Infinity and Reality

The Universe is Otherwise – Part 2d.

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3/15/18

Infinity contradicts current cosmologies Overall understanding of cosmology would be altered, improved, and simplified by redefining the universe as being infinite in space and time.

1. Introduction

Let's discuss changing the overall nature of the universe. There are 2 options. The universe is either infinite in time and space or it has boundaries. Accepting an infinite universe is more than looking forward to its future. Will it end in space or time? If you decide it won't end you chose an infinite future. But infinity also implies no beginning in space or time. Choosing complete infinity leads to a revised view of reality. The universe is all space, ie a container for everything else. You either picture the universe as endless without a beginning or you picture it as bounded. The idea of a boundary means there is a beyond, whether in space or time. Bounded theory requires edges where the universe ends. An infinite boundary of infinite edges provides an infinite number of explanations for events at edges. The big bang is a prime example.

There are other mystic and disconnected physical models that have flourished without sufficient concern about what the universe itself is. Space and time lost their reality and multiple dimensions were introduced as somehow being logical. This document is a redefinition of the nature of the universe. The process of redefining physics with a new paradigm requires rethinking and repackaging of all existing knowledge. New experiments and mathematical equations are not the key to a Holy Grail – new perspective of physics.

There are many revelations associated with the infinite view. Acceptance may take significant time. A cosmology based on the infinite and the current one based on the finite universe are incompatible with each other. Comparing them provides a mental exercise. The infinite assigns to gravity a physical nature and the logical physical interaction of pushing. An infinite universe stimulates incentives to restudy rotations,

mass, the nature of space, orbiting, gravity, light and EM radiation, and transferring of images. Relativity made headway in those directions. This system further connects space and mass, energy and light, in ways that will clarify physics. Space affects mass and mass affects space similarly as in Einstein's formula that led to the standard model. Numerous looks at Newtonian systems and at Relativity help bring the thinking *together. What follows emulates an introductory overview of a new science.*

2. Beginnings and Endings – Boundaries

Our local environment is logical and ordinary. Why are our cosmological views about distant space and the universe so mystic? Why should things be so different far away or long ago? We will examine the reasons and build a path that reexamines the beliefs upon which our science stands today. How do we deal with the extremes for our measures of distance, size, time, etc.? The big and small sizes, the close and far distances, and the short and long time frames are either infinite or bounded.

In the bounded view there are end markers and the beyond to deal with. There are beginnings and ends to account for. Whatever is beyond the end lines may be proposed. Today's theories accept boundaries. Continued development of the big bang and expansion has dominated cosmology. Within this view speculation of new concepts is encouraged. Everyone wants to explain the end lines.

The alternative perspective based on infinity leads to much simpler views of our cosmos. We simply need to understand why space and time can exist and function eternally. An in-depth analysis of motions and gravity springs forth from an infinite view of the universe. Finite boundaries do provide more places to analyze and thus employ many more researchers. However there will be many new perspectives to pursue with universal infinity.

Infinity cannot be assigned to most things. There is no specific "infinite motion" for example. The infinite is the universe. What is the universe? It contains all matter and anything else that has form. It is the volume of space as defined by the whole of the X Y Z coordinate system. How far do the coordinates extend? That is the measure separating an infinite or a bounded universe. The finite is bounded at one end with a beginning, bounded at the back end with an end, or bounded in both directions? Does it end somewhere beyond our imagination? Accepting infinity is a hard choice. It has been debated over the centuries, occasionally accepted and other times rejected. Today we have the big bang theory as the creation of the universe followed by the ongoing extension of existence. As the bounded universe expands an edge exists

between that which is the space contained within the universe and what is not space. That boundary must also expand. Likewise, there is also the concept of time. The big bang also assigns time a beginning boundary. The universe and time are both just virtual ideas, not real physical things. Einstein merged space into time, in his 4 dimensional space time. within Relativity theory. That results in space losing any real form and its ability to provide measurement.

