

## Is Reality Digital or Analog?

### Our Universe, Science and Potentials in Review

Russ Otter February 2011 (Please think and enjoy!)

**“Is Reality Digital or Analog?”** Is more of an artful philosophical box, more than a mathematical one, as mathematics, the language of science breaks down at the infinite realm. In other words the “Question” is askew as neither, is the ultimate answer, given a Universe which is assumed to be both infinite and finite: *A twain that will never meet!*

The simple answer, is also confined within the boundaries of “infinity”, which has no boundaries. Hence lays our dilemma: To answer such a question with any foundation of accuracy, as a finite question, the finite universe can be defined as both analog and digital. However for me, more eloquently as a digital world, but within the bounds of the “infinite”, it has no conscious answer. However in our finite world of objects, even a straight line is myriad of bits, so I would say a “quantized finite world” (bit based) is where we contemplate, surmise and push the envelope, hopefully to break out of the historical mathematical box’s we are built upon. And I would note, that there is math yet undefined that may lead to the answers of “Entanglement”, and “Superposition’s”. However, if those elements of current mathematical infinity based illogic turn out to be of an “Infinite” based junction between the finite and the infinite, we may never define them with an anachronistic set of mathematical formulas, used today.

A new bridge to knowledge and math may await us in that journey, that math will ultimately lay the foundation for modifications of current sacrosanct beliefs. And given that math is digital, by the most eloquent of descriptions for me. I have a sense that wave and particle math may have a split, within conventional definitions, that could run the course of particle being digital and wave being analog. But that is an artful non-scientific tool of language, which is no more than a picture of a concept, not the concept itself. In other words, the “Word” is not the “Thing.”

In the following sections, I will lay out the premise of the possible, albeit, a heresy I fully understand too many. But I am thinking outside the box of some aspects of thermodynamics when engaged in the quantum versus relative worlds, and always with the possible in mind... Thermodynamics is a beginning, it is not the end, given new discoveries and the proper mechanisms needed to understand them.

**Section: One** Holy Grail: Particle Physics (The Quantum – from which we all arise) Natural Forces, along with energy and matter begin at the quantum level, just as Gravity does... Even though “quantum gravity” currently seems to be a missing link: The Quantum - is gravities birth place, from which all matter and energy originates. I postulate however that Time and Space are exempt from an inscrutable beginning, as they are “Infinite”, just as possibly, as is gravity and other natural forces are, but that is a question, we may never have an absolute answer to.

The origins of all finite creation come from the quantum, at least this is the most we can hope to ever understand, as all else is of an infinite realm, and the infinite is not and will never be definable in terms that finite sentient beings can understand. Our Universe(s) conscious understanding or rather foundation is built upon the solitary empire of quantum building blocks.

**That is Principle One.** The “Quantum” is our Foundation in all we will come to understand - and perhaps, we may even glimpse - at its predecessor’s trigger: Therefore always define your mathematics and philosophical notions of Space and Time, in conjunction with all of the natural forces we are ruled by, based on their quantum roots. The current notion of “SpaceTime” is highly likely askew... I would suggest that All things are quantized: Remember even a straight line or circles are arguably a combination of bits. So whether gravity, as well as space and time are quantized at a sub-atomic micro-level, and or a macro-level, or perhaps morph in the process, or not: Please remember that Natural Forces are created equal at a base level, even as Space and Time are constants within both infinity and a finite existence. However, in the examination of nature and the truth of our existence of matter and energy, the question often becomes, what is the “Beginning or the End”? I would offer that such a question can never be answered. As the Alpha and the Omega are of an “Infinite” nature, which will never be defined by “Finite” mathematics or philosophy. As to define “Infinity” would be to no-longer make it infinite. In other words you cannot circumscribe infinity, otherwise, if you could define infinity, it would, logically no longer be infinite, but finite.

Infinity by definition and nature is not definable.

**This is Principle Two:** The infinite is not and never will be defined by the finite, or differently said, by finite sentiency.

