of reality, but that is exactly our point, that the true nature of reality must actually be such a logical structure, rather than a physical one, because that is the only structure that can exist absent the physical characteristics we have now subtracted as additions of mind.

The takeaway from this section is that reality itself has none of the most basic attributes of physicality and dimensionality our experiential model of it imbues it with. Therefore reality itself must be an entirely abstract information structure.

The second takeaway is that it appears more and more likely that the only reasonable view of reality must include observers as a necessary and integral component. That the very notion of our sought after external observer independent reality may itself be questionable.

Again the only way this is possible is if the universe is not a physical structure but a logico-mathematical computational structure, a running program consisting only of information. The bright world of forms and colors we see around us vanishes into the pure invisible information of running programs. Nevertheless the interaction of our program with the programs of the external world is presented to us in our simulation as the bright colorful world around us.

QUALIA

These are only a few of the many ways in which our simulation of reality differs from actual reality. The essential aspect of all of them is that our simulation is not just a model of reality itself, but is almost entirely a model of our *interactions* with reality. What we see when we look out into the world around us is not just a representation of the world around us, but everywhere our interactions with reality projected back onto it.

All the *appearances* of things we see in the world around us simply don't exist 'out there'. Every one of them is added by our mind and exists as what are called qualia in our simulation of reality rather than in external observer independent reality itself. Qualia are all the private internal qualities of things, such as colors, feelings, touches, odors and so forth, which exist only in our mind's representations of our interactions with reality rather than in external reality itself (Wikipedia, Qualia). They all exist privately in our individual simulations and how we actually experience them is ultimately unknowable to others, though we can assume similarities based on similarities of biological structure and our ability to communicate them.

For example though we assume that our experience of blue is the same as other people's experience of blue, this is very difficult if not impossible to objectively confirm. And in fact we know that in many cases it's at least somewhat different as in color blind people, and much different in other species with different color sensitivities who all look out into the same world and see things quite differently. Many species

have no color vision at all but instead see much more clearly in low light than we do. The mantis shrimp sees several times as many colors as we do, and eagles see in much higher resolution than we do, thus our view of the world is simply not the way the world actually looks.

Of course our simulation tries to convince us all the appearances we see are somehow out there in external reality itself, rather than being data representations of our interactions with the world that only exist in our minds, which they clearly are.

Thus all the appearances of reality, all the private experiences of sounds, smells, touches and all our sensory and perceptual experiences, are all actually qualia added by our minds to the logical structure of reality, and simply do not exist in observer independent reality itself.

All the experienced colors, sounds, odors, tastes, touches, even the emotive feelings and meanings of things are types of qualia. Seemingly physical qualities such as hardness and softness, heaviness or lightness, stickiness, roughness; these and every other quality of anything is added by mind and does not exist in external reality. They are information forms produced by the interaction of the organism with external reality. Thus they exist only in an observer's internal simulation of that reality. These apparent characteristics of external things that seem to give them the appearance of physicality are all actually information about how the organism is interacting with the purely information forms of external things as represented in mind.

Since qualia are completely observer dependent they vary widely with individual observers and even more across observers of various species. The fact that the experience of reality is so diverse across species demonstrates that no observer captures reality as it actually is.

It's also important to clearly understand that it's qualia that imbue thing forms with their apparent physicality in the mental models of observers and that these qualia are also only information forms. These are internal information forms that encode feelings and meanings in the broadest sense in organisms. These feelings and meanings are internal information forms associated with external forms to help discriminate and value them with respect to the functioning of the organism. All feelings and meanings are only the information encoding and carrying those feelings and meanings.

Thus if actual reality has no colors, smells, tastes, sounds, feelings

etc. and these are all in our mind's representation of how we interact with it, then all that is left of actual reality is the information that produces qualia when our own program interacts with it.

Of course the raw sensory input of particles of various types we interpret as colors, odors, tastes and sounds are part of external reality, but these are all the data of particle interactions and it's only in our simulation that they become colors, odors, tastes and sounds. We input only information, and only in our simulation is that information organized and portrayed as the bright world around us.

All the apparent appearances of reality we experience without exception exist within our simulation of reality rather than in external reality itself. Our simulation takes the dark invisible logical scaffolding of reality and paints the bright colorful world of our experience over it, expands it into the semblance of a physical spacetime and places us and all the things and events it extracts from that logical structure inside it, gives them all scale, orientation and positions and sets the whole into motion continually updating it against the actual evolving data structure of reality.

THE RETINAL SKY

Though our simulation actually exists non-dimensionally within our brains it seems to exist as a 3-dimensional external world centered on us. This is because our brains project our internal simulations of reality back out into the semblance of a spatial world on the basis of the information of dimensional relationships extracted from our interactions with external reality. But the 3-dimensional space we appear to exist within is actually an interpolation of dimensional relationships computed by quantum events projected into a graphically displayed 3-dimensional world.

Thus we must recognize that the 3-dimensional world we seem to see around us is an illusion. What we are really looking at when we look out into the world is the information of dimensional relationships of events encoded in the neural circuits of our brains. This information is most certainly not a little dimensional model of reality, but consists only of sets of dimensional relationships among data structures.

And all the *appearances* of everything that populates this apparent

dimensional world are actually the information of qualia in our brains. So what we are actually seeing when we look out into the world around us is our mind's *interpretation* of colors on our retinas rather than an external sky. More accurately, the structure and appearance of the entire world we see around us is actually the interior structure of our own brain and perceptual system!

What we see as an external world consists of a highly simplified information structure extracted from the logic of external reality, which our mind then paints over with appearances and meanings it generates itself. The external world we seem to live in is the interior of our own brain projected outward into the semblance of a material world in 3-dimensional space! We look deeply and directly into our own being when we look out into the world. And if we only look deeply enough at what is really going on out there we begin to see the reality within the illusion.

We think reality is the same as our visual representation of it, but actual observer independent reality itself simply has no appearance whatsoever, it's only a computational structure composed entirely of data. It has no color but only data representing color. Every last bit of the appearance of the world is added by our mind and exists only as qualia in its simulation in our brain. This includes its apparent 3-dimensional structure.

Thus the external dimensional world is an illusion in our own brain. It's a sample of reality's logical structure painted over with appearances and meanings by our mind and projected outward around us. The logical structure fairly accurately maps reality's classical level emergent logic of things, but the appearances it's colored with are added entirely by our minds. The world that we see around us is actually a moving painting in the gallery of our mind. It's an interactive wraparound virtual reality show with us at its center. It exists only in our own brain and so we are actually observing the workings of our own brain as much as the workings of reality. To a fair degree the actual logic of the external world is directing the show, but all the costumes and sets are produced and staged in our simulations.

THE ILLUSION OF PHYSICALITY

We believe we live in a physical world but this is an illusion generated in our mind's simulation of reality from associations of qualia

such as texture, hardness, color, touch, weight, temperature etc. which are all added by mind to enhance and make more meaningful those characteristics of reality important to our survival. What appear to be physical objects are actually just associations of qualia in sets representing the apparent characteristics of physical objects. These qualia don't exist in external reality but are only information encoding how an observer interacts with an information structure in external reality.

For example the qualia that associate to generate the appearance of a physical stone don't exist in the stone itself. The stone itself is simply an abstract information structure in the external world that elicits the qualia information structures in its interaction with the form of an organismic observer. All the apparently physical things of the world, and in fact all things without exception, are only associations of information, some external and some internal.

But the actual world that includes both external forms, and the observer as one of those external forms, consists entirely of running computationally interacting programs that compute the evolution of information forms. Reality is not a physical structure; all the evidence indicates it's composed entirely of interacting information forms. The apparent material world of our experience exists only in our minds encoded as complex associations and hierarchies of information.

Even the basic attributes that seem to make reality physical in physics turn out to be qualia because all the forces, energy, matter etc. turn out to be known ultimately only by their qualitative effects as experienced in the minds of observers. The so-called forces of nature are simply logico-mathematical descriptions of how forms evolve.

All these apparently basic physical attributes such as forces and energies are ultimately experienced as types of qualia such as pushes, resistances, heat, sound, etc., or as perceptual observations of their effects. Even forces and energies strong enough to cause injury are perceived as qualia as burns, breaks, pain and so forth. The basic concepts of physics are abstract symbolic representations of these qualia and their interactions. But this again demonstrates our point, that reality itself is the symbolic logico-mathematical information 'out there' that produce the qualia of our experiences of them.

Strip away layer after layer and only the logic of forms in a world of pure information remains; a consistent purely computational structure that evolves in clock time according to logical rules called the laws of nature and more specifically in the form of programs expressing those

laws of nature. It is the continual computational interaction of all these programs that is the fundamental structure of reality.

The reduction of reality to an abstract logical computational structure does not make reality any less real or rich, not even in the slightest. Things themselves do not change nor does our experience of them. It is only our realization that changes as we recognize this familiar richness is simultaneously within both us and an external reality in their interaction, even as we find ourselves within an ever more fascinating and richer reality.

ILLUSIONS OF PHYSICS

Even the standard interpretations of modern physical theory demonstrate that the world is nothing at all like we experience it to be. Physics tells us that matter is almost entirely empty though we see and experience it as solid. Physics also tells us that empty space is filled not with colored images of things but electromagnetic waves. At an even deeper level quantum theory tells us that the entire material world actually consists only of wavefunctions rather than material objects and that these wavefunctions are not actually physical things but only the probabilities of those things and that wavefunctions don't even exist in a real but in an imaginary space. And even these interpretations, as far from our usual experience of reality as they are, don't go far enough.

Properly understood modern physics tells us that everything actually consists of only of logico-mathematical structures because this is precisely how physics describes reality. If logico-mathematical structures are the best description of reality then reality must actually consist of logico-mathematical structures in the external world.

The only possible reason for the apparent “unreasonable effectiveness of mathematics” is that reality itself must be a logico-mathematical structure since it consists of running programs whose functional components share many similarities with the underlying structure of human computer languages.

The takeaway here is that even though modern physics clearly reveals a more accurate view of reality far from our everyday common sense view it is very rare for even scientists to take this to its logical conclusion and understand it demonstrates that the universe must be a

logico-mathematical computational structure. But if we are to truly understand the lessons of modern science that is exactly what must be done.

THE TEST OF KNOWLEDGE

If our experience of reality is entirely within our own simulation of it then what is knowledge and what is the test of true knowledge and to what extent can knowledge represent actual reality? If every view of reality is only a simulation in some observer's mind then why is the theory of reality presented in this book more accurate than all the others (assuming it is)? If all observer views of reality are entirely mental models of actual reality how do we judge among them as to which is the truer representation? How do we decide what is the true test of knowledge? The theory presented in this book is clearly a product of the author's simulation of reality. So how can its correspondence with the reality it attempts to model be tested?

There is one simple test for true and accurate knowledge and one alone. That test cannot be the direct correspondence of the mental model with external reality because all that is known is the simulation and not reality itself. Thus that test is simply impossible. The only valid test of knowledge is the degree of its internal logical consistency and completeness across its entire scope. Insofar as the logic of the simulation is internally self-consistent and complete it must accurately model the actual logic of external reality and thus does constitute true knowledge.

We want to test the consistency of the internal logic of our model of reality against the actual physical logic of reality. But it's impossible to compare them directly because we are always inevitably inside our own simulation program and thus have no direct access to the actual logic of reality.

However just as the inhabitants of a non-Euclidean space can determine the geometry of their world from within by measuring the sums of the angles of triangles so there is a way to determine the accuracy of a mental model of reality from inside that model. Just as it isn't necessary to stand outside a space to determine whether it's curved by the presence of matter it isn't necessary to stand outside our simulation to know whether it's an accurate depiction of external reality or not.

The internal method of determining the accuracy of our simulation of reality is simply to determine its self-consistency over a complete scope that models all observable aspects of reality. The greater self-consistency the more accurately it maps external observer independent reality. Whatever is inconsistent with an internally self-consistent theory of sufficient scope will not be true of external reality and whatever is consistent will be true.

This works only because reality itself is a self-consistent and complete logical structure. A computational reality itself must be an entirely self-consistent logical system otherwise it would tear itself apart at the inconsistencies and could not exist. And since a mental model of reality is a part of reality it must also be internally self-consistent to the extent it is a true simulation of external reality. Of course that internal self-consistency must be tested and confirmed across the entire simulation to ensure its completeness.

In this context it's important to understand how inconsistent simulations of reality can exist as parts of an entirely self-consistent encompassing reality. Inconsistent simulations become consistent when considered not as isolated systems but in the broader context of false premises and ignorance of salient facts. Given partial or confusing facts or incorrect data the emergence of an inconsistent simulation may be the logically consistent outcome.

This is how inconsistent belief systems can be part of a fully consistent reality. This includes the illusions and delusions added by the minds of observers to their conceptions of reality, which seem consistent to them even though they are not in the broader context of knowledge. Newtonian theory is consistent across most of our experience. The theory of epicycles was once the most accurate explanation of the movement of the planets. Once a world controlled by gods was the best science of the day. Only when additional observational evidence appeared did their inconsistencies become known.

This is a corollary of the principle that it's the self-consistency of any organism's model of external reality that enables it to function effectively in external reality on the basis of computations within that model. To the extent the simulated reality was inconsistent with the actual logical structure of reality the organism will not be able to function effectively within its environment assuming the inconsistencies affect the actual functioning rather than merely being largely irrelevant abstract beliefs.

Thus we can have confidence that our mind's approximations of reality are at least accurate enough for us to enjoy our basic organismic functions. Because we function reasonably effectively based on our internal simulations of reality demonstrates they do approximate the actual logic of external reality at least to that extent. We merely extend this same principle from basic organismic functioning to an entire theory of reality.

Any serious inconsistency in an organism's simulation model of reality is likely to lead to serious consequences, and these consequences will manifest in the simulation as inconsistencies with respect to expectations. Thus inconsistencies in the simulation always reveal flawed knowledge.

We must confirm this consistency across the whole range of our simulation to ensure all aspects of theory and experience are self-consistent with the whole. And we also need to broaden our perspective as much as possible by including as much new data as possible from scientific instruments, other observers, and shared information sources.

This is precisely what this book attempts to help achieve and I believe the theory presented here is internally self-consistent as well as being consistent with modern science (the observational facts and core theory though not necessarily the interpretations). And I believe it is also consistent with the nature of carefully analyzed direct experience, and thus with the overall corpus of human knowledge. Self-consistency and completeness of the theory will be the only possible ultimate test of its truth. I hope our theory lives up to this test, at least better than any competing theories. I believe it does.

It should be noted that this is a recursive process since the self-consistency test itself is another component of the mental model, and it itself must be self-consistent with the whole. This seems to be as close as we can possibly come to discovering the true logical structure of the reality of the world of forms.

Internal self-consistency is of course the fundamental principle of epistemology and science though not often recognized as such. It is the essence of proof and scientific method. The notion that knowledge is even possible is based on the assumption that the world is a logical structure and that human logic being part of that world is also valid and thus is capable of eventually accurately mapping the actual logic of reality at least to a considerable degree.

Communication with other observers is an important component of this process. To the extent that other observers in one's simulation agree that your simulation of reality is consistent with their own adds an additional area of consistency to the whole simulation. It's an additional area of overall consistency to have your simulation agree with the simulation of another observer you are simulating.

If an observer's simulation of reality is inaccurate then it will necessarily contain some inconsistency. To the extent one's simulation of reality is inconsistent one is less likely to function effectively in reality. A simulation that contains even a single inconsistency has some inaccuracy somewhere, and it is the discovery of inconsistency that most often leads to improving the accuracy of the simulation's representation of reality. This is standard application of scientific method, forensics and mathematical proof. Popper's insistence that theories must be falsifiable to be meaningful is precisely a test of inconsistency (Popper, 1959).

Self-consistency does not imply trivially commonsensical. The history of modern science provides abundant testimony for that. But there must always be a deep consistency at the proper level of understanding with the logic of things by which organisms function. The mountain remains in the same place unless something moves it. Events have causes and the network of all causes and effects forms a self-consistent information network.

Predictability is often considered the proper test of theories of science. But predictability and tests of conformance with predictability are always internal to the model of reality so ultimately they are just another test of self-consistency. So again the only criterion is consistency. The underlying assumption is always that the nature of reality is logically consistent and that reality cannot contain any true inconsistency. This requires that no internally consistent model of reality of sufficient scope is likely to be a false representation of reality. But to be confirmed it must be consistent over all known data. If there is any internal inconsistency in the model at all there must be some inaccuracy in its representation of reality hidden somewhere within that inconsistency.

It is important to note that even inconsistent false simulations of reality are in fact part of reality and therefore must be consistent with it and therefore must also be consistent! Inconsistent simulations are in fact consistent with greater reality but only when recognized as false representations of reality are they also part of a fully consistent reality. This is only possible when the false assumptions they are based upon are

included as such. When a false premise or invalid logical form is stated as such the logical structure it engenders can be consistently incorporated within a fully consistent whole. This includes the illusions and delusions added by the minds of observers to their simulations of reality that may seem consistent but are not.

All this being said our knowledge of reality will always remain a pathetic childish simulation of the true information content of the universe. We can have knowledge of general principles but not of the actual specifics of their interplay in all situations across the universe. We may understand in principle how leaves of grass grow but we will forever remain incapable of predicting the actual form of any individual blade of grass even visually much less down to its particle level. Thus the notion we have or can ever have true knowledge of reality is a complete illusion.