Space, as we understand it, is obviously real. Thus it has to be made of something that gives reality to its measure. A void in space cannot exist as it cannot extend any measure of that space. Space provides a place for the transfer of things, and thus assists motion. Motion has its origin as an action of gravity, an effect that reaches far across space. The identifiable contents of space include the force of gravity. In the big bang theory, gravity didn't even exist until well into the big bang expansion time and it grew from there. The concept of boundaries establishes a platform for the exercise of mind bending contemplations. Many edges have been defined for evaluation in infinite ways. All this exercise inhibits finding an ultimate understanding. Why did a cosmology with limits take hold? Science seeks beyond limits. We keep tracing mankind further back, and we trace more distant components of space. We were expanding the imagined limits. Religion also played a part by accepting the big bang as a replacement for its creation. "In the beginning" summarized God's revelations to mankind. The Bible is a presumed history of us and everything leading forward from beginnings. The universe, night and day, and mankind all were given beginnings. Admittedly everything material exists and had a beginning and end, both in time and in space. All real physical phenomena do have beginnings within the overall, the universe. Man and the earth and the sky can have beginnings. It is the universe itself, where measurement resides, that shouldn't be assigned a beginning. Religion doesn't assign a beginning or an end to God! So God is apparently infinite. He is the **universe** within which all things exist and are contained. Thus biblical ideas are more in tune with an infinite universe than with a big bang universe.

Our universe is infinite in space and time. Infinity also extends to the size measure so things can be infinitely large or small. In a sense infinity makes you give up on defining things beyond the region of common interest. But the payoff is that it allows the assumption that everything beyond the local arena is similar to what we know locally. We can relate to our local neighborhood simply extend current and local understanding of matter and effects such as motion. Motion is a relationship of the time and distance factors. As mentioned, time and distance are currently merged into Space time and lose their identity. Someday physics logic and cosmology will revert to and accept a simple

infinite universe. As a sidelight it is interesting that mathematics has created procedures for eliminating infinities to support boundary investigations.

Acceptance of infinite space will disrupt physics. Today new cosmological ideas consist of ever more extreme and excessive concepts created to describe some region of a boundary. The list is extensive. We will find little ongoing use for some of our current research and investigation. Most experiments and math formula are used to attach new ideas to existing theory. When that theory is gone the relationship dies. Output from the Hadron Collider will always be useful on the detail scale, as we remain interested in finding smaller things. Its value diminishes for understanding the universe. The Higgs boson wont be a universal particle. Physicists downplay theorizing, but theory reveals understandings while experimentation tests it. We will discuss many concepts of boundaries later on such as the fantasy of extra dimensions arising from expansion theory. Many accepted theories don't hold water if space and time are infinite.

3 Absolutes

Theories are built upon some logic base that separates the findings of one model from other models. We all think differently, some people view the world as black and white while others see things as grey. All physical models have needed to have some type of fixed concept, value or idea to build upon. Relativity demands a fixed and limiting velocity for light. That choice has of course led to many debates over the years. Light itself had been assigned a fixed structure of being massless. With the photoelectron Einstein then gave light into a dual nature as a flow with photons of mass.

Mathematics depends upon constants that are fixed and absolute. Boundaries themselves are absolutes. Newton's model contains the assumption that space is empty. While his 3 laws of motion refute any beginning, within an infinite universe, all contents must have beginnings. It is only the base that extends indefinitely. Newton's handling motion of orbitals implies absolute continuation of that motion. Trying to eliminate that absolute, others devised the weird ideas of some beginning gas clouds condensing into orbitals? Anyway, motion cannot be an absolute.

Relativity accepts Maxwell's views of light velocity c as fixed, only dependent upon its medium. No gravity or other causes are allowed to affect light velocity. Thus c fixes the geometry of space for relativity. The theory becomes that all distance can be measured by the time travel of light. Can a model exist without fixed laws and limits?

