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The Computational Unified Field Theory: What is "Time"?

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I. INTRODUCTION: A MATERIAL-CAUSAL CONCEPTION OF TIME

According to the current 'Material-Causal' Paradigm underlying both Relativity Theory and Quantum Mechanics, "time" is an "observer-dependent", "uni-directional", "material-causal" entity: Its "flow" is "uni-directional", i.e., it can only move from the "present" to the "past" but not from the "future" to the "past"... This is because, according to Relativity Theory, nothing can travel faster than the speed of light so no observer can "catch" any light signal emanating from any "past" even". According to Quantum Mechanics, following the "collapse" of the subatomic target's "probability wave-function" as "caused" by its direct physical interaction with a corresponding subatomic "probe" element – e.g., into a single (space-energy, temporal-mass) value, it is not possible to "un-collapse" this singular ("collapsed") target value back into the (preceding) multifarious "probability wave function" state... Hence, "time-reversal" is not possible according to both Relativity Theory and Quantum Mechanics, which are underlie by the Old "Material-Causal" Paradigm of 20th century Theoretical Physics;

In contrast, the new "A-Causal Computation" Paradigm associated with the "Computational Unified Field Theory" (CUFT) asserts that "time-reversal" may be possible based on its discovery of a singular (higher-ordered) "Universal Consciousness Reality" which computes the four basic physical features of "space", "energy", "mass" and "time"; Since this singular Universal Consciousness Reality is hypothesized to compute these four basic physical features for each exhaustive spatial pixel in the physical universe simultaneously, and since the "progression of time" is produced through this (singular) Universal Consciousness Reality's computation of the "degree of change" associated with a given "object" (e.g., "object-inconsistent" computation), then it was hypothesized based on the CUFT's new 'A-Causal Computation' Paradigm that it may be possible to "reverse-time" through a precise recording- of a given object's "spatial-electromagnetic pixels" across a series of USCF's frames, and the application of a particular electromagnetic stimulation to each of that object's 'spatial-electromagnetic pixels' in such a manner as to

produce the "reversed-sequence" of 'spatial-electromagnetic' pixels values comprising that object's "history"! The key point to be emphasized is that not only does this new CUFT predicts (one of three) "differential-critical" predictions which significantly differentiate it from the predictions of both Relativity Theory and Quantum Mechanics; More broadly, the new CUFT's 'A-Causal Computation' Paradigm conceives of "time" (as well as of the other three physical features of "mass", "space" and "energy") – not as "event/observer" dependent entity, but rather as one of the secondary (integrative) computational measures derived from the singularity of the Universal Consciousness Reality's computation of the three 'Computational Dimensions' at each and every exhaustive spatial pixels across the physical universe (e.g., in any "past", "present" or "future" USCF's frame/s)...

Indeed, the purpose and aim of this article is to examine and delineate the various aspects of "time" as conceived by the new CUFT's 'A-Causal Computation' and its potentially far-reaching theoretical implications in Physics (and Science more generally).

II. THE CUFT'S REVISION OF "MATERIAL-CAUSAL TIME"

Thus, the first step towards fully appreciating the basic revision in our understanding of "time" (as conceived of by the CUFT's new 'A-Causal Computation' Paradigm) is to analyze the basic conception of 'time' by the current 'Material-Causal' Paradigm underlying both RT and QM; in RT, time is a property derived based on the constancy of the speed of light, and based upon the implicit assumption wherein the *measurement of the passage of time depends on the direct physical interaction between a given relativistic observer and a particular (space-time, energy-mass) 'phenomenon'*; thus, for example, if we are to take a particular event of an "explosion" emitting rays of light taking place at a particular spatial location, the temporal value of "when" this event took place critically depends on the direct physical interaction between a given relativistic observer and the ray of light emitted from that 'explosion'. Obviously, since the speed of light is assumed to be constant by RT (for all relativistic observers) then the temporal value of this event critically depends on the direct physical interaction between the event and the time it take the ray of light to reach the relativistic observer. The 'time' of the event doesn't exist an

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"independent" entity, but is rather dependent upon the direct physical interaction between the event and the ray of light emanating from the event and the relativistic observer measuring the temporal value of this event. In a sense, 'time' "doesn't exist" – independently of the direct physical interaction between the event and the relativistic observer, e.g., as mediated by the constant speed of the ray of light. So, time does not exist independently of its measurement by a relativistic observer interacting with a particular phenomenon (or event). Likewise, in QM, the 'temporal' value of a given subatomic 'target' entity can only be derived based on the direct physical interaction between this subatomic 'target's' 'probability wave-function' and another subatomic 'probe' element, which "causes" the 'collapse' of the 'probability wave function' into a singular temporal-mass (complimentary) value of the measured target. Therefore, in QM too 'time' only "exists" as a result of the direct physical interaction between the measuring 'probe' and 'target' elements, but does not exist "independently" of such measurement.