REALITY IS A RUNNING PROGRAM

In the final analysis if we subtract everything our own minds add to the reality we seem to experience around us, all that remains is a dynamic information structure that evolves according to logical rules. All that remains is running programs interactively computing the universe. If we remove all the appearances of things, and the perspective of us as an observer from our simulation of reality then all that remains of reality itself is an enormously complex program actively computing the observable universe.

All that remains of the world is the information of things and their logical relationships, and even this is our classical level view of the emergent information structure of reality rather than its actual elemental particle component data structure. Thus the true nature of observer independent reality is enormously more complex than our simulations could possibly encode. It includes the enormously complex information of every one of the things around us all the way down to the particle information structures that underlie and compute them, an enormous complexity far exceeding our capacity to simulate it.

Reality itself includes the information structure of every last detail of the entire universe while we simulate only a miniscule fraction of only our local environment. Our simulation of reality misses most of the actual detail of reality by an enormous number of orders of magnitude, and what we do experience is only a tiny sampling of its colorless logical structure

painted over with qualia in our minds.

Thankfully our simulation of reality doesn't encode the complete actual structure of reality itself. Our little three-pound brain, so minute in comparison with the universe, would be completely overwhelmed. Our vastly simplified simulation of reality works well enough to compute our lives within the universe and has enabled our success as a species, but it's clearly an illusion that conceals the true gigantic information nature of reality from us.

There is only one complete and accurate simulation of the universe, and that is the universe itself. Thus all individual knowledge of the universe must be vanishingly small in comparison with the actual information content of the entire universe itself. Thus the simulation of any individual being cannot possibly represent reality as it actually is.

Our perceptual system functions as a set of filters or antennae, finely tuned by evolution to extract only the most pertinent logical structures from those of reality so we are able to understand and function effectively in reality. Our perceptual and cognitive filters allow through only what is most useful and meaningful. Other species have somewhat different filters, differently tuned antennae that extract information structures meaningful to their particular existences. All these various filters are essential to our existence but they are simultaneously the veils of illusion that obscure the true nature of reality from us.

OURSELVES AS PROGRAMS

Along with the rest of the world it's important to understand how we experience ourselves as a consciousness in a physical body if we are actually just the running programs of our selves. How can we feel so human if we are actually just running programs? It's really quite easy to understand this and this insight applies to the apparent reality of every other aspect of the simulation as well.

All the feelings of our mental processes and our body are simply our experience of our program running. And the feeling of our life force within our running program is simply the active immanence of existence continually happening within us that gives us reality in the present moment as our program continuously computes the progress of our lives.

The feeling that we are a consciousness inside a biological body is simply the active information of those information forms continually being computed. Everything remains as real as it ever was, we remain as real as we ever were and exactly what we were and are, we just now truly understand what we really are and our true fundamental nature.

We know that our experiences of all the things in the external world that seem so completely physical are just their information forms being simulated in our brains' neural circuits, yet they all seem so intensely real. Our existence as a biological organism is exactly the same. We are programs running in the existence of reality, and our experiences of ourselves are the programs of our simulation of our selves running within the program of our whole being. They all feel so real and meaningful because they are. They feel real because the living presence of existence within our program is the life force that makes it real and makes it us.

We, like all things, are the information of ourselves being continuously computed by our programs, which are subroutines of the universal program. It's important not to think of this in terms of an ordinary computer program. Our program is a program of reality running in reality, therefore we are as perfectly real as we can possibly be, and as we always have been. We just aren't quite the flesh and blood biological being we appear to be. Well we are, but the way we represent this to ourselves is far different than the actual information state of our programs that we really are.

This is certainly counterintuitive and can easily be misunderstood and mistakenly rejected. But we are not trying to make us anything other than what we already are; we are just offering the best explanation for exactly what we are. There is no change to what we are, we just now understand what we are more deeply and completely consistent with the nature of the rest of the universe that Universal Reality reveals.

We lose nothing in this explanation, not our freedom, our emotions, feelings, our capacity to love, or our consciousness. These are all essential parts of our program that computes our own personal reality in a universe of other programs and information. All these things are the information of themselves, and we are the running programs of our selves.

The running programs of reality are simply the real computational processes of reality we see and experience everywhere around us and within ourselves. All aspects of our existence are clearly computational.

The lower level cellular and other bodily processes of our bodies are clearly computational processes that keep us alive and functioning. So considering our total self as a program that includes these subprograms is not as counterintuitive as it first appears. It's simply the best description of what is really going on in a universe that is clearly computational.

All the things we believe make us human; our feelings, desires, emotions, intellect and consciousness, are all manifestations of internal computational processes. There is simply no other way they could possibly be generated. Like all things in the universe, they are the running programs of these things, and their information can only evolve computationally.

Changes in information states just cannot arise without a computational source, that would be the most nonscientific theory of all, the most nonsensical option of all. All computations are programs in our sense. Programs are simply the processes that perform the very obvious computations of reality, and everything that exists, including our selves, are the ongoing results of computational processes.

Humans are enormously complex multiply hierarchical information programs. Through our DNA systems, our cells, our organs, our hormonal and nervous systems up through the structures of our brains and their simulations, all these subsystems operate in concert as a single integrated program to compute the function and maintenance of our self.

In terms of consciousness, the human simulation consists of a highly detailed internal representation of the structure of the world, of us within it, and the emergent level laws that describe it, all encoded as programmatic information in neural circuits. Particularly salient for human consciousness is that this simulation of the world includes a strong sense of a personal self that experiences it. In other words, the simulation includes a strongly developed representation of one's own existence as a thing that stands apart from other things. This sense seems less developed in many other species. The simulations of other species certainly have strong subjective experience and exquisitely intelligent computations that support their individual survival but perhaps less developed representations of themselves as separate *objective* entities.

The simulation can be thought of as a computational structure that sits atop the vast lower level computations that make up the entire program of an organism. The simulation takes all of the inputs from lower level computations including those of the sensory and perceptual systems and constructs a model of reality that includes its model of itself.

It includes a very detailed model of the logical structures of individual things and their relationships. Like all forms the simulation is being massively simultaneously computed by existence. And these computations continuously update the model with perceptual inputs and compute the implications for the individual's function and survival.

Though most of the computations of an organism occur at an unconscious level, the information of the simulation is available to the focus of conscious attention. And the simulation is continuously refreshed and updated with perceptual input and computational results generated at the unconscious level that percolate up into it.

There are vast differences across the spectrum of organisms in their computational structures including their simulations but in every case the world that an organism experiences it living within is actually its own internal simulation of its particular environment. This is equally true of humans and all other life forms, all of which have at least some rudimentary representations of their external environments, which convey more than random functionality. The world we experience ourselves living within is entirely our simulation of that world computed in our own minds. We simply have no direct experience of our world other than our simulation of it.

ILLUSIONS OF TIME

It is important to understand several ways in which our simulation obscures the true nature of time. The first is our perception of a present moment with duration, and the second is the fact that our mind makes us think we live slightly in the future.

The actual duration of the present moment is the time it takes to complete a P-time tick of happening which is the time it takes to recompute the information state of the universe. This duration is many orders of magnitude below the attosecond scale. An attosecond is equal to 10^{-18} of a second (one quintillionth of a second). For context, an attosecond is to a second what a second is to about 31.71 billion years. Thus the duration of the actual present moment is far below the resolution of human temporal perception and even far below our finest observations of quantum interactions.

Thus if our simulation accurately represented the duration of the

present moment as it actually exists our entire experience would consist only of the precise current state of things in the exact infinitesimal moment of existence. There would be no time to retain and compare before and after states of anything or the context of any event. Thus meaningful knowledge would simply be impossible. We wouldn't see any motion at all and there would be no sense of change whatsoever.

For example music depends entirely on the relationships of note to note in a sequences of notes. If we had no short-term memory that artificially held the present moment open and gave it duration there would be no experience of music. Our only experience of reality would be what was occurring in the exact nanosecond of the actual present moment and without any possible context or reference to anything else at all. This is in fact the nature of the experiences of inanimate forms. But life for any organism would be impossible because computational thought based on comparisons and relationships would be impossible.

Certainly other organisms' short-term memory functions and duration may vary and their perceptions of reality could be much different on this point alone. One could also imagine a being with a much longer short-term memory capability than humans that would be able to make enormously greater relational sense of event networks.

Thankfully our simulation represents the present moment with a several second duration, it holds time open just long enough we are able to compare before and after states and observe the context of events as they occur. This is accomplished by a short-term memory subroutine that holds representations of events together in a sort of cache memory long enough they can be compared before tagging them as past events and moving them to long term memory if required.

This slight opening of the present moment in time is an essential aspect of knowledge and consciousness but doesn't accurately represent the near infinitesimal duration of the actual present moment of existence. So our perception of our existence in a present moment that lasts long enough for us to make sense of things happening is a complete illusion, but an illusion essential for our existence.

We can confirm this in operation in the visual tracks of birds and moths at night. Looking at the moths we don't see the moth in a single location but as the head of a trail of images. Our visual system and perceptual systems in general are designed to facilitate our short-term memory spreading out the present moment to the duration of a second or two so that we have a dynamic context for paths of motion. This occurs

with all motions though less obviously and is what enables us to correctly analyze motion paths so as to avoid impacts, catch baseballs, and walk safely down the street, and it's only these perceptual tricks that allow us to synchronize our actions with other motions in the external world.

It is well known that the apparent motion of film and TV is an illusion generated by the mind smoothly connecting separate visual frames. But what is not well known is that is equally true for all motion. It is only the ability of short-term memory to temporally connect and sequence sensory events that creates the experience of the very passage of clock time including the illusion of motion. All motion is an illusion that exists only as experienced in short-term memory. Not that change doesn't happen in reality, but the experience of changes via comparisons of before and after states that generates the simulation models of things changing into other things is entirely a construct of mind. Reality itself consists only of the current instantaneous states of things in the process of recomputation at a time scale many orders of magnitude below human perception. Thus in reality itself there is no before or after of events since there is no before that still actually exists and no after that has been computed.

There is a useful meditation exercise where one focuses more and more precisely on the exact moment when new events come into being and zeros in on the exact moment of becoming into being while allowing what has already entered the present moment to vanish instantly out of consciousness. This is most effective while listening to smooth continuous music or sound. With practice one can circumvent one's short-term memory and let consciousness continually surf the exact moment of becoming into being. It's quite an awesome and enlightening experience as to how very tenuous and fleeting the actual razor's edge of time and therefore existence is! Consciousness is so intensely and extremely near to the nonexistence of the past and future. That continuous durationless nanosecond of real actual existence is truly marvelous!

This is one more way in which the world as we experience it is an illusion generated by mind. The extended present moment as we experience it is entirely an illusion, an elaborate and clearly useful mental construct that doesn't exist in external reality. Only recognized as such does its reality appear and we experience the amazing reality of the actual nearly dimensionless present moment. This is a basic evolutionary characteristic of mind that seems to be necessary to make life possible even though it doesn't exist in external reality itself. It seems absolutely necessary for organisms to conceive of a temporal universe with an

expanded present moment to make sense of reality.

Inanimate programs don't have any capability to hold a present moment open which is one reason their experience of events, which is just as real as ours in its own way, is entirely unconscious and without context.

A second way our simulation misrepresents time is by projecting the states of processes slightly into the future when that's of course actually impossible since by definition the future has not actually been computed. Our minds are continually building a simulation of the current state of our surroundings that includes projecting current short-term processes slightly into the future and representing them to us as if they are already happening. So what we see happening around us is our mind's prediction very slightly into the future of what it expects to happen.

From an evolutionary perspective this gives us an active advantage in preparing for possible future events slightly before they occur but of course these projections can't always be accurate and are continually corrected by inputs from actual events as they occur. This correction process is usually ignored by consciousness but sometimes results in a slightly shocked recognition that we saw something wrong. I believe this process has been confirmed experimentally but can't locate the reference again.

There is also the important illusion of historical time. Since reality actually exists only in the present moment rather than in our simulation's historical view of reality all things stored in the simulation must be realized as an illusion because they are representations of things and events that don't actually exist in external reality. Their reality is not their prior reference but their present moment existence as memory forms within the simulation.

Thus the historical memory of all observers is an illusion if it is taken as moments of a real past since the past is clearly not actually real. And since individual things are only meaningful as historical constructs they must all be figments of the historical memory of the simulation rather than actual aspects of external reality. They appear to be only meaningful associations of temporal networks of perceptual data when stored in memory. And we must also conclude that since the simulation is almost entirely a historical structure that it is inherently illusory with respect to a reality that actually exists only in the present moment.

DREAMS

Our mind is a reality-simulating machine in constant activity busily constructing its simulation of reality on the basis of its own imperatives. Normally this process is continually corrected against sensory inputs from actually occurring events and brought back in general line with them, but it basically has a will of its own and in the absence of continual feedback from sensory inputs tends to go off in its own direction constructing its own version of reality.

This is what happens in dreams and to a lesser degree with more conscious oversight in daydreams. The mind keeps busily constructing its simulation as usual but corrective sensory inputs are largely shut down or ignored so it begins merrily constructing a reality of its own design based on information in the simulation but with little correspondence to actually occurring events. There is little input stream from reality constantly bringing it back to representing the actual state of the world so it has the freedom to represent whatever reality it wants to. Delusional psychoses are a disorder of this feedback mechanism where perceptual input doesn't properly correct the thought stream. This can also be confirmed in a waking state in conditions of sensory deprivation.

Thus dreams do reveal the inner concerns of mind when it has the time and sensory isolation to develop them and present them to consciousness, and they also open a window into the workings of the organizational processes that maintain our simulation of reality.

In dreams, when there is less concern with the actual surrounding world, the focus of consciousness also has more freedom to dip below the usual mundane surface of the simulation into the realm of usually unconsciousness processes and concerns.

In sleep the mind typically paralyzes the major voluntary muscles to prevent dreams from initiating bodily actions (Wikipedia, Sleep paralysis). Sleepwalking can occur when this protective mechanism fails, sometime with tragic results, as dreams are acted out.

Sleep paralysis can also fail in the opposite way when we wake from sleep but are unable to move our bodies. This is often mistakenly interpreted as the presence of some malevolent being that is actively paralyzing us. Throughout history these experiences have been

interpreted as various types of demons such as incubi or succubi, and more recently as alien abduction experiences.

OUT OF BODY EXPERIENCES

There are other interesting implications of understanding how our simulation functions. When we understand that the mind constructs a 3-dimensional universe from the non-dimensional neural circuits of the simulation and projects it into an apparent 3-dimensional world with our simulated body at the center collocated with our consciousness it becomes easy to understand out of body experiences (OBEs).

If the mind can construct a simulated 3-dimensional world around a simulated physical body, and then place our consciousness within that physical body, then it's easy to understand that the mind could just as easily move the conscious 'I' out of our simulated body in situations of immanent danger as a protective mechanism to lessen the I's experience of possible bodily trauma.

Thus there is nothing supernatural or hard to understand about OBEs, they are just a good example of how mind constructs our simulated reality on the fly and modifies it as it deems appropriate. This includes normally locating our conscious self within our body. How the experience of self is normally located within the body by the simulation is the important thing to understand. Then it's easy to understand how it can also be located outside the body as well.

This is also the key to understanding near death experiences (NDEs) in which the conscious 'I' is also experienced leaving the body and traveling either down a long tunnel into the light or even to another world. This often occurs associated with symbolism from the subject's belief systems such as entering Heaven, the Tibetan Bardo realm (Evans-Wentz, 1956), or the passage of the soul through the underworld described in the Egyptian Book of the Dead (Budge, 2008).

In near death the consciousness can remain operative longer than other parts of the body such as the perceptual systems, and consciousness can retreat towards the center of the brain and finally be relocated by the mind in what it deems an appropriate experience, again apparently as a protective mechanism to lessen the trauma of impending death.

Similarly in psychedelic experiences, and in delusional experiences associated with mental illness, the mind is just simulating reality differently than it usually does. All these experiences are excellent examples of how completely our minds simulate our realities, and they all help us understand how enormously different our simulation of reality is than reality itself.

Anyone who has taken LSD or other psychedelics becomes aware just how ephemeral and illusory our usual simulation of reality is, and how the actual reality it obscures can appear in so many other forms with just a little chemical stimulus. These experiences provide important insights into how vastly different reality must appear to other species and even to other members of our own species. Thus there is no reason to attach any particular metaphysical significance to any of these experiences or assume any alternate realities. But they do most certainly reveal just how wonderful actual reality is and how variably it can be simulated under different conditions.

So it turns out that all realities are alternate realities including the one we normally experience. Every one of them exists only in our minds. Every one of them is inherently arbitrary and the only reason we normally experience the one we do is because it allows us to function in actual reality. Our usual simulated reality is just the product of our evolution and every one of our individual realities is significantly different, and those of other species even more different. And none of them accurately represents the true nature of the actual reality in which they all exist.

ARTIFICIAL REALITIES

It's common knowledge that many aspects of reality can be realistically simulated in the form of information in various media. When a high quality recording of a birdsong is played it's effectively impossible to distinguish the information of the recording from the information of a real birdsong without appropriate context. Movies and videos present very convincing canned realities, and the advent of various virtual realities promises to make such experiences fully interactive.

There appear to be no intrinsic limits to the ability of properly formatted information to represent convincing realities. Thus there is no reason to suspect that actual reality as well doesn't also consist entirely of

properly formatted information. It's clearly demonstrable that actual reality could certainly consist entirely of information and be entirely convincing, and this is what all the evidence suggests.

So it's quite reasonable to consider not only our simulation of reality as information, but the actual reality that it simulates as information as well. This in fact is the only way our simulations and the various media representations of reality could encode actual reality as convincingly as they do. If actual reality doesn't consist of information too, then how can it be encoded as information in our brains and in our media, and in our logico-mathematical based sciences?