4 Is Space Empty?

Space itself has to be real. As mentioned, it can't be an empty vacuum or it wouldn't exist. From early times, from Aristotle to Copernicus, to Galilo, to Tycho Brahe, mankind studied space but had little interaction with space. Everything contemplated, such as gravity, was centered to the earth. Galileo provided tests of gravity force. Copernicus identified the orbiting motions within our solar system. Tycho Brahe diagramed the orbits with relation to the earth. Kepler gave a partial explanation of the orbital motions which finally implied a motion source related to the sun. There had been no understanding of why orbits existed or why the motion within orbits continued unchanged. Why don't the bodies fall away or why aren't they slowed by friction? Motion continuing unchanged does imply empty space.

That brings us to the arrival of Isaac Newton. Much of subsequent knowledge and of the science of Physics revolved (pun) around his work. He applied explanations of gravity at work on earth to events in space. His theories lead to interactions of spatial bodies and of all masses. In order to propose an ongoing centripetal gravity force that supported orbital motions, he had to overlook friction. He did so with his 3 laws of motion. A body at rest remains at rest unless externally affected. Motion of a body continues unchanged, (and thus the body is in a form of rest) unless interfered with. And finally, interference (by other moving bodies) imparts a new velocity and direction of motion to the body.

Building a theory based upon an absence of influence by something (friction in his case) was necessary for Newton to devise a world system and an absolute space theory. But in today's world of technical and detail knowledge, the absence of friction idea needs to be discarded in favor of an an ongoing impetus.

Newton's views competed with and overcame the whirlpool theories of Descartes as a source of orbital motion. A whirlpool representation of motions of space itself didn't measure as predicted by central spin experiments such as spinning fluids in a bucket or rotation within a fluid medium that extends to infinity. In neither example do the velocities or actions of the fluids simulate orbital velocities. That led to disinterest in Descartes' model. What is needed, and I provide later in paper 3, is a more extensive examination of the environments in which planets revolve and the variation in effects contributed by the sun as central source.

Since friction is interference, it was defined away by designation of space as a vacuum. We know today that space is not empty. Space must cause frictional interference. Science claimed that light radiation has no mass and thus can't cause a pressure of interference. But there are meteorites, solar wind, etc. And actually light is now known to cause pressure upon earth and upon eyes,

Newton proposed a super equality in which gravity maintains original motions by attracting planets with a perpendicular offset to the original motions. Somehow everything always exactly offsets. Without a motive force, imagine the scary thoughts of collapse if the equality is broken by friction.

Cosmological knowledge had always been gained from our central perspective. Mankind lived on earth so spatial reality has been a function of the relationship with earth. Theory was that matter dominates space. Tom Van Flandern extolled that view by suggestion we imagine the creation of the universe from one universal sphere and gradually add space and more masses. But space is the whole, everywhere serving as the container of masses. So in reality space dominates matter. Thus our collected knowledge has been oriented incorrectly. It is time for the 180 degree reorientation of perspective.

A motive force that creates the motion is required to offset the centripetal inward gravity effects. That motive force is actually supplied by the same gravity that pulls the bodies together and so stability is guaranteed. Given that space is real, what is it made of? Gravity has to be is a component. We don't view force as a thing that can serve as contents, so gravity must have physicality. Along with gravity, there is light passing through space. What is light and what makes it travel?

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5 EM radiation

Light became known as a form of radiation from the work of Faraday and Maxwell. Faraday discovered that magnets could distort the flow of electricity. Ultimately he proposed magnetism and electricity as being joined as radiation. Faraday also recognized that space was full of radiation which included the flow of electricity and magnetism. Since light flowed thru space it must be radiated waves. Light became the foundation of the Electromagnetic scale, and a spectrum based on waves was formed.

Maxwell believed in Faraday and created some related mathematics. His findings included the idea that radiation has a fixed and maximal velocity from which we get the constant c. Maxwell proposed that gravity is not instantaneous but has a velocity of its own. Maxwell failed in his attempt to connect EM radiation with gravity but he had some thoughts, ultimately rejected, about pushing gravity.