**And finally Principle Three:** (Which I would assume will create the most controversy amongst modern day physicists and perhaps some philosophers) Is that Space and Time are immutable (Fixed and unchangeable). They do not change, whether at the Event Horizon, nor does Time curve. Space, as with anything physical, does curve relative to gravities influence. **NOTE:** *I will argue in in the next section: titled “Science: Is infinitely more than it seems...” of this essay, that contrary to previously miss-calculated scientific testing, from my bias point of view, that Time and Space do not change via acceleration or lack thereof. Time and Space, as with all things, are impacted by gravity, but not to the point of changing space or time. I will soon explain.* Additionally as you read this document, perhaps rather than beginning with the principles of “Thermodynamics”, as sacrosanct, I would suggest you try to begin with these principles, which I have outlined above, and our math and science will thereby define our physical empire and its riches; such as virtually infinite energy will be manifest, for all practical description’s purposes, from the simple and logical mechanics these 3 principles portend. And these riches, which I speak of, I believe, will help unite the world, in common union, for the good.

**Section Two: Science: Is infinitely more than it seems...**[ Classic (Macro world) and Quantum (Micro world) ] **They underpin one another, but they are not based on the same math or logic. They are distinct in dimension, is the best way I would describe them.** Theoretical Physics is hard enough to follow, let alone understand, as it has its own language and bizarre concepts that actually defy the logic of the world we live within. For instance, the concept of “Entanglement” whereby micro-sized particles millions of miles apart respond to one another or communicate as if they were local to each other, whereby the speed of light does not apply. This is a proven phenomenon, also known as locality and non-locality behavior. The jargon of classical mathematics and quantum mechanics or the macro and micro worlds do not always operate the same. This is of a confusing level, much as the concept of “infinity” is an impossible term to grasp. [That of which has no beginning and no

end.] Factually, today physics is both a bizarre field of unknowns such as with what “quantum mechanics” and Cosmology provide us, as well as a fixed geometric proof. Coupled with the fact that I take my own liberties, with my own conceptions, to further confuse the issues. However my goal is to clear up, what I believe to be some former misconceptions. Clearly for many of you, much of this will seem a grand heresy, but I would ask that you consider the broad scope of what we still do not know, and still may be errant in our current understandings regarding physics so-called proven laws. The search for the “unified theory of nature or existence” is a fickle road in conventional terms. Quite simply because we live within an existence that is inscrutably possessed of “Infinity”. Infinities - cannot and will not succumb to classic mathematics. In fact classical mathematics breakdown and are void, outside of the macro-world or the real world of objects that we live within. We also live within the “micro-world” or “particle-world” of quantum mechanics, that are the building blocks of our object world, made from atoms, quarks, electrons, photons, and so on, along with the world of what is known as “entanglement” and “superposition’s”, that defy all classical or common logic. Quite clearly, just as infinity defies explanation, if you try to extrapolate, or describe entanglement” and “superposition’s in mathematical terms. It simply will not, and cannot be done. That is why I would call the quantum world, which underpins and creates our “real world”, the 5th dimension. In other words: There are the 3 physical dimensions, plus time, plus portions of the quantum or infinity realms that are separate dimensions in my view. And both the macro and micro-worlds contain the Four-Forces we know of in the physics world, as the “strong, weak, electromagnetic, and gravity forces. These forces are the glue and engine of the dimensions we exist within. I understand the argument about the search for the fleeting notion of “quantum gravity”, but as I stated in section one, Quantum Mechanics is the bearer of all physical things, and gravity is one of them... If you have mass, you have gravity. If you have no mass, you are not subject to gravities influence. **NOTE:** With the exception of “Entanglement”. Entanglement is a mystery of which I believe has its roots in non-particle, wave science. But that is perhaps a question that will defy explanation, much as infinity forever will. I would also add 2 sub-dimensions to the quantum world: Number One: *Particle* and Number Two: *Wave*. These are the transmission modes of the micro and macro world. And they do behave quite differently, and often in tandem, unlike they always do in the macro-world or object-world we live our daily lives within. 1. Quantum Particle transport is based on the speed of light as defined by Albert Einstein. 2. Wave transport, I would suggest appears, as a continuous (connected method of transport) that allows for “Entanglement” to occur. In my opinion: Quantum Entanglement represents the concept of “infinity in action”, it is a non-locality based transport that is always connected, as if all separated objects were based on the concept of “locality”. Waves are connected, making the notion of “Everything, Nothing - and Nothing, Everything” all at the same moment in time. This is where classical math breaks down and we have to rely on a new methodology and understanding of time and space, hence “Infinity” to describe existence per se. It is that complicated and that simple. Or Indescribable...