Though theoretically possible there is no reason to believe that we live within a simulation produced by another being, be it an alien computer programmer or some god. What is quite clear is that our own minds do an extraordinarily competent job of simulating reality on their own. Thus it's reasonable to assume our simulation is programmed not by any other being but by the process of evolution.

Even if we did exist within an artificial reality produced by some other being that reality as well as the other being and its reality and its simulation would ultimately have to exist within an actual reality encompassing them all. My suspicion is that there would always be some way to ascertain that. There would always be some inconsistency or incompleteness in the artificial reality that would enable it to be discovered from the inside. After all we do live within our own mind's artificial reality and the whole point of this book is that we have been able to discover that and even discern the actual reality beyond it.

On the other hand it's also clear that the minds of gullible persons in particular, and all of us to some degree, are being actively programmed on a continual basis by all sorts of external influences. In the search for the true nature of reality it's of critical importance to recognize the nature of this external programming and insulate oneself from its effects. Otherwise the true nature of reality is forever beyond our grasp.

SUMMARY

At this point it's become clear that reality is not as we experience it in our simulation of it. Rather than a physical world of bright

appearances it's become clear the universe is actually a running program that continually recomputes its data state in the present moment.

Thus the world we experience around us is clearly an adaptive interpretation produced by our brains that helps us make better sense of reality and function more effectively within it. It does this by reducing reality to meaningful individual things described by sets of characteristics that have relationships and continually engage in events.

This highly simplistic model of reality is much easier for our brains to compute. Our minds further enhance the appearance of reality by brightening it up with colors and other qualia and valuating it in terms of our innately programmed instinctual imperatives to imbue it with meaning.

The result is the world in which we think we live is actually our mind projecting our internal mental simulation of it back out onto the world as a physical universe in an encompassing dimensional space.

But as we've discovered this is entirely an illusion. In fact the only aspect of this illusory world that is true is a rough mapping of its computational logic only sufficient for the actions our simulation computes for us to enable us to survive and function on a reasonable basis in actual reality.

Other than that the seemingly physical world of appearances we seem to live within is a total illusion that has nothing to do with the actual nature of reality itself. So what then is the actual nature of reality when we cut through the layers of illusion our simulation produces? What is the nature of the reality that we discover within the illusions of our simulation?

REALITY

We can define reality as the ‘true nature’ of the totality of everything that actually exists in the present moment. It is clear that many things are not as they initially appear to us. We typically see only the surfaces of things rather than the hidden structures and processes that underlie them. The world has a deeper more fundamental reality that is often obscured by appearances and science certainly agrees. The illusory appearances of things are due partly to their representation in mind and partly due to the hierarchical complexity of reality itself. This chapter examines the nature of reality and existence.

There are three fundamental questions with respect to reality. First why does something exist rather than nothing? Second why does what actually exists exist instead of something else? And third what does actually exist? We will attempt to answer the first two of these questions. The final question is explored in detail in *Universal Reality* (Owen, 2016).

THE NATURE OF EXISTENCE

All things that exist whatever their nature are said to have existence. Existence is what makes something real and actual and gives it being. Existence is most often considered a quality of individual things, but it makes much more sense to think of existence as a universal medium or substrate in which everything that exists actually does exist. In this view it’s the presence of things within the universal medium of existence that gives them their individual existences. Thus existence is the common active ingredient of all things that exist that gives them their individual existences.

Since all things that exist have existence, it’s quite reasonable to assume that all things that exist must share a common active ingredient of existence that makes them real. If there is not some common active ingredient then how can the myriads of disparate things in the universe all be said to exist in the single sense implied by the use of a single word? What would saying something has existence even mean if there weren’t something that gave it that existence? This is the obvious and logical

conclusion.

So we can reasonably assume that the existence of all things that exist is the same existence. The forms of things differ widely but the fact they exist is the same for all. If we define reality as all that exists then the universal substrate of existence fills all of reality and the existence of any individual thing is its presence in this common substrate of reality. Without being present in the common substrate of existence, a thing would not be present in reality, would have no reality, and would not exist.

This becomes clearer when we consider the analogy of an ocean of water. Individual things gain existence as forms of existence within an underlying medium of existence just as individual ripples, waves, and currents become real by being different forms of water within a common substrate of water. Thus the big bang can be thought of as the appearance or actualization of various forms of existence in a previously formless sea of existence. All individual things are merely forms *of existence* within a universal sea of existence.

The insight of an underlying medium of existence common to all things is missing from traditional science. This is because there is no actual non-existence to contrast existence with. Thus things are just taken for granted as individual things and their underlying common nature doesn't tend to enter consciousness because there is no non-existence to compare their common existence against.

Individual things are recognized as individual things because they can be distinguished from all the other individual things that have different forms, but there is nothing different to contrast their existence with, and thus existence is rarely recognized as anything actual. Nevertheless existence is real and present in everything that exists in the universe, and is the largely unrecognized underlying presence of the reality of the universe. It's the underlying formless substrate of the universe in which all individual things gain their existence by their presence within it. If there were no underlying medium of existence, the universe and we within it would not exist.

THE AXIOM OF EXISTENCE

Something rather than nothing exists because only existence can exist. Non-existence or nothingness cannot exist because nothingness is non-existence and only existence can exist. Thus nothingness cannot exist and can never have existed. Only existence exists or has ever existed or can ever exist. Thus there is not and never was and never could or can be a nothingness out of which something came into being. There is and has always been only existence and whatever forms exist within it.

There is not even nothing outside of existence, or before or after or beyond existence. There is no outside or before or after or beyond existence. There is only existence and everything that exists is part of that existence.

Thus ‘Existence exists’, or more concisely just ‘Existence!’ which implies the necessary existence of existence, is the self-validating self-necessitating fundamental axiom of reality upon which all else depends. This is the ultimate turtle upon which all other turtles stand and the ultimate source of the entire logical structure of reality (Wikipedia, Turtles all the way down). Because the fact of existence is self-evident the axiom is self-evidently true. You would not be reading these words if existence didn’t exist.

At first this may appear to be a mere sophism or tautology but it accurately expresses the actual logic of reality and is the only possible self-contained explanation for the fundamental fact of existence.

One might argue the axiom of existence is circular and of course it is but that is precisely the point since the fundamental axiom of reality must be circular; but it must also be self-evident and meaningfully so. A meaningful circular self-necessitating fundamental axiom is much preferable to a set of axioms that has no underlying logical foundation such as those of Euclidean geometry (Wikipedia, Euclidean geometry).

Because there never was a nothingness out of which something was created there is no need for a creator or creation event. All the interminable disputes about creators and the creation of the universe immediately become illogical and meaningless and must be abandoned. The axiom of existence immediately renders much of philosophy and religious doctrine moot and answers the first question of why something rather than nothing exists.

Thus the fundamental question becomes not why something exists, but why what exists *is* what exists. Through this proper self-

consistent, self-necessitating definition reality becomes much simpler and illogical questions concerning non-existence disappear.

Reality is the existence of what exists, and existence is the manifestation of reality. Reality and existence are different perspectives on the same thing. Thus the only thing that can ever be real and actual is existence and the only thing that can exist is reality.

The question of how existence arose out of non-existence is nonsensical and meaningless and should not even be asked. It's based on a misapplication of the logic and language of everyday things where individual things do suddenly appear out of non-existence into existence. But whatever appears always actually appears out of something else, it's always a *transformation* of things rather than a creation out of nothingness. Nothing ever appears out of nothing at all or nothingness. The forms of reality often transform from one thing to another but since reality itself includes everything there is nothing for reality itself to transform from or appear out of.

Of course the physical universe as we know it originated in the big bang some 13.8 billion years ago but this was not the beginning of existence as the universe originated not from the absolute absence of anything but from the quantum vacuum which contained the unactualized virtual possibilities of all possible actualities. We must not mistake the apparent beginning of the physical universe and clock time at the big bang for the beginning of existence itself.

Thus existence has 'always' existed. By 'always' we mean here that there was never a *time* in which existence did not exist. In Universal Reality clock time is computed along with all the other processes of the universe and so clock time would only have begun with the big bang. Thus there was no clock time prior to the big bang and properly speaking no 'before'. Nevertheless there was a timeless present moment in which a prior virtual state of formless existence existed and there was never a time this was not true.

Existence must exist because non-existence cannot exist. The existence of non-existence is a logical contradiction, and logical contradictions cannot exist in a computational universe, since for the universe to be computational it must follow consistent logical rules that don't generate logical contradictions. Thus the axiom of existence provides a clear and convincing answer to the fundamental question of why something rather than nothing exists. It's simply impossible for

nothingness to exist so there was always a something that existed and that was the originally formless substrate of existence itself.

THE PRESENT MOMENT

Existence has several intrinsic attributes. The first is presence. For existence to exist it must have presence and be present. The presence of existence manifests as a universal present moment in which everything exists. Since the present moment is the presence of existence there is no actual before or after or outside the present moment. Existence exists only in the present moment it creates by its presence.

The past is a non-existent logical projection inferred backwards from the present. It exists only in memories and its other computational results in the present moment. And the future doesn't exist because it has not yet been computed. Reality exists only in the present moment manifested by the presence of existence.

Many scientists deny the existence of a present moment because they believe it's inconsistent with relativity but this is based on a misunderstanding of relativity as explained in the author's book *Understanding Time* (Owen, 2016). There is no doubt whatsoever that a present moment exists because it is the most fundamental and persistent of all observations both scientific and personal. The crux of scientific method is to develop theories that explain observations, never to deny them. Denying observations is the antithesis of science and the present moment is the most fundamental of observations.

TWO KINDS OF TIME

There are two kinds of time. There is the time of the present moment, which is universal and absolute and common to everything throughout the universe. And there is clock time, which flows through the universal present moment at different rates depending on local relativistic conditions. Clock time flows through the current present moment at different rates but the universal present moment is common to all observers throughout the entire universe. We can call the time associated with the current present moment *P-time* to distinguish it from clock time.

The fact there are two kinds of time is conclusively demonstrated by the established fact that relativistic space travelers always reunite in the exact same present moment even when their clocks read different clock times. The two kinds of time are confirmed and explored in detail in *Understanding Time* (Owen, 2016).

There is no doubt at all that there are two kinds of time and it is totally amazing that no one had recognized this obvious truth before I first pointed it out (Owen, 2007, 2009). This serves as an excellent example of the blindness of science to obvious facts that somehow don't register in the prevailing worldview or may not seem to have a mathematical basis.

HAPPENING

Happening, also called change or process, is another intrinsic aspect of existence. Because of happening change happens and events occur. Existence continuously happens. Happening is the source of all the processes and change in the universe and the ultimate source of all the activity and life of living beings including us. It is also the source of experience and consciousness. Without happening there could be no experience, no consciousness and no life. Happening is the life force of the universe. Happening occurs and the universe comes alive, events occur, and the universe opens into an observable reality that is available to experience and knowledge.

Happening is the computational source of all changes and changes all reduce to various forms of motion whose value is their spatial velocity. And spatial velocity is identical to energy. In fact all forms of energy including mass are just different forms of spatial velocity (Owen, 2016). Thus happening is the energy of the universe that brings it to life in the present moment.

Happening is also the source of the temporal motion of time. It's the source of the flow of universal P-time and the local clock times computed within it. Clock time is the observational rate of happening at any relativistic location. Happening has nothing to do with clocks *per se*. Clocks are just standard physical processes that measure its local clock time rates. Since at least the big bang clock time continually flows through the present moment.

Happening is the universal *processor* of existence that continually computes the evolving existence of the universe and all its individual data forms. Because of happening time flows and the universe comes to life and is filled with energy. Happening is the living energy of the universe.

THE UNIVERSE AS A LIVING SYSTEM

The universe can be considered a living system in the sense that it continuously happens and evolves of its own accord with nothing outside moving or causing it. In this sense, and only in this sense with nothing supernatural or biological read into it, the universe is alive. It's a living self-motivating system that continuously evolves all by itself without any external cause or force. It is after all everything that exists and it moves of itself. It's not a biological organism but it is a computational organism.

Thus everything within the universe can be said to share the life of the universe according to its own specific forms. Ultimately the life of the universe is the source of the lives of all biological organisms including us. For without the happening of the universe we wouldn't be alive or even exist. It is clear the reasonable conclusion is that the universe is much more than the blind clockwork system envisioned by traditional science.

We feel within ourselves the special feeling that we are alive, that we are living beings, that we have a life force that animates us and makes us different from inanimate objects. But what this actually is has long been a mystery. We are now in a position to provide an answer. Our personal life force is the same life force of happening that animates all of reality and us as well, each according to its forms.

The fact that reality continually happens in the present moment is the life force that we feel within us. Our life force is our participation in the real and actual presence of reality as it happens within us as our flow of consciousness. We feel ourselves alive simply because we are part of the aliveness of the universe and because we are continually happening ourselves as the happening of the universe occurs within us. There is nothing esoteric or supernatural about this. It's simply the experience of the continual happening of the universe occurring within us as an integral part of the universe.

Our life force is the direct experience of happening that animates all reality. What we are referring to here is not the biological definition of a living organism as an autonomous purposeful computational system. Rather it's this biological structure that is animated because it shares in the universal life force that animates all things each in their own way according to its form. Our feeling of being alive is simply what the life force of the universe feels like inside a biological organism. It's the feeling of happening within us flowing through our form.

So both our consciousness and the life force that animates us are not something unique to us but are due to our participation in the realness of reality because we are a part of reality. Of course the particular ways we express our lives and consciousnesses as biological organisms are due to our particular form structures but the fact that we are able to be animate and conscious, and our experience of that, is due to the self-manifesting happening of reality itself within us.

ABSOLUTENESS

Another intrinsic attribute of existence is that it's absolute. The universe and everything in it are absolute in the sense that everything is exactly as it is in the present moment with no possibility whatsoever of being anything else once it happens. And the intensity of its realness has no limits because everything is either absolutely real or doesn't exist at all.

Thus everything that exists is absolutely exactly what it is with not the slightest possibility of it being anything else or any different in any detail whatsoever. Things continually change but once they change they are exactly and absolutely as they are. In this sense all things are absolutely real and actual with no limits whatsoever to their reality.

Because what actually exists defines reality as it actually is there is and can be no alternative to existence as it actually exists. There of course can be theoretical (i.e. nonexistent) alternatives but there is no actually real alternative to exactly what is right now in the present moment of existence in every last detail of what it is.

This is the solution to the second question of existence, why what exists is what exists rather than something else. The answer is simple though subtle. The existence of what actually does exist conclusively

falsifies the existence of anything else at all, and this is true all the way back to the big bang and the complete fine-tuning of the universe. There simply is no possible alternative to any of it once it has happened.

The fact that we can imagine theoretical alternatives in no way implies any actual existence of those alternatives. None of these other alternatives have any existence at all because they just aren't part of existence except as ideas. Thus now that what exists is exactly what exists, and only what exists can exist, those alternatives have no reality at all, and certainly no possibility of existing either now or in the past whatsoever.

Thus the existence of what does exist conclusively falsifies all other alternative possibilities. There is zero probability they ever could have existed because they never did. When carefully analyzed and understood this logic is sound. We can legitimately imagine other possible outcomes for *individual events in time* because we can largely recreate the conditions that led to them, but the original event is entirely impossible to recreate as it has already occurred. so we must not fool ourselves into thinking it could ever have been any different than it actually was. The universe as a whole cannot be rerun thus there is no possibility whatsoever it could have been different in any last detail than it was.

It's important to understand that alternative possibilities meaningfully apply only to future states and never to past or present states. Alternative possibilities for the future are meaningful because the future is probabilistic because it has not yet been computed, and its computation is subject to quantum randomness but the actual present and past conclusively falsify any possible alternatives to the slightest detail and this includes the original complete fine-tuning which simply could not have been other than it actually was.

IMMANENCE

The final intrinsic attribute of existence is immanence. Immanence is the self-manifestation of existence in the actual presence and being of all things that exist. Immanence may initially seem to be a subtle or unfamiliar concept but it's actually what we experience all the time as the here now presence of things. Our experience of anything at all is simply our experience of the immanence of its existence.

In traditional philosophy immanence refers to the hidden presence of the divine within things (Wikipedia, Immanence). We use it in a very similar sense but without any religious or metaphysical connotation. In our usage immanence refers to the internal presence of existence within all things that makes them real and actual and gives them being. Take the information forms of all things, subtract their illusory physicality, and fill their information forms with the inner light of existence that brings them to life in the universe and you have their immanence.

The quantum vacuum is not just the invisible source of real particles, and thus of all things, but is what actually ‘shines’ within particles to make them real particles present in the observable universe. That ‘shining’ is what we perceive as their reality and their actuality. If the information forms of the world had no immanence of existence they would not exist and would never be experienced. We experience things only through their immanence, through the existence shining within them.

Nothing really mysterious, metaphysical or supernatural is implied here. It’s just the idea that existence itself is more than just dark dead material things sitting in a material universe. Immanence is what brings the universe and everything in it to life in the real world of existence. Immanence is the discernable presence of existence in everything that exists.

The information of the things of the world is not just there like equations on a page in some dark traditional sense, it’s filled with an inner light of being, that makes things really really real and actually there in a much profounder sense. Its being is absolutely real because it is absolutely what it is exactly as it is.

Immanence is analogous to a light bulb that is not just a light bulb in a box, but a light bulb that is plugged in and turned on with existence. Everything has a living essence of existence that internally illuminates its being into reality. Existence, the quantum vacuum, is the ubiquitous substrate of the universe. Thus the existence of an information form in the substrate or medium of existence is what makes it present in the universe and into a real actual thing and that existence is discernable within it as its presence in reality.

