

Title –

Precursor to The Theory of Everything. This is just a brief outline – not a formal theory with specialized terms and maths equations.

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Abstract – This article began as a question to an astronomy magazine about the Milky Way which I thought of when reading an article of theirs about astronomers looking billions of years into the past at dwarf galaxies. This led to my second question suggesting universal expansion can be reduced to an inflating cosmic fifth dimension. A 1919 paper by Einstein then combines with fractal geometry to equate it with multiple quantum fifth dimensions. It's then suggested that the WMAP spacecraft shows dark energy is this fifth dimension and that it possesses mathematical form. This maths borrows ideas from string theory to conclude there are "currents" of binary digits flowing in two Mobius loops that are connected into an infinite number of figure-8 Klein bottles. In this way, in addition to fifth dimensional hyperspace being mathematical, the four dimensions of space-time are also shown to be composed of maths. This offers an explanation of wormholes and cosmic strings; and each figure-8 Klein bottle is said to be a subuniverse (our own being 13.7 billion years old) within an infinite, eternal universe often called the multiverse when subuniverses (which share one set of physics' laws) are wrongly called parallel universes and claimed to have differing laws. Dark energy is considered to be not merely the fifth dimension but the radiation of binary digits from that hyperspace to create everything (in the form of mathematically-generated gravitational and electromagnetic waves). Since "everything" refers to mass and all the other properties of matter's particles, they produce the non-Standard Model Higgs field. Binary digits are the cause of the effect known as gravitation and the idea of retrocausality – the time component of space's quantum entanglement – can remove any separation of cause and effect to make gravitation equal to dark energy ... as long as gravity is assumed to be a repelling force. This makes it compulsory to explain its obvious attraction. I've addressed various details concerning this in my articles but I'll just address one point here – Earth's orbit. This article ends by mentioning the warped nonlinearity of time and the possibility of future human involvement in creation; the existence of God (non-supernatural) via the inverse-square law's infinite aspect coupled with eternal quantum entanglement; the Law of Conservation; and evolution's continuing existence as adaptation.