Faraday and Maxwell had focused on the flows of electricity and magnetism and Faraday found a commonality in their flow. The two forces had flows whose waves are differently directed. In the linear view waves are a distortion of flow and jut off line in the XY direction or the YZ direction. The choice of offset plane determines magnetism

vs electricity. Three dimensions have a third coordinate direction which happens to be the XZ direction of the flow. They didn't include Gravity. It shouldn't have been hard since gravity effects and magnetism effects are similarly seen as attractions. Gravity must flow.

6. Light

Matter and the flow of light/EM radiation is a prime focus of cosmology. Mankind has made important discoveries throughout the ages related to light.

The whole EM radiation structure started with the study of light. Clearly light travels through space. The sun and stars prove that. We restate here that the structure of light is defined as massless. But there is a pressure by light beams in certain situations when they hit the eye or when beams arrive from the sun. This pressure concept led Einstein to propose a dual structure for light in which light was wave like as well as mass like. Einstein assigned light wave beam structure to include the photon particle.

Prior to that light was massless by definition. But light waves have a nature and move or flow forward. Shouldn't everything that has a nature be subjected to gravity? Assuming only massive items are affected forms a boundary and leads to a constant speed for light. But let's say that light beams/photons are launched by the source star. A related visual model is a rocket being fired upward. The rocket will probably slow and possible fall back to the surface. Light moves so fast that for efficiency sake the gravitational effect has always been ignored. That allows the velocity base c and limit for Relativity. But the speed it cant be absolute! Light should be affected and no matter how little the gravity effect can muster, the source body remains directly behind the flow of the light for many light years. At some point science must consider the trivial (due to distance) continuing gravitational 'attraction' on a photon against the extensive time continuation of the flow. Red shift should be seen as a logical sign of some minor slowing of the flow of light? Stretching a wave into a longer beam causes fewer wave arrivals and thus a slower velocity. This is not just a terminology answer. That slowing would duplicate the current view expansion of space between the source and the destination with light velocity being constant. Expanding this logic, isn't that source gravitational causing slowing of the beam and thus causing a redshift? That redshift is gradually overcome by the gravitational attraction of the destination star. That star pulls the light so it goes faster. The overall speed and appearance of the light beam becomes blue shifter relative to earlier in its flow and recovers its emitted form upon its subsequent arrival.

The Pound - Rebka test supports this gravity model. That test is done originating light in space near earth aimed down to earth. The test suggested and proved that the destination pull is occurring for incoming light and is causing a blue shift.

The gravitational redshift, which would occur during the first half of the light transfer from source to destination, then serves as an alternate to the Doppler idea of bodies moving apart and thereby causing the red shift. Expansion is no longer a logical model of space and the universe.

We have mentioned that light red shift increases with the distance of the source. With my variable light speed, at some distance, the shift exceeds the visible red range. In 1826, Olber proposed a paradox in which the night sky should be solid light from an infinite number of stars. He was correct in a manner of speaking, however the light has continually been red shifted. As the waves extend in length they become infrared, microwaves, radio waves and beyond. Appropriately, an isotropic microwave background is observed signifying an approximate distance from which all light from very distant sources is shifted beyond the visible. All directions reveal a similar amount of starlight shifted into the microwave range. This background has been given a whole existence of its own and is called black body radiation. The cosmic background radiation is Olber's starlight ablaze allover. Science never convincingly solved the diminishing of light across space. This background radiation gives the false impression of a boundary to the universe. Actually gravity causes it.

Light beams act in a manner similar to matter. Light is subject to forces such as gravity. There is no need for a dual nature or for the photon. All actions of light such as its impact and penetration can be viewed as functions of its wave/coil nature.

Light can be formed when spatial beams initiate interactions with mass particles. Spatial beams gain increased frequency. We will learn how heavenly bodies such as our sun convert penetrating flowing beams and create and release light and heat. Nothing is really burned up or used up even by particle conversion within a sun. Its output is simply a converted form of the penetrating paep (gravity particle) beams passing through.