Secondly, for accuracies sake, there may be 5 or 6 more dimensions if “string theory” is correct, but those are of the quantum micro-world, bound to the indefinable quantum dimension we are infinitely bound too. • I am a layperson with a basic understanding of the world in which we live. And these realms or dimensions are the basics; we are both simplistically born into, and currently all capable of understanding. But understanding is a qualified term, as some things can and cannot be understood: The paradox of life... With the passing of Time which is a misnomer in its own right, given the “special theory of relativity”, for which I will explain in a moment, we will expand our understanding, thus increase our knowledge of the forever and

infinitely non-understandable. That is the ultimate truth we are compelled to, as finite beings, existing within an infinite realm. "Simply: We are always and infinitely expanding our knowledge." In other words, some things Are Not understandable, given that you are a finite being within and infinite realm. Finite by definition cannot grasp the infinite. This is both of a philosophical point as well as a mathematical, as they are synonymous. Synonymous, due to the fact that classical math as I have stated before breaks down at the point of some aspects of the quantum world and its "entanglement" or infinite underpinnings that allow our world, or our very existence to occur. **Time:** The notion of time as changing due to the speed of travel is a misguided concept. It is accurate in theory, but not in fact. My Theorem: "Time is immutable, just as Space is. Both are underpinned by infinity and quantum mechanics, which dismantle classic mathematics and physics as we might hope to simply define them." This is a simple theorem, that speaks clearly for itself. In other words "time and space" are fixed and outside of our finite understanding. They do not change, as "Special Relativity" implies, by curving or slowing down or speeding up dependent on speed and mass. They can be described as such in a quasi-manner, but in fact they remain as they are. Infinite and inexplicable. The current understanding of time is based on mass and velocity, or Einstein's Special Theory of Relativity, but time is again, as I said immutable, and subject not to the speed of an object, relative to its mass, but to its mass alone, subject to gravity. In other words all objects will not slow down or speed up based on the speed by which we travel. The current experiments that use atomic clocks: One clock stationary and the other traveling at high speed and then are used to measure their times which are logically different, is fatally flawed. Time is effected by way of the mechanical operation of atomic clocks, which is influenced by the gravity or mass it experiences within its travel. Again in other words, if a clock is traveling at a high velocity, it experiences greater gravity in a shorter period of time, which alters its mechanical functions. Time does not actually change only the forces of gravity that impact its mechanics changes and slows down the clocks mechanical operation. Thus density or gravity slows down or speeds up a clocks mechanical parts and physical time actuations. Time is not changed, only the operation of the clock subject to different mechanical pressures are changed. In simple terms, a clocks time is always going to be different based on its atmospheric conditions, i.e., whether it is stationary on the ground at sea level or sitting on the highest mountain. The mechanics will work differently, but time itself, has not changed, only the clocks mechanics have been altered by different pressures, so the times will infinitesimally be different. Extrapolate this using the speed of light and gravities changes, and the clocks show much different time results. But again, time itself has not changed only the physical apparatus that measures time has changed. **Time remember is immutable. [Period]**

