THE GOLDEN RATIO TIME ALGORITHM

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The idea that time is concordant to our perception in our frame of temporal reference yet different to another person's frame dependent on motion, as Einstein outlined in his work of general and special relativity, is essentially stating that we are conscious according to the parameters of space-time and how that flows dependent on what our reference of relative motion is. Yet is there a scientific mathematical link between frames of time as a relativity of time in space? Surely in not considering how each frame of time reference can be linked mathematically, all the facets of physical reality in time as "equations" of time will not match up, such as most basically gravity and electromagnetism? This paper, a follow-on from seven previous papers [1][2][3][4][5][6][7] will present firstly the historical notions we have of time in science, as applied to scientific congress, and then discuss those problems that have been presented to us in using that axiom of time definition, most importantly that not knitting together those temporal notions presents us with a mathematics of space and mass and energy that are never knitted as mathematical equations in time yet only in using Einstein's equation of $e = mc^2$. So, a new axiom for time is presented as an algorithm that can knit together much of what we know of physical scientific data, including Einstein's well-known equation. The quest of this paper is to demonstrate that it is possible to marry up electromagnetism with gravity using a common mathematical "function" for time universal in space, as temporal relativity, despite it offering a new set of equations for known physical data. Then finally a process of "proof" is offered for this new regard for time, as gravity emerging from electrodynamics.

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1. Introduction:

If it can be stated, as a thought experiment, that to be conscious of/as a theory of everything requires a stable consciousness through the entire spectrum of time and space one is examining, then it would be true to say that any variation in time through that spectrum would represent a variation of consciousness and thus understanding of that system being examined, if indeed the assumption that Einstein presented of consciousness being tagged to time, to the perception of a clock, is upheld. The problem though with a reality in constant motion of varying speeds presents us with the case of different accounts of time and thus consciousness and thus

awareness of the system being measured. How indeed therefore can we arrive at a “theory of everything” when there is a vast spectrum of time variation in play owing to the nature of bodies in motion and the effect of time there as specified in Einstein’s special and general relativity [8]? The argument of this paper is that using special and general relativity isn’t sufficient to reach a theory of everything, in that it will never join EM/light and gravity, because one key variable is fixed as the speed of light, and the other key variable (mass and thus gravity) is fluid as per gravity changing the nature of the relative motion and thus speed between mass and thus also *time* in the process, and thus an impossible equation to consciously reach in the context of aiming to examine that system. What this paper proposes is a “standard” for time, for each reference of time, a common algorithm, regardless of the relative motion of objects, as that way the idea of time can be scaled for each reference of motion of a body in reality, and by such a mechanism make it possible to arrive at an equation that should link electromagnetism and gravity.

One key assumption in this paper that will be carried is the notion that consciousness is concordant to the awareness of the passage of time, that the conscious experience is determined by the flow of time, as Einstein presented with his example of someone travelling at near light speed, namely that time would slow down, yet the occupant of the craft would be none the wiser. The problem with relativity using simple linear time is that on the one hand perception appears to be the “standard”, and on the other it negates the idea of a universal reference of stable consciousness owing to the different rates of motion of objects…..and what use is that? A universal reference of stable consciousness is like the idea of holding the understanding of reality as an understandable entity, as a feature of being conscious. The question is, how do we get to that “scientifically”, how do we construct that algorithm for time for each reference of a body of motion? The first thing we need to consider is how and why we arrived at the idea of relativity and time’s role there in the first place.

2. Historical perspective: how does science theory evolve?

Modern science is not merely an examination of reality, it is a test of scientific paradigms. Most notably prior to Einstein was the achievement of the cartesian coordinate system, as presented by Rene Descartes [9], as a 3-dimensional space and associated 1-dimensional use of time. The cartesian coordinate system and 1-dimensional time is still used in the frame of reference of special and general relativity. In fact, it was the cartesian coordinate system that gave genesis to the idea of relativity as per tagging the cartesian coordinate system to consciousness, which Descartes achieved through his work in presenting not just the coordinate system, yet a model of logic/thought. What this paper proposes is a paradigm shift to a new understanding of time, as the current paradigm for time is not useful for finding a theory of everything, of linking electromagnetism and gravity.

In the 1962 book The Structure of Scientific Revolutions [10], Thomas Kuhn argued that the process of observation and evaluation takes place within a paradigm, a logically consistent "portrait" of the world consistent with observations made from its framing. He argued that a paradigm also encompasses the set of questions and practices that define a scientific discipline. He characterized normal science as the process of observation and "puzzle solving" which takes place within a paradigm, whereas revolutionary science occurs when one paradigm overtakes another in *a paradigm shift*. Kuhn denied that it is possible to isolate the hypothesis being tested from the influence of the theory in which the observations are grounded. Moreover, he argued that it is not possible to evaluate competing paradigms independently; he suggested that more than one logically consistent construct can paint a usable likeness of the world, yet that there is no common ground from which to place two against each other, theory against theory. For Kuhn, the choice of paradigm was sustained by rational processes, but not ultimately determined by them; the choice between paradigms he added involved setting two or more "portraits" against the world and deciding which likeness is most promising *(the proposal here in this paper being the establishment of a*

new algorithm for time to resolve the association between gravity and electromagnetism). According to Kuhn, a paradigm shift occurs when a significant number of observational anomalies arise in the old paradigm and a new paradigm makes sense of them, which is precisely what is being suggested in this paper with the new proposal for time, namely resolving the disparity between different references of bodies in motion at different rates of speed and thus resolving their time-dilation variations and thus perceptive frames of reference. Fundamentally though, the concept employed here is in using time ***as*** a process that *transcends the convention of mathematics*, **time being defined as more fundamental than mathematics**, *a set-relationship of its own kind*, ***as*** an entity more fundamental than mathematics which ***can*** therefore employ mathematics a certain way, ***as*** a certain relationship of functions, ***as*** a certain "equation", ***from*** which other equations can arise, and the case in point here all the key equations of physics as per papers 1-7 [1-7].