Likewise in QM, the temporal value of a given subatomic target entity critically depends upon the direct physical interaction between that subatomic 'target's' probability wave-function and the measuring subatomic 'probe' element; Following the direct subatomic 'probe-target' elements' interaction, the target's probability wave-function "collapses" into a singular (complimentary) space-energy, time-mass value. Hence, it is only the direct physical interaction between the subatomic 'probe' and target's (probability wave function) which produces a (singular) temporal value for the target. Moreover, once this direct physical interaction between the subatomic probe and target element has occurred "causing" the "collapse" of the target's (assumed) "probability wave function" there is no possibility of "reversing" this temporal sequence, i.e., reverting back to the target's "un-collapsed" wave-function. In other words, "time" is both dependent upon the direct physical interaction between the subatomic 'probe' and 'target' elements and it also "flows" only "un-directionally"- from "past" (e.g., "un-collapsed" probability wave function) to "future" (collapsed probability wave function), but not vice versa. Interestingly, Relativity's perspective also conforms with such a 'unidirectional', 'material-causal' assumption, due to its basic assumption wherein it is impossible to transcend the speed of light, and therefore it is impossible to "catch" any light signal emanating from any "past" event (such as the 'explosion' described above).

We thus see that both RT and QM which are underlie by the same (old) 'Material-Causal' Paradigm which conceive of "time" as strictly arising from a direct physical interaction between an observing entity (e.g., be it a relativistic observer or a subatomic 'probe' element) and a given 'phenomenon' (i.e., 'space-time', 'energy-mass' relativistic object or the subatomic

particle's 'un-collapsed' probability wave function); And both RT and QM share the same 'unidirectional' assumption regarding the passage of time. In contrast, the new 'A-Causal Computation' Paradigm associated with the Computational Unified Field Theory (CUFT) greatly expands and revises this strict 'Material-Causal' conception of "time" as contingent upon the direct physical interaction of a given observer and phenomenon and also advances the possibility that 'time' can be "reversed"! This new conception of 'time' by the CUFT's 'A-Causal Computation' Paradigm arises from its discovery of a singular higher-ordered Universal Consciousness Reality which computes the four basic physical features of 'space', 'time', 'energy' and 'mass' for each and every exhaustive spatial pixel/s in the universe at every minimal time point USCF's frame (e.g., " c^2/h " = 1.45^{42}); As shown previously, the computation of 'time' (as well as of the other three physical features of 'space', 'energy' and 'mass') by this singular Universal Consciousness Reality is carried out by its three Computational Dimensions of 'Framework' (frame/object), 'Consistency' (consistent/inconsistent) and 'Locus' (global/local). Thus, from the singular (higher-ordered) perspective of this Universal Consciousness Reality, 'time' is computed simultaneously at each exhaustive spatial pixel comprising the entire physical cosmos (for each minimal time-point USCF's frame) – i.e., *irrespective of any physical interaction between a relativistic observer and (space-time, energy-mass) phenomenon, or indeed between any subatomic 'probe' and 'target' elements!*

Nevertheless, the scientific-ontological validity of "time" (space energy or mass) is seen not as existing "independently" of the singularity of the Universal Consciousness Reality, e.g., as "time" ('energy', 'mass' and 'space') "dissolves" 'in-between' any two consecutive USCF's frames! Indeed, according to the CUFT's 'Computational Invariance Principle' and 'Universal Consciousness Reality', the only constant and "invariant" reality is the Universal Consciousness Reality – which exists both "during" each of the USCF's frames (e.g., solely computing 'time', 'space', 'energy' and 'mass' for each exhaustive spatial pixel in the universe), and also solely exists 'in-between' every two consecutive USCF's (without the presence of the entire physical universe); Thus, according to this 'Computational Invariance Principle' only the singularity of the Universal Consciousness Reality may be regarded as 'constant' and 'invariant', whereas those four basic physical features of 'space', 'time', 'energy' and 'mass' only exist "transiently" and "dependently" upon the singularity of the Universal Consciousness Reality's computation of them ('during' its sole production of each consecutive USCF's frame). In fact, according to the CUFT's Universal Consciousness Reality postulate, those four basic physical features (of 'space', 'time', 'energy' and 'mass') only exist as mere *manifestations* of the singular

Universal Consciousness Reality, but do not exist "independently" of it – e.g., as they are solely produced by this Universal Consciousness Reality and they cease to exist and "dissolve" back into this Universal Consciousness Reality 'in-between' any two consecutive USCF's.

Hence, the CUFT's new 'A-Causal Computation' Paradigm's conception of 'time' revises RT's and QM's old 'Material-Causal' Paradigm's strict dependency of 'time' upon a direct physical interaction between an observing relativistic observer and a given (space-time, energy-mass) phenomenon, or between a measuring subatomic 'probe' element and a corresponding subatomic 'target' element; Instead, 'time' (alike 'energy', 'space', 'mass') is computed solely by the singularity of the Universal Consciousness Reality (for each exhaustive spatial pixel in the universe at every minimal time-point USCF's frame/s) – independently of any relativistic or quantum measurement.