Time has been manipulated by mixing the dimensions of Classic mathematics and Quantum mechanics realms - as if they were one. They are not in totality. This has distorted our perceptions of the nature of time and the notions of a curved space. [ Classic Standard Relativity and Quantum mechanics are unique and distinct. That simple, and this premise of confusing the two with the same assumed mathematics has miss-led us, very understandably, but also, very obviously. ] I will attempt to give an example: We need to first dispel the notion of curved space. This is another concept derived from the concepts of the speed of light and all space as mass. This is not the truth of our obscure and infinitely indescribable existence. It seems to me that Time and Space are immutable. They transcend both the finite and infinite. Contrary to current belief, they are as fixed as the cognitive notion of existence itself, or as immutable as a fixed mathematical proof. Time and Space have been determined to be changeable based on velocity and density, and consequently marry up into the term SpaceTime. The singular term has merit, since combined time and space are the common objects of physical dimension as we understand them. But the notion that time changes and that space curves are relative ways for language only to express the effects of gravity on those elements of energy and or mass. Curved space and Time Running Slow are even poetically acceptable terms, but not physically accurate facts. Light only curves as would any other object of mass, when gravity impacts it. And light is

mass via velocity, if nothing else. Without gravity it would not so-called curve. To be less confusing about what physically takes place during the curving of light is to describe the impacts of gravity on any object of mass, as simply changing the objects direction, due to the force of gravity. Science today says: Light has no mass but Space does. *I say: Prove it universally. Is a photon massless at a standstill?* You may want to call this “curved space”, but it only convolutes a simple picture into an unnecessary description, that obscures classical physics. Likewise the experiments that demonstrate time slowing down is a misguided misnomer. Time does not slow down, whether at the Event Horizon, or with an atomic clock running under different velocity from another atomic clock. Simply the mechanics of the (macro/micro) particles that operate the measurement tools (clocks) are impacted by gravity via high velocities and thus slow down both the quantum and standard relative pieces of mechanical matter that operate measuring devices. Time is not slowed down. Matter is the only element slowed down, by physical forces. Matter is not time. Time has no mass, i.e., it does not curve. Time and Space are physically immutable. It is surprising to me that this simple fact seems to elude us or at least I have not seen it explained as such. Even more surprising to me is that we have not harnessed continuous motion with the natural forces in the universe as we know them. I do not call it perpetual motion, since all mechanical matter decomposes (wears out) and replacement is necessary, so perpetual is somewhat of a misrepresentation technically. But continuous motion seems to be a reality that I have several ways I could explain to make this possible without fossil or other material fuels. Yet I never see much on the subject other than – it cannot be done because it violates a thermodynamic theorem? I would note if our theorems are based on the logic that “matter is time”, therefore time slows down, then I rest my case. Please also see this article, where the second law of thermodynamics is challenged: **See References: [1]**

This article further supports my premise regarding “Energy” and its continuous potential.

Thermodynamics is threaded through the firm notions of relativity’s mathematics. In other words, force, mass, and movement or acceleration are seemingly straightforward when mathematics is defined and applied against the backdrop of the rules defined by thermodynamics. **By the way:** *Thermodynamics is simply the science of energy and heat, based on its mathematics that seemingly binds us to its rules.* **With exception,** if the force, mass and acceleration are manipulated in combination by both linear and non-linear directions of thermodynamic movement, based on using the forces of simple gravity, among other natural energy sources, then the results will differ from the traditional fixed notions of our heretofore science of thermodynamics. But as of yet, no one seems to understand this, or has manifested such an application. Meaning that Entropy and the other rules of thermodynamics, while inevitable: just as a shoe with use, will become worn out with time, you also can extend that worn out shoe, 100-fold, rather than like for like or (action for re-action equivalency). In other words, energy is only lost based on an equal level of energy applied. However - Energy can be applied with a ratio bases, that mathematically creates more action for a re-action, than a like for like result. Thus you can create a virtually continuous motion machine, with the exception of parts eventually wearing out and needing to be replaced. If my hypothesis is true, then we change the very dimensions of the world, in almost every discipline that you can imagine. And all for the better...