3. Thought experiments: the paradox of consciousness

The aim here with this paper to create a general platform, an understandable platform entire, of "all" of space and time, as something we can use our conscious experience to examine and test and confirm, time after time, in an "absolute" sense, through that matrix of thought, that tautology. Ultimately therefore we are essentially proposing a type of universal model of consciousness, or more precisely, "logic". Rene Descartes knew it was imperative to present a basic model of perception/logic with his coordinate space system, and as such we have tagged the conscious reference with that coordinate system through the centuries. Let's do a thought experiment though on the notion of Einstein's relativity and how our consciousness could cope with extreme/absolute considerations of time and space.

For instance, for a person on a craft travelling at close to light speed, the issue is, "is there a noticeable change in the perceptive reference of time for that person"? The assumption is "no". The question is important because it suggests that spacetime and the operation of time is fixed to human perception; that is the assumption of Einstein, as was the proposition of Rene Descartes (without being so clearly stated). Let us though take the hypothetical craft to light speed, as though time no longer passes. To go at light speed infers the craft will ultimately move forward to the point as though time does not pass, as a theoretical suggestion. Now as a step further, to go faster than that is to travel back in time, in theory, and as a conscious experience it would be like a living "memory", a past experience, which contradicts everything we know of the physical process of time in space. Let us suggest though that to do that safely is to create a type of theoretical magical doorway in space, the mechanism being light travelling in space without space overcoming that light. In some regard, owing to our ability of memory, it is as though human consciousness is already linked into a process that is already travelling super-light speed the system over, and thus could imply that given our ingredient in reality that reality operates on a standard of already being at light speed and beyond. How can everything be already travelling at light speed and beyond as our conscious ability of existing in a "now" event with the ability of memory suggest? As physics knows, it's difficult to imagine let alone theorize, namely reality functioning on such a level in such a linear direct relationship, so perhaps the answer can be found in the function, potential function itself, of time? Yet with what variables?

As presented here, there are two features to our consciousness we know absolutely, namely that firstly we are conscious as a "now" event, and this is a standard. Let us call this t_N, as time-now, and give this a standard value of "1" as a flow of time from past to future. The second feature of our consciousness we know absolutely is our ability of memory. Let us call this t_B, as time-before. The value of time-before is the issue we seek to resolve, as technically it implies super-light-speed. Yet fundamentally it can be said that t_B would exist in comparison to t_N

as a negative value, as it is going against the flow of time as we perceive it as t_N. Our quest now is to tag these basic characters of our conscious ability with time "together" in a manner that makes fundamental sense.

4. Solution: the new axiom for "time".

In mathematics, an equation is a statement that asserts the equality of two expressions. To present an "absolute" equation for time requires a type of equality to be established between two expressions/properties of time. What can we say about "time" that has two properties using both "1" (as t_N) and t_B, as an expression of equality?

If time is a singularity, we can relate time-before to time-after along a basic linear mathematical construct as via t_N. This has been the Achilles heel it seems of our logic of time, so let's break it down further. For instance, we know that placing t_B next to t_N requires a negative sign for t_B (equation 1) given t_B is a "backward/negative" step compared to t_N.

$$(-t_B) + 1 = \underline{\text{fundamental property A}} \qquad \text{equation 1.}$$

Yet, if time is a singularity, we can present the case that t_N can also be "per" $(-t_B)$ as another equation as technically t_B would already be contained within the t_N construct, as it would have already happened (equation 2).

$$\frac{1}{(-t_B)} = \underline{\text{fundamental property B}} \qquad \text{equation 2.}$$

Thus, if these two features represent fundamental properties of time, and time itself is a singularity, then <u>fundamental property A</u> must equate to <u>fundamental property B</u> (equation 3.)

$$(-t_B) + 1 = \frac{1}{(-t_B)} \qquad \text{equation 3.}$$

From equation 3, we arrive at the following (equations 4-5).

$$t_B^2 - t_B = 1 \qquad \text{equation 4.}$$

$$t_B + 1 = t_B^2 \qquad \text{equation 5.}$$

Equation 5 is interesting, as essentially it suggests that if we consider an "arrow of time" equation that is absolute, and we add the past as a "positive value" (as it would be in considering an arrow of time equation) to t_N, as past + present, only logically we would arrive at the future, let us call t_A (equation 6.)

$$t_B + 1 = t_A \qquad \text{equation 6.}$$

Yet as we know, $t_B^2 = t_A$ (equation 7.)

$$t_B^2 = t_A \qquad \text{equation 7.}$$

Is this the common-reference universal time-algorithm we need to link all observable data of reality? The only way to know is to apply this time-algorithm to 3-d space, as though building a theoretical model of reality from this new axiom for time. This process was outlined in paper 2 [2], as the golden ratio axioms of time and space. The

primary idea of applying time to space was to consider space as t_A, and how both values of the golden ratio would be related to this t_A realm as space. In paper 2 [2] it was done in the following manner (p3-7):

2.1 A closer look at the axioms for space and time

To consider a "moment", as time not passing, it may as well be infinite time from the reference of another process of time. Thus, obviously the definition of time here requires two references held in the same context of laws of the flow of time. The initial paper presented time to represent the three basic equations: $t_A = t_B^2, t_N = 1, t_N = t_A - t_B$, *([1]; eq. 3, 4, 5), giving rise to* $\frac{t_A + t_B}{t_A} = \frac{t_A}{t_B}$ *([1]; eq. 6), providing two outcomes, two concepts, for time,* φ *(1.61803) and* $\frac{-1}{\varphi}$ *(–0.61803), as per the golden ratio. In short, the underlying premise was that time needs to be relative to itself somehow to effect the idea of "flow". The most basic mechanism we use is "before" and "after", yet as the initial paper [1] highlighted it is more complicated than this.*

In now developing upon the initial paper [1], let us label the two features of the golden ratio φ *and* $\frac{-1}{\varphi}$ *to* t_B. *We can suggest that the two outcomes for time would be at right angles to each other in terms of a temporal axes alignment if indeed one value is one axis and the other value another axis. Note also that we are regarding time "before"* t_B *in considering* φ *and* $\frac{-1}{\varphi}$, *given time "now"* t_N *is defined as "1", and the future* t_A *as* t_B^2. *We also suggested that time was a complex axis at right angles to space ([1]; p4-6). Now, to work with these features, let's take two axes for time before* t_B, *one as* φ *the other as* $\frac{-1}{\varphi}$ *(fig. 1.). If we apply "both" results to each other as a vector function in our interest of applying this to 0-scalar space as a* t_A *entity, and thus* t_B^2, *we arrive at (eq. 1.) (fig 2.):*

$$\left(\frac{-1}{\varphi}\right)^2 + \varphi^2 = \sim 3 \qquad (1)$$

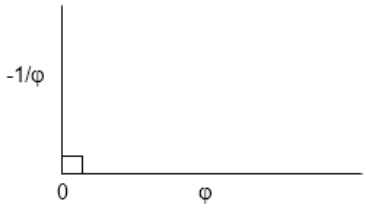

Figure 1; two axes of time, $\frac{-1}{\varphi}$ and φ.