The old materialistic view of the universe is a blind clockwork universe of passive information forms that wait in the darkness to be observed, but our computational universe is a universe in which all forms actively glow with the inner light of their being, with an invisible inner

light of presence, existence and happening. This makes them real and present in a much profounder sense. This is what is meant by the immanence of existence.

In this sense all the forms of the universe glow with life from within as existence continuously animates them into being. Existence is the life force of the universe that is actively present in the forms of all things making them real. Existence continuously manifests itself as immanence in all the forms of the universe as happening computes them into continuing existence and gives them actual reality.

This immanence of existence in all the forms of existence is the essential ingredient of things that makes them real and actual. It is also what makes things available to consciousness, and makes consciousness possible. Without the immanence of existence within things, forms might be blindly registered by brains in the same sense as a computer program registers a change in its data, but that registration would not be conscious. Immanence is of critical important in understanding reality because it's the key to understanding consciousness.

Reality is not just a lifeless mechanical, physical world composed of material bodies but something that *actively self-manifests* itself in the absolute realness and actual presence of its existence in the immanence of all the individual things that exist within it. All things that exist are different data forms of existence. All the forms of the world are empty of any self-substance other than that of their common existence.

Reality, existence, the present moment, happening and immanence are all names for different aspects of the single fundamental and only 'thing' that exists. Tao, properly understood, is an ancient approach to the concept of existence. The fundamental substance of reality is itself originally formless and nameless existence. We seek to describe it as accurately as possible in an English description of its aspects and characteristics since we must after all use language to speak of it. But as Lao Tzu rightly points out, "The Tao that can be named is not the Tao." (Legge, 2010).

CONCLUSION

This is a basic introduction to the true nature of reality that the simulations of observers attempt to model. The details of how this

computational model of reality actually computes the universe of science including relativity and quantum reality as a fully unified theory of quantum gravity is beyond the scope of this book but are fully explained in the author's book *Universal Reality* (Owen, 2016).

Also not covered here is how immanence is the source of consciousness and solves the 'Hard Problem' of consciousness. This is the subject of the author's book *Consciousness Explained* (Owen, 2016).

Instead having explained the basics of the computational model of reality we now turn to how we can cut through the illusions of our simulation and directly experience the true nature of reality in our own lives.

REALIZATION

THE DIRECT EXPERIENCE OF REALITY

While it's clearly true we experience reality only through our simulation of it there is one aspect of reality we do have direct immediate experience of and that is our simulation itself. Everything that exists is part of reality by definition and that includes our simulation of it.

Thus we do directly experience the true nature of our simulation, which is part of reality. The key is how we realize it. If we take the simulation for the true nature of reality that is illusion, but if we take the simulation as a simulation of reality, that is reality. Ultimately our simulation is the only aspect of reality that is available to our direct experience because it *is* our direct experience of reality. It's the only part of reality of which we are directly aware. Thus it's only through the direct experience of our simulation of reality that we can approach reality. This includes the direct experience of all aspects of our simulation of the universe.

Thus every aspect of our direct experience is an actual direct experience of reality because every aspect of our direct experience is part of our simulation. Thus we do directly experience the true nature of reality all the time in every experience that we have. It's just a matter of correctly realizing what it is that we are actually experiencing.

In this chapter we attempt to take the final step in our study of reality and the simulation and cut through the illusions of our simulation to achieve a direct and clear experience of the true nature of reality to the extent this is possible in human form.

APPROACH

Universal Reality defines reality as the totality of everything that exists, but the true nature of reality is not at all as it appears. The appearances of both ourselves, and the world we seem to exist within, are useful but illusory simulations of reality created by our minds in the form

of the familiar physical world of our experience. But this illusory world is nothing at all like the true reality of running information programs other than it shares some logical correspondence.

In this context realization can be defined simply as understanding and directly experiencing the true nature of reality that lies hidden within the simulation. In Universal Reality there is nothing more to realization than that, and there are none of the usual metaphysical or religious connotations implied. However understanding and directly experiencing the true nature of reality is certainly the most awe inspiring and transformative experience one can imagine.

There are three fundamental aspects to realization; realizing the illusory nature of the world of our usual experience; realizing the actual information nature of all things; and the realization of the immanence of existence in all things, including ourselves. Realizing the world as its running information programs, and experiencing the immanent existence of these programs, including the immanence of our own program, is the key to realization.

In addition there are the continual possible realizations of the deeper natures of the individual processes of the universe including the deeper aspects of the events of our daily lives. Some of the most fundamental insights are explored in this chapter but for the seeker this is an unending process of better understanding the inner workings of reality in all the events of our lives including the seemingly most mundane.

To summarize, realization can be scientifically defined as understanding and directly experiencing the true nature of reality. This includes several fundamental areas:

1. Realization that our individual experiences are experiences of the fundamental processes of the universe occurring within us, as we are integral components of the universe itself.
2. The realization of the information nature of all things. The realization that all things are their running programs continually recomputing their information. This is the realization of the emptiness of forms, an ancient oriental philosophical teaching that all things are their forms and that all the forms of things are empty. This was an ancient prescientific expression of this insight.
3. The realization of the presence of the immanence of existence in all forms. The teaching that the essence of all forms was śūnyatā or emptiness (mu) was the ancient prescientific equivalent. Thus existence itself is the true common underlying nature of all things.

4. This realization includes the direct experience of emptiness and immanence in all individual forms and the realization of the pure formless experience of immanence as consciousness itself as forms disappear in the mental exercise of meditation.
5. The realization of our own true nature as the experience of immanence within us and how to use this to optimize our own physical, mental, and spiritual health. Realization of our true nature is covered below but how to attain and practice this in our daily lives is the subject of another book.
6. The realization of the accurate details of all the programs and forms of the world and how they interact to compute the universe of science. This is the understanding of reality provided by science. It's solving an unending series of questions about the nature of the universe and solving its basic questions such as what could be called the quantum kōan. This is the realm of all science and far beyond the scope of any one book but its fundamentals are covered in *Universal Reality* (Owen, 2016).
7. Realizing the implications of these insights for how we live our personal lives from day to day.

Using *Universal Reality* as a guide we also shed light on some core concepts from Western and Oriental philosophy and give them a consistent modern scientific interpretation. This enables some important personal approaches to realization from which basic ethical principles consistent with the overall theory can be derived.

Then with some final key insights into the deeper nature of realization the book concludes.

THE FUNDAMENTAL REALIZATION

The central experience of our existence is our consciousness in a present moment through which clock time flows and things happen. A fundamental realization of *Universal Reality* is that this is in fact our direct experience of the most fundamental process of the universe occurring within our own being. We ourselves are an integral part of the universe and the fundamental process of the universe is continually occurring within us as it does within everything in the universe, and our consciousness in the present moment is our direct experience of this process, it is our actual participation in the fundamental process of the universe as an integral part of the universe.

Our consciousness in the present moment is our direct experience of the happening of the universe that drives its continual computational evolution. We directly experience this within us because it is occurring within us as it does within everything in the universe.

This is the fundamental process that makes us alive and conscious and continually traveling forward in clock time at the speed of light (Owen, 2016). It's our direct experience of the universal processor continually recomputing our existence in the present moment. This is the fundamental process of the universe and we are right there in the middle of it experiencing it in every second of our existence in our own being because it's occurring right here within us as it does within everything in the universe.

Realizing this is the fundamental realization of our existence. The fundamental process of the universe is not something just happening far out in the depths of interstellar space. It is happening inside every one of us all the time, and all that needs to be done is to realize this and experience it for what it actually is.

REALIZATION OF TIME

The central experience of our existence is our consciousness in a persistent present moment of time within which happening occurs and clock time passes at the rate of that happening. And this is true of all observers in the universe all of whom exist within the same universal present moment in which the entire universe exists.

It is clear from relativity that clock time passes at different rates for different observers within this shared present moment. It is also clear from relativity that all observers in the universe continually travel forward in clock time at the speed of light as measured by their own clocks. And it is clear that all observers see the 4th dimension of past clock time as distance in every direction from every point in the 3-dimensional space of the universe.

All these aspects of time can be directly realized in our experience. If we turn our attention to the passage of happening and clock time through the present moment we find our consciousness of this process is indeed the fundamental experience of our existence. We just

need to realize that this experience is us and everything around us traveling at the speed of light through the 4th dimension of time even while we sit on our sofas. We are surfing the 3-dimensional surface of our expanding cosmic hypersphere at the speed of light as we ride the evolving wave of existence (Owen, 2016).

And with the assistance of science we can directly experience the fact that clock times passes at different rates in different relativistic circumstances. If we observe the half-lives of decaying particles moving at relativistic rates, the speed of our clocks on earth relative to those traveling in space, or even by directly comparing our clocks to those returning from space flights we can directly experience this. These can all be directly realized in relativistic circumstances in our daily lives. Even magnetism is our direct experience of the relativistic effects of moving electric charges.

We can also directly experience and realize the continual computational creation of the information state of the present as a process that occurs only within the happening of the present moment, thus realizing the non-existence of the future. We can also directly realize the non-existence of the past even though we observe it as distance in every direction because we are observing that and everything else in the universal present moment of all existence as its light arrives at our eyes.

Thus we can immediately realize the impossibility of time travel in the sense of traveling out of the present moment. The present moment is all that exists and where everything exists and happens. We can see down the past dimension of time only because of the finite speed of light. We are not actually observing the past, but the light trace of the past in the present moment.

The past exists only in its traces in the present moment, as memories, as apparent distance, and in all its computational contributions to the present information state of the universe. This is the realization of the nonexistence of the past.

But there a deeper realization here and that is that the current present moment information state of the universe and everything in it is actually a *recording* of the information of the past back to the beginning of time redistributed among the data of the present. The present is entirely a recording of the past. Things are not just what they are in the present but the computational result of everything they were in the past. When we look at the present we realize the living past within it because the present is a recording of the information of the past and that is all it is.

Finally there is the illusion of the duration of the present moment itself. The present moment of our experience seems to have a sliding duration of several seconds so that our minds have long enough to compare things and make sense of things. But the actual physical duration of the present moment in which the programs of the universe recompute their data is far far below the resolution of human experience. The actual duration of the present moment is even far below the time scale of elementary particle interactions.

It is only because our short term memory holds a simulated present moment open long enough for our mind to compare things and events that anything makes any sense at all. If our short-term memory didn't work this way we would not even be aware of changes as they occurred since that depends on a mental comparison of before and after states in an artificially extended present moment of consciousness. Without this illusion of time we would experience reality as inanimate objects do, completely real but completely unconscious.

This is something that can be experienced directly to some extent. If we rest with eyes closed and listen to calm music or even a single tone and progressively direct our attention closer and closer to the exact instant that it appears in and out of existence we finally cut through the illusion and experience a state of instantaneity of time, a vanishingly short duration present moment and we suddenly realize the true nature of the present moment of time. It's a vanishingly short instant, and within that nearly non-existent moment lies the entire existence of the universe and us as well. These are the essential aspects of the realization of time.

REALIZATION OF SPACE

We don't exist within the dimensional space of our experience. Though we seem to exist within the familiar 3-dimensions of our daily lives, this is a highly adaptive illusion produced by our simulation to help us make sense of the world and move around within it.

The fundamental computational space of the actual universe in which we exist is not a dimensional space at all. It's neither dark nor light, it's neither large nor small. It has no extent, location, scale, or orientation. It's pure non-dimensional existence in the computational space of the quantum vacuum. Within this space is computed all the information that our simulation convinces us is a bright dimensional

world and universe centered on us.

The dimensional space of our familiar experience is an enormously complex illusion ultimately computed at the level of elementary particle interactions whose particle component conservation generates dimensional relationships among those particles. These events in turn form vast networks of dimensional relationships that are interpreted as spacetime fragments at the classical level.

Our simulation continually stores and correlates the dimensional fragments we participate in through the particle events of our senses and from them constructs a mental model of a fixed, pre-existing, 3-dimensional space within which events seem to occur. Science then adopts the underlying logico-mathematical structure of this fixed space as the basis of its concept of spacetime. But by not understanding the whole picture of how dimensional spacetime is generated by quantum events problems of consistency arise between quantum theory and general relativity as explained in *Universal Reality* (Owen, 2016).

Thus when we look out into the apparently dimensional space of the world around us we are actually looking at an illusion in our simulation inside our own heads. Just as the world we see happening on our TV screen actually consists only of digital information, so too does the world we see with our eyes. Ultimately dimensional space doesn't exist except as data. The non-dimensional space we seem to enter in meditation as the data of our thoughts and feelings pass through our consciousness is a much more accurate picture of the true computational nature of space.

REALIZATION OF INFORMATION

We know that everything we see happening in the world around us is actually information happening in our brains. Thus there must be a way to actually experience the information nature of all the apparently physical things of the world. There is and it's very easy to do once we get the hang of it. And we then actually do experience the true immanent information nature of the seemingly physical things of the world.

Universal Reality reveals that the physical world as we experience it is an illusion produced by our mind's simulation of reality. This can be realized first by understanding it intellectually, and then by applying this

understanding to the individual things of the world and experiencing them as the information and running programs they actually are. This is a fairly straightforward process that can be applied to anything at all including ourselves.

Once we understand that the whole apparently physical world of our experience consists entirely of its information in the neural circuits of our brains it's clear it has no actual physicality at all. The only actual correspondence between external reality and our internal simulation of it is the logical correspondence that enables us to function within the external world by processing the information of its representation in our simulation. But this logical correspondence is itself information, thus there is no reason not to believe the actual external world consists entirely of information just as our internal simulation of it does. How else could it be encoded as such a convincingly real physical world if it itself didn't also consist entirely of information?

For the human mind to be able to consistently simulate the world as information in our brain, and for science to best describe the universe as logico-mathematical structures, the actual universe itself must also with near certainty be a logico-mathematical structure, a running program consisting of information only.

Therefore it can be confirmed with near certainty that everything in the universe consists only of its data, and this can also be directly confirmed and experienced by analyzing anything at all into its information content beyond which there is nothing left.

It is interesting to note the strong correspondence of this view with the ancient Indian and Buddhist concept of the 'emptiness of forms', this emptiness being the active agent of their existence (Wikipedia, Heart Sutra). Thus this core principle of ancient philosophy naturally integrates into the theory of Universal Reality in which the universe consists entirely of pure information forms given being by the active immanence of their existence.

To realize the information nature of things directly we need only to consider any thing at all and mentally deconstruct it into every last aspect of what makes it appear to be physical. It soon becomes clear that what makes things appear to be physical objects is simply collocated associations of various types of information such as color, hardness, heft and form, and if we were to discard that information piece by piece there would be nothing at all left of anything but the immanent emptiness of its existence that makes it real and actual.

Consider the stone by the side of the road. We can easily mentally deconstruct it into what makes it appear to be a physical object. Its visual color and texture are information encoded in our brains about how our eyes and visual systems perceive it. Its hardness and texture are the information of how our muscles and fingers interact with it. Its odor, if any, is the information of how our olfactory system interprets it, and the sound when we strike it is the information of how our auditory system perceives the resulting sound waves entering our ears. Discard all this information and there is nothing actually left of the stone. Thus the stone is the set of all its information and that's all it is.

This is the classical level stone as it appears in the world around us. At this level it's clearly the set of all the information of what it is combined into the semblance of a physical object in our simulation. What our simulation tells us is a physical or material object is a data structure with information of color, shape, weight, texture, and perhaps use and meaning. What we call physical things are spatially collocated sets of specific types of information. They are information sets that our simulation labels as physical things.

So it's quite clear, and quite easy to realize with a little practice, that all the stones and other inanimate objects of our experience are only collocations of specific types of information that our simulation interprets as physical objects. Their apparent physicality is simply an information label added to the information of a thing so our simulation can make better sense of our environment by categorizing information in useful ways. But all such categories are more information on top of information and finally everything in our simulation consists only of its data.

This is the realization of the true nature of the stone as we experience it in our simulation, and there is every reason to think that the true nature of the stone in the external world also consists entirely of information just as our extremely convincing mental representation does. What happens is that our program, consisting only of information itself, interacts computationally with the program of the stone, also consisting entirely of information, to generate the information of our interaction with it, and that information is then encoded in our simulation and interpreted as the physical stone of our experience.

This is the analysis at the classical level of our simulation but we could still argue that the real stone actually consists of all its elementary particles and is still a physical object in that respect. This cannot be directly realized as it's below the level of our perception but it is clear that in Universal Reality all elementary particles and particle components

are also demonstrably data. Even physics agrees that they certainly aren't physical in the usual sense of the word and are composed almost entirely of empty space and force fields.

Of course every inanimate object is actually the running program that continually generates and updates its information, though in the case of the stone the changes that program effects in the information of the stone typically occur very slowly on a human time scale. We can directly realize the programmatic nature of things by simply analyzing things into their data and watching that data computationally evolve in interaction with the other programs of its environment.

Consider a housefly. The fly is clearly a very active program that generates continual changes in the information that it is. It's a little biological robot with a robust computational system capable of highly intelligent (relative to random behavior) decision-making in accordance with the objectives of its instinctual imperatives. It samples relevant information from the information of its environment, and computes effective actions to feed, avoid damage, and reproduce. And these systems are all supported by an enormously complex integrated hierarchical program down through the subprograms of every cell in its body and the particle interactions that power them.