I would hope someone with a physics or electromechanical background, would contact me, after you have read Section 3 about “Smart Energy Now”, which highlights “Continuous Motion” as I hope that will shed some further light on this subject. This type of purely physics based /

mathematical energy solution, will additionally bring us together as a single human race of people, rather than as disparate groups competing harmfully with each other. This physics can change the world in personal matters as well as mathematical ones. NOTE: We live within confined thinking built upon the philosophical and mechanical rules of the past. For instance, does the concept of “**Inflation**” at the start of the **Big Bang**, hold to Einstein’s, cosmic speed limit of light. **No**. But we make adjustments in our thinking to accommodate that seeming violation of physics. *But I wonder if the “initial sized universe is not related to Entanglement mechanics versus Inflation.* Similarly Thermodynamics has some areas that bend as well. But they bend within the confines of logical mathematics, that we have simply not explored - as of yet. And I would note that the “Brane” contention for the infinite quest of explaining history and time, is a true possibility too. The open fields of physics and mathematics are unbounded infinities, which are in bloom at every moment, for the taking, by those who seek truth. However, the real truth is that many a truth - was discovered by mistake! But - Oh’ Well, I digress. Clearly truth is holding at bay our pre-formed modes of thoughts-travels, docked in self-made impressions, or in other words our scotomas, just waiting to sail away and change the symphony of infinity’s seas, that reality holds - forever open. The possibilities of physics, of mathematics, of the progression of reason, hold the hope of the ages, the Holy Grail of truth, not from the static fixations of the past, but of the knowledge born in the moment, from the shoulders of the past, and our ever evolving future. In this next section: “Smart Energy Now”, I have partially detailed out how to provide for “continuous” motion and would like to work with someone in this field. I of course hope you find my explanations above of merit, so that I might find someone with the mathematical background, which I certainly lack, to work with me on this project.

### **Section Three: Smart Energy Now...**

Natural Forces in nature provide multiple endless Energy models, without expending fossil fuels. Is anyone willing to work with me, who has a physics background?

**What will it accomplish?** Evolution on a monumental scale. Migrating from a fossil fuel world to an automated world devoid of expending fossil fuels. It will overnight, in unbounded terms, provide universal energy to the entire world, not just the industrialized nations or emerging nations. It will provide a unifying playing field for the people of all nations to find more common options in which to better communicate and improve our common understanding and standard of living.

**Note:** *Even I believe these ideas sound as if I have a large dose of megalomania lodged into my grey matter, but it simply needs to be tested and moved forward. Even if I am only 90% correct, it could change energy production as we currently understand it today.* In simple terms, you may think it violates the fundamental thermodynamic entropy theology, which we have all been indoctrinated with. By the way I consider thermodynamic science more a theology and manifest scotoma in our lexicon, rather than a fact. In my own humble opinion physics is incalculable, and to rely on some definitions, is to limit physics or existence itself. Neither have limits, therefore - in my puny assumptive world – Physics is forever a living definition, as well as a fixed proof. Much as “Infinity is both sides of the same coin – at once.” Therefore I will fundamentally argue that thermodynamic entropy is relative for “like” for “like” kinetic actions: which will diminish “force”, as it today properly outlines. However if you change the “Like for Like” concepts when generating energy, you change the rules by which “thermodynamic

entropy” was developed. In other words, If you use two dimensions to generate kinetic energy, complemented in equal response to one dimension, generating its own energy. You alter or augment the output energy produces. Hence the “like for like” action = reaction is modified and the results are not like for like. Action can multiply Re-action by way of linear acceleration, using gravity to capture non-linear dissension. This provides for a gear ratio that augments energy output using natural forces. As well as other forces (fossil fuels too.) This process using natural forces, such as Electrostatics, Magnetism and Gravity, among other natural stores of energy in a form which is non-relative or in other words using a differential gear –ratio that trumps lost energy. This does so by way of leveraging opposite dimensions and gravity. Thus it changes the scientific or theological rules that constricted the methods used to define generic thermodynamics. In other words thermodynamics becomes truly dynamic, rather than static.

