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Opinion

Data Swapping in the Digital Universe

Rodney Bartlett[1,*]

[1] Information Physics Institute, Gosport, Hampshire, UK

*Corresponding author: s266976@students.cdu.edu.au

Abstract - Some well known scientists – John Wheeler, Erik Verlinde, Max Tegmark, Edward Fredkin, Melvin Vopson - suggest that information is fundamental to the physics of the universe, and that computer-generated / mathematical formulas create reality. In the case of waves being digital, the waves would not merely be described by mathematics but would literally be the result of maths. Digital waves then propose a modification of the theory that dark matter consists of ultralight particles. They're hypothesised to be so light that they're no longer particles but are digital collections of binary digits produced by the Electric Dipole Moment decomposing ordinary matter. The gravitational waves which Einstein speculated to be involved in composing mass would rotate from their normal position on the x-axis and leak into the extra-dimensional y-axis, initially in its positive aspect (hyperspace) then in its negative portion (subspace). When it returns to the positive x-axis, the binary digits constituting gravity interact with those making up electromagnetism to refresh the universe's particles (returning them to their previous, original state and preventing entropy). The quantities of dark matter and dark energy in the universe are calculated using cosmology's standard Lambda-CDM model plus the concept of enthalpy (the enthalpy H of a thermodynamic system is defined as the sum of its internal energy and the product of its pressure and volume). There are also consequences for Special Relativity's non-simultaneity, Quantum Mechanics' quantum superposition, and Lambda-CDM's concept of an expanding universe. To paraphrase H. G. Wells from his novel "The First Men in the Moon", "If the world will not have (this article as valid hypothesis), then the world may take it as fiction.".

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Some well known scientists – John Wheeler, Erik Verlinde, Max Tegmark, Edward Fredkin, Melvin Vopson - suggest that information is fundamental to the physics of the universe, and that computer-generated / mathematical formulas create reality. In the case of waves being digital, the waves would not merely be described by mathematics but would literally be the result of math. A three-dimensional cube can be regarded as a reality coded on a 2D surface - in other words, the 3D cube emulates cosmology's Holographic Principle and is produced from the information in a square. The 2D square would be a nonlinear (angular) math object resulting from adding four lines on a surface, each one being separated from those adjoining it by 90 degrees. Instead of programming a set of points to follow a straight line, they can be represented curvilinearly as a waveform and described by Fourier analysis, $v = f(\lambda)$, amplitude, wavelength or frequency, etc. In this way, the "artificial" waves are capable of being transmitted back billions of years to become the "natural" electricity and magnetism of Earth and its particles. Transmission might be achieved by a computer using tensor calculus

to change the present space-time coordinates to past ones.

Electrolysis uses electric currents to break down water molecules into their component hydrogen and oxygen atoms. In a similar way, charges can decompose any and all particles into the constituent binary digits of their gravitational and electromagnetic waves. If every fermion and boson has an Electric Dipole Moment - positive and negative charges would exactly cancel in a neutral neutron or photon - the gravitational waves which Einstein speculated to be involved in composing mass would rotate from their normal position on the x-axis and leak into the extra-dimensional y-axis, initially in its positive aspect (hyperspace) then in its negative portion (subspace). When it returns to the positive portion of the x-axis where the value is 1, the binary digits constituting gravity interact with those making up electromagnetism again to refresh the universe's particles (returning them to their previous, original state and preventing entropy). The positive value 1 is required since negative matter doesn't seem to exist. While leaked into the y-axis,* gravity may be referred to as Dark Energy. And the mysterious process of it recombining with electromagnetism to form mass is presently unknown and therefore labeled dark, giving rise to the term Dark Matter.

If time is curvilinear - with past, present, and future interconnected - time must be able to move from future to present to past. (General Relativity says space's photons and gravitons, and time [which might have Wick rotation built into those particles to record their motion], follow curved paths. Future spacetime warping could greatly extend the curvature into the circular form of Wick rotation and permit past, present, and future to interact.) Unity of past/present/future may remove the issue of non-simultaneity - in Special Relativity - because the timing or sequence of events being different in different frames of reference can only exist if past/present/future are separate. The concepts of cause and effect are no longer separate when all periods of time are united, and everything can happen "at once". This is similar to watching a Digital Video Disc - every event on the DVD exists at once since the whole DVD exists but we're normally only aware of sights and sounds occurring in each tiny fraction of a second. Time has been measured to the level of zeptoseconds (10^{-21} s), but no hint of mass or dark energy blinking in and out of existence has been detected. No matter how tiny measurements become, it can always be stated that further measurements might uncover the blinking.

But it wouldn't be faithful to the scientific spirit to blindly cling to accepted notions of time and automatically dismiss the possibility of unified, interactive time periods which, in a macroscopic version of quantum superposition, would allow gravitational waves to exist in both the y-axis and x-axis simultaneously.

Scientific theories including coexistence of all time periods - such as Multidimensional Reality and Block Universe Theory - must not be completely overlooked simply because they don't agree with the world as we currently understand it.

Comparing the blinking to entropy-overcoming refreshment: refreshing does not mean blinking in and out of existence. It's more like an update to a digital cosmos in which on/off (1/0) is translated to off/on (0/1). In the universe, this translation corresponds to change in position e.g. a galaxy could be in a location with "empty" space in front of it (empty space is actually full of photons and gravitons). After cosmic refreshment, the space (space-time) would be behind and the galaxy would be in front. When applied to all the galaxies, this transposition gives the illusion that like an inflating balloon, space seems to be expanding.

In the standard Lambda-CDM model of cosmology, the mass-energy content of the universe is approximated at 5% ordinary matter (m), 27% dark matter (DM), and 68% dark energy (DE). There is 5 times as much dark matter as ordinary matter. The decomposition of matter

into binary digits implies that the amounts of matter and dark matter are exactly equal. There could be 5 times as much dark matter if the relationship of m and DM is relatable to the concept of enthalpy (this article maintains that everything is connected, including the nature of time-space and and humanity's measurements). This relation would be valid because the decomposition is a thermodynamic process - one that deals with the relations between heat and other forms of energy (such as mechanical, electrical, chemical, or modified dark, energy).

The enthalpy H of a thermodynamic system is defined as the sum of its internal energy and the product of its pressure and volume: H = U + pV where U is the internal energy (total energy of a closed system), p is pressure, and V is the volume of the system. Einstein's famous formula $E = mc^2$ says mass (in this case, matter) is energy. Thus, the original matter's energy is the same as U. To derive the enthalpy value H, pressure times volume is added to the internal energy. To derive the state of 5 times as much dark matter, Einstein's 1919 paper "Do gravitational fields play an essential role in the structure of elementary particles?" [1] proves invaluable. The original matter's pressure and volume are multiplied, then added to internal energy.

For example, the Higgs boson's mass-internal energy of 125 GeV/c^2 has, in agreement with the claim of any two time periods coexisting, both time-x and time-y assigned value 1 (1 + 1 = 2). The mass-energy of the Higgs could be added to the pressure formed from interacting gravitons and photons (besides gravitation, the 1919 paper speaks of electromagnetism). This singular property of interactivity is also assigned the value 1 and is multiplied by the volume (volume is normally calculated in cubic units, and a cube's volume is side 3). The pressure is being multiplied by the volume (not exponentiated) so it's "energy in any two time periods + pressure x volume" ie (1 + 1) + (1 x 3) = 5 x DM.

This equation might also be useful in accounting for Lambda-CDM's quantity of dark energy in the universe. Taking the conclusion of these paragraphs that there is 5 times as much DM as m (which is 5% of the universe), DM would be 25%. And taking the multiplication by 3 derived from cubic measurement, DE would be 75% of the cosmos. Subtraction is essential. This appears to be a consequence of matter, and the Higgs boson, both emerging from photon-graviton interaction. Two adjoining sides of a parallelogram represent the vectors of the photon's spin 1 and the graviton's spin 2. The resultant diagonal represents the interaction of the sides/vectors (1÷2 = the spin 1/2 of every matter particle: and division is merely repeated subtraction e.g. 4 subtracted from 20 five times equals zero, therefore 20 ÷ 4 = 5). (By the way - in calculus, the quotient of two vectors is called a quaternion.) Subtracting the four figures on the equation's left (1,1,1,3) from 75 gives 69 which is very close to Lambda-CDM's approximation of 68.

References

[1] "Spielen Gravitationfelder im Aufbau der Elementarteilchen eine Wesentliche Rolle?" [Do gravitational fields play an essential role in the structure of elementary particles?] by Albert Einstein, Sitzungsberichte der Preussischen Akademie der Wissenschaften, [Math.Phys.], 349-356, Berlin (1919)