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## **A TALE OF 2 INFINITE UNIVERSES**

Author –

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Abstract –

The article "Infinite Universe" by Bob Berman ("Astronomy" – Nov. 2012) states, "The evidence keeps flooding in. It now truly appears that the universe is infinite." And "... any fraction of infinity is essentially zero. All we can ever hope to study (of the universe) is 0 percent." That would be true if defining infinity as "space that never ends" was the only definition of it. It's true that no-one can picture galaxies and stars going on and on without end. However, I believe there is another definition - infinity equals the total elimination of distance. Let me explain –

The preceding paragraph is my article's opening. The ensuing explanation involves many topics, including – the inverse square, gravitation, space-time, binary digits, string theory, unification of forces/laws of nature/parallel universes into one universe, conversion of the universe's mathematical foundation into energy's bosons and matter's fermions, cosmic wormholes, cosmic strings, mass/charge/spin, Big Bang(s), Higgs particle, quantum entanglement of spacecraft/galaxies/past/future, cesium atoms, speed of light, time dilation, mass increase/massless photons,  $E=mc^2$ ,  $c=\infty$ , reconciling general relativity and quantum mechanics without renormalization, inverting spacetime to create and access 5<sup>th</sup>-dimensional hyperspace.

If you find insufficient detail in these topics, remember that the purpose here is not to go into minute detail. It is to show how everything fits together to form a logical whole. When you understand the whole, you can be certain that attempts to go deeper into the details (with specialized language and equations) will be fruitful, and will not be a waste of time.

Content –

The article "Infinite Universe" by Bob Berman ("Astronomy" – Nov. 2012) states, "All we can ever hope to study (of the universe) is 0 percent." That would be true if defining infinity as "space that never ends" was the only definition of it. It's true that no-one can picture galaxies and stars going on and on without end. However, I believe there is another definition - infinity equals the total elimination of distance. Let me explain –

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 (the explanation of string theory in the next couple of paragraphs supports this).

A total absence of distance means the bosons of all forces are superimposed and unified (all the parallel universes are likewise unified into one infinite universe, which means they don't actually exist and there can only be one set of the laws of nature). This absence of distance is possible if all forces (and the infinite space-time of the universe) have a mathematical origin, in which case 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 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 <sup>[2]</sup> 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. <sup>[3]</sup> 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).

<sup>[2]</sup> The flow of ones and zeros can produce waves that cancel and result in electric neutrality and masslessness – they can produce waves that reinforce and result in mass or electric charge. Whether the charge is positive or negative depends on the precise orientation of the Mobius. The orientation of a Mobius is equivalent to the relative positions of 2 Mobius loops. Synchronous motion of the currents in the loops means a neutral neutron can have a large mass of 939.566 MeV/c<sup>2</sup> (approx. 1839 times an electron's energy) because both quantum Mobius loops are in motion – moving together, at the same rate – and producing 939.566 MeV of energy. (This might be adapted to a neutral Higgs particle whose

known example has a mass of about 125 or 126 GeV/c<sup>2</sup>.) The orientation of a Mobius (relative positions of 2 Mobius loops) determines the many combinations of fractions, negativeness, neutrality or positivity of mass, charge and spin. The combinations are finite because the two-dimensional Mobius programs from which fermions and bosons originate, plus each four-dimensional Klein bottle which manifests and expresses the particles, are themselves limited and finite.

[3] Currents in the two 2-dimensional programs called Mobius loops are connected into a four-dimensional figure-8 Klein bottle by the infinitely-long irrational and transcendental numbers. Such an infinite connection translates - via bosons being ultimately composed of 1's and 0's 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. Each Klein 1) is one of the universe's subuniverses (our own is 13.7 billion years old), 2) is made flexible through its binary digits which seamlessly, or almost seamlessly, join it to surrounding subuniverses and eliminate its central hole, and 3) possesses warped time and space because its foundation is the programmed curves in its mathematical Mobius loops (along with the twists they generate). The universe functions according to the rules of fractal geometry. So the Mobius does not exist only at the cosmic level. It also manifests at the quantum scale, giving us photons and protons etc.

Now, how long would it take a spacecraft to fly to a galaxy 10 billion (or 100 trillion) light years away if there is NO distance between them in reality? And since is teamed up with time in modern science, it would also take no time at all to arrive at a meeting with our neighbourhood's Big Bang or with the sun turning into a white dwarf. Space and time are no longer separate, but are an indivisible space-time. So if space and the universe are infinite, how can time not be eternal? The past and the future must both extend forever (the idea of time being finite arises from confusion of our subuniverse with the one infinite universe).

My approach regarding the nature of time - it's impossible to point to the 4th dimension of time, so this cannot be physical. Since the union of space-time is well established in modern science, 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 [0].

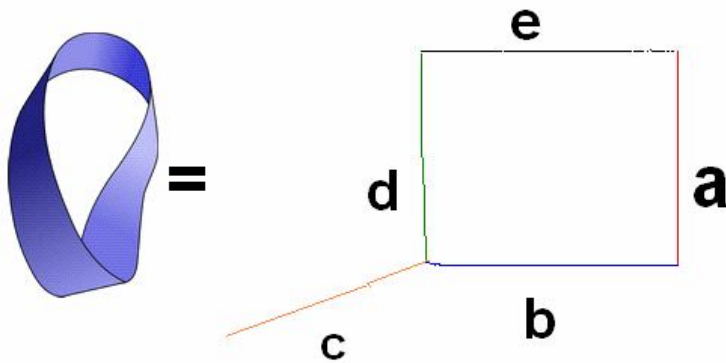
[0] The basic standard of time in the universe is the measurement of the motions of photons i.e. of the speed of light. This is comparable to the 1960's adoption on Earth of the measurement of time as the vibration rate of cesium atoms. At lightspeed, time = 0 (it is stopped). Below 300,000 km/sec, acceleration or gravitation causes time dilation (slowing of time as the speed of light is approached). If time's 0, space is also 0 because space and time coexist as space-time whose warping (gravity) is necessarily 0 too. Spacetime/gravity form matter/mass, so the latter pair can't exist at lightspeed and photons are massless (even when not at rest). Mass increase at increasing accelerations is inevitable

because the object is encountering more spacetime and gravity (the producers of mass). But mass increase cannot become infinitely large since mass doesn't exist at lightspeed. The object is converted into energy which means mass and energy must be equivalent and Energy must equal Mass related to the Speed of Light ( $E=mc^2$ , in the words of Albert Einstein).

[0 continued] The former pair (spacetime/gravity) also lose existence at the speed of light. Since the universe is based on mathematics (see below), it's possible to progress in number-line fashion from the **positive** acceleration in space-time to the state of **zero** spacetime at lightspeed ... and go beyond that to **negative** 5<sup>th</sup>-dimensional hyperspace described by imaginary numbers (see below). Later parts of this article show that this hyperspace beyond the speed of light allows a particular kind of time travel (various interpretations of Einstein's theories have suggested superluminal velocity permits time travel). We couldn't reach this hyperspace by travelling faster-than-light because we would have turned into energy – and no energy can exceed light's speed. But we can access hyperspace at subluminal speeds by “inverting” space (see following paragraph). Since there is zero, or no, spacetime at light speed; all distances – between here and there, past and future – are totally eliminated (a photon experiences the whole universe – and all time – in its existence). It is stated in <sup>[3.1]</sup> that the laws of gravity and the inverse-square combine to say “infinity equals the total elimination of distance”. So infinity exists at light speed. In “Physics of the Impossible” by Michio Kaku (Penguin Books 2008, p.227), “.. whenever we naively try to marry these two theories (general relativity and quantum theory), the resulting theory makes no sense: it yields a series of infinite answers that are meaningless.” We see, by <sup>[0]</sup> and <sup>[0 continued]</sup>, that infinite answers are supposed to be arrived at because “infinity (in the sense of total elimination of distance) exists at light speed”. Infinity and infinite answers are not barriers to uniting general relativity and quantum theory. When we realize that  $c=\infty$  (infinity exists at light speed), those infinite answers can yield not nonsense but real meaning.

Maybe hidden variables called binary digits could permit time travel into the future by warping positive space-time. And maybe they'd allow time travel into the past by warping a 5D hyperspace that is translated 180 degrees to space-time, and could be labelled as negative or inverted. (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  $-2 \times -2$  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  $-1$ . [Supporting info from Stephen Hawking's “A Brief History of Time” – Bantam Press 1988, p.134]) The past can never be changed from what occurred, and the future can never be altered from what it will be. Both are programmed by the 1's and 0's. Our free will can be used to a small extent to change the course of our personal lives ... but it's powerless to stop Hitler doing what he did, or to prevent humans learning to time travel

oneday.



Width  $a$  is perpendicular to the length ( $b$  or  $e$ ) which is perpendicular to height  $c$ . How can a line be drawn perpendicular to  $c$  without retracing  $b$ 's path? By positioning it at  $d$ , which is then parallel to (or, it could be said, at 180 degrees to)  $a$ .  $d$  (the spaceship) is already at 90 degrees to length  $b$  and height  $c$ . To be at right angles to length, width and height simultaneously (the state equivalent to time travel); it has to also be perpendicular to (not parallel to)  $a$ . This is accomplished by a twist, like on the right side of the Möbius loop pictured above, existing in  $a$ . Then part of  $a$  is indeed at 180 degrees to  $d$ , but part of  $a$  is at 90 degrees to  $d$ . This situation requires a little flexibility or "fuzziness" which allows the numbers to deviate slightly from their precise values of 90 and 180. The fuzziness is represented in nature by past, present, future, space, time, and hyperspace existing everywhere rather than being confined to particular locations. Thus,  $90+90$  (the degrees between  $b$  &  $c$  added to the degrees between  $c$  &  $d$ ) can equal 180, making  $a$  &  $d$  parallel. But  $90+90$  can also equal 90, making  $a$  &  $d$  perpendicular. (Saying  $90+90=90$  sounds ridiculous but it has similarities to the Matrix [of mathematics, not the action-science fiction movie] which is an array of numbers placed in rows and columns. It was worked out in the mid-nineteenth century by British mathematician Arthur Cayley, matrix mechanics is a version of quantum mechanics discovered by Werner Heisenberg in 1925, and matrices say  $X$  multiplied by  $Y$  does not always equal  $Y$  times  $X$ . In this paragraph, the first 90 plus the second 90 does not always equal the second 90 plus the first 90 because  $90+90$  can equal either 180 or 90.) If the universe is composed of an infinite number of subuniverses shaped like two 2-D Möbius loops joined to form a 4-D figure-8 Klein bottle, in each subuniverse there would be 2 perpendicularities to the twist (one lot of  $90+90$ , then another  $90+90$ ).  $180+180$  could equal 360 – represented in physics as a subuniverse, galaxy, black hole, subatomic particle (or a spherical wave that spreads to its destination instantly,

translating space by 90 degrees i.e. producing quantum entanglement).  
180+180 could also equal 180 – represented in physics by two spherical waves instantly arriving from opposite directions and their simultaneous quantum entanglement producing inversion of space (translation by 180 degrees - i.e. making length, width and height simultaneously perpendicular, or travelling in time) which permits the spaceship to enter hyperspace and journey into the past).