7. Motion

Motion is the function of gravity which affects all things. The effect is a pressure causing motion of the things. All motion is an outlet of and is caused by gravity. And the converse is true. Absolute motion cannot be determined because everything is set

against the universe content gravity which is always in motion itself. In other words there is no absolute frame of reference for defining any displacement of one's location.

The dominant activity in the universe is motion of celestial bodies relative to each other. With infinity fully addressed, our all-inclusive physical theory should focus next upon spatial motions. Once the source of the motion is determined, the second level of interest becomes the tools for measurement of the motion. There are two primary types of motion, rectilinear (translational) motion and rotational motion. Rectilinear motion is simple measure of the displacement over time and includes any included variations in that displacement. Angular/rotational motion is relative to a point or line and includes lateral displacement – change of angle of orientation – and may include distance displacement as well. Combining the measures of rectilinear and of angular motion for projectiles leads to most difficult physical understanding of space. The function of separating the two is addressed as part of Newton's 3 laws.

A fundamental oversight in relativity theory is that the transmission of light helps dictate the nature of space. For example, a source has moved while the signal transmitted.

What we have is an entanglement between the motions of bodies and their signals to others. Light/radiation and our upcoming 'external pushing gravity' are the two transmissions which convey the nature of celestial bodies. If we assume that what we see is what is, then the light signal dominates. But Einstein pointed out an issue with light where significant motion of bodies relative to light signals distorts their location and time measures.

Light signals likewise can be influenced by motion of the observer, which action is specified as aberration. Our conundrum is that light conveys the suggestion of source motion while the motion influences the transmission of the light beam.

Waves are motion relative to a line of flow and poise many issues.

8. The Nature of Space

We must address the Aether concept!

After Newton's gravity work and in his in depth analysis of light, the finding of a transmission system for light and radiation gained importance. The concept of Aether came into use. The Aether was to be the 'body' of space whether it was a solid or

something like gaseous. Questions arrived such as Is the Aether the same away from vs near masses? How about within masses? Does it carry radiation as well as matter bodies? Extensive debate continued until Einstein refuted the concept of Aether using the Michelson & Morley findings about the lack of interference with light from the sun by Earth's motion. *(the incorrect conclusion claimed no interference by earth's motion. In reality our motions create lateral equilibrium in which at earth's surface no frequency change would logically occur.)

Accepting MM as a correct interpretation is an example of improper specification of the base for an analysis. The interference test was of light relative to us. Using "attraction" gravity theory causes us to relate to a base mass. For pushing gravity we will seek an improved orientation and view it from the base of space itself. When studying light, its frequency is affected by equilibrium. Earth exists because of the equilibrium of impacting forces. While light can change frequency while crossing space, it can retain its lateral frequency upon earth. We should recognize that any absence of interference is an output function of flows through space. In reality, earth and other mass bodies in space are in equilibrium. Equilibrium on cosmic body surfaces is a lateral situation. Gravity removes equilibrium in the vertical direction but that was not what was tested. No net of forces offsets local activity parallel to the ground such as running and driving motions. Ultimately the MM test only proves an absence of aberration of the sun's light as it arrives on earth. See the aberration chapter.

The Aether continues to be proposed today as scientists need something to exist as space. Here we refute the existence of Aether in a major revelation! What travels thru the cosmos? Light and thus all radiation emitted from stars and other bodies everywhere. The emissions are all radiation (rays). Given the nearly infinite number of stars all destination points are receiving beams from 'all' directions all the time. The radiation travels rapidly and together the beams join to create a blanket of existence that is simulates a solid. There is no void area.