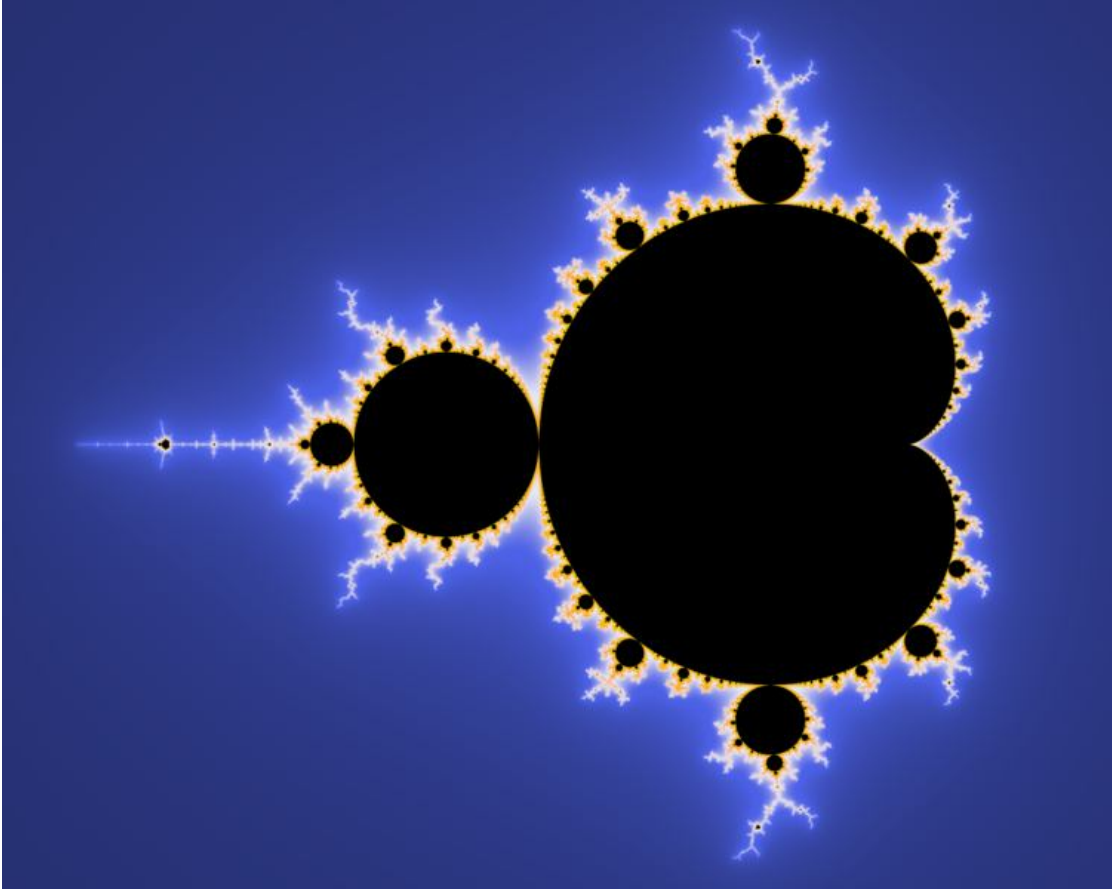
Content –

When astronomers look at dwarf galaxies 10 billion light years away (more or less), could one of those dwarfs be the formative stage of the Milky Way? After all, the astronomers are looking billions of years into the past; before universal expansion put our galaxy in its present location. (To use the crude analogy of galaxies in an expanding universe being like dots on a balloon being inflated, dots move further from the balloon's centre as inflation proceeds.)

And a 2nd, related question -

Or has the Milky Way always been exactly where it is now, with expansion increasing distances between galaxies but doing nothing else? Returning to the prior analogy - if distance from the balloon's centre does not change the distance between galaxies in this 4D space-time, wouldn't the fact that distance from the centre increases suggest that the cosmic space-time we know exists on the surface of an inflating cosmic 5th dimension?

Suppose Albert Einstein was correct when he said gravitation plays a role in the constitution of elementary particles (in "Do Gravitational Fields Play An Essential Part In The Structure Of The Elementary Particles Of Matter?", a 1919 submission to the Prussian Academy of Sciences). And suppose he was also correct when he said gravitation is the warping of space-time. Then it is logical that gravitation would play a role not only in elementary particles but also in the constitution of the nuclear strong force and the weak nuclear force i.e. the nuclear forces may not be separate from gravitation but may be modifications of it. The warping of space-time that produces gravity means space-time itself plays a role in the constitution of elementary particles and in the nuclear forces. In a universe that obeys the rules of fractal geometry, the 5th dimension would not only exist on a cosmic scale but would play a role in the quantum world of elementary particles, too. When forced to summarize the general theory of relativity in one sentence, Einstein said: time and space and gravitation have no separate existence from matter.

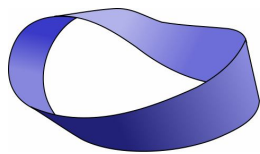


MANDELBROT SET: Benoit Mandelbrot developed this fractal geometry and coined the word fractal (a fractal is a shape such that, if you look at a small piece of the shape, then it looks the same as the original, just on a smaller scale – it is used to describe coastlines, mountain ranges, etc). The diminishing size of spheres may be seen as representing cosmic, galactic, human, quantum scales.

The WMAP space probe (Wilkinson Microwave Anisotropy Probe) has determined that a very large 72% of the universe is dark energy, and a possible explanation of dark energy's nature is that it is the 5th dimension (existing both in the universe as a whole and in every particle). It's impossible to point to the 5th dimension ... or even to the 4th dimension of time, so these cannot be physical. Since the union of space-time is well established, we can assume the 4th dimension is actually measurement of the motions of the particles occurring in the 3 dimensions of length, width, and height. The non-physical 5th dimension might be a manifestation of Professor Max Tegmark's MUH (Mathematical Universe Hypothesis). After all, maths has no problem at all describing extra dimensions.

At this point, a few ideas can be borrowed from string theory's ideas of everything being ultimately composed of tiny, one-dimensional strings that