It is this complete information program of the fly that actually is the fly. Like the stone, its apparently physicality reduces to the computational interaction of our information with its information. But we can clearly experience the fly as an intelligent running program that generates the information our program interacts with to generate the information of our experience of the fly in our simulation.

Thus the fly, the stone and all the individual things of the world can actually be experienced as the running programs they are as experienced by our own running program computationally interacting with them. To make better sense of the data of reality our simulation represents it as the familiar physical world populated by inanimate objects and living beings all neatly filed into categories meaningful to our functioning.

But when we actually look at the world with opened eyes we see that every bit of it consists only of the information of what it is. The information of things is all we ever experience of them, and information is all that can be experienced, and when this is understood and directly realized the true nature of the world we live in is revealed. Nothing can be experienced other than information. Nothing other than information

and its immanence can possibly be experienced, thus all we experience ultimately consists only of information given reality by the immanence of its existence. And because the world can be so convincingly represented only as information in our simulation we can assume with overwhelming certainty it actually consists entirely of information.

This realization changes nothing about the world. The world remains as it always was, but now its true nature as the information of everything that it is, and the information of the running programs that are continually computing that information is realized. Now as we look out into the world and into our self it becomes clear to the realized mind that all is information only. We actually see the world as the information it is being continually computed by all the programs of the observable universe including our own. Everything that exists is the running program of itself continually recomputing its information and these are all the real things of the world because of the immanence of the existence in which they all exist and happen.

Just take the world of science as we understand it as composed of elementary particles and now accept that all elementary particles are actually just specific forms of data in a computational reality. Nothing changes. Now just expand that insight back up to the classical level of our human perception and realize that everything around us ultimately consists only of it data because all the elementary particles that make it up are in fact forms of data themselves. Again nothing has changed. The world around us is still exactly as it was, and we are still exactly as we were. But the implications follow naturally and are enormous and profound, and we now look at the world with realized eyes.

REALIZATION OF INFORMATION HISTORY

Everything is the information of what it is, and that information is the cumulative result of all the computational interactions its program has been involved in throughout its history and beyond in all the other forms it developed from. Thus the information that things are is a recording of their entire computational histories. All things are information only, and that information is the current state of their complete information history back to the beginning of the universe in the big bang. Everything in the observable universe is the complete resulting information of its entire history. Everything is its information history and that is what the information of what it is right now actually is.

This is something that can be easily realized in the information of every particular thing though the complete information history details of things are enormously complex and only partially revealed even by science.

Thus when we look at the leaf on the lawn in Autumn, we realize the true nature of the leaf is the information of what it is, but that information is much richer than its immediate appearance, because its exact location on the lawn is the result of an enormously complex interplay of information programs that computed it into reality. The exact size and aerodynamic shape of the leaf in combination with the exact breezes that brought it to this precise location, and the exact information of the chemistry that loosed it from its twig at the exact moment those breezes were blowing all interacted computationally to bring it to the exact position it lies in now.

And the moment of separation, and its shape and weight, are the computational results of millions of years of evolution of the species it belongs to which in turn are the computational results of uncountable program interactions that can never be fully known. And the DNA content of that leaf responsible for the general plan of how the tree it came from grew and developed and produced that particular leaf in the particular location it fell from are also essential components of the computations which resulted in the leaf as we see it at this moment on the lawn. And further back the acorn that fell in the exact spot from its parent tree, and the lineage of all the acorns back through the entire history of the species, all must have been computed exactly with not the slightest difference for this leaf to now lie on this lawn in this exact place and position at this very moment. And all this is present in the leaf as it lies on the lawn as the recording of all these processes in the information that it is right now.

This is the realization that everything consists only of its entire computational history back to the beginning of time to the original fine-tuning that enabled and constrained the possibilities of every individual thing in the observable universe as it actually exists right now. The current information state of everything in the observable universe determines the exact uncountable information states of every universal instant of the entire computational edifice of the past that computed the present.

Every computation of every program in the observable universe throughout its entire history is revealed in the exact information state of the entire universe in this exact present moment. It is all there waiting to

be realized though most of it is far beyond our understanding. But everything that is there, every last bit of its information, is the true recording of past events and lies waiting to be realized.

This is a realization we can apply to anything and everything in the world around us and to everything in the entire universe including our selves. Though we can never know anywhere near all the details of all the computations that took place among all the programs in the history of the universe, they are all recorded right here right now in the exact details of the information of things as they actually are. This is a profound realization that can completely open us to the incredible awesome beauty and meaningfulness of our universe. And we can look at anything without exception and realize it from this perspective in the information that it is right now in the present moment.

And with this realization we also realize the entire observable universe as it exists right now in this exact present moment down to its finest possible detail means that the entire past in every last detail through every moment of time had to have been exactly as it was without the slightest possibility of any difference whatsoever. Thus the original complete fine-tuning and every other minute detail of every microsecond of the entire past of the entire observable universe could not have been different in the slightest possible detail than it was. The past is exact and immutable, the future is probabilistic and the present is the process that computes an exact past from the possibilities of the future.

REALIZATION OF IMMANENCE

All religions have their mystical traditions and in modern times many spiritual traditions have developed outside of strict religious contexts. Our new theory of reality leads seamlessly to a scientific theory of realization and explanation of these spiritual and mystical traditions.

The essence of realization and all mystical experiences is simply the recognition of the presence of immanence in things. While immanence exists in all things its association with particular symbols in the context of a belief system most often leads to its recognition in only specific forms associated with that belief system such as the presence of gods or saints even when these are mental constructs that have little correspondence with objective reality. This is the source of the traditional meaning of immanence as the presence of the divine in things.

The philosophers of the ancient Indian and Buddhist traditions especially seem to have recognized the theory of immanent information forms long ago through a process of direct analysis of consciousness from the inside (Tsunemitsu, 1962). The notion of the emptiness of all forms revealing the underlying presence of Śūnyatā or nothingness (mu) is clearly describing the same thing we are talking about in a prescientific context (Wikipedia, Śūnyatā) (Suzuki, 1956).

And certainly the Indian and Buddhist concept of enlightenment is describing a state where the immanence of existence is directly experienced both in forms and in the underlying formlessness they arise within and as the essence of our own being and consciousness (Wu, 2005).

The use of psychedelic drugs may also enhance the recognition and experience of immanence. In particular LSD, mescaline and psilocybin have this effect where the common things of the world take on an enhanced reality, which is essentially the recognition of the immanence they always have but which is rarely recognized and appreciated in daily life.

However our theory defines realization as simply the understanding and direct experience of the true nature of reality without any supernatural or religious connotations. In other words realization is simply the understanding and direct experience of the immanence of existence in all things without exception.

Thus it's clear that the consciousness of immanence can be enhanced in realization experiences. In fact since all things are absolutely what they are and absolutely real because of the immanence of their existence the only limit to the experience of immanence is in the capacity of the experiencer.

Normally in daily life the experience of immanence is damped down significantly by mind to enable us to concentrate on the functional details of our daily lives. Thus our consciousness is concentrated on the specific details of the contents of consciousness rather than their underlying immanence. However in extreme situations such as sudden threats or extreme sports we do experience a brightening or heightening of consciousness though this is most often accompanied by surges of adrenaline fight or flight responses which can't be maintained.

However the brightening of immanence with realization is an enhancement of consciousness without the adrenaline rush and can theoretically be maintained indefinitely. In realization experiences it's normally the distraction of the constant flow of mundane forms through mind that breaks the spell and brings mind back to its usual duller state.

The medium of existence is already being experienced by all of us all the time as the immanent reality of all the things of the world. If the information of things didn't exist in the medium of existence things simply wouldn't exist and would have neither being nor observability. Therefore the realization of existence is already with us in our experience of the actuality of the universe and all the things that populate it. It's just a matter of waking up and realizing what it really is.

We experience the immanence of existence all the time but we are not aware of what we are actually experiencing because we tend to take things for granted without realizing the true immanent nature of their existence. Only things that have existence can be experienced. Thus we never have any non-existence to compare the presence of existence with to make the immanence of existence really pop into consciousness. Yet all the while it's precisely the immanence of things that manifests as our consciousness of them.

Immanence is in one respect a simple realization. It's the simple fact that things are actually there in the here and now of the present moment. But its complete realization is subtle. Traditional science and materialistic philosophy speak of existent things but ignore the problem of what their existence really is. Universal Reality answers that the existence of things is the fact that their information forms are forms *of* existence that exist *in* an otherwise formless sea of existence. This medium of existence is the single substrate of the universe, which is what the universe actually is. Everything in the universe is a form *of* existence *within* the universal medium of existence that is the universe.

This realization is central to Universal Reality. In Universal Reality the quantum vacuum is identified as the universal sea of existence within which the observable universe of programs runs computing their data. Data appears as forms in the quantum vacuum as water waves appear as forms within an otherwise formless ocean. The information forms and programs of the universe can exist only within the quantum vacuum of existence because that is the common 'substance' of all things. It's the only locus of existence and the single substrate or medium in which the forms of things can appear and exist.

As the possible forms of water waves are determined by the nature of water, so the possible information forms of the universe are determined by the intrinsic nature of the quantum vacuum which is the virtual complete fine-tuning of the universal medium of existence in which the programs of the universe run (Owen, 2016).

Thus the fundamental realization is the experience of the immanence of existence, both the immanence of the presence of the formless universal sea of existence within which all forms exist, and the immanence of existence manifesting in every individual form. Every form, no matter how mundane, continuously manifests the immanence of its existence that makes its information real and present in the present moment. No longer is the universe a dark dead empty physical space, but a living happening presence that actively self-manifests its existence in all the information forms of the world including ourselves. And the inner light of the immanence of existence of all things manifests as our consciousness of them.

The living presence of existence continuously glows and flows with the immanence of its being within all things giving them their actual presence, life, and happening. We too exist entirely within this living sea of existence, which gives us our life, our presence in reality, and all the wonderful manifestations of the running program that we are, and which we directly experience as our true inner self if we only stop and realize it.

So the direct experience of this living immanence of existence in all things is central to realization. When immanence is truly realized it's an amazing transformative experience. The world we exist within remains exactly the same as it was before but the eyes we see it with have forever changed. We become our running information program floating in the immanent sea of existence, and we experience the living existence of the universe glowing and flowing around us and within us giving life and being to the information of ourselves and manifesting as our consciousness of the amazing world we live in.

The presence of a universal sea of existence within which all information forms and programs exist and acquire their reality is completely different from the traditional materialistic view of the universe. In the old materialistic view the universe is completely empty between instances of particulate matter. Only with the discovery of the quantum vacuum has this old view begun to change and the fact that the vacuum itself is not an empty nothingness but the source of all existence begun to be recognized.

The realization of immanence tends to arise naturally with the realization of things as their information. When things are fully recognized as only their information then the immanence of that information naturally shines forth. Imagine all the information of a thing vanishing and experience all that remains. All that is left is the immanent existence that made that information the real thing it's the information of.

The immanence of the existence of all things now begins to become clear. Suddenly we realize that if all the information of the world suddenly vanished what remains is the formless sea of existence itself in which that information appeared and became real, actual and present. That real, present, and actual absoluteness of formless existence is always there within all information forms including our selves. It's the formless sea of existence in which all things exist and we directly experience it in all the things of the world as the consciousness of those things. This is the fundamental experience of reality and this is its realization.

The concepts of Tao and Śūnyatā were ancient approaches to this realization (Legge, 2010). These were both names for the original formless substrate of reality in which all forms appeared, and the 'emptiness' of all the forms that appeared was an ancient philosophical concept that recognized their non-physical information nature. Thus Universal Reality seamlessly integrates these ancient philosophical concepts into its modern Theory of Everything and gives them a rational scientific basis.

There are differences of course. Taoism proposes an initial separation of the formless Tao into the fundamental forms of positive and negative or male and female, and all other forms arise from combinations of these two, as outlined for example in the hexagrams of the 'I Ching' (Wilhelm, 1962). In contrast in Universal Reality, the fundamental forms that arise from the formless quantum vacuum are those of the particle components, and the rules that govern them, and all the other aspects of the complete fine-tuning. However the initial concept of formlessness from which all forms arise is very similar.

There are various techniques of meditation, and direct insight, which enable the realization of the pure *formless immanence* of existence. Through the mental exercise of meditation one greatly reduces the appearance of forms in consciousness and more easily realizes the underlying field of immanence in which forms appear that remains as the field of pure consciousness itself. The experience of formless immanence as pure formless consciousness is essential for realization, but forms must be dealt with in daily life so it's also essential to realize the immanence

manifested by forms in their individual existence. The realization of the immanence of both forms and formlessness is essential to the full realization of the immanence of existence and its experience as consciousness itself (Suzuki, 1956).

Existence, the quantum vacuum, is the universe itself and is the fundamental reality. It's the absolute formless substrate of being within which all the information programs and forms of the universe appear and become real, actual and present. And it's the dynamic, living happening in which all the information programs of the universe compute and evolve according to the innate fine-tuning rules of the quantum vacuum of existence.

Every one of us experiences this at every moment of our lives as our own reality, life, actions, and consciousness. It's simply a matter of realizing what we are already experiencing. We are not material objects *in* a physical universe, we are integral aspects *of* a universe of immanent existence and the fundamental processes of this universe are active within us in every moment and *are* our very existence. The universe continually computes the forms of our existence in the universal sea of immanent existence.

REALIZATION OF CONSCIOUSNESS

Consciousness itself is simply the immanent presence of reality itself. It's the here now living presence of the immanence of existence that radiates within the forms of all actual things. The essential component of human consciousness is common to the existence of everything in the universe. Human consciousness is simply the presence of immanent reality within the running program of our simulation of ourselves within the world.

Once the immanence of existence in all things is realized, the true nature of consciousness becomes clear. Consciousness is not something generated in our brains and shown out onto the things of the world like a spotlight, it's the immanent self-manifesting existence of those things into reality, or more precisely the immanent self-manifesting existence of our internal simulations of those things in the process of being actively focused on by a specialized subroutine in the simulation.

The information forms of our simulation of reality, like all forms

in the universe, manifest the immanence of existence. It's the immanence of special forms encoding the fact we are experiencing forms representing other forms that we experience as consciousness. All the forms of our brain's simulation of reality manifest the immanence of their reality, but that reality remains unconscious until the special forms of the focus of consciousness encode the fact those forms are being actively experienced. It's the immanence of these recursive forms that manifests as consciousness.

Forms only manifest their immanence through their actual forms. Thus for immanence to manifest as conscious experience its form must encode an *experience* of a thing rather than just a thing itself. It must encode the information of a particular form being focused on in the simulation.

This top-level brain function is what is normally called consciousness, but all the forms of the simulation share the essential ingredient of consciousness because all forms share the immanence of existence. It's just that this immanence is only recognized in a reportable form by other forms specific to that purpose. Thus everything in the universe shares immanence, which is the essence of consciousness, but only specifically designed forms that monitor other forms being experienced are able to report the presence of those forms as the consciousness of them. This is the realization of the consciousness of humans and other species.

The contents of our consciousness are a mixture of forms of the external world and of our interactions with it. Ultimately we have no direct experiences of the individual things of the external world but only of our internal simulations of them. However to the extent our internal representations are consistent with the logic of the actual world we have direct knowledge, though not experience, of the external world. And of course the immanence of the forms of our simulation is the same immanence of all the external information forms of the universe. This explains why our simulations of things seem like real things, they seem like real things because they share the immanence of real things that makes them real.

So our consciousness of things is actually our consciousness of our brain's representations of them. Our consciousness of a fox is the immanence of a relatively very concise representation whereas the immanence of the information of the actual fox is the actual living fox and consists of the complete information of its entire actual running program down to the cellular and elementary particle level details. So we

are always conscious of our encoded experiences and thoughts of external things rather than the entirety of the things themselves.

For the true nature of consciousness to be realized a clear distinction must be made between *consciousness itself* and the *contents of consciousness*. The fact of consciousness itself is due entirely to the self-manifesting immanent presence of all information forms and is thus a basic attribute of reality itself. It's generated by the immanent existence of things rather than something being produced by human brains. The only aspect of consciousness unique to human and other brains is the presence of specialized focus of attention forms within which the immanence common to all forms manifests as consciousness.

The essential active ingredient of consciousness exists in everything in the universe in the immanence of its existence that gives it reality. But for immanence to manifest as consciousness in a biological entity, that being must have the necessary cognitive structures to register immanence as immanence, to register it as consciousness. The specific forms of the contents of consciousness depend on the perceptual and cognitive structures of the biological entity but the fact of consciousness itself, that those contents are conscious, is due to their immanence.

Consciousness in the simulation is exactly analogous to existence in the external world. The immanence of existence makes things actually real in the real actual world. Likewise the immanence of existence makes things conscious in the simulation. The immanence of existence makes the specific forms in which it manifests real things in the world. The forms of the things in the world given existence become the real things of the world. The forms of representations of things in the simulation given existence makes them real representations of things in the simulation. The forms of *experiences* of representations of things in the simulation given existence makes them the real conscious experiences of those represented things. The exact same immanent existence is at work making all forms the actual real things they are the information forms of, be that the forms of things, representations of things, or the forms of experiences of representations of things. The immanent reality of the forms of experiences of representations of things is the conscious experience of those representations.

When information forms appear within the immanent existence of the external world they become the real things of the world. When information forms appear within the immanent existence of our simulation they become our consciousness of our mind's representations of the things of the world. It's exactly the same fundamental process of

the universe working both inside and outside our brains. It's our mind's participation in the fundamental process of the immanent existence of the entire universe.