III. "TIME-REVERSAL" IS POSSIBLE!

Perhaps, the most poignant instance demonstrating the basic revision of the CUFT's new 'A-Causal Computation' Paradigm of (RT's and QM's) old 'Material-Causal' Paradigm's conception of time is given through the CUFT's assertion that "time-reversal" may be possible; As shown previously, the CUFT asserts the possibility of 'time-reversal' based on its analysis of 'time' as arising from the Universal Consciousness Principle's computation of the degree of change in the electromagnetic spatial-pixels comprising any given object across a series of USCF's frames (e.g., 'object-inconsistent' computation); If indeed, the computation of 'time' is derived from the Universal Consciousness Reality's computation of the degree of change in a given object's (electromagnetic-spatial-pixel) composition across a series of USCF's frames, then it should be possible to "reverse-time" based on an accurate recording of a given object's spatial-electromagnetic pixels' composition across a series USCF's frames, compute and apply specific electromagnetic stimulation to each exhaustive spatial-pixel comprising that object across an equivalent number of USCF's frames such that the object's sequence of spatial-electromagnetic pixels' values comprising the series of USCF's frames would be reversed! The key point to understand is that unlike both RT and QM, "time" does not exist contingent upon the direct physical interaction between an observer and a phenomenon (e.g., relativistic observer and space-time, energy-mass phenomenon, or subatomic 'probe' and 'target' elements); Such 'Material-Causal' assumption shared by both RT and QM implies that once that particular 'observer-phenomenon' direct physical interaction has taken place, it is not possible to "re-create" it: as indicated above, in QM following the direct physical interaction between the subatomic

'probe' and 'target' elements the subatomic target's multifarious probability wave-function "collapses" into a singular (complimentary) 'space-energy', or 'mass-time' value, thereby negating the possibility of "un-collapsing" this target's singular complimentary value back into the probability wave function's multifarious values... Likewise, Relativity Theory asserts that once a certain event has occurred, e.g., such as the abovementioned light-emitting explosion event, it is not possible to travel at a velocity greater than the 'speed of light' in order to "catch" that explosion's past ray of light.

Indeed, this "differential-critical prediction" of the CUFT which significantly differs from the predictions of both RT and QM is one of three 'differential-critical predictions' which contrast between specific instances in which the CUFT significantly differs from both RT and QM; It is perhaps important to remember (once more) Einstein's famous response to the question: "what may be the (desired) 'fate' of his Relativity Theory" to which he responded: "I wish for my Theory to become a 'special-case' within a broader theoretical understanding!" This quote is relevant here since it portrays the new CUFT's embedding- integrating- and ultimately transcending- the assumptions of contemporary Relativity Theory and Quantum Mechanics. How does this new CUFT challenge and revise the basic assumptions of both theories? Essentially, the conception of "time" shared by both RT and QM is based on their underlying 'Material-Causal' Old Paradigm which assumes that 'time' (as well as 'space', 'energy' and 'mass') is "caused" by a direct physical interaction between a given (relativistic or quantum) 'observer' and 'phenomenon', and that once this direct physical interaction has taken place, it is not possible to "reverse" it.

Moreover, the CUFT's new 'A-Causal Paradigm' (of 21st Century Physics) depiction of 'time' ('space', 'energy' and 'mass') – not as "caused" by any direct physical interaction between a given relativistic 'observer' or subatomic 'probe' and a corresponding relativistic or quantum 'phenomenon', but rather as representing a secondary computational feature being continuously computed through the singularity of the Universal Consciousness Reality completely revises our basic understanding of what "time" is (e.g., as well as of the three other physical features of 'space', 'energy' and 'mass'); 'Time' ('space', 'energy' and 'mass') is not contingent upon any physical measurement but is computed by the Universal Consciousness Reality for any exhaustive spatial pixel in the universe – e.g., as the degree of "change" (inconsistency) that pertains for that spatial pixel across a series of USCF's frames. So, 'time' ('space', 'energy' or 'mass') – are not contingent upon their measurement by any relativistic observer or subatomic probe element, i.e., because they are computed independently by the singular Universal Consciousness Reality (simultaneously) at every

exhaustive spatial pixel in the physical universe (at every minimal time-point " $c^2/h = 1.45^{-42}$ ") So, by extension, the whole physical universe – comprised of this Universal Consciousness Reality's simultaneous computation of all exhaustive spatial pixels at any such minimal time-point USCF's frame/s exists "independently" of any relativistic observer or quantum probe measurement/s! In fact, the Computational Unified Field Theory's (CUFT) new 'A-Causal Computation' Paradigm of 21st Century Physics goes further on to postulate that each consecutive USCF's frame (comprising all exhaustive spatial pixels in the physical universe at any minimal time-point USCF's frame/s) – "dissolves" back into the singularity of this Universal Consciousness Reality and is retained as a frame "present" or "stored" within this Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir...

IV. TRANSCENDING TIME, SPACE & CAUSALITY

Indeed, this new conception of "time" (as well as "space", "energy", and "mass") – which exists independently of our (quantum or relativistic) measurements of it, e.g., as solely computed by the singular (higher-ordered) Universal Consciousness Reality, significantly alters our basic conception of "time" (as well as of the three other basic physical features of 'space', 'mass', and 'energy'); As elaborated previously, the CUFT's theoretical postulates of the 'Computational Invariance Principle' and associated 'Universal Consciousness Reality' indicate that since only the Universal Consciousness Principle is "computationally-invariant" (that is exists uniformly and consistently both "during" its simultaneous computation of each consecutive USCF's frame/s as well as solely exists "in-between" any two consecutive USCF's frame/s), whereas the four basic features of 'space', 'time', 'energy' and 'mass' only exist "during" each consecutive USCF's frame/s (as solely computed by this singular Universal Consciousness Principle) and are therefore deemed "computationally-variant"; This leads to the Universal 'Consciousness Reality' postulate which asserts that there exists only one singular 'Universal Consciousness Reality' which exists consistently and constantly both "during" each consecutive USCF's frame/s and also solely exists 'in-between' any two consecutive frames, whereas those four basic physical features of 'space' 'time', 'energy' and 'mass' merely represent "transient-phenomenal" manifestations of the singularity of the Universal Consciousness Reality...

Hence, "time" (as well as 'space', 'energy' and 'mass') cease to exist as "independent-objective" physical features associated with a consistent physical universe; Instead, 'time' ('space', 'energy' and 'mass') exist only transiently, and phenomenally – in truth, only existing as a manifestation of this singular Universal

Consciousness Reality! To re-state Einstein's "radical" metamorphosis of Relativity's basic conception of 'time': "time" according to Relativity Theory does not exist as an "objective-universal" physical property (e.g., "as a universal ticking objective-clock") but rather critically depends on the measurement of a particular relativistic observer's velocity relative to the constancy of the speed of light; Or, according to Quantum Mechanics, 'time' (and its complementary 'mass' pair) can only be measured based on a particular subatomic measurement wherein a specific subatomic 'probe' element directly interacts with the subatomic target's 'probability wave function', thereby "causing" the "collapse" of this 'probability wave function' into a singular complimentary temporal-mass value). In contrast, the CUFT's new 'A-Causal Computation' Paradigm asserts that 'time' (as well as 'space', 'energy' and 'mass') is computed independently of any quantum or relativistic measurements by the singular Universal Consciousness Reality at each minimal time-point USCF's frame (e.g., at the incredible rate of $c^2/h = 1.45^{-42}$). Nevertheless, the existence of 'time' (as well as of the three other basic physical features) is merely 'transient' and 'phenomenal', i.e., it exists only "during" each such consecutive USCF's frame/s but not "in-between" any two frames and it is only a manifestation of the singular Universal Consciousness Reality (which exists 'invariantly' and consistently both 'during' each USCF's frame/s and 'in-between' any two frames wherein only this Universal Consciousness Reality exists).

In that sense, the singular Universal Consciousness Reality transcends the strict limitations of 'time', 'space' and 'causality'; It was thus shown (previously) that the CUFT's new 'A-Causal Computation' Paradigm transcends the strict "causal" boundaries set by Relativity's postulated 'speed of light barrier' set upon the transmission of any light-signal across space and time. This is because based on the CUFT's asserted simultaneous computation by the Universal Consciousness Reality of all exhaustive spatial-pixels in the universe at any minimal time-point USCF frame (e.g., $c^2/h = 1.45^{-42}$ seconds), it is possible for the Universal Consciousness Reality – and by extension also for an "expanded" Individual Human Consciousness (e.g., based on another CUFT's theoretical postulate of the 'Individual Human Consciousness Expanded Spectrum Hypothesis, IHCESH') to similarly compute-and affect- any exhaustive spatial pixel/s across the physical universe "instantaneously" for any single USCF frame, or at the incredible rate of $c^2/h = 1.45^{-42}$ second for a series of USCF's frames (which transcends the speed of light barrier)! Likewise, "causality" was negated by the CUFT's new 'A-Causal Computation' Paradigm – again due to the *simultaneity* of the Universal Consciousness Reality's computation of all exhaustive spatial-pixels in the universe (at any minimal time-point USCF's frame/s,

$c^2/h = 1.45^{42}$ seconds), which precludes the possibility of the existence of any "material-causal" physical relationship/s between any two (or more) exhaustive-spatial pixels at any single- or multiple- USCF's frame/s. So, what we're left with is an entirely new conception of "time" (as well as the other three basic physical features and also of "causality"): 'time' is a secondary computational property computed at each exhaustive spatial-pixel in the universe by the singular Universal Consciousness Reality, but its existence is "transient-phenomenal", that is it exists only transiently "during" each consecutive USCF's frame (but not "in-between" any two consecutive frames) and its existence is 'phenomenal', e.g., merely as a manifestation of this singular Universal Consciousness Reality (and not as an "independent" reality from it).