vibrate as clockwise, standing, and counterclockwise currents in a four-dimensional looped superstring. We can visualize tiny, one dimensional binary digits of 1 and 0 (base 2 mathematics) forming currents in a Mobius loop – or in 2 Mobius loops, clockwise currents in one loop combining with counterclockwise currents in the other to form a standing current. Combination of the 2 loops' currents requires connection of the two as a four-dimensional Klein bottle whose construction from binary digits would make it malleable and flexible, deleting any gap and molding its border to perfectly fit surrounding subuniverses. This Klein bottle could possibly be a figure-8 Klein bottle because its similarities to a doughnut's shape describes an idea suggested by mathematics' "Poincare conjecture". The conjecture has implications for the universe's shape and says you cannot transform a doughnut shape into a sphere without ripping it. One interpretation follows: This can be viewed as subuniverses shaped like Figure-8 Klein Bottles gaining rips called wormholes when extended into the spherical spacetime that goes on forever (forming one infinite superuniverse which is often called the multiverse when subuniverses - which share the same set of physics' laws - are incorrectly called parallel universes which are wrongly claimed to each possess different laws). Picture spacetime existing on the surface of this doughnut which has rips in it. These rips provide shortcuts between points in space and time – and belong in a 5th-dimensional hyperspace. The boundary where subuniverses meet could be called a Cosmic String (they'd be analogous to cracks that form when water freezes into ice i.e. cosmic strings would form as subuniverses cool from their respective Big Bangs). An interpretation of dark energy would be to consider it as radiation of binary digits from hyperspace. Gravitation can be viewed as the effect of the cause known as binary digits. What if Israeli scientist Yakir Aharonov, and others, are correct about the theory of retrocausality (that effects influence causes – therefore, causes and effects are not necessarily separate?) Gravitation would then be dark energy too, and I think it would change the astronomy world if scientists would study this possibility.



Möbius loop – This is how it might be used in building a universe: We write down everything our species has learned (an “Encyclopedia Universalis”). Instead of using ink, we use the binary digits of 1 and 0. And we do not write on paper or in computers in a linear fashion (one line after the other ... left to right, top of page to bottom). We “write” in the warps of space-time and hyperspace and do so in Möbius fashion (everything is written so that it's comparable to being on a piece of paper that's given a twist before the ends are joined). This causes curving and warping in space-time, confusion of “here” and “there” (quantum entanglement), and muddled causes and effects (retro- or backward causality). Because of this entanglement of all time and space; if the writing is done in the year 3,000 it **might possibly** still include the knowledge of the year

3,000,000 or 3,000,000,000 and so on.

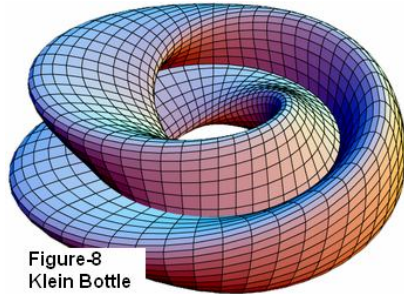
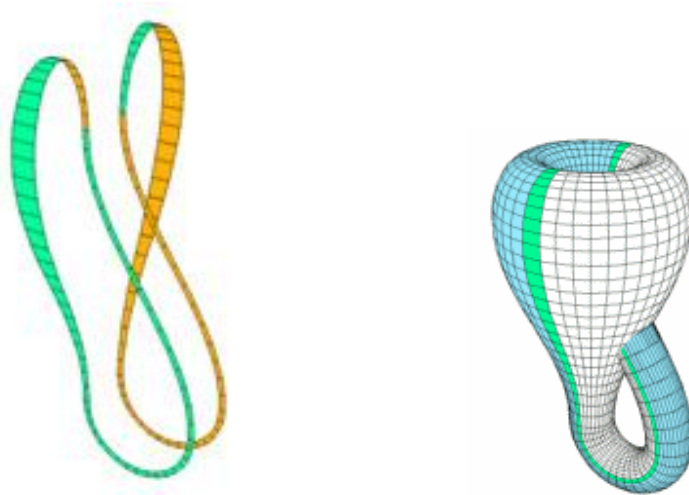


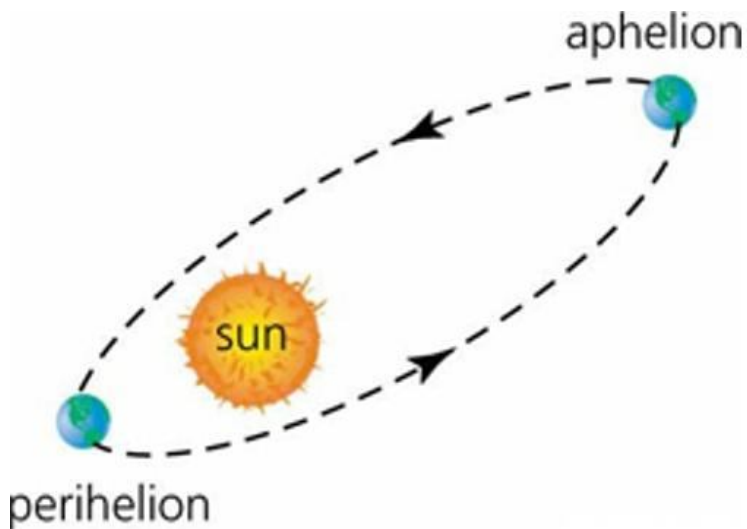
Figure-8
Klein Bottle

(2 Mobius loops – each one is 2 dimensional - joined along their edges can form a 4 dimensional figure-8 Klein Bottle) Remember that the flexibility afforded by 1's and 0's seamlessly welds this, a subuniverse, with surrounding subuniverses as well as deleting the hole from its centre.