### **To Summarize:**

The quantum world is the sole genesis of all we are, combined with the infinite realm, for which I believe bares the inscrutable nature of space and time, whether we as sentient philosophical beings - exist or not. In my world view, if a tree falls, and no one’s there to hear it, it still makes a sound... Infinity and evolution, survives us all... forever! But in the interim of our existence, this ebb and flow throughout time, I believe enhances knowledge. Therefore with the growth of true knowledge we will improve the betterment of how we treat one another.

Consequently, science is the basis for all truth, hence either the practical or metaphorical face of god, if you believe in such things. As science underpins philosophies truths and failures, as well.

Therefore science is a worthy journey indeed...

That journey will take us from Finite to the Infinite, from Analog to Digital, from Here to There... Through the examination of knowledge.

The notion of Analog or Digital, or Finite to the Infinite is a twain we are bound within. And a twain that will never meet. But within that disparate truth, we simply are bound to grow for the better, as we are more similar than otherwise.

So goes our hope for knowing all things, or for our capability to understand in total what science or faith pursues, but not in vain, but certainly in failure, comprehensively speaking. Mathematics is the very face of god, if you will, or in other terms: the face of truth and the goal to understand what the mind is capable of understanding... Beyond that finite reality, is an infinite reality were even math breaks down, and fails; for infinity is real and no mathematics is capable of defining infinity. Just ask a math major... (They can identify it, but they will never answer it.) So it is true for us, of sentient minds, which reach for our understanding of infinity, for purpose, or for that notion of ultimate truth, or our search for a god, from within our finite existences. Again, our comprehensive understanding of all nature will fail, and it will always be so, as long as we are finite beings within an infinite realm. This is the dilemma for those who believe in a scientific understanding of existence, of the Universe, with a capital “U”, not just our big bang universe, which is no more than the size of a single proton, in the true scheme of spatial reality or in other words, within our infinite reality... We are captives of nature beyond our understanding, as long as we remain finite beings. Only an infinite structure, that by definition cannot be circumscribed by definition, can in theory know the truth of all things. In fact it can be argued that as an infinite structure or being, there is no such thing as “Knowing” or “Knowledge”, ego and the like. Infinity

is without awareness, as awareness itself, would be a defined circumscribing and therefore limiting element that would preclude infinity. A conundrum of the first degree. But that is what infinity is. Indefinable [Period].

Factually, to believe in your capability to have any simple or complex perception of “Infinity” is to manifest a limited definition of infinity, therefore you violate the principle of infinity, which cannot be defined. Consequently we grapple with the ultimate conundrum of our very existence - of our finite and infinite worlds; which will never meet by way of knowledge. Mathematics teaches us this truth... Sentient wisdom would do well to accept this truth. Simply we live in an infinite fog, but by way of a finite existence. So find your truth inside the scope of your own space and time of life. And make it a good truth, one based on the “Golden Rule” and pursue knowledge at every crossroad of life. That is all we have – nothing more, nothing less. Cultures, Religions, Fads, can be good or bad, but they all are vain and vacuous, unless they operate by truth and the golden rule. And that is where we exist, accept it or not. Again, Infinities are our Reality, which preclude our ultimate fullness of knowledge, but also give us an endless pursuit to grow... Hopefully for the better!

As this truth makes us more similar than disparate - and that truth will enable growth to embrace a reality that improves on our lives and those about us...

Digital or Analog notwithstanding, we simply we are not able to know all truth. Therefore we are binary and separate, hence digital for all conscious (or finite) purposes. Beyond our finite consciousness the subject on an infinite plane is open for endless review...



**Reference(s):**

[1] Author: J. Miguel Rubi, Article: "The Long Arm of the Second Law", Magazine: Scientific American, October 2008, Pages: 63-67

Ref Link:

<http://www.scientificamerican.com/article.cfm?id=how-nature-breaks-the-second-law>