Thus the realization of the true nature of consciousness is that consciousness itself is the immanent existence of the forms of things that makes them real and actual in the observable universe at work in the forms of our focus of attention in our simulation. Consciousness itself is the immanence of existence. It's the continual happening of the immanent existence of the universe manifesting within us as it manifests in all things.

REALIZATION OF TRUE NATURE

In the last analysis all that can actually be demonstrably confirmed to exist is experience itself. Ultimately the existence of every last thing in the world can be confirmed only through an experience of it. Thus all the things of the world including even the theory of relativity or Universal Reality can be known only through experiences of them.

Of course it's quite reasonable to assume an objective model of reality in which things exist even when they are aren't being experienced or even if they've never been experienced but ultimately all such models themselves exist only as their subjective experiences. So in the end everything that manifests existence does so as experience.

We assume that all experienced experience is 'our' experience but there are fundamental problems with this because experience is primal and fundamental and happens antecedent to the construction of a self and not self in the simulation. Experience happens and only then is its information categorized and those categorizations in turn experienced.

Thus experience just is, and the contents of experiences are then organized, categorized and stored in the simulation including the apparent distinction between experiences of ourselves and of other things. However every aspect of that entire process also consists entirely of the successive experiences of it.

Thus only experience itself, no matter what its content, is primal, original and fundamental. Experience is all that ever demonstrably

occurs. We can assume that other beings exist that are also having experiences but those experiences never exist in ‘our’ experience and can never be directly confirmed.

Since all that is ever experienced is experience itself, no matter what its content, the true direct nature of reality must be experience itself. We can call the experience that occurs ‘our’ experience but we must be careful to understand what this really means because all experience is prior to the distinction of self and not self.

Thus ultimately there is only direct experience and nothing demonstrably exists except the experience of it. Every model of reality that seems to exist independent of its experience actually exists only as the experiences of that model.

Thus experience itself is the true fundamental immediate nature of reality because it’s all that demonstrably happens. Thus we can say that ‘our’ true nature is experience itself but to do so we must first assume an object self that has a subjective nature that has the experiences ‘we’ experience but the nature of experiences is they are antecedent to any categorization into the experienced or an experienter.

Thus the best we can say is that all that demonstrably exists is experience itself, the experiences of various information forms. We can certainly meaningfully categorize experiences into self and not self, and experienter and experienced but ultimately all such categorizations are themselves experiences and there is nothing that appears in reality that does not appear as an experience. Thus we can reasonably say that the true nature of reality is experience and ‘our’ true self consists entirely of experience but these concepts also exist only as their experience.

Ultimately experiences occur and their information content is categorized into our simulations of reality but every bit of this whole process is knowable only as its experience.

We can generalize this from ‘our own’ experience and extend it to the entire universe as the concept of *xperience*. In this model all processes are programs that continually recompute their information and the recomputation of any information form is an *xperience* of that form, or more accurate just an experience that is then associated with that form as the form content of another experience. Thus all the processes of the observable universe are effectively generic observers and the universe consists entirely of the *xperience* of generic observers. In this way the

universe continually xperiences itself into existence and the observer becomes an essential aspect of reality itself.

Thus xperience is the inverse view of immanence. Immanence is the self-manifestation of being within all forms from an external perspective, and xperience is the self-manifestation of existence from an internal perspective.

Thus everything in the observable universe manifests the essential active ingredient of consciousness and it only requires specialized recursive forms encoding that an experience is occurring in a simulation to manifest as consciousness of that experience.

Thus loosely speaking we can say 'our' true nature consists of the totality of the experience 'we' experience and more accurately that 'our' true nature consists of all the experience that's experienced. But actual experience itself is fundamental because it exists prior to any notion of an experiencer or anything experienced. These are subsequent categorizations of experience itself, and even those categorizations exist only as their experiences.

This is the realization of true nature as experience only so our true subjective self is not our physical body or even our running program but just pure experience itself prior to any subsequent categorization or analysis. Everything in the observable universe exists only as experiences of it. Thus 'our' true nature consists entirely of raw primal experience as it occurs in the present moment.

Thus existence exists only as xperience, including the conscious experiences 'we' experience. The universe xperiences itself into existence and otherwise could not be said to exist. Xperience is simply the happening of existence. The continual happening recomputation of all forms in the universe is xperience and all forms are generic observers in this sense. Thus the universe can be said to consist of generic observers that xperience it into continuing existence. From this perspective the universe consists entirely of xperience, of the xperience of itself that gives it its happening existence and reality in the present moment it manifests by its presence.

Ultimately only experiences can be experienced. Direct experience is ultimately all that exists. At the most fundamental and immediate level all that exists is experience. Only in the subsequent categorization of the information of raw sensory experiences does our simulation tell us that

there is a self that ‘has’ these experiences.

But even all these subsequent organized information structures of our simulation, from the simplest to the most complex Theory of Everything, again exist only in terms of their experiences, the *experiences* of those information structures. So ultimately, everything reduces to the experience of what it is which is the immanent manifestation of the here now existence of its information form. Ultimately all that exists is information forms that appear and disappear, and their existence manifests as experience.

Thus all the information forms of the universe exist only as ‘their’ experiences, as the pure experience of what they are. All information forms experience the other information forms with which they have computational contact in the resulting recomputations to their own forms. Even beings that have simulations experience other information forms in changes to their own information forms. Thus multiple observers experience other information forms but all as changes to their own information forms which are effectively ‘their’ experiences of aspects of their own information forms. In this way the universe consists of experience only, and experience is the manifestation of the happening of existence.

Though this realization is not the typical state of organismic consciousness it’s the natural state of inanimate unconscious programs which always exist as pure raw experience itself devoid of any context or categorization or assignment to an individual self or any categorization at all. Forms always exist only as the information of what they are, and only forms of consciousness include the context of an experience as an experience.

To a conscious mind, consciousness and the experiences that happen within it fill the entire domain of reality. Thus consciousness and reality are one and conscious experience is the true self. To the experienced forms of consciousness all is consciousness only because all is experience only. To the opened mind consciousness and reality are one and the same and always awesomely real, present and absolute.

But this analysis assume that we are our conscious self when we can more reasonably considered our entire running program down through the cellular and even particle level. However these levels of experience are not reportable and are difficult to speak of subjectively.

This is the realization of ‘our’ true nature, which is not really ours, and by extension the true nature of the observable universe. Everything without exception is immanent experience. Some of this is the subsequent immanent experience of categorizations of the original raw immanent sensory experience.

Thus our true nature, a better term than true self, consists only of all the experience that appears in existence before it fades from existence. And whatever form the experience that becomes into existence takes, that’s ‘our’ true nature in the present moment. Our true nature is all the experience that appears within existence in the present moment. Our true nature is that of the universe itself, the immanent experience of existence.

Our course we can logically assume that other observers exist (we experience them existing) and that they also experience experiences we do not, but ultimately this assumption is also another experience. Thus we can logically assume that the universe contains a vast number of experiences that ‘we’ are not experiencing but other beings are, but ‘we’ have no direct experience of this.

Thus our ‘true self’ can be identified with the local domain of actual experiences. At the fundamental level ‘we’ are the totality of experience in the present moment. This includes all experience whatsoever whatever its information content. Experience is the only possible manifestation of our existence; therefore it is our true nature. And by extension our true nature also includes the unconscious experiences of all the innumerable forms that compose our biological being, but this is an assumption that again exists only as a conscious experience. Thus there is a valid sense in which all is consciousness only for us to be able to speak of it because in contrast with the experience of other aspects of the universe we can speak subjectively only in terms of conscious experience.

At the fundamental level of experience there is no individual self that experiences self and not-self forms, there is no dualism between experiencer and experienced, there is only raw experience itself. Our individual self is an adaptive but illusory subsequent categorization of experience in our simulation of reality. At the immediate primal level of existence there is only experience itself.

Thus if we want a notion of a ‘true self’ it actually consists of the abandonment of any notion of personal self whatsoever, and consists only of all experience without exception, and nothing other than all experience. This is the mind of Buddha existing as pure experience in a

formless world through which forms pass as experience manifesting the immanence of existence (Suzuki, 1956).

This realization is what the Diamond Sutra calls ‘Awakening the mind while dwelling nowhere’ (Suzuki, 1956). There is no individual locus to consciousness because consciousness simultaneously pervades the entirety of the reality of all experience rather than being located in any particular individual forms. Instead there is a total mental openness to everything as forms flow freely through consciousness and existence itself as experience. Outside this there is not even nothing.

In this state all forms exist as pure raw uncategorized experience, antecedent to any notion of self or not-self or anything at all. They are just pure raw forms of experience with no immediate meaning or reference because they are not being categorized and structured in the simulation. They are exactly and only the information of their selves as opposed to being interpreted or related to anything else at all. And if they are interpreted and related those information forms are again only the experiences of that information. All is experience only, no matter what the information content of that experience.

There is no self-center to being with this realization because being pervades all experience and all existence. There is no center to being because this is an experience antecedent to the imposition of dimensionality and thus without dimension (Wilhelm, 1931). This is the raw manifestation of the immanence of existence as it happens in the present moment.

So just experience raw primal experience as conscious experience itself and ignore its information content concentrating only on the experience. Then discard the you experiencing it and just leave the pure unmediated experience and that is the experience and realization of the true nature of reality and of ‘self’. It’s the direct experience of the immanence of existence itself that’s the living essence of all that exists. And all that exists manifests as its experience.

So to realize ‘your’ true nature just include all pure uncategorized conscious experience as it occurs in the present moment and then subtract the ‘you’ and any notion of experiencer and experienced and any notion of self or not self and any notion of any other experience being experienced by other experiencers from it and that raw pure unmediated experience is true nature. All else is categorizations of raw primal experience, and all that also ultimately exists only as its raw primal uncategorized experience.

So finally we conclude that experience itself as it occurs is true nature. This is consistent with the idea that all we ever experience of reality is our simulation of it and every last bit of it occurs within our own being. Nevertheless it is reasonable to assume there is a reality outside our simulation that can be realized through our simulation of it.

REALIZATION OF CHI & ENERGY BODY

It's easy to experience the current feeling we associate with each individual part of our body from the inside. We feel our arms, feet, hands, and other parts of our body as the internal feelings of them. This is more easily accomplished lying peacefully and still with eyes closed but can be done in any situation with a little practice.

Now combine the feelings of all parts of the body so it can be experienced as a single *energy body*, which is simply the feeling of one's entire body from the inside. This energy body is a simple straightforward experience we all have all the time if we just pay attention to it. There is nothing at all esoteric or metaphysical to it or implied.

Though we are often aware of the feelings in individual parts of our bodies in our daily lives, for some strange reason Westerners in particular are resistant to making the leap to experience the total internal feeling of our whole bodies as a single energy body. But that is exactly what our own direct experience of our bodies actually is. The feelings within the energy body are simply the experience of the active immanence of existence within us.

It's useful to have a term for the active immanence of existence within us and we may reasonably identify this with the oriental concept of 'chi' if we are careful not to include any of the many irrational and exaggerated claims often associated with it. In this usage chi is simply our active life force, and that of all beings, the immanence of their existences, and every one of us experiences it all the time as the energy of the internal feelings of our bodies.

Chi is simply a useful term for existence when it occurs within a biological organism such as our selves. Chi is the same immanent existence that makes all things in the universe actively real and actual. We just feel it directly in our own selves as a particular thing and thus

call it chi.

While it is easily demonstrated that our *experience* of the flows of chi within the body are subject to some control by mind, breath and movement, one needs to take all the many claims about chi with a big grain of salt and always subject to experimental confirmation. However there is quite a bit of evidence that one can improve one's general health by freeing up the flow of chi and by changing the tone of chi to feelings of love and well being flooding one's being rather than hostility, anger, hate, resentment, depression or stress.

However such benefits are limited because all processes have their own chi, not just our own. All things including bacteria, viruses, and attackers intent on harm, dangerous natural forces as well, all have their own chi energies, and so one's own chi is never a magically effective force against all harm. One needs to deal with the real actual energies of all processes and avoid or redirect them as best one can rather than assuming that just by strengthening one's own chi one can always prevail.

In a larger sense, all the experiences our simulations categorize as *of* external objects, our sensations, conceptions, thoughts and feelings about things, are in fact part of 'our' self, because every one of them occurs 'within' our body. Thus true self consists not of a mind within a body, as our simulation represents us, but of the totality of experienced experience including the experience of not-self things.

In this sense our minds are coterminous with the totality of our experienced universe. When we look out into what appears to be an external universe, we are actually looking into the depths of our own minds and experiencing ourselves in our experience of the external world. Reality is a two-sided mirror and 'we' are on both sides experiencing ourselves in our experiences of all the other things of the universe.

This is the realization of the retinal sky. The sky we see, and everything under it, is actually our internal representation of the information of an external sky as sampled by our retinas and constructed by our minds. There is more of us in our experience of the external world than there is of the external world itself. True self consists of all experience without exception.

Experience is not static; it's the computed results of the running program that we are continually evolving in the present moment as happening occurs. The realization of true self is the understanding and

direct recognition of ourselves as the experiences continually generated by this running program. Though information only, it's the immanent existence of this information that makes our lives so wonderfully rich and filled with sensations, feelings, meanings and memories. Nothing changes with this realization, everything remains as it was; we just now have a much deeper and richer realization of what the reality of true self always was.

In any case the energy body is our true direct experience of 'our' selves. It includes all the internal feelings of our existence including the internal feelings of all parts of our body as a single body, and it also includes all our thoughts, feelings, and meaning feelings as an integrated part of that energy body. From this perspective 'we' are the total unified body of our internal feelings much more than we are the mental construct of our physical body.

And it's important to note the energy body is not completely continuous with how our mind represents the boundaries of our physical body. All our feelings and perceptions of the 'external' world are in fact part of our own energy bodies. The touch of something our mind tells us is external is actually a feeling in our own energy body, and likewise our entire view of the external world is in fact actually within the energy body.

Thus what our mind tells us is our 'physical' body is actually a mental construct that mind then locates approximately contiguously with our energy body based on the relative locations of how the various parts of our energy body feel.

As an aside, this easily explains how 'out of body' experiences occur. We simply have to understand that our simulation usually locates 'us' in the same dimensional location of its model of our physical body, but since our mind does that arbitrarily as a matter of adaptive convenience, it's then easy to understand that in times of extreme immediate threat mind can just as easily relocate our selves out of our bodies in an attempt to lessen potential trauma.

DEFINING GOD

Having discussed realization from a more objective viewpoint we now consider how some concepts of personal myth may aid in

realization. Personal myths can assist in a more personal relationship with reality, and they can be quite useful so long as they are understood as myth rather than objective truth.

In Universal Reality there is no necessity of a God. The universe works quite well on its own, and certainly needs no external supernatural agency to design or run it, nor a creator since it has 'always' existed. However the notion of God has a very wide traditional appeal and for those in the monotheistic tradition there is a simple and quite reasonable and scientific way to integrate God into the theory if desired.

All that needs to be done is identify God with existence, with the universe itself, or at least the motive force of the happening of the universe. We then have a God which creates the universe of forms, is the source of the laws governing the evolution of those forms, and which sustains, directs and generates its evolution. This God is also the immanent living essence of all things that gives them being. There are obvious similarities to the gnostic and mystical traditions of the Abrahamic religions (Wikipedia, Gnosticism) (Wikipedia, Mysticism).

By this definition God even maintains the traditional attributes of divinity. God is certainly omnipotent as the happening of existence is the source of everything that happens. It is omnipresent as it's present in every detail of the entire universe, and in a sense it's omniscient as knowledge consists of information, and this God of the quantum vacuum is the source of all information, in fact since it consists entirely of information, the universe can be thought of as the knowledge of itself, the knowing of itself, as the running program of the mind of God.

And if anything is divine and miraculous, it is certainly the universe itself and the immanent existence that animates it. The universe itself is certainly the proper subject of our awe and reverence and devotion. And the existence of the universe as it is including our own personal existence is certainly the ultimate miracle.

It seems to me that if we want a God, reality itself is the only reasonable and scientifically acceptable definition of God. It also has several very important and obvious advantages. First there can be no doubt that God exists since it's self evident that reality exists. And second the attributes of God then become merely a matter of scientific discovery. Third, this definition of God is non-sectarian and non-divisive, and should be equally acceptable to anyone with an open science oriented mind.

Most of the interminable and often violent arguments over whether or not God exists, and if 'he' exists what 'his' nature is are immediately resolved using this definition, and the way forward is clear to determine the rest through the application of logic and scientific method.

However it's critically important not to bring along the huge burden of non-scientific mythology that clutters the Abrahamic traditions. These are a mix of ancient historically based tales with perhaps the best, or at least the most convenient theories of reality the pre-scientific authors could come up with and should be appreciated from that perspective, but believing in them as a matter of faith in this day and age is delusional and dangerous.

Therefore, though it's not a necessary part of the theory, the identification of God with existence itself can lead naturally to a more personal and spiritual relationship with reality and thus aid in our appreciation of the awesome wonder of reality. We may obtain a more personal relationship with the universe by identifying God with existence or the universe. From this perspective God is reality itself and the active happening that animates all things and gives them existence according to their forms.

From this perspective we realize our own true nature as that of God. If God is the immanence of existence then God lives and breathes within us all and only waits for our realization of its presence to appear. And God's divinity is our own true nature as well so that one can now truly say that God dwells within us, that we are God.

By this definition God personally manifests within all of us as life and consciousness and is the true self of all personal beings. By this definition we, and all things, participate in and manifest the immanent divinity of reality.