2 unjoined Mobius bands are connected into an ordinary (non figure 8) Klein bottle by a band having a front and back
(thanks to <http://plus.maths.org/content/os/issue26/features/mathart/index> for illustration)

Of course, equating dark energy with gravitation means gravity is a repelling force. This makes it compulsory to explain its obvious attraction. I've addressed various details concerning this in my articles but I'll just address one point here - Earth's orbit



As gravitational waves travel from the outer solar system towards the sun (as a starting point, let's say they're coming from the lower left in this picture), they'd push the orbiting Earth to aphelion, its farthest distance from the sun – 152 million km. But gravity waves are also coming towards the sun from the aphelion direction. So Earth's progress to the upper right is stopped and it follows the line of least resistance to waves pushing it from both the lower and upper directions – this corresponds to the path indicated by the arrow pointing left. When it reaches perihelion (its closest approach to the sun – 147 million km), the waves from the right are pushing it back while waves from the left are pushing it forward. Our planet follows the boundary between waves assaulting it from opposite directions and its inertia compels it to follow the arrow pointing right. Upon reaching aphelion again, the tug-of-war (oops, I mean push-of-war) continues and Earth's momentum causes it to go left. We mustn't forget the waves that push Earth towards and away from the sun at both its perihelion and aphelion points. The balance between these forces reinforces the planet's tendency to stay in the illustrated orbit. The sun's position in the illustration is exaggerated – it should be closer to the centre of the ellipse since the difference between perihelion and aphelion is only about 3%. The existence of this difference would rely on the planet manifesting as a multitude of matter-forming wave-packets* which divert some gravity waves to every point from the top of the atmosphere to the centre of the inner core – thus slightly upsetting the balance of gravity waves from opposing directions (if space wasn't warped, gravity waves from all directions would contribute equally to Earth's orbit and wave packets).

* Wave packets are a concept in quantum mechanics - introduced in 1926 by Erwin Schrodinger and interpreted later that year as **probability waves** by Max Born. Here, they're interpreted as the places where mathematically-generated gravitational and electromagnetic waves interact in particles of

matter to give those particles mass and their other properties. In other words, they produce the non-Standard Model Higgs field.

BITS (Binary digITS) only suggest existence of the divine if time is linear. Although a non-supernatural God is proposed via the inverse-square law coupled with eternal quantum entanglement,** Einstein taught us that time is warped. Warped time is nonlinear, making it at least possible that the BITS composing space-time and all particles originate from the computer science of humans.

** The inverse-square law states that the force between two particles becomes infinite if the distance of separation between them goes to zero. Remembering that gravitation partly depends on the distance between the centres of objects, the distance of separation between objects only goes to zero when those centres occupy the same space-time coordinates (not merely when the objects' sides are touching i.e. infinity equals the total elimination of distance – the infinite cosmos could possess this absence of distance in space and time, via the electronic mechanism of binary digits). Zero separation is the case in **quantum-entangled** space-time and physicist Michio Kaku says in his book "Physics of the Impossible" that modern science thinks the whole universe has been quantum-entangled forever. This means there's still room for the infinity known as God. God would be a suprapantheistic union of the universe's spatial, temporal, hyperspatial, material and conscious parts; forming a union with humans in a cosmic unification, and a universal intelligence. Science's own Law of Conservation says the total mass (or matter) and energy in the universe does not change, though the quantity of each varies (I interpret this Law as saying – to get matter and energy, you have to start with matter and energy; which means that time must be warped). So what happens if we subtract humans of the distant future - with their ability to travel into the past and use incomprehensibly-advanced cosmogenesis, terraforming and biotechnology (cosmos, Earth-like planet, and life-generating abilities) from the origins of life? It becomes impossible for inorganic materials – and referring to the creation of amino acids in the laboratory by Harold Urey and Stanley Miller in 1952, relatively simple amino acids - to be assembled into complex plants and animals, whose adaptations are often called evolution.