You may object that in the extremely small points there are empty spaces between the beams of radiation. Such voids would refute continuity. But here we use a similar perspective that Heisenberg used for his uncertainty principal. Recognize that the beams travel at the near the infinite velocity of c. Likewise the beam sources are in constant motion. Although very minimal, displacement continually occurs within any remote point flowing beams can shift perpendicularly relative to all receiving points. In the time it would take to isolate an empty point in space it would be reformed by a further beam angling in at some slightly different direction. Therefore it is radiation

alone that defines our space and no Aether is needed. Space is radiation and all space is real and similar throughout. No concocted concepts are needed.

The farther radiation travels from its source the greater the distance between rays. That gap is filled by rays from other sources. With all these rays from every direction defining space there is no need for additional mediums. Space is filled by EM radiation which becomes both the action and the medium. We call this the fabric of space. Essentially the light waves are examples of the movement of the medium just as sound comes from the movement of air.

Science has observed that light moving in one direction does not affect light moving in other directions when they intersect. The same non-interference could then apply to all EM radiation. While the radiation is moving the interaction of waves from all directions gives the impression of stasis, or no detectible motions. Space can appear void while moving internally in all directions, even at speed c. This is also mentioned when the waves of opposing beams collide and stop while the center lines of flow can continue w/o interference.

References

[1] The Free Dictionary, The American Heritage® Dictionary of the English Language, Fourth Edition copyright ©2000 by Houghton Mifflin Company. Updated in 2009. Published by Houghton Mifflin Company.

[2] Paul Schroeder, **The Universe is Otherwise** (Booksurge/Createa- space, 2006).

[3] Paul Schroeder, "Paeps: External Gravity Particles (The Universe is Otherwise: Part 1)", (2008), http://www.worldsci.org/php/index. php?tab0=Abstracts&tab1=Display&id=3224&tab=2.

[4] Paul Schroeder, "The Spectrum of Existence (The Universe is Otherwise: Part 2)", (2008), http://www.worldsci.org/php/index.php ?tab0=Abstracts&tab1=Display&id=4152&tab=2.

[5] Paul Schroeder, "Motions, Rotations and Revolutions (The Universe is Otherwise: Part 3)", (2008), http://www.worldsci.org/ php/index.php?tab0=Abstracts&tab1=Display&id=3229&tab=2.

[6] Paul Schroeder, "Gravity from the Ground Up", *Proceedings of the NPA* **7**: 498-503 (2010).

[7] Paul Schroeder, "Get 'Real' About Gravity" ", *Proceedings of the NPA* 8: 521-529 (2011).

[8] Paul Schroeder, "Ignoring Newton's Hints Brought Scientific Chaos" ", *Proceedings of the NPA* 8: 521-529 (2011).

[9] Isaac Newton, **Principia**; in James Newman, **The World of Mathematics**, Vol. 1, p. 261 (Dover, 2003).

[10] Greg Volk, "A Matter of Definition", *Proceedings of the Space, Propulsion & Energy Sciences International Forum* (College Park, 2011); "The Meaning of Maxwell's Equations", unpublished.

[11] Leonardo Motta, "1905 and all that", on internet quoted in Eric Weissteins world of physics under Michelson Morley experiment – ether. 1996-2007 *Scienceworld - wolfram.com* vol,pg,yr unidentified.

[12] Xin-She Yang and Qian-Shen Wang, " Gravity Anomaly During the Mohe Total Solar Eclipse .." Astrophysics and Space Science 282: p245-253 2002.

[13] Paul Schroeder, "Gravity and Revolution Rates Within Galaxies" ", *Proceedings of the NPA* 9 (2012).

[14] Paul Schroeder, "Creating Matter From EM Radiation" ", *Proceedings of the NPA* 9 (2012). *pp. 510-513*

[15] Paul Schroeder, "Mass Rotation Controls Orbiting" ", *Proceedings of the NPA*10 (2013).

[16] Paul Schroeder, "Creating Matter From EM Radiation" ", *Proceedings of the NPA* 10 (2013).

[17] Paul Schroeder, Arthur Ramthum, Robert De Hilster, "Gravity is a Pushing Force.", *Proceedings CNPS* (2016).