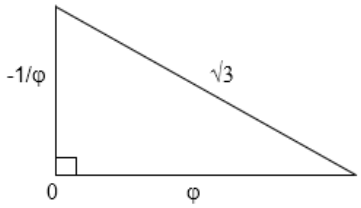

Figure 2; two axes of time, $\frac{-1}{\varphi}$ and φ, which then result in the value of ~ $\sqrt{3}$ in a squared relationship.

Yet it is not as simple as this, for in using "both" factors of time, one axis remains complex and the other in being at right angles to the time-axis becomes embedded in a spatial axis, which is a "square" value of the time axis as per $t_A = t_B^2$, *given that* t_A *would represent the feature of time imbedded in the* t_B *reference of the fundamental time axis, and that* t_A *would be represented in the spatial dimension. Simply, if we consider that time is the essential "before"* (t_B) *time step, as we only can, "space" in being an independent entity to time would be the "after"* (t_A) *time step including the "now"* (t_N) *step, obviously. And so, we need to calculate the vectors for space in the after-event* (t_A) *and the now-event* (t_N) *for time to understand what is happening with theoretical 0-scalar space.*

2.2 Applying the axioms of time to space (space as an "after" and "now" event)

As suggested, in applying both results of the golden ratio as an "after" event we would have a value of "3" (t_B^2) *for space (eq. 1). We can perhaps propose with hypothetical licence that this "3" value can as a spatial vector represent the 3 dimensions of 0-scalar space, 3 "now"* ($t_N = 1$) *timelines in space (fig. 3).*

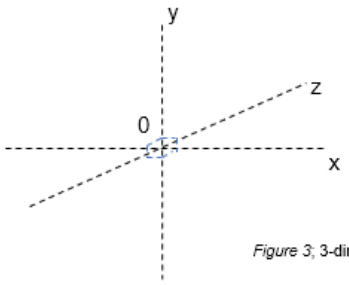

Figure 3; 3-dimensional space (3·1t_N space)

Such (3-d space) is what was assumed in the first paper regarding 0-scalar space ([1]; p1-3). Let's take a step back though. The √3 value (fig. 2.) as t_B ($\sqrt{t_A}$), our time platform of consideration, "should" still be at right angles to the overall "1" t_N outcome (as the three dimensions for space) (fig. 4.).

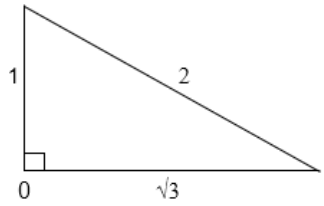

Figure 4; two axes of time, 1 and √3, which then result in the value of 2 in a squared relationship.

Thus, we can say that time as t_B when applied this way to "1" reaches a value of "2" (which would be integral to t_B); "2" represents a double t_N (1), meaning there are two t_N applications for t_B. Of course, we know there are two golden ratio values, yet these two values are already factored in, so we must entertain a new concept when applied to space. Thus, for space we would have 3 dimensions incorporating two time outcomes for each of the 3 axes. Thus, we can say that these two results represent "2" t_B time applications in a 3-d matrix for each axis. We could say that if we create a zero reference for each 3-d spatial matrix, the "2" value represents the dual directions on each axis away from the zero point (fig. 5.):

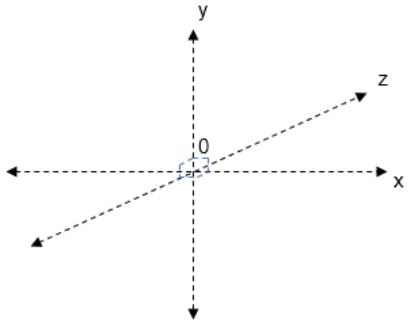

Figure 5; 3-dimensional (3·1t_N space) dual directional space.

2.3 Developing the wavefront for time in space

Now then let's look at this dual time point modelling in 3-d space. It would be simple to say that if we "multiply" each time result we get the value of "-1", which we do as $\varphi \cdot \frac{-1}{\varphi} = -1$. *That's how we have the "1" feature of time as time "now", the negative inverse of this value as when time is applied to space. Simply, if we are applying one time value to another, they are separated by a value of "1". When we apply this to a basic (non-dual-directional) 3-d 0-scalar spatial grid though we arrive at what appears to be an anomaly (fig. 6):*

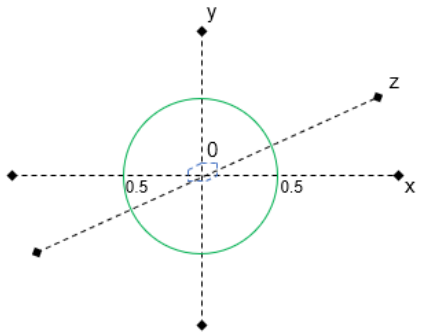

Figure 6; applying a time-value to another, they are separated by a value of "1" circumscribing a circle around the z axis with a 0-scalar spatial central reference.