Indeed, this new 'transient-phenomenal' conception of 'time' led to the (somewhat "surprising") realization that time can be "reversed", and more broadly challenged the "Second Law of Thermodynamics" and the "Arrow of Time" hypothesis: It was shown that based on the CUFT's (above- and previous- mentioned) 'Individual Human Consciousness Expansive Spectrum Hypothesis' (IHCESH) postulated capacity to compute every exhaustive spatial pixel in the physical universe (e.g., equivalently to the capacity of the Universal Consciousness Principle – of which the "expanded" Individual Human Consciousness is not "separate", as also stipulated by the CUFT's additional "Universal Consciousness Reality's Inseparability Principle"), it should be possible for such 'expanded' Individual Human Consciousness to reproduce in a "reversed spatial-electromagnetic-pixels' order" any given physical object's- or system's sequence of spatial-electromagnetic pixels (comprising that object's or system's) series of USCF's frames, thereby effectively "reversing-time"! Succinctly states, it was argued that since the flow of "time" merely represents (according to the CUFT) the Universal Consciousness Reality's computation of the degree of change (in a given 'object') across a series of USCF's frames, then the reproduction of that object's spatial-electromagnetic values across a parallel series of USCF's frames essentially "reverses-time" for that object! Indeed, another technological application of the same principle was previously also stated in which a device that would allow for the precise recording of any given object's spatial-electromagnetic pixels values (across a series of USCF's frames) and also compute- and apply- specific electromagnetic stimulation to all exhaustive spatial pixels comprising that particular object such that it reproduces that object's reversed-spatial-electromagnetic sequence would effectively "reverse-time" for that object (or phenomenon)...

V. THE "SUPRA-SPATIAL-TEMPORAL RESERVOIR": "COMPUTED-TIME" VS. "POTENTIAL-TIME"

A further development and understanding of the CUFT's new conception of "time" (as well as of 'space', 'energy' and 'mass') comes from its (previously mentioned) postulate of the 'Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir'; According to this 'Universal Consciousness Supra-Spatial-Temporal Reservoir' theoretical postulate, since the Universal Consciousness Reality "dissolves" all exhaustive spatial-pixels of any given USCF's frame/s ("in-between" any two given USCF's frames) and then re-creates- sustains- and evolves- all of those exhaustive spatial pixels in every subsequent USCF's frame/s then it was postulated that all past- present- and future-* USCF's frames are "stored" within the Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir... (*It was also postulated that based on the capacity of Individual Human Consciousness to choose various "moral-decisions" which in turn is hypothesized to affect the Universal Consciousness Reality's "Dynamic-Equilibrium", e.g., innate tendency to balance any "immoral-offence" of one Individual Consciousness against another Individual Human Consciousness, then there must exist "multiple potential future/s" as part of this Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir). Thus, it is asserted by the CUFT that the Universal Consciousness Reality contains within it all past-present- and future/s* USCF's frame/s (including all exhaustive spatial pixels comprising each individual USCF's frame/s).

Two integral facets associated with the discovery of this 'Universal Consciousness Reality's 'Supra-Spatial-Temporal Reservoir' necessitate further exploration:

- Understanding of the Universal Consciousness Reality's "computation-mechanism", i.e., especially as it relates to "Computed-Time" (e.g., pertaining to a particular given object existing within a given series of USCF's frames) vs. the Universal Consciousness Reality's own production of the series of USCF's frames (e.g., at the incredible rate of $c^2/h = 1.45^{42}$) hereby termed: "Universal-Rate";
- Understanding what may be the relationship between this Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir's "Potential-Time", i.e., "past"- and "future/s*" USCF's and the "present" "Computed Time"?

First, we begin with an analysis of the Universal Consciousness Reality's 'computation-mechanism' – i.e., particularly as it relates to the appearance of the 'Computed-Time's' extremely rapid series of USCF's at the rate of $c^2/h = 1.45^{42}$ seconds; Based on the

CUFT's (previously presented) 'Universal Computational Formula':

Universal Computational Formula

$$c^2 = \frac{s}{h} \cdot \frac{e}{t \cdot m}$$

which postulated that the Universal Computational/Consciousness Principle computes each exhaustive spatial pixel in the universe, e.g., pertaining to its four basic physical features of 'space', 'time', 'energy' and 'mass' at the (incredible) rate of " c^2/h " = 1.45^{-42} seconds; we now address the important question relating to this "Universal Rate": " c^2/h " = 1.45^{-42} seconds and its relationship to its computation of "Computed-Time" (e.g., which is one of the above mentioned four physical features that are computed through the Universal Consciousness Principle for each exhaustive spatial pixel in the universe as delineated in the Universal Consciousness Formula); Perhaps an elegant manner for depicting the relationship between this 'Universal-Rate' of " c^2/h " = 1.45^{-42} seconds at which the Universal Consciousness Principle computes each exhaustive spatial pixel in the universe (e.g., simultaneously) and its specific computation of the "temporal-value" of any given particular exhaustive spatial-pixel is (once again) through the "Cinematic-Film Metaphor": Imagine a film depicting a fast jet-plane zooming through the screen and alongside it there is a slow pedestrian walking (watching this supersonic jet plane zooming by); we can see that when we compare the "temporal-value" associated with the 'jet-plane' relative to the 'temporal-value' associated with the 'pedestrian' (walking) we obtain that since the 'temporal-value' is computed relative to the "Projected-Rate" of the Cinema-Projector: i.e., as the degree of "inconsistency" (or change) in any given object relative to the 'Projected-Rate' (e.g., the Rate at which the frames are projected); then measurements of 'change' (inconsistency) performed at the 'jet-plane' would yield 'less change' relative to this Cinema-Projector's 'Projected-Rate' (of change), then for the "slower-changing" pedestrian. This is simply because the rate of "object-change" in the jet-plane is lower relative to the 'object-change' for the pedestrian – since this 'object-change' is computed relative to the much higher 'Projected-Change' rate (of the Cinema-Projector). Thus, we obtain that the 'temporal-value' of any given object (in the film) is given based on a comparison of that object's 'object-change' relative to the (higher) 'Projected-Rate', e.g., with the temporal-time "slowing-down" for "higher-velocity" objects (less object-change) than for "slower-velocity" objects...