Defining God as the universe is just a way of conceptualizing and relating to reality in a more personal manner. As such it can be a useful form of personal myth. Personal myths can be useful aids and comforts and are not inconsistent with reality so long as they are realized as myth and not confused with objective reality. Only when they are mistaken for reality do they become delusional and hamper realization. Otherwise, recognized as myth, they can be perfectly consistent with reality and even aid in its realization.

From this perspective God, being the existence within all things, looks at us through every eye and looks out of our eyes at the world as

well. And God sees itself looking back at itself looking at itself in recognition of itself. In this way God recognizes and knows itself and the reality of the universe and we and all organisms become the sense and knowledge organs of God that allow God the universe to experience and know itself. We realize ourselves as the consciousness of God within us as God is the active living essence of all things including ourselves.

This is true not just of looking and seeing but of the experiences of all our senses and our consciousness as well. All the organisms in the universe are the means through which the universe as God manifesting in those individual forms becomes able to experience and know itself and thus begins to become more self-aware. We, and all beings, are the individual distributed sense organs and minds of God through which God knows and experiences itself and the universe gains self-awareness.

Properly understood there is nothing supernatural about this realization. God as the active existence of the universe exists in every form but is only expressed through the actual form of that form. God sees only out of forms with eyes and cannot see out of forms without eyes but since all forms experience other forms in their interactions with them, God experiences through all forms and is experience itself, but only in whatever form that experience happens in. This is entirely consistent with Universal Reality if we define God as the existence of the universe.

Because experience is the self-manifestation of reality, God can be said to create and self-manifest itself as the experiences of all things. This is the universe experiencing, and in some forms knowing itself, and this is how God manifests and knows itself and becomes self-aware.

Thus the universe and God is its own self-awareness of itself self-manifesting as experience. In a fundamental sense it is not even clear we can meaningfully speak of the existence of a world of information forms absent its experience of itself because there is no way to confirm its existence or structure if it doesn't self-manifest and observe itself.

Thus reality is reality experiencing itself. And all of us and all organisms and all things and forms are part of this process of the self-realization of the universe and thus the self-realization of God as experience.

This notion of God has both a non-personal ubiquitous aspect and innumerable personal manifestations as the immanence of all individual things and personal beings. We may sense the presence of God in the meadow but God remains unseen and formless other than in the actual

forms in the meadow that God is actually manifesting as. We may realize the presence of God in the form of every being and thing but God is always limited by the forms within which it manifests. God's presence is felt in everything around us as the immanence of existence, but God never appears except as it manifests in the actual forms of the world as the immanence of their existence.

We may long for God to appear as a personal caring and protective being in full divinity with supernatural attributes but this never occurs because God manifests only in actual forms and all actual forms are natural and obey natural law. But we can take comfort that the actual reality of this universal God is enormously more profound than any traditional supernatural being.

This is an entirely rational view of God insofar as it goes but one must always be wary of the danger of imputing any of the traditional delusional supernatural characteristics of the Gods of traditional religions to this God. This God is more akin to the rational scientific God of Einstein, and is simply another name for the immanent self-manifestation of existence in which the universe of information forms arises (Wikipedia, Religious views of Albert Einstein).

The complete fine-tuning of the universe is such as to allow realization of its true nature that it may itself realize its true nature and divinity through us. And that's equally true of all of us and of all life forms that exist or have existed to the limit of the capabilities of their forms. We are all bound together in the web of universal experience and consciousness through which the universe knows itself. May that be an enlightened and compassionate experience!

The direct experience of reality itself as consciousness itself is the living presence of this God in a non-personalized form. It is waking into a world where the presence of God is tangible as immanence but being formless remains unseen. But then some person or even some animal opens its eyes and looks at you and God suddenly manifests in that personal form looking out through those eyes. And all the while you were looking in vain for God with your own eyes it was actually God that was looking through your eyes searching for itself! God manifests in both personal and impersonal form because there is nothing that is not God, defined as reality, and there are both personal and non-personal forms in the world.

Thus God is the totality of all forms including all of us simultaneously acting as its innumerable sense organs and

consciousnesses and the combined experiences of all things of itself. It's all its forms experiencing itself and thus continuously self-manifesting its immanent formless nature to itself in the present moment of its presence.

In this way Universal Reality explains the gnostic and mystical experiences of the Christian tradition as the direct immediate experience of the immanence of the divine nature of the existence of all things (Wikipedia, Gnosticism). For the Christian mystics this often manifested as the direct experiences of the immanence of existence especially in their Christian symbols but for saints like St. Francis of Assisi he seems to have tuned in to the immanence of animals as well. Thus the gnostic and mystical traditions are based in the fundamental nature of reality even though their individual symbolism and interpretations are most often delusional (Wikipedia, Mysticism).

In this view the universe and everything in it is the living presence of God. There is nothing that isn't God. Every part of the universe is part of the miracle of God's existence and science is the study of God, of the miraculous nature of God, of the miracle of God's existence, which is the existence of the universe.

Sitting inside the quantum vacuum as it computes the observable universe within it, here if anywhere we glimpse the mind of God at work creating the universe on the fly in effect continually thinking it into existence. Here is the mind of the universe imagining the world into living existence in all its awesome beauty and majesty, in all the wonderful divinity of its immanent reality.

We all interact with God all the time in our every action. God speaks to us in every event but we understand only a little of what God is telling us. Studying the workings of God the universe is a proper form of prayer. Look to the universe itself for knowledge of the workings of the divine.

BUDDHA NATURE

There is also a natural way to integrate a core concept of Buddhist tradition into Universal Reality as well. The concept of Buddha-nature can be easily identified with the immanence of existence, the universal common active ingredient of all things. But again the usual overlay of religious dogma and superstition that runs through many Buddhist sects

must be carefully excluded.

Buddha-nature is a concept from Buddhist philosophy that often draws scorn among Western thinkers, and often for legitimate reasons due to its many unscientific and illogical interpretations (Wikipedia, Buddha-nature). But again when defined rationally in terms of established concepts, Buddha-nature can be a useful aid in understanding and promoting realization because it enables a more personal perspective on abstract concepts such as existence and the quantum vacuum.

In our usage Buddha-nature is simply another name for chi or existence from a more personal and individual perspective suggesting the possibility of personal realization. Thus the realization of Buddha-nature is another term for the realization of the true nature of things including one's self.

Though most Buddhist schools use a more restrictive definition, limiting Buddha-nature to sentient beings only, in our definition all things have chi or Buddha-nature because all things are forms that have immanent existence. This definition enables a simpler and more consistent view of reality, as it's just another perspective on what has already been established.

From this perspective realization can be considered the direct awareness or experience of the Buddha-nature of all things as the true fundamental actuality that fills the emptiness of their forms with the reality of being. This is consistent with the views of the more rational and philosophical forms of Buddhism such as Zen (Suzuki, 1956).

In this view all the things and beings of the world share the same presence of immanent existence as their common fundamental nature, and realization is the realization and experience of precisely this. All things share the same existence and this is true no matter whether their forms interact in harmony or conflict with one's own form.

Realization involves seeing the Buddha-nature in all things and beings no matter who or what they are. As another name for reality itself the Buddha lives within the forms of all beings. Buddha bum, Buddha whore, Buddha killer, Buddha next door. All forms are manifestations of Buddha because all forms have Buddha-nature because the fundamental nature of all things is existence and when we realize this we experience all things and beings as Buddhas whether they know they are or not, whether they have attained this realization or not.

This includes all animals and other organisms as well as people. Buddha bear, Buddha fox, Buddha bird, Buddha dog, Buddha cow, Buddha worm, Buddha flower, Buddha bacteria. As chi the Buddha dwells in all beings waiting to be awakened to its true nature. And Buddha-nature is the true nature of every non-living thing as well. Every stone, every drop of water and speck of dust is a form filled with the Buddha-nature of immanent existence. In this view the entire universe of forms consists only of myriad forms of Buddha.

From this perspective we also have Buddha-nature and are Buddha. Buddha lives within us all and we can consciously choose to realize and express our Buddha-nature in a clearer, purer more realized form. We can abandon the unnecessary and unhealthy forms of our personal self and become our Buddhas and move through every aspect of our lives as Buddha. We can be Buddha walking down the street recognized or completely unrecognized through the world of forms. We can choose to let our Buddha guide our actions as we go about our daily lives as Buddha.

By realizing and becoming our Buddha, Buddha guides our actions. By surrendering our personal desires and attachments and prejudices to our Buddha-nature we become our Buddha and let our Buddha guide our actions, our lives, our work, our destiny. We walk down the road as empty forms filled with the living immanence of Buddha being. In any case we are doing that already whether realized or not. It's just a matter of realizing it.

Of course this is all personal myth, a personal perspective on reality, and though certainly a useful aid to realization, we must be careful not to stray too far into fantasy. After all the Buddha within things can express only through the actual forms of those things. There are no super-heroes here. But there is nothing wrong with personal myth so long as it's recognized for what it is and doesn't lead us into delusional thinking but is used to inform and enhance realization.

With that caveat in mind then by becoming the Buddha we already are we become our true realized being in the disguise of our old self moving through the world of forms among other Buddha beings most of whom are ignorant of their Buddha-nature.

Our old personal self was an illusion of internal mental forms programmed into us since childhood. By becoming our Buddha our personal forms are transformed and purified by the flows of purer less mediated chi energy that naturally tends to manifest as a loving healthy

life force. We swim like fish through the surrounding sea of living immanence, warm, loving and supporting. As our Buddha we realize we are empty forms within a warm loving sea of chi which continuously fills us with being and reality and we become better able to release and dissolve away all our stagnant unhealthy personal forms and blockages to allow chi to flow more smoothly and strongly and peacefully through us helping keep us vital, fresh and healthy. In this way, as our Buddha, our forms become more pure and balanced and strong.

By becoming our Buddha and living as our Buddha-nature we discard the illusory shells of our old personal being that concealed it from us. We see the world as it is with Buddha's eyes, touch it with Buddha's hands, and manifest Buddha's realization of his own Buddha-nature as our true selves. In this way we commune directly with the fundamental nature of reality itself as it self-manifests within us as our Buddha-nature.

REALIZATION OF LOVE

Though chi is the single energy of our existence, it's experienced in many different forms as the information of how our bodies feel from moment to moment from the inside. Chi is an important and immediate diagnostic tool of the internal state of our being and all parts of our body. It's important for our well-being that we pay attention to the feelings of our energy body and understand what it's telling us.

We can also exercise a considerable amount of control over how we experience our chi. Properly nurtured, chi can manifest within us as a wonderful feeling of health, well-being, and love throughout our whole energy body. We can experience our chi as the living presence of pure unconditional love within us. Not only is this the most wonderful feeling imaginable but there is also considerable evidence that it fosters our health and well-being, though of course the effect of our own chi is always limited in the face of other active chi energies. The universe is all one computational flow of chi or existence in which our form, which manifests our personal chi, is but a miniscule part.

We can choose to experience the presence of chi within us as pure love and well-being, as a feeling that floods our being and refreshes and nourishes us. We can also imagine this as the presence of the living God within us or the awakening of our Buddha-nature so long as we remember this is personal myth rather than objective reality. In any case

it's a wonderfully refreshing and transformative experience.

And objectively we can say that God, the universe, does love us simply because the universe is manifesting us into existence. Being manifested into existence is certainly the ultimate act of love. We exist only as the unique result of vast uncountable and unknowable numbers of enormously improbable coincidences. One out of millions of sperm at each conception of every one of our billions of ancestors, and the actual pair choices of each of the multitudes of possible ancestral matings, not to mention the uncountable myriads of quantum events back to the original complete fine-tuning of our universe; every one of these had to happen exactly as it did for us to be here right now in the present moment of our existence as we are. Our amazingly improbable existence in the present moment is the ultimate act of love, and can certainly be experienced as such. The universe, God if you wish, embraces us in the arms of existence and floods us with the pure love of the immanence of being.

With the proper understanding and caveats we are one with God and Buddha Nature as we already share their common existence. We are a part of the living God of the universe. From this perspective God is our essence and is within us at all times. There is nothing other than God within the universe, and every finest detail of our being is a part of God. If you don't experience this it's only because you don't let yourself experience it because God is the active experience of all things. From this perspective every thing that happens in the entire universe is an act of God, is divine and perfect and absolute, and every one of us continually lives within God as a part of God in the existence of the present moment.

Thus a wonderful, beautiful, and enormously profound new vision of reality emerges naturally from Universal Reality as a personal relationship with the existence of the universe. Completely consistent with modern science, this vision incorporates all the pieces missing from the usual interpretations of science such as consciousness, the present moment, and the nature of existence to achieve a complete Theory of Everything that automatically includes the realization of the reality it reveals.

Thus God can be identified with the divine living essence in all things including ourselves. All we have to do is realize its presence and God appears within us and becomes us and we become God. God is always right here within us waiting to be realized.

In this view God is the existence that animates all things and shines its immanence within their forms. All things are empty forms

filled with God. God breathes in our every breath, God moves in our every movement, God thinks our every thought, God feels our every feeling and our every feeling is of God. And God is love and can be experienced as love, as love that fills the empty form of our being.

ACCEPTANCE

Because reality is absolute in the sense that it is all that is or can be exactly as it is in the present moment it is always enough. This is always true no matter where we are or what our situation is. There is after all nothing else possible in the present moment than what actually exists.

When this is realized there is never a need for anything else or any sense of loss, incompleteness or anything lacking. Because reality is the very substance of our being it is all that is ever needed because it is all that we can ever have or be. The ever-present formless essence of reality is all that can be and thus when its true nature is realized its direct experience is all that one could ever want or need. It is our very essence and our only true self and there can never be anything else. Forms come and go but the essence of reality always remains and that is always enough. This is always true; even as one works in the world of forms to effect changes in those forms our own inner nature, our own true self, is always the immanent existence of reality, which never changes. Forms come and go but what can be called our Buddha Nature always remains and thus our true reality always remains. From the Western tradition God never leaves our presence.

Forms continuously arise, change and vanish into non-existence but the common immanent reality within which all forms exist is always present. All forms themselves are empty, transient and illusory forms. It is only existence itself in which all forms arise that is permanent and ever present and always available to us in our form if we just open ourselves to its realization.

Because reality is what is and absolutely so and cannot be otherwise than it is right now, realization accepts it as such as it must to be in accord with reality. The necessity and inescapability of absolute acceptance of what is is an essential part of realization. This is true not just of the formless essence of reality but of the current state of all forms in the present moment. Once forms appear they absolutely are as they are

and must be accepted exactly as they are if the true nature of reality is to be realized. Otherwise we deny the reality upon which we depend.

This need not keep us from working to effect change, it just means accepting that the forms we are working to change are the ones that actually exist. By accepting things exactly as they are we increase our capacity to change them.

Realization also includes the complete acceptance of our selves as we are. We accept our selves as we are by releasing our desires and attachments for things that are likely beyond our attainment. By releasing unreasonable desires and attachments and by accepting our situation in life as it is we release many of the forms that lead to suffering and come closer to realizing our true self as it actually is in the present moment. Our true self is the one thing that is always attainable and within our grasp if we just open ourselves to it and embrace it because it is what we actually are at every moment of our existence.

There is an ultimate bravery in the total acceptance of reality as it is and confronting its awesome absoluteness directly and completely. It is also the total acceptance of our complete and total aloneness in the eternal presence of God the universe. We are completely and totally alone in a personal sense because our personal forms are inherently distinct from all other personal forms, and yet we are always completely and absolutely in the living presence of God, the universe, because we share the essence of existence within our personal form in common with all other forms.

In absolute acceptance of what is we dwell at peace in pure love in the present moment. In this state of completeness there is nothing more that is needed. Reality is always enough. It is always eternally fresh and real and alive and is always immediately available to us because it is already our fundamental essence.

PURPOSE AND ETHICAL PRINCIPLES

The theory of Universal Reality naturally leads to some basic ethical principles and suggests a plausible, though speculative, purpose for our existence both as a species and as individual beings.

We are certainly sense and knowledge organs of the universe

through which it becomes better able to experience and know itself. The universal program has evolved us and other sentient life forms and through us is able to become aware of itself. God, the universe is waking up with us. It can reasonably be argued that this is the purpose of our existence. But if so, to fully fulfill this purpose our knowledge and experience of reality must be as complete and as realized as possible.

To this end it's natural that it is ethically 'good' to spread scientific knowledge and realization as widely as possible and diminish delusion and ignorance and suffering as much as possible, and to that end, to work to make the earth a sustainable healthy and protected environment to facilitate this.

By doing so we move towards a more and more self-aware and enlightened universe in which God, the universe has maximal awareness and knowledge of itself. We can also speculate that this is the purpose of the universe itself, to move from an originally unconscious state towards the eventual goal of a fully self-conscious universe, and that mankind is a step the universe has evolved in its progress towards this eventual goal. This is of course speculative, but it's certainly a reasonable hypothesis based on the evidence.

The original fine-tuning of the universe implicitly contains within it the seeds of this progression, as it's exquisitely fine tuned so its programmatic evolution naturally leads through innumerable coincidences of random choice to the emergence of intelligent life capable of knowing the universe that produced it. All the critical elements of this design lie implicit in the original virtual nature of the quantum vacuum which produced the universal program of existence including us.

If our true destiny is to function as sense and knowledge organs of the universe then the more accurate and compassionate and enlightened we are the better is the universe's experience of the reality of itself. Each of us is a little fragmentary bit of God, a little bit of God's total mind and body, by which God knows itself and with realization becomes enlightened through us as we become simultaneously enlightened through the experience of God. Certainly this realization is its own reward.

There is no absolute good and evil in the computational universe. These are human concepts, which are always relative to some set of human standards. And it's often quite difficult to apply any set of standards because whether effects are good or evil is always a judgment by someone at some time and what is good for one is often bad for another. However there are generally accepted social norms from culture

to culture that have evolved primarily to facilitate stable societies. These social standards are the primary references for good and evil around which individual standards tend to cluster.

The idea of karma, that good ultimately begets good and evil begets evil is not consistent with the actual laws by which information forms evolve. There may be some tendency in some cases for like to beget like but there are numerous exceptions and by whose standards are ethical results to be judged, and at what point in the continuously evolving network of events? There are innumerable examples of well-intentioned actions producing tragic unintended consequences. And there is certainly no reincarnation so there can be no karmic transmission from one lifetime to another.

Nevertheless it's possible to outline some general ethical principles in the context of realization. Certainly the first is to attain realization itself. While Zen correctly points out that enlightenment is not a thing to be attained, that is the view *from* enlightenment rather than from *the path towards it*. The corollary is the Bodhisattva ideal to promote realization among all beings and to minimize suffering. This can be done by example, by teaching, and hopefully by writing books like this one (Tsunemitsu, 1962).

Another very reasonable core ethical standard is protecting and fostering the sustainable health and viability of Earth's biosphere. This is arguably the single most important ethical principle in that it sustains and maximizes the health and existence of all known life. Earth's biosphere is the only known cradle of the convergent emergence that seems to be in the process of bringing self-awareness to the universe. For this to flourish human society must become sustainably integrated with nature, and man must begin to tend the earth as a natural Garden of Eden and strive to develop a Heaven on Earth. It would be an enormous, perhaps irreversible, setback to the apparent direction of the evolution of the universe if humanity were allowed to destroy the viability of the earth itself with all that implies.

Another fundamental ethical principle is compassion, which tends to arise naturally from the realization of the common Buddha Nature we share with all beings. This realization naturally motivates us to help alleviate the suffering of all sentient life forms including our own selves and to foster realization among them.

This principle of compassion has profound consequences for how one relates to other beings including the question of eating meat. One

recognizes the living sentient spirit within all animals and their capacity for suffering but at the same time one recognizes that predation fills an essential natural ecological function; that all individual organisms must die and that death both supports life by providing food for other life and also makes room for new life and thus creates the opportunity for better adapted life. We must realize and accept the great plan of life and death as essential for the evolution of the universe, but we should do so in a compassionate and intelligent manner.

Difficult questions always arise and there are not always easy answers. If life itself can be considered the ultimate individual good is it better for an animal to have lived a good and happy life till it is humanely slaughtered for meat or is it better for that animal to have never had the joy of existing at all? And if animals are to be killed for meat is it better to kill thousands of small creatures such as shrimp or one large cow of equivalent nutritional weight? These are profound questions that should always be approached with compassionate empathy for the beings involved.

Good and evil are not simple and are always human valued momentary snapshots of isolated events in an enormous web of ever evolving forms. And these judgments are always relative to each other in complex interacting processes playing out over various time scales. In general realization and compassion for all beings including oneself and for the sustainable environment of the Earth are the great universal goods our lives should attempt to foster.

Zen has a somewhat similar approach that individual purpose is simply acting in accordance with the underlying principles of reality and flows of existence (Watts, 1957). It is to act not so much from one's personal desires, attachments and programming but in concert with the greater programs driving the world of forms. In so doing one gives up much of one's personal agenda and acts as one's realized self, one's Buddha within. In this view our ultimate freedom consists in giving up our personal freedom to align with the greater flows of reality, and thus our own realization and service is an example to others helping liberate them from suffering.

The traditional Buddhist notion of the Bodhisattva who upon realization returns to the world to spread realization by example is the prototype of this principle (Wikipedia, Bodhisattva). The notion is that by teaching, working with the poor and needy, or simply manifesting realization in the world one furthers realization and ultimately helps release sentient beings from suffering.

THE ENLIGHTENMENT EXPERIENCE

Because reality is completely absolute as it is and absolutely present, its direct realization often occurs with sudden profound intensity. It has been compared to the sudden shock of meeting a tiger on the road or suddenly looking into the eyes of God and seeing God looking back (Wu, 2005). An enlightenment experience is the sudden realization of the actual awesome presence of the absolute realness of reality in all its immanence.

What was previously understood only as an abstract concept is suddenly realized as the living here now presence of reality itself directly within and around one. The true nature of reality is directly experienced and not just intellectually understood. Zen calls this experience ‘satori’ but a somewhat similar experience is common to many religions (Suzuki, 1956). It can come as a sudden profound shock to consciousness as the veils of illusion suddenly drop away, the scales fall from one’s eyes, and reality is suddenly revealed right here and now in all its awesome absolute realness as the living essence of all things.

Because reality is *absolutely real and present* the effective intensity of its presence is unlimited and dependent only on the capacity of the observer to experience it. Normally mind operates at a mundane level preoccupied with a continual procession of daily forms and tasks and doesn’t allow consciousness to experience the truly awesome intense absolute realness of reality that is possible. Allowing consciousness to experience something of the true intensity of reality is normally reserved for sudden emergencies where maximum attention and engagement are required for personal survival. This is because extreme situations mobilize intense fight or flight energy levels in both mind and body that cannot be sustained.

The enlightenment experience is superficially similar in its intense clarity of mind but rather than extreme fight or flight adrenaline surges there is instead a strong, clear, healthy relaxed readiness of life energy that vitalizes rather than drains. This is a state of balance and refreshment rather than a sudden dissipation of energy. One is continuously aware of the awesome absolute presence of reality but there is a complete and total ease and acceptance and a perfect easy equilibrium in resting within it as if one had finally found one’s true home (Suzuki, 1956).

Because the intensity of the actuality and presence of reality is absolute the only limit on the intensity of realization is the capacity of the realizer. By letting go of the natural tendency of mind to damp down the intensity of the experience of reality one naturally experiences that intensity to the level of one's capacity. To do that one must open oneself completely to the presence of reality and embrace it. Though sometimes frightening this becomes much easier when we realize there is actually no alternative to existing within reality as it actually exists in the present moment no matter how we might attempt to escape it by distracting or dulling our mind.

Mind normally makes us wary of reality and the dangers it may hold but while it's certainly true there are many programs running in reality which can pose significant dangers to our individual existence, the actual presence of reality itself is completely benign and in fact embracing it more fully and intensely actually enables us to detect and deter hostile forms more effectively (Saotome, 1989). Thus a major impediment to the intense realization of reality is the fear of hostile forms within it and the illusion that if mind somehow damps the intensity of our experience of reality that somehow protects us from those dangers when the opposite is actually true.

Thus completely opening oneself and embracing reality and releasing the illusory fear of its presence is essential to its realization and simultaneously allows us to live more effectively within it.

This is the mind of the samurai, which abandons individual self and accepts the total and absolute presence of reality, including even the ever-present possibility of personal death, and in so doing is able to exist at ease in the present moment with maximum effectiveness. The ultimate bravery in abandoning the forms of self that seek to insulate self from reality attains maximum realization of reality and maximum effectiveness within it (Musashi, 1974).

ZEN MIND

Realization is not to be found just within the gates of a temple or the teachings of some sect or master. Realization is the direct experience of reality and thus may be found anywhere and everywhere at any moment. Reality is everywhere and all one has to do is look with realized

eyes to see it. No technique or path or teaching is intrinsically better than any other or even necessary. Sitting in meditation can be useful but realization is not found just in sitting. Realization is to be found anywhere in the entire world around us at every moment of our existence because realization is the recognition of reality and everything, including ourselves, are direct self-manifestations of reality (Suzuki, 1956).

There is no transmission of realization or enlightenment. Teachers can be useful in demonstrating and guiding one along a path towards realization but they cannot transmit any realization at all. There is nothing to transmit when everything is already present. Reality continuously self-manifests itself and reality itself is the only true teacher. All one needs to do is open oneself to the continuous presence of reality and see it for what it actually is.

Realization is not just to be found through a master's kōan. Reality itself is the ultimate kōan in whose solution is found realization. The quantum kōan and many others are the subject of Universal Reality (Owen, 2016). Reality is the only master and it presents itself to us as a kōan every second of our existence. Reality is the ultimate unanswerable question, the ultimate unsolvable kōan, in whose disappearance lies realization. The solution is not in the answer but in the vanishing of the question; in the realization of the presence of reality as it actually is. Realization of the living presence of reality itself unmediated by illusion is the only possible answer. The answer lies not in words, though words can be a guide, but in direct experience (Legge, 2010).

This is the meaning of the Japanese Zen expression, 'Mumon', which can be variously translated as 'no gate', 'the gateless gate', or 'the gate to emptiness' (Blythe, 1966). 'Mu' does not mean nothingness in the usual western sense, but refers to the emptiness of forms in which is found the true presence of being. Mumon means there is no gate that must be passed through to achieve enlightenment. And it specifically implies it's unnecessary to pass through the gated entrance of any Zen temple or monastery to achieve realization. Wherever you are you are already within the true reality you seek.

YOU ARE ALREADY ENLIGHTENED

This book has been a comprehensive and detailed search for the true nature of reality. We have discovered that the apparent reality of the

world we seem to exist within is an illusion created by our mind, and not at all like the actual world of running programs computing data within a formless sea of immanent existence. And in this last chapter we have explored how to experience the true nature of the reality hidden behind the veils of the illusion of our simulation and how to directly experience that reality.

But there is still one more secret to be revealed. We must finally realize that our illusory simulation of reality is in fact our direct experience of the true nature of reality itself, and is in fact our only possible direct experience of reality.

Yes our simulation of reality is an illusion, but that illusion consists of real information structures filled with existence existing in the immanent universe of existence. Our illusory simulation is as much a part of the reality of the universe as any other information structure within it. Finally we realize the most important lesson of all, that illusion taken for reality is illusion, but illusion realized as illusion is reality.

Our mind's simulation of reality is a magician's trick. The trick is absolutely real, but its reality is not as it appears to be. Likewise our simulation of the world we seem to exist within is absolutely real and is our only possible experience of reality. Thus realization is not a matter of trying to escape or deny our illusory simulation, it's a matter of understanding and experiencing its true nature. We need look no further than where we are already, but we must look with enlightened eyes.

This is the meaning of the Zen saying, "Mountains are mountains again" (Suzuki, 1956). Originally we thought of mountains as the physical mountains our simulation told us they were. But then we realized that the true nature of mountains was information structures generated by programs running in the quantum vacuum. But now we finally realize that the mountains of our simulation are in fact what mountains really are. Our illusory representation of a mountain is the real mountain of our direct experience, but now we understand and experience its true immanent nature as well as its illusory appearance, and in experiencing the truth the world becomes much richer and much more real.

We are the dynamic information structure of our total program running in the immanent existence of reality, and our simulation of reality is an integral part of that program. Though all aspects of our program interact computationally with both internal and external programs of the world at all levels of our biological hierarchy, our simulation is our

overall model and conscious experience of reality. We can improve the accuracy and realization of the illusory nature of our simulation, but the simulation, however we experience it, is the complete actual reality of our experience. As such our illusory simulation of reality is the reality we have always sought.

Thus we are all already enlightened. We are all already enlightened because we all live in actual reality all the time, and always have. We just have to look around and realize that the true nature of the reality we seek is our illusory simulation of reality seen for what it actually is. This is all that exists in our experience and everything that exists is by definition part of reality. We need only realize it for what it is.

Our simulation is the only part of reality we directly experience completely and accurately as it actually is. Its illusory nature is its true reality, and we already have the most absolute realization and direct experience of the reality of our simulation possible. We need only recognize it for what it is, rather than what it pretends to be. The illusion of our simulation realized for what it really is, is the reality we seek, and ultimately this is the only realization possible.

But of course this precludes nothing. Our simulation can be improved as our understanding increases, or as we transition from mundane life to meditation to realization. But no matter how the simulation changes, in whatever form it takes, it is always our ever present direct experience of the true nature of reality, because whatever it is, it's always the true reality of the present moment. The experience of the information of our simulation and its illusory nature is the true nature of reality.

So finally we realize that in Universal Reality nothing actually changes from how we saw it before. The universe is as it always was. We just now see the world around us with entirely new eyes, as the most profoundly beautiful and awesome presence imaginable. All things are now the living immanent information of what they are continuously interacting and evolving in concert to the music of a single Uni-Verse stretching back to the beginning of time mysteriously revealed in the vast computational information nexus that all things are part of.

Finally we understand that in our search for realization of the true nature of reality, that we all continuously live only within reality and are entirely composed of reality ourselves. There is nothing, and can be nothing, that is not already part of the true nature of reality. Therefore we are all already enlightened and could not be otherwise. We have always

lived within enlightenment. The realization we have sought has been with us all along. It's just a matter of realizing that and embracing it.

There is really no trick or effort to realization or enlightenment. We are already enlightened. Everyone is already enlightened and always has been. Enlightenment is simply a matter of realizing we are already enlightened and always have been because there is nothing that is not the real and actual presence of reality lying completely clear and visible before us. Of course realization can be refined, but enlightenment is just seeing reality as it actually is and it is always exactly as it appears.

Everything in the world, every experience is exactly what it is. Yes, it has a deep structure, and yes it carries hidden secrets and illusions which are also part of reality, but nevertheless what we experience is exactly what we experience and that is reality because reality is exactly what is in the present moment and even if it is illusion mistaken for reality, even *that is* the reality of the present moment. However the deeper realization is experiencing illusion as the illusion that it actually is and thus its deeper reality. That then becomes the reality of the present moment realized more clearly.

Realization is simply whatever experience exists in the present moment, as it is with or without any cognitive interpretation in the simulation because all interpretations are also only the direct experiences of themselves. And so on it goes. Direct experience includes even the direct experience of even irrational and mistaken cognitive interpretations as well, whether realized as such or not. Illusion taken for reality is illusion, but illusion seen as illusion is reality.

Everything is illusion but everything is reality because reality consists entirely of illusion when it comes to forms. The empty illusory nature of forms is their reality, and their reality is the manifestation of the nameless fundamental presence of reality in which all forms arise and manifest that is the true nature of the universe and all things in the universe including our selves.

With insight, study and practice more and more of the true nature of things is realized but what we do experience right now exactly as we experience it, realized as such, that is the true reality of the present moment. Thus we are all already enlightened and it's just a matter of waking up and realizing we are already here and always have been!

Ultimately all we ever experience is the immanence of existence itself. In whatever form, in truth or illusion, or in relative formlessness,

ultimately all that exists is the immanence of existence. And this is our true nature and the true nature of reality.

Welcome to Reality!

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ABOUT THE AUTHOR

Edgar L. Owen was born April 1st, 1941 and quickly realized that reality is not as it appears to be. A child prodigy, he entered the University of Tulsa aged 15 and received a B.S. with honors in science and mathematics with a minor in philosophy at 18 before completing several more years of graduate study in physics and philosophy.

In the early 60's he moved to the Haight-Ashbury in San Francisco where he hung out with notables from the Beat Generation, and conducted an intense personal study of the nature of mind and consciousness. From there he traveled to Japan where he lived for three years studying Zen and Buddhist philosophy while subsisting as a ronin English teacher.

Upon returning to the US he began a career in computer science writing numerous programs in artificial intelligence, simulations, graphics, and cellular automata while designing and managing advanced computer systems for the New York Federal Reserve Bank and AT&T. He then left the corporate world to start his own software business marketing his own CAD programs, which he ran for a number of years. Currently he owns a premier Internet gallery of fine Ancient Art and Classical Numismatics at EdgarLOWen.com.

Deeply immersed in nature since childhood, and always considering it the ultimate source of his inspiration and knowledge of reality, he has served as Chairman of his local Environmental Commission and organized several campaigns to protect the local environment and its wildlife.

Over the last several years he has worked to combine and organize the results of a lifetime of study of the various aspects of reality into a single coherent Theory of Everything. He now spends most of his time exploring the wonderful awesome mystery of reality and how it can be experienced more fully and deeply and enjoying his existence within it.

Edgar currently lives in Northern NJ in a big old house on top of a hill where he communes with nature and enjoys the company of his wild visitors including the occasional human. Edgar is currently single and can be contacted at Edgar@EdgarLOWen.com.

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Realization explains in detail how the world we experience around us and seem to live our lives in is an illusion. We are actually living inside a program that simulates reality in a form that makes it adaptive for us to function and survive. But rather than a simulation created by some alien programmer this simulation is produced by our own minds and has been programmed by millions of years of evolution.

Nevertheless our simulation completely misrepresents the true nature of reality to us. It's only when we understand the many different layers of illusion our simulation produces that they can begin to be removed to discover the true nature of reality hidden within their veils.

This book reveals all the different ways that our simulation obscures the true nature of reality from us. Only when the illusory appearances of the simulation are recognized and pulled back one by one does the true nature of reality become clear and the path to its realization open before us.

Once the true nature of reality becomes clear and the veils of illusion that obscure it are lifted the secrets of realization appear and reality as it actually exists can begin to be directly experienced.

Realization is a transformative journey through illusion to the direct experience of the true nature of reality itself in the universe, the forms of all things, and within our own being. What we discover profoundly transforms the way we see the world and ourselves and how we live our lives within the living presence of reality.

This revolutionary new exposition of illusion, reality, and realization is based firmly in modern cognitive, information, and physical science and in carefully analyzed direct experience and avoids anything supernatural or metaphysical. It's a completely new logically consistent understanding of reality and its implications that can't be found anywhere else.

Anyone interested in realization and the true nature of reality will find this book a highly informative, enjoyable and enlightening experience.

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