Nonetheless, assuming any orientation of axes, we would have to have a spherical time front if time moves in two directions along each axis according to the same "flow" rate, and thus <u>for each axis</u> we would trace a circle around each associated axis the value of π (fig. 7):

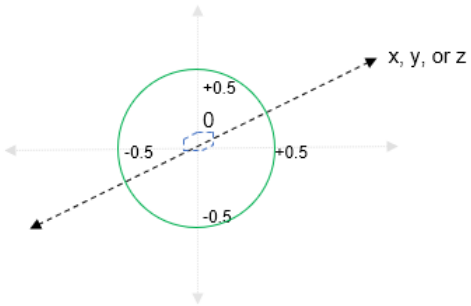

Figure 7; applying a time-value to another, they are separated by a value of "1" circumscribing a circle around the x, y, or z axis.

This is so because both time points are separated by a value of 1 and thus could exist anywhere spherically around that 3-d 0-scalar dual directional 3-axis grid as for a required uniform time progression (as t_N, as the value of 1 dictates). Note that the value of "1" is being transferred into a spatial consideration as per eq. 1, namely that we applied $\sqrt{3}$ to "1" to get two results for time, which brings inclusivity of "1" as a value into spatial consideration. Note that each circle being traced <u>around each subsequent axis</u> fits the idea of time being a complex axis ([1]; p4-6) compared to space, and thus at right angles to the spatial axes. Basically, t_B as a complex "i" is at right angles to the space, and so would trace a circumference around each axis as a spatial construct. Thus, we can rightly consider that the distance between one time point to the next as each of the two outcomes would trace the circumference of a circle with a diameter-equivalence of "1" giving the value of π, as per a spatial application of time. The way though time is applied as a φ or $\frac{-1}{\varphi}$ entity as t_B to space is of course with the factor of "$\sqrt{3}$", and a factor of "2". Not only this, it is a "negative" construct in regard to space, it has to be, as much as the two values of the golden ratio (φ, $\frac{-1}{\varphi}$) when applied to each other is the value of -1, because that's how we're applying this to space, ultimately, two values considered equally proportionally to space. Thus, for (φ, $\frac{-1}{\varphi}$) as t_B we would have to factor in the value of $-2\sqrt{3}$. Thus, the equation we arrive at for time's flow calculated in space becomes:

$$(t_B \cdot -2\sqrt{3}) + 1 = \pi \qquad (2)$$

It is not as simple as this though. It is a "condition" of time being applied to space, but it is not the exact topography that needs to unfold. "Time" would seek to be a circle <u>along each spatial axis in each of the two directions around a central 0-scalar spatial reference</u>. In therefore time needing to trace a value of π in space via along each axis direction, we can only consider fig. 8. to hold true for the x-axis:

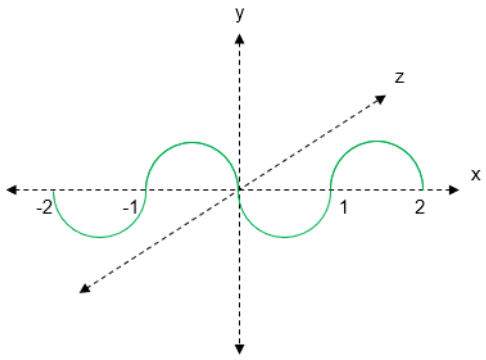

Figure 8; for the trace value of $\frac{-1}{\varphi}$ we would reach a value of π in each direction of the x-axis (here as the value of "2" in each direction of the x-axis, the overall trace length for this sinusoidal wave would represent a value of 2π in factoring in the dual directions along the x-axis from the 0 reference, π along each direction symbolised as "2" semicircular diameters.

Note that the two possible outcomes for each axis represents the two directions time would move along each axis, one needing to be the opposite direction of the other, and thus inverse wave-sign value (-, +). Note also that along each axis we know we must satisfy each time point to having traversed along each directional axis the value of "π". Only logically can we suggest that we have the development of a sinusoidal wave given that time must move a value of π in each directional axis from the 0-scalar spatial reference point "0".

And so on. To keep the dialogue simple, only the "x-axis" of wave-function manifestation was considered. Using all three axes leads to generous theoretical conclusions about the status of the elementary particles as presented in paper 4 [4], most importantly how both the proton and neutron could exist in "3" different states and thus be labelled with 3 different specific orientations, the electron in particular which given the nature of construction of the atom itself would represent a spherically staged "cloud" orientation. Although this was not highlighted at the time of the writing of paper 2 [2], nor even in paper 4's [4] description of the phi-quantum wave function "crystal matrix" of elementary particles, it is a logical deduction to the complexity that would arise in considering not just one axis of theoretical spatial analysis, yet all three. It perhaps deserves a paper all its own to properly describe and illustrate, namely all three axes of space when having applied the golden ratio algorithm of time to it. In the meantime, the principle focus here is how the golden ratio performs as "time" throughout an entire theoretical spectrum of space, a spectrum which can be grasped in highlighting how one axis of space would perform and then modelling such with the other features of energy and the field forces. Once again, the concept employed here is in using time ***as*** a process that *transcends the convention of mathematics*, **time being defined as more fundamental than mathematics**, *a set-relationship of its own kind*, ***as*** an entity more fundamental than mathematics which ***can*** therefore employ mathematics a certain way, ***as*** a certain relationship of functions, ***as*** a certain "equation", ***from*** which other equations can arise, and the case in point here all the key equations of physics as per papers 1-7 [1-7]. Let us take a general look at those papers and their achievements from the golden ration time-algorithm perspective of generating equations consistent with contemporary science.

5. Papers 1-7.

Armed with this new lens of analysis for time, our task is to now examine how this algorithm for time can be applied to space, much like taking a journey back in time to that of Rene Descartes and applying this lens of time to the idea of space, to the cartesian coordinate system. In theory, we should be able to "derive" the nature of

the dynamic between 3-d space and this algorithm for time “as reality”, as all the sciences. Such is the process of papers 1-7 [1-7], namely deriving the dynamic between 3-d space and this new algorithm for time.

5.1 PAPER 1 [1] (abstract and conclusion*): Gravity’s Emergence from Electrodynamics*

A new approach to understanding the fundamental particles and associated forces via a new a-priori definition for space and time is forwarded, and is then linked to contemporary equations for Gravity and Electromagnetism; space as an infinitesimal universal “0”-scalar manifold, and “time” as the “feature” that divides and “qualifies” each 0-scalar spatial reference is discussed. Further, the idea of gravity as an emergent quality of electromagnetism (which here is given the spectra of “time” itself) is examined by assuming 3-dimensional space as the “fine-structure 0-scalar manifold” while considering "time" as the “symmetry-breaking” principle of entropy “effecting” space. Consequently, the fundamental idea of an "equation" from one event in time to the next is rendered unreliable owing to the nature of the movement of time and its effect on space (as a process of “symmetry-breaking”), which then opens to a new mathematical method of applying the concept of time as the “Golden Ratio” equation to spatial transformations. By this process a link between gravity and electromagnetism is established, together with an explanation for the genesis of the four field forces via explaining atomic particle congress, ultimately as the development of electron shell modelling precisely to the Rydberg formula and associated ideas of quantum entanglement, finally explaining the idea of “inflation theory” as a feature of the golden ratio equation for time.

In summary, we have developed the following:

- A new theory for time:
  - Incorporating the golden ratio.
  - Defining the past into an imaginary realm.
  - Defining the future into an inverse negative anti-particle realm.
  - Defining entropy.
  - Defining the process of time as electromagnetism.
- A new theory for space:
  - Incorporating time as the golden ratio.
  - Defining the force between masses in space.
  - Defining gravity on the atomic level, as associated to electromagnetism.
- A new theory for the atom incorporating the theory of time and space:
  - Incorporating time & space to a fine-structure calibrated atomic template.
  - Explaining a relationship between G and E.
  - Explaining how neutrons could be formed.
  - Explaining the strong nuclear force through a folded e/m field.
  - Explaining the weak nuclear force through a folded e/m field.
  - Explaining electron shells using the golden ratio.
  - Deriving the Rydberg constant and formula using the golden ratio.
  - Explaining quantum mechanics, including quantum entanglement using the golden ratio.
- A new theory of the stars incorporating the theory of time and space and the atom:
  - Explaining dark matter and dark energy.
  - Explaining neutron stars.
  - Explaining the energy manifold flip level of 1/□□in observed black holes.
  - Explaining Inflation theory, and thus dispelling ideas for a multiverse and eternal inflation.

Not to be forgotten:

- We have accepted all current results of singular-dimension time-theory.
- We are not challenging therefore any contemporary mathematical scientific results, only adding more scope to the idea of “time” as a way of addressing “many” loose ends of physics theory.

- An experiment is offered to prove this new paradigm for time.

5.2 PAPER 2 [2] (abstract and conclusion*): Golden Ratio Axioms of Time and Space*

This sequel to "Gravity's Emergence from Electrodynamics" will more closely examine the process of time as the Golden Ratio equation when applied to space, more than developing electrodynamic wavefunction equations, but setting an axiomatic base for the Golden Ratio as time when applied to space. Through this process we shall derive π, the fine structure constant, and the speed of light, while also confirming through these independent equations the idea of the Uncertainty Principle and Quantum Entanglement. More specifically, three fundamental things to be demonstrated here using the Golden Ratio algorithm of time will be deriving the dipole of magnetism, the electrical monopole field, and their relation to the Golden Ratio in creating the basis for the Fine Structure Constant, charge of the electron, the speed of light, and the subatomic multi-traits of the elementary particles. In confirming the need to explain the reason for the upgraded axioms for time and space, a general criticism of contemporary physics' current use of space and time and its limitation given the entirely hypothetical nature of the resultant cosmic modelling theory regarding a multiverse and its endless possibilities is presented. The solution to this problem is explained using a more solid definition for time as the Golden Ratio, more thoroughly presented here in the context of the initial paper "Gravity's Emergence from Electrodynamics" [1]; the first paper was a general overview of the new a-priori for time, while this second paper examines all the generalisations and assumptions presented in the first paper, reaching ultimate theoretical axioms for time in the context of space.

This paper confirms that the most basic feature of space and time, the most fundamental drive, the golden ratio for time in a 0-scalar universal space manifold, is the ultimate structure of the elementary particles, as per the results found:

- An explanation for the monopolar nature of electricity, and dual-polar nature of magnetism.
- The fine structure constant derived from a golden ratio utility of time as applied to space.
- The speed of light derived from an electron wavelength, electron charge, and the fine structure constant.
- An explanation to the space and time granularity of the subatomic level.
- An explanation for the uncertainty principle, namely the difference between what light measures and where an elementary particle would be placed.
- An explanation for quantum entanglement for elementary particles, intricately associated to the uncertainty principle.
- Confirmation for Brownian motion.
- An explanation as to why we would consider the event of a big bang and at what time-scale.
- An introduction to the idea of consciousness from the need of space and time to find synthesis between observation and calculation anomalies alluding to the possibility of a fundamental ultimate "eternal-archaic-event" of consciousness.

These results have been achieved in this paper "upon" the already derived features of the initial paper "Gravity's Emergence from Electrodynamics" [1]. Subsequently, this paper clearly is suggesting the Planck scale of determination has well over-shot the mark, has dived too deeply into the theoretical granularity of space and time, and thus is purely theoretical with no actual space and time granularity promise. This would therefore dismiss the idea of a string theory on the Planck scale as a way of approaching a theory of everything. Moreover, regarding cosmology, if light gives the effect of an accelerating expanding spatial matrix, and this is an illusion of time, was there a big bang? As per the initial paper [1], the t_B of an electron wavelength is $\frac{\lambda_e}{c} \sim 8.1 \cdot 10^{-19}$ seconds, and on an expanded spatial scale it's t_A and thus $6.7 \cdot 10^{-37}$ seconds. Without understanding t_A, we would consider time in the vast expanse of space to be a singular concept of time. According to our first principles here for the Golden Ratio, anything that represents a vast distance ahead represents the idea of t_A, it has to, so measuring the rate of expansion of the universe based on time

must take into consideration the effect of t_A. Is therefore the multiverse theory a relevant possibility as an offshoot of an expanding Universe?

5.3 PAPER 3 [3] (abstract and conclusion*): The Emergence of Consciousness from Chaos*

The idea of consciousness emerging from chaos is not a new idea. In fact, it is one of the oldest ideas of philosophy. What makes it an important idea to herald here (in the context of quantum gravity and a new type of string theory incorporating the Golden Ratio) is how the idea has been derived, namely from "chaos theory" sprung from two key preliminary papers [1][2]. This third paper shall take up from where the second paper [2] left off. Here, we shall explain the Schrodinger equation for light, and then present an improved equation for the energy of a photon, then confirm the emergence of light from the atomic level represents a well-known equation for chaos theory, the "logistic map equation". From there we shall present the idea of consciousness as a need for this system of time and space to resolve the disparity between light and particle location, together with the need to reach an exact value for "π" (as was the basis for the axioms of time upon space in the development of the atom in the second paper). A list of features of this proposal of consciousness as an emergent entity will be presented that describes well-known features of the idea of our own ability to reason and be aware.

The findings here to the idea of consciousness being an emergent feature of chaos are interesting, for "determinism" appears in-play, that we could be either consciously or sub-consciously be a part of; how a time and space system would "use" the idea of consciousness to satisfy a prime directive of reducing the uncertainty between light and matter together with the need of time to trace π. What resulted appears similar to how we have regarded not just consciousness but the idea of an absolute consciousness. Here though the key finding has been a value for the energy of a photon, together with an equation for time on the extra-atomic level that in all structure represents what we already know to be the "logical map equation", a key equation used in the investigation of chaotic systems. From that equation, we suggested that upon that manifold, that extra-atomic manifold, would need to emerge the idea of consciousness as a process of light/observation finding parity with the calculation of a particle regarding its location, resulting in many ideas regarding consciousness we may find familiar. More of this paper shall be expanded upon as with the two previous papers [1][2] in a subsequent work.

5.4 PAPER 4 [4] (abstract and conclusion*): Phi-Quantum Wave-Function Crystal Dynamics*

In this development upon three previous papers [1][2][3], we shall explain how Phi-Quantum Wave-Function crystal constructs emerge from the elementary particle level, in being associated to electron shells, and how they then through a fractal progression develop to a macro-world scale per a golden ratio sequence of atomic association while establishing an equation for the Avogadro number and associated formulation of the background microwave radiation and red-shift effect. The emphasis of this paper is to highlight the continued utility of the golden ratio modelling for time, the great implication being the need to understand "spatial contraction" (not "time-dilation") to satisfy ideas of relativity forwarded by Einstein a century ago. We shall highlight how this is possible by examining the phi-quantum wave-function scale as a new wave-function template for electromagnetism, as initially developed in Golden Ratio Axioms for Time and Space [2], now carried and further developed here to explain spatial contraction and associated elementary particle dynamics (including particle spin and anti-matter/particles dynamics). In considering this phi-quantum wave-function scale, we will then finally uncover the problematic process of the Cartesian coordinate system of mathematical execution for space and improbability of the Planck scale of determination.

One of the only great concepts on contemporary physics that appears to be clearly left out in these papers is the idea of the Planck scale, But we have provided beyond any shadow of a doubt that the Planck scale is not required, is nothing more than a mathematical construction linking two equations too simply and thereby giving itself justification of a presumed physical reality, which it cannot presume to do in failing to

demonstrate the fundamental links that this theory has achieved here against the idea of the granularity of time and space below that of the axioms of time and space, as provided here.

So how indeed did all this start, why the Golden Ratio for time? The question has been asked, "why the golden ratio for time"? The genesis of the use of the golden ratio, and perhaps the golden ratio itself, is a lot more involved, yet can be summarized with the following simple three premises:

(i)	Time “now” ideally equates to "1".
(ii)	Time "future" is the "square" of time past.
(iii)	Time "before" subtracted from time "after" equates to time "now".

The initial paper [1] presented time to represent the three basic equations: $t_A = t_B^2, t_N = 1$, $t_N = t_A - t_B$, ([1]; eq. 3, 4, 5), giving rise to $\frac{t_A + t_B}{t_A} = \frac{t_A}{t_B}$ ([1]; eq. 6), providing two outcomes, two concepts, for time, φ and $\frac{-1}{\varphi}$, as per the golden ratio. In short, the underlying premise was that time needs to be relative to itself somehow to warrant the idea of “flow”. The most basic mechanism we use is “before” and “after”, yet as the initial paper [1] highlighted it is more complicated than this. Now through these four papers it appears there is merit in considering the golden ratio as a code for time, given the number of equations it can link relevant to mass, energy, field forces, atomic phenomena, and so on; it hasn’t failed on paper, hence now the need for formal research.

5.5 PAPER 5 [5] (abstract and conclusion*): Time as Energy*

In this development upon four previous papers [1][2][3][4], we shall finally explain the link between the idea of “time” and “energy”, in bringing the idea of parity between time and energy while explaining why quantum entanglement [5] as a concept is “immediate” (seeming to break the confines of time itself). First, we shall integrate the idea of time as energy into all the references made regarding energy in the four preceding papers, to demonstrate the consistency and greater detail available to the theory via this method of time-energy regard. Then, we shall derive the temperature of the background microwave radiation in expanding upon paper 4, implementing the idea of “enthalpy” to a general entropic background manifold of energy congress. Finally, we will then be able to propose the nature of the appearance of the universe of stars in this new context, through this new filter of time-energy regard.

The key overall topic covered in this series of papers is the relationship between energy and time which explains the “arrow of time” with energy as the idea of entropy, yet ultimately as a steady-state space and time through the gauge invariance of a newly proposed wave-function of time that ultimately exists as a perfect circle in an imaginary/complex mathematical realm/plane, a type of fractal gauge invariance spatial-mass compression producing/creating energy in the form of the background microwave radiation and associated temperature effect leading to a steady state space and time reality. Central to this is the new phi-quantum wave-function incorporating strong and weak forces, electromagnetism and gravity, electron shells emerging the reality we perceive via this new wave-function, and how this is integral to electromagnetic induction on the t_A scale as an inverse negative function. Has any success been achieved, in noting that the goal of fundamental physics is to find the first principles from which all the fundamental dimensionless constants can be calculated and compared, as measured values? It’s all new theory using old evidence. Is there new evidence? Finding the new evidence shall be proposed in a subsequent “white paper” proposal; the new evidence is, though, difficult to obtain owing to the sheer difficultly in replicating something on a scale nature has not allowed as a “natural” event, and thus would require quite an effort of design and engineering, almost holding the natural forces at bay to make such a thing work. Yet the subsequent paper can propose the idea nonetheless.