This 'Cinematic-Film Metaphor' is equivalent to the CUFT's depiction of the Universal Computational/

Consciousness Principle's "Universal-Rate" at which it computes the extremely rapid series of USCF's frame (" c^2/h " = 1.45^{-42} seconds) and its relationship to its specific computation of each exhaustive spatial-pixel's 'temporal-value'; That is, it is postulated that the specific 'computed-time' for each exhaustive spatial pixel in the universe is computed by the Universal Consciousness Principle based on the CUFT's Universal Computational Formula's ratio between the Universal Consciousness 'Universal-Rate' (" c^2/h " = 1.45^{-42} seconds) and any given object's 'temporal-value' given through the CUFT's computational definition of "time":

Interestingly, this new realization of the subtle relationship between the Universal Consciousness Principle's 'Universal-Rate' and its specifically computed 'temporal-value' for each exhaustive spatial pixel lends itself to three immediate (important) theoretical ramifications: first, it replicates (elegantly) Relativity's "time-dilation" for fast relativistic objects (as well as for 'massive objects', as described previously). This is because the temporal value of any given event is computed based on that event's (or object's) degree of spatial change relative to the maximal degree of change of the speed of light (across consecutive USCF's frames). This implies that the closer an object (or event) travels relative to the speed of light the smaller is the ensuing "temporal-value" of that object or event (e.g., equivalent to "time-dilation"). Secondly, it (once again) points at the "dissolution" of "time" 'in-between' any two consecutive USCF's frames and the broader (above mentioned) 'Computational Invariance Principle' and associated 'Universal Consciousness Reality's' realization that "time" (as well as 'space', 'energy' and 'mass') cease to exist an "independent-objective" physical property but is rather seen as merely a manifestation of the singular Universal Consciousness Reality; Third, it points at the fundamental nature of the Universal Consciousness Reality's 'Universal-Rate' – as a basic property characterizing this singular Universal Consciousness Reality's production- and manifestation- of the physical universe, e.g., as merely a manifestation of the singular Universal Consciousness Reality; Indeed, it is suggested that in the same manner that Relativity recognized the Constancy of the Speed of Light (for all relativistic observers) as a fundamental property characterizing nature, so does the CUFT acknowledges the 'Universal Rate': " c^2/h " = 1.45^{-42} seconds as a most fundamental characterization of the rate at which the singular Universal Consciousness Reality computes- "dissolves"- re-creates- and evolves- every exhaustive spatial pixel in the physical universe! Interestingly, this new 'Universal Rate' and the 'Universal Computational Formula' (in which it is embedded) represent a broader generalization of Relativity's 'Constancy of the Speed of Light' (e.g., as well as Quantum's properties – such as for instance its Uncertainty-Principle's complimentary pairs of 'space and energy' or time and mass' which are

fully embedded and integrated within the CUFT's new Universal Computational Formula). Indeed, the CUFT's new 'Universal-Rate': $c^2/h = 1.45^{42}$ seconds precisely embeds- and integrates-Relativity's 'Constancy of the Speed of Light' together with Quantum Mechanics' (QM) 'h' Planck's constant to describe the rate at which the Universal Consciousness Reality computes the extremely rapid rate of the USCF's frames which create- "dissolve"- re-create- and evolve- the entire physical universe... So, we obtain that this new Universal-Rate represents a basic property of the physical universe (which fully integrates- and transcends- both RT and QM Models, as represented by the CUFT's full 'Universal Computational Formula').

We now come to discuss the CUFT's new 'A-Causal Computation' Paradigm's discovery of the principle difference between "Potential-Time" and "Computed-Time": based on the above mentioned (and previous) delineation of the Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir, e.g., which contains all "past"- "present"- and "future/s*" USCF's exhaustive spatial-pixels we recognize the existence of 'Potential-Time': that is, the potentiality of all 'past', 'present' and 'future/s*' events, objects, occurrence/s and phenomena – as already existing in a "potential-format" within the singularity of this Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir! In contrast, "Computed-Time" refers to the actual USCF's frame/s that are being computed, e.g., on an ongoing continuous basis by this singular Universal Consciousness Reality: this 'Computed-Time' therefore refers to the continuous "present" USCF's frame that is being computed by this singular Universal Consciousness Reality. Therefore, in effect, it may be said that the 'Computed-Time' represents a "present-continuous" embodiment taken from the totality of the Universal Consciousness Reality's exhaustive Supra-Spatial-Temporal Reservoir's 'Potential-Time'. Once again, the utilization of the 'Cinematic-Film Metaphor' may be helpful at this point: when we watch a cinema film 'rolling-out' we can differentiate between its 'Potential-Time' which would refer to all 'potential "past" and "future" film-frames that are not being presented at the exact "present" frame... In contrast, 'Computed-Time' can be seen as the "actual-frame" that is being presented at any given moment in the film's presentation – which constitutes one of multitude "potential-frames" comprising the entire film... It is important to note, however, that there exists one principle difference between the 'Cinematic-Film Metaphor' and the CUFT's description of the singular Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir which contains all exhaustive 'Potential-Time' USCF's frames and also embodies any "current" 'Computed-Time' USCF frame/s: This difference is that whereas in the 'Cinematic-Film Metaphor' both the 'Potential-Time' exhaustive pool of (yet) "un-presented" film-frames (and

all of their comprising exhaustive spatial-pixels) as well as all 'current' 'Computed-Time' USCF's frames – remain constant irrespective of their sequential presentation through the continuous film presentation; in the case of the singular Universal Consciousness Reality's continuous production of the (extremely rapid) sequence of USCF's frames, as will be pointed out (below), it is stipulated that the actual presentation of each "present" (sequential) USCF's frame – and particularly the 'Dynamic-Equilibrium' (e.g., moral-based) "free-will choices" made by any Individual Human Consciousness comprising the entirety of given exhaustive spatial pixels comprising each "present" (e.g., 'Computed-Time') USCF's frame/s *does alter all "past" and "future/s*" USCF's frames' potential pixels!* This is because, whereas in the Cinematic-Film Metaphor all exhaustive 'past', 'present' and 'future/s*' film-frames are "fixed" and pre-determined by the producer of the film and cannot be altered during the progressive presentation of the film, in the real case of the Universal Consciousness Reality's ongoing production of the consecutive series of USCF's frames: due to the previously delineated 'Dynamic-Equilibrium' Moral Principle which recognizes the singular unity of all apparently "separate" Individual Human Consciousness' and the innate "balancing-mechanism" of this singular Universal Consciousness Reality to "correct" any "moral-imbalance" that may have occurred in case one given Individual Human Consciousness afflicts "pain" or "suffering" upon another 'Individual Consciousness'; Hence, the Dynamic-Equilibrium Principle postulated that in such case the singular Universal Consciousness Reality would initiate a 'balancing-effect' that would force the "inflicting-pain" Individual Human Consciousness to experience precisely the same quality and intensity of 'suffering' (or 'pain') that the "inflicted" Individual Human Consciousness has to endure... So, the principle difference between the Cinematic-Film Metaphor and the singular 'Universal Consciousness Reality's' continuous computation associated with the (ongoing) origination- sustenance- and evolution- of the entire physical universe is that in the (unique) case of the Universal Consciousness Reality's operation, the free "moral-choices" that each Individual Human Consciousness takes affects- and indeed alters- all "past" and "future/s*" related USCF's frames' occurrences, e.g., based on the above mentioned 'Dynamic-Equilibrium' intrinsic propensity of the singular Universal Consciousness Reality (as further described below).

VI. THE "BI-DIRECTIONAL TIME-FLOW HYPOTHESIS" (BDTFH)

A further development of the CUFT's new conception of "time" is its 'Bi-Directional Time-Flow Hypothesis' (BDTFH) which stipulates that based on the

earlier discovery of the 'Universal Consciousness Supra-Spatial-Temporal Reservoir' and 'Individual Human Consciousness Expansive Spectrum Hypothesis' (IHCESH) it may be possible to affect a "two-directional flow of time"! This is due to the fact that according to the Universal Consciousness' Supra-Spatial-Temporal Reservoir Postulate all "past-", "present-" and "future"*-USCF's frames (including all of their exhaustive spatial pixels) are "stored" within this Supra-Spatial-Temporal Reservoir; This means that from the expansive perspective of the singular Universal Consciousness Reality, all "past"- "present"- and "future"- USCF's frames (and all of their exhaustive spatial-pixels, objects, and occurrences) is accessible to – and can be reproduced- by this singular Universal Consciousness Reality (e.g., which is also supported through the CUFT's additional "Universal Consciousness Reality's Infinite Omniscient, Omni-present" postulate previously presented asserting that all past- present- and future/s* USCF's exhaustive spatial pixels are "knowable" and "producible" by this singular Universal Consciousness Reality); Therefore, according to the 'Individual Human Consciousness Expansive Spectrum Hypothesis' which postulates that Individual Human Consciousness possesses the potential to "expand" and function in a manner equivalent to the Universal Consciousness Reality, then this such 'expanded' Individual Human Consciousness can access- produce- and evolve- any "past"- "present"- or "future/s"*- USCF's frames stored within the 'Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir'... Hence, it should be possible for such an 'expanded' Individual Human Consciousness to successively produce (for instance) a series of USCF's comprising say the life of a given "amoeba" (e.g., or indeed any other object that exists or that existed anywhere in the universe!) in a "reversed" sequence", i.e., such that its presentation would comprise of the USCF's frames in the "reversed-time flow", from its "aging" state to its "young" state. In much the same manner, it was previously stipulated that a technological equivalent embodiment can be produced which can record any given object (e.g., such as a biological "amoeba" organism) across a series of USCF's frames, i.e., comprising all of its constituting exhaustive spatial-electromagnetic pixels values at any given USCF/s frame across the series of USCF's frames comprising its biological life-span, and then apply a particular electromagnetic stimulation directed to each one of its constituting spatial-electromagnetic pixels in such a manner as to re-produce a "reversed-sequence" of that 'amoeba's' constituting spatial-electromagnetic pixels across a parallel series of USCF's frames, e.g., de-facto "reversing" that amoeba's biological-time!

