

Title – **Echoes of the Big Bang**

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Abstract –

What do you think of today's attention to so-called echoes of the big bang (imprints of gravitational waves from the time of the big bang that have left their trace in the cosmic microwave background)? It's obviously an amazing discovery but my fear is that it's going to be used more for alleged confirmation of present theories than for investigation of the questions it raises (especially in the short term). A starting point for these questions is, "If the universe expanded to about the size of a football in 10^{-36} second, what was outside the football?" Many people will say this is an invalid question because no space or time existed outside the football. But I think that's mere evasion of the question (understandable if there are no other ideas to fall back on).

There's a simple alternative which says there was space and time outside the football, and this alternative is supported by the modern idea of a multiverse. I'll take a lazy approach to the last sentence and copy/paste relevant sections from a couple of my recent vixra articles - "Defining Division by Zero (Making it not Just Possible, But Essential) and Relating Zero to Infinity" (<http://vixra.org/abs/1402.0087>) and "Connecting Bioscience, Atoms, Gravitation, Black Holes, and Strings" (<http://vixra.org/abs/1403.0149>). I heard a short talk with Dr. Lawrence Krauss, a theoretical physicist at Arizona State University in the US (<http://www.abc.net.au/newsradio/content/s3965819.htm>), whose comments about gravity being a quantum theory and the universe originating from "absolutely nothing" are addressed by my articles. If the binary digits of 1 and 0 are the basis for manufacturing space-time (whose curves and warps are gravity), this is in firm agreement with gravity being a quantum theory. And electronic bits could easily avoid Dr. Krauss's "supernatural shenanigans" by being a product of human technology – we know this much to be true – that is recycled to 13.8 billion years ago by our future discovery of how to time travel into the past (a hypothesis explaining this is presented).

It seems unfortunate that no science journal is interested in my ideas (maybe it's the way I write?) because I'm certain I'm correct, even if my ideas sound too strange to be true. I don't think I'll bother sending these thoughts to Dr. Krauss (professional scientists don't answer my emails) – but I just might, if I get impulsive.

Part A –

From "Defining Division by Zero (Making it not Just Possible, But Essential) and Relating Zero to Infinity"

"DIGITAL" STRING THEORY AND RENORMALIZATION

Let's borrow a few ideas 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 - "Workings of the Universe" by Time-Life Books (1991, p.84). We can visualize tiny, one dimensional binary digits of 1 and 0 (base 2 mathematics) forming currents in a two-dimensional program called 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. This connection can be made with the infinitely-long irrational and transcendental numbers. Such an infinite connection* translates - via bosons being ultimately composed of the binary digits of 1 and 0 depicting pi, e, $\sqrt{2}$ etc.; and fermions being given mass by bosons interacting in matter particles' "wave packets" – into an infinite number of Figure-8 Klein bottles which are, in fact, "subuniverses" (binary digits fill in gaps and adjust edges to fit surrounding subuniverses [similar to manipulation of images by computers]). Slight "imperfections" in the way the Mobius loops fit together determine the precise nature of the binary-digit currents (the producers of space-time-hyperspace, gravitational waves, electromagnetic waves, the nuclear strong force and the nuclear weak force) and thus of exact mass, charge, quantum spin.

* If the material and immaterial universe consists of an infinite connection of transcendentals and irrationals, renormalization might be unnecessary in certain circumstances. This mathematical procedure is regarded as prerequisite for a useful theory and is used in attempts to unite general relativity with quantum mechanics to produce Quantum Gravity and the Theory of Everything. Renormalization seeks to cancel infinities – but in a literally infinite universe, retaining the infinite values might point the way to deeper understanding of the cosmos.

Mobius Loop

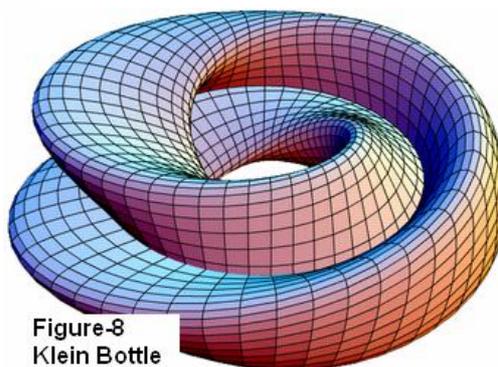
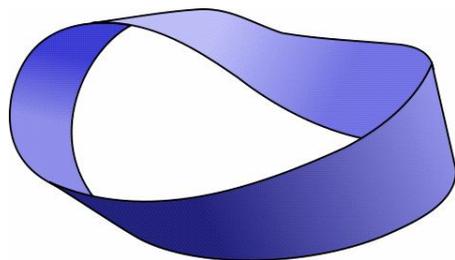


Figure-8
Klein Bottle

INFINITY

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). That is, 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, which would make the universe as malleable and flexible as any image on a computer screen. If infinity is the total elimination of distance in space-time, there would be nothing to prevent instant intergalactic travel or time travel to the past and future. Infinity does not equal nothing - total elimination of distance, or space-time, produces nothing in a physical sense and reverts to theoretical physicist Lee Smolin's imagining of strings as "not made of anything at all" - "What String Theory Tells Us About the Universe" by Dr. Odenwald: Astronomy – (April 2013, p.35). It also reverts the universe to the mathematical blueprint from which physical being is constructed (this agrees with cosmologist Tegmark's hypothesis that mathematical formulas create reality – "Is the universe actually made of math?" by Adam Frank - <http://discovermagazine.com/2008/jul/16-is-the-universe-actually-made-of-math#.UZsHDalwebs>, and "The Mathematical Universe" by Max Tegmark - <http://arxiv.org/abs/0704.0646>. So, infinity = something (mathematics, just like zero).

STEADY STATE UNIVERSE, BIG BANG SUBUNIVERSES AND BLACK HOLES

As for the new perspective on the Big Bang, don't think of space's expansion as the universe starting with a big bang and the galaxies forever flying apart. Think of it as the production of "new" space by binary digits which is added to existing space and pushes that existing space farther and farther away. The Law of Conservation says new space isn't created from nothing but is converted from something else. It may be speculated that new space is converted from the BITS (BInary digiT'S) of 1 and 0. (Does ultra-advanced human computer technology of the far future have a role in the universe's origin and destiny?)

Also, recall that each "subuniverse" (bubble or pocket universe) is one of a series of figure-8 Klein bottles (extending infinitely in every direction) composing the physically infinite and eternal space-time of the universe. The infinite numbers make the cosmos physically infinite, the union of space and time makes it eternal, and it's in a static or steady state because it's already infinite and has no room for expansion. Our own subuniverse has a limited size (and age of 13.8 billion years), is expanding from a big bang, and has warped space-time because it's modelled on the Mobius loop, which can be fashioned by giving a strip of paper a 180-degree twist before joining the ends. (It may have DOUBLE STRANDED, spiralling DNA because the universe is modelled on TWO twisted Mobius loops.)

And the new perspective on black holes would be – in the case of the sun, our star would become a black hole if it was compressed to 2.95 kms ("From the Big Bang to Dark Energy" – a lecture on coursera.org by Hitoshi Murayama from the University of Tokyo), in which case the pressure increase "shreds" the sun into its binary digits. In other words, its mass is relativistically converted into the energy of binary digits i.e. the bosons stop interacting in wave packets to produce the forces we identify as mass, and the bosons – which are ultimately composed of the binary digits depicting pi, e, $\sqrt{2}$ etc. (see "Digital String Theory") – register as 1's and 0's.

Part B –

From "Connecting Bioscience, Atoms, Gravitation, Black Holes, and Strings"

If space-time (whose warping is gravity) forms mass, there could be "currents" of space-time flowing in the "oceans" between the galaxies. Space-time would form the matter in the galaxies, and it would form the Earth/objects on this planet. How? By some of the currents of space-time or

gravity which pass the solar system's outer boundary being diverted towards the massive Sun's centre (just as some of the waves passing an island are refracted toward the shore by the island's mass). Along their course, the refracted gravitational waves are concentrated 10^{24} times # in the intense warping we call matter.

WHY IS GRAVITY WEAK? (C^2 AND THE ATOM)

When gravity waves concentrate to form matter, gravity travels from external to matter: it pushes against matter (repels). Repulsive gravity is dark energy*. Successive waves are re-radiated at unconcentrated strength from matter to external (opposite action to repelling wave) and attract – it must be remembered that attraction is merely a matter of perspective, since Einstein showed that attraction of two bodies of matter actually results from space-time's curvature pushing bodies. The space-time we live in is described by ordinary [or "real"] numbers which, when multiplied by themselves, result in positive numbers e.g. $2 \times 2 = 4$, and -2×-2 also equals 4. Inverted positive space-time becomes negative hyperspace which is described by so-called imaginary numbers that give negative results when multiplied by themselves e.g. i multiplied by itself gives -1 . Calculating time using imaginary numbers makes distinctions between time and space disappear. A hypothetical negative 5th-dimension is described by imaginary numbers and motions of its negative particles (dark matter) are time, since time can be calculated using imaginary numbers. So imaginary numbers eliminate distinctions between space-time and the 5th dimension, permitting dark matter to exist as "ordinary" matter's scaffold.

* Feeble gravity might push galaxy clusters apart in the same way that feeble sunlight propels a solar sail. In the 1970s, Robert Forward proposed two beam-powered propulsion schemes using either lasers or masers to push giant sails to a significant fraction of the speed of light. These vastly magnify the power of sunlight via Light (or Microwave) Amplification by Stimulated Emission of Radiation. How is gravity's power boosted? When Einstein penned $E=mc^2$, he used c (c^2) to convert between energy units and mass units. The conversion number is 90,000,000,000 (300,000 km/s x 300,000 km/s) which approx. equals 10^{11} . After gravity forms matter, successive gravity waves are, via gravitational lensing, concentrated 10^{24} times within the matter (to 10^{25} , weak nuclear force's strength). Then they're further magnified by the matter's density to achieve electromagnetism's strength (10^{36} times gravity's strength) i.e. 10^{25} is multiplied by Einstein's conversion factor [10^{11}] and gives 10^{36} . Successive gravity waves are absorbed by the matter and radiated as longer-wavelength waves (both as electromagnetic waves - possibly gamma rays, or a microwave background – and as gravitational waves which have lost 10^{24} of their energy or strength (and are labelled " 10^{11} ".)** If space comes from bits (the Binary digiT'S of 1 and 0 -

specifically, the energy responsible for the bits is converted into space), then so does gravity (warping of space). So as more and more energy is invested in bit production, more and more space and repelling gravity result. This causes accelerating expansion within the universe; as discovered in 1998 by Saul Perlmutter, Brian Schmidt, and Adam Riess.

** During absorption, something occurs with gravitational waves besides interactions producing electromagnetic and nuclear forces. Does this picture of the atom conflict with the theories of electroweak interaction (electromagnetism combined with the weak nuclear force) which won the 1979 Nobel Prize in Physics for Steven Weinberg, Sheldon Glashow and Abdus Salam? The warping of space-time in General Relativity is not separate from matter but gives an electron a mass of 0.511 MeV (mega electron volts) – technically, physicists say “0.511 MeV/c²” because an electron volt is actually a measurement of energy, and mass units equal energy units divided by c², or $m = E/c^2$ (which is $E=mc^2$ when both sides are multiplied by c²). ($E=mc^2$ means a tiny amount of mass can be converted into a very large amount of energy. Similarly, $m=E/c^2$ means a very large amount of energy is converted into a tiny amount of mass.) E (energy) is measured in joules (J), m is the mass in kilograms (kg; 1 kg = approx. 2.2 pounds), and c is the speed of light (about 186,282 miles/299,792.458 kilometres per second) measured in metres per second (m/s or ms⁻¹).

NEWTONIAN AND RELATIVISTIC GRAVITATION

There's a stronger gravitational force on the surface of the Earth because gravity is concentrated in the matter there. So, like in a black hole, time is slowed down (by much less and at lower altitudes, in the case of Earth). The high velocities experienced by orbiting astronauts also slows time at their extreme altitudes. The article “Gravitation” by Robert F. Paton - The World Book Encyclopedia (Field Enterprises Educational Corporation, 1967) – states, “... when one object is inside another, gravitation decreases the closer their centers are to each other” and Isaac Newton's 1687 Law of Gravitation explains why an object at the center of the earth would weigh nothing (it isn't affected by the concentrated gravity, which we call mass, above it). Objects in space or an orbiting spaceship are similarly free from the earth's (or any planet's or star's) concentrated gravity/mass which is below, instead of above, them and makes them relatively weightless. Gravity's pan-directional repulsive force * is UNconcentrated and, as Penguin Encyclopedia tells us, only about a millionth of Earth gravity. The concentrated gravity forming the spaceship is insignificant compared to the gravity forming a planet or star, and causes no reduction of weightlessness.

* Dr. Paton says, “Einstein says that bodies do not attract each other at a distance. Objects that fall to the earth, for example, are not ‘pulled’ by the

earth. The objects are pushed toward the earth by (the curvature of space-time around the earth).”

Recalling the “if space comes from bits” sentence from two paragraphs ago, black holes may be thought of as meeting-places and “sinks” for the gravitational currents flowing in and between galaxies. Though they aren’t composed of matter, they do have mass because they are “gravity sinks” and gravity is capable of producing matter and mass. In black holes, the mass falling into them is relativistically converted into the energy of binary digits i.e. the bosons stop interacting in wave packets to produce the forces we identify as mass, and the bosons – which are ultimately composed of the binary digits depicting pi, e, $\sqrt{2}$ etc. (see “Digital String Theory”) – register as 1’s and 0’s. They possess charge because the universe’s mathematical foundation unites gravity/spacetime with electricity/magnetism (see the paragraph about Digital String Theory). Since it has mass, a black hole can naturally possess the 3rd property of holes viz. spin. Far from the hole becoming infinitely dense and infinitely massive, there is no singularity but the matter is “shred” into binary digits by the black hole’s fantastic pressure.