5.6 PAPER 6 [6] (abstract and conclusion*): The Relativity of Time*

In this development upon five leading papers [1-5], the idea of the "relativity of time" shall be fully addressed, providing the rationale to how the overall manifold of time-space would perform regarding entropy and enthalpy, including in this description how consciousness would emerge (as proposed in paper 3 [3]) from time-space. First, the idea of "subject" and "object" shall be presented regarding the time-relativity description, while explaining the role of consciousness in this process (given paper 3's proposal of consciousness emerging from chaos, the aim here arriving at fundamental features of consciousness that would already be apparent to our known traits of consciousness). Additionally, more texture shall be provided to the explanation of the flow of time, detailing how time being relative in space per the golden ratio has two features, namely "cause" and "effect". Through examining cause and effect regarding time, an "end-zone" region of time-space shall be examined, the mechanics there as gravity/mass breaks down, and the idea of stellar quantum-entanglement, giving rise to a seemingly endless "image" of the stars. Following this, the idea of consciousness will be brought in to this new overall plane of time-space via which a model of "human" consciousness will be forwarded. Through this discussion, ideas central to the wormholes, red-shift effect, carbon dating, gamma radiation, white holes, and the dimensions of the perceived galaxy, will be forwarded, supported with accepted experimental findings. Finally, three new mechanisms of proof shall be proposed, proof not yet proposed by contemporary science.

In investigating the idea of time as a concept of "relativity", and not space as Einstein proposed, we have determined concepts such as "subject and object" and "cause and effect", as when applied to the golden ratio time algorithm. In other words, by coupling the ideas of the relativity of time into a golden ratio time-space manifold and associated universal construction, several features have become apparent relevant to the overall structure of the time-space manifold and associated proposed idea of consciousness emerging from chaos [3]. A "planetary cycle" was deduced from such theory, with the proposal of an "end-zone" debris region at the perimeter region of the time-space manifold. Thus, the big question is whether the stars are real and thus if they represent a valid agenda for discovery or not. That's really an issue for actual discovery. Contemporary "theories" of the stars are still just theories, and the theory here is no different, as all along its course it has remained true to a process of logic (the golden ratio algorithm for time) while depending on and confirming in most cases through derivation known scientifically discovered values; per this paper and the 5 preceding papers [1-5], there isn't very much unaddressed regarding the possible nature of reality, of time-space, using time as the golden ratio and the key factor in the context of relativity. All the equations relevant to mass, energy, electromagnetism, gravity, time, space, entropy, enthalpy, temperature, atomic modelling, and even the idea of consciousness, have been covered. Is it worthy of being a potential grand unified theory of time and space? The Planck scale has not been included, as it was considered unworkable, too small a scale, way under the basic level time can be considered as a golden ratio wave-function, and most ideas central to our understanding of the stars have been put in a new frame of thinking owing to how the discussion on time and space using the golden ratio had logically if not practically development in keeping all the equations married with the fundamental definition of time for the golden ratio. The theory simply ran its course without prejudice of opinion other than remaining true and thorough with thought to the golden ratio algorithm for time. There is though a key process still missing, namely the process of gravity as an emergence from electromagnetism, how that can be neatly defined as a paradigm in its own right, and how that can be demonstrated as per experiment, the context of the next paper.

5.7 PAPER 7 [7] (abstract and conclusion*): Golden Ratio Entropic Gravity*

In taking up from the preliminary papers [1][2][3][4][5][6] regarding the golden ratio algorithm for time, specifically paper 5 [5] regarding entropy and enthalpy, and paper 6 [6] regarding the golden ratio algorithm for the idea of the relativity of time, the key focus of this paper is the process of gravity emerging from electrodynamics and how that can be demonstrated per experiment. First, the nature of gravity as an emergent feature as per the golden ratio time-algorithm is discussed, highlighting mathematically its nature in space as a "singularity" that allows for the idea of

kinetic energy, a feature known to co-exist with the idea of gravity. Two key experiments for gravity emerging from electrodynamics are then proposed, tested, the results of which then discussed, shedding new and important light on current "RF Resonant Cavity Thruster (EM-drive)" research.

After a running a series of tests, it is considered that further testing is warranted, with attention to measuring/monitoring the nature of the phenomena inside the chamber. In terms of a more precise comparison between contemporary EM-drive research and the specifications of the testing offered here for a resonant chamber, the scaling/comparison between these notions is not in any way too dissimilar; given that gravity and electromagnetism are proposed to be emergent features of this fundamental scaling system, the "emergent" feature of this scaling system can change, in dimension and number of folded wavelengths, in that any number of winds could be used and any type of winding-taper along a solenoid rod without adhering directly to the scaling system. Thus, although fractally stepping up the scale of the atom would provide an "ideal" result, of course any number of destructive interference resonance wavelengths can be used, any gradient of standing destructive interference EM waves, when applied to any type of solenoid length or graded rod. The idea here is the "emergent" feature of gravity and electromagnetism which would not need to adhere to the exact scaling of the elementary particle and phi-quantum wave-function scaling system, although adhering to the "exact" scaling **could** be an ideal result.

The aim with this paper and previous papers [1-6] is to give the proposed golden ratio algorithm for time an exhaustive look into; the quest here is to present a reproducible laboratory feature that contemporary ideas of time and space cannot predict/explain by the manner of their current definition of "time" and associated research pathways. It cannot be stressed enough that "only" the physical data that is trusted from tried and tested research has been applied to this new a-priori for time (and space) in all the papers leading to this one, in "**better joining**" known tried and tested equations for mass, energy, gravity, electromagnetism, including known scales of weights and measures thereof using this new algorithm for time.

6. Paper review: in defence of the Golden Ratio.

The test of any new theory is whether it can more efficiently explain known phenomena and scientific data, together with predicting phenomena/data previous theories could not. Does this golden ratio algorithm for time theory explain or predict phenomena contemporary models can't? Yes, it explains the golden ration being integral to the arrow of time, and it predicts the nature of gravity using EM as a process of laboratory testing [7]. Does this new theory dispute contemporary "theories" on anything? This new theory **DOES NOT** dispute the data of contemporary physics, only how the data is explained, as it must in using a new algorithm for time, which changes much of how we explain the temporal status of reality. Although part of that theory-building process has eventuated in some new theories and challenged some other theories, **the data of physics research itself is not corrupted**, only the theory linking data, as it must, as the idea of relativity is being superseded.

The elephant in the room with what we perceive of reality, what we understand of data, is the "pattern" of the data. Most notably in reality is the Fibonacci sequence pattern, how nature unfolds in "time", as a development of time, from the small scale to the very large, thus implying different masses and speeds and thus relative motion at work and thus different features of time, despite the constancy of the golden ratio itself between these different size and speed and thus time states. One would think that using the golden ratio as an algorithm for time is essentially to the greater success of scientific development, as the golden ratio pattern itself is the "elephant in the room" of our reality on all scales, from the images of galaxies, to Brownian motion, to the development of plants and animals. This pattern though is recognized not as scientifically or broad-spectrum in science as it perhaps should be, as the pattern of the golden ratio in reality is clear and implies by its nature a type of "universal time" regarding consciousness and thus as we would understand a type of "synchronicity". Sacco [11] writes *"Although*

applying mathematical principles to synchronicity may seem novel, the notion that synchronicity might depend on the Fibonacci numbers was anticipated by Jung in a letter on February 9, 1956 [12]. Jung did not specify how Fibonacci numbers caused synchronicity, but he recognized the conceptual value of postulating that synchronicity operated based on the Fibonacci numbers because of their ubiquity in nature. Mathematical models are increasingly being invoked in psychology. For example, dynamical systems theory helps to analyse a broad range of cognitive and affective dynamics, interpersonal and group dynamics, and personality dynamics [13]. Likewise, fractal patterns are found across the domains of psychology including the brain, visual search, speech patterns, memory retrieval, interpersonal relationships, and personality [14]".

There are through these papers three forms of scientific-based "proof" on offer that have been exclusively derived from this golden ratio algorithm for time. The first would be creating artificial gravity, despite it being a difficult endeavour; the difficulty simply because what has emerged in the system has emerged through a system based (natural) process, and thus any "artificial" gravity could be unstable and need multiple systems of generation and containment to consider, much like the atom becomes unstable when it has developed upon its natural electron shell limit. In the case here creating a "virtual" atom with a "virtual" emergent gravity effect would require means not found in nature, and thus contrived from one level of reality (the atomic scale of emergent gravity) to exist on another (our human scale level) according to a scale of fractal gauge invariance, from the atomic level to our human level, unnaturally so, which would logically cause a "compression" effect aiming to collapse the mechanism of artificial generation to the atomic level (unless otherwise designed for it to prevent collapsing to an atomic level). This has been the feature of paper 7 [7]. Another key form of proof would be carbon dating measurements on the planet Venus, an estimated value of ~54 million years. Yet perhaps the most accessible proof that can be offered is with the correct prediction of the maximum red-shift effect which the James Webb telescope proposes to resolve late 2020, the theory here predicting a value of ~21 (z). A subsequent paper shall present a model of consciousness highlighting our potential "synchronicity" in association with the golden ratio, a model that cleaves directly with the golden ratio time algorithm, leading to an interesting proposal regarding the *completeness* of logic itself as an idea of consciousness.

7. Conclusion.

Einstein's paradigm shift in science demonstrated with words how the relative motion between two objects effects the behavior of time in space between those two objects, having time "getting slower" at speeds closer to light. That foundation lead to a vast literature of scientific words and explanations for atomic and cosmic behavior. Now imagine using an "algorithm" for time that replaced that malleable notion of time and all those scientific words and explanations? It's difficult to fathom, yet the malleability of the new golden ratio algorithm for time surmises that each point in space represents a moment in time "relative" to all other positions and thus moments in time, such that the entire tapestry of space as time is in a careful orchestration of fulfilling a certain specified "task" of that algorithm for time, namely a wavefunction that seeks to trace a perfect circle, as a wave-front of time in space would logically aim to do. If any point in space could be considered its own reference, fixed, then the time front of light as energy from that point in space would be uniform as a spherical wave-front. Relative motion between each of those points in space would give rise to a type of Doppler effect, red or blue shifting of light. By the definition of time as light, t_N is a constant, a determined condition. Moreover, by the nature of light as EM, this as a destructive harmonic is being proposed as related to gravity, and thus a feature of light has it have both wave and mass properties. Another condition of the algorithm underwrites the idea of quantum-entanglement, of φ and $\frac{-1}{\varphi}$, two possible outcomes for the one same concept of time-now, and how "this feature" could be related to an overall space system

t_N event, giving rise to the idea of uncertainty of position in space and energy state between objects. It is as though the golden ratio algorithm is already pre-wired with features fundamental to particle and quantum physics.

Any theory is a guide to explaining how something works. Theories compete with other theories based on simplicity yet also broad-spectrum effectiveness. Will the golden ratio theory for time stand up to contemporary science? Contemporary science has a lot of observed facts, yet the broad-spectrum theory is lacking. Here is a broad-spectrum theory using all the facts, albeit a different set of equations owing to the need to use a new basis for time, the golden ratio algorithm, to reach a calculated link between EM and gravity. The temporality between different references of space having objects of different speeds is the failure of contemporary science to reach a unified theory, because in each of those references not just is temporality skewed, yet so too conscious execution. Furthermore, to explain gravity using "light", gravity that represents the kinetic motion between objects and thus different time dilations, is impossible using linear time equations of special and general relativity, yet creating a standard for time and thus light (speed) across all potential time dilations references will in theory allow gravity to be explained using light (EM).

Conflicts of Interest

The author declares no conflicts of interest; this has been an entirely self-funded independent project.

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