Hence, the "Bi-Directional Time-Flow Hypothesis" (BDTFH) stipulates that due to the existence of all exhaustive "past"- "present"- and "future/s"*-USCF's spatial pixels as stored within the Universal

Consciousness Reality's Supra-Spatial-Temporal Reservoir, and due to the possibility to access- and "reverse"- any given series of USCF's frames' exhaustive spatial pixels either through an "expanded" Individual Human Consciousness, or indeed based on the above mentioned technological manipulation of specific electromagnetic simulation of any given object's (or phenomenon's), it should also be possible to "reverse time", that is allow time to "flow" both in its "ordinary-direction" from the past to the future, or 'reverse' its flow, e.g., from the future/s* to the past... Interestingly, the above described (new) discovery of the CUFT's Universal Consciousness Reality's difference between 'Potential-Time' and 'Computed-Time' (and its associated Individual Human Consciousness' Free-Will Hypothesis which can alter all related 'past- and 'future'-USCF's frames' occurrences and phenomenon spatial pixels) opens-up completely new possibilities for further scientific exploration, e.g., relating to the possibility of an "expanded" Individual Human Consciousness to access- and potentially affect- any Potential-Time "past" or "future/s"* occurrence/s etc.

VII. THE "INDIVIDUAL HUMAN CONSCIOUSNESS FREE-WILL HYPOTHESIS" (IHCFWH)

The final development of the CUFT's new conception of "time" – not as dependent upon any Relativistic or Quantum measurement, nor as a unidirectional strict "stream" that flows from the "past" to the "future", but not vice versa (e.g., but rather based on the above mentioned 'Bi-Directional Time-Flow Hypothesis' potentially flowing in both directions); we are reaching a final 'Individual Human Consciousness Free-Will Hypothesis' (IHCFWH) which combines with an earlier "Universal Consciousness Reality Dynamic Equilibrium Principle": According to the 'Universal Consciousness Reality Dynamic Equilibrium Principle', due to the singularity of the Universal Consciousness Reality, which exists both "during" each consecutive USCF's frame/s (e.g., computing every exhaustive spatial-pixel in the universe and its four associated physical features of 'space', 'time', 'energy' and 'mass') and also solely exists "in-between" any two consecutive USCF's frames, the 'Dynamic-Equilibrium' Principle postulates that there exists a basic innate tendency of this singular Universal Consciousness Reality to "balance" any "moral-imbalance", i.e., in case one Individual Human Consciousness afflicts "pain" (or "suffering") upon another Individual Human Consciousness since both Individual Human Consciousness comprise inseparable parts of this singular Universal Consciousness Reality; this means that in order to "balance" any such affliction of 'suffering' by one Individual Consciousness to another Individual Consciousness, the 'Afflicting-Individual Consciousness'

would have to experience an equivalent 'degree of suffering' to that which the 'Inflicted-Individual Consciousness'.

But, this means that there exists a "Free-Choice" for each Individual Human Consciousness, which allows it to choose "moral-decisions" (e.g., whether to consciously inflict suffering or not to inflict suffering – and vice versa to 'benefit' or 'affect-positively' any other Individual Human Consciousness at any point in time); Indeed, according to this new 'Individual Human Consciousness Free-Will Hypothesis' (IHCFWH), the moral-choice/s that any such Individual Human Consciousness chooses (towards any other single or multiple Individual Human Consciousness) brings about a natural 'Universal Consciousness Reality's Dynamic-Equilibrium' selection of one of multiple possible "future/s*" for each associated Individual Human Consciousness based on the moral/immoral (positive or negative) conscious motivation of each of the involved Individual Human Consciousness... Hence, we obtain a far more complex (and fascinating) conception of "time" – especially of "Potential-Time" and its manifestation as "Computed-Time" based on this additional 'Individual Human Consciousness Free-Will Hypothesis' and associated 'Universal Consciousness Reality Dynamic Equilibrium' Principle: no longer is 'Computed-Time' a "fixed" property executed within the exhaustive pool of the 'Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir', but rather the 'moral-choices' that each Individual Human Consciousness opts (e.g., in the "past", "present" or "future/s*") affect a proportionate 'balancing-act' of the singular Universal Consciousness Reality associated with its Dynamic-Equilibrium Principle to alter the pool of spatial-pixels' events embedded within the exhaustive 'Universal Consciousness Reality's Supra-Spatial-Temporal Reservoir's' Computed-Time... To revert back to the 'Cinematic-Film Metaphor', contrary to the ordinary-film instance, in which all "past", "present"- and "future/s*" stored film-frames within the exhaustive pool of the film's entire series of frames, in which the presentation (or "role-out") of any single- or multiple- film's frame/s cannot alter (in any way) any "future" or "past" film-frame; in the unique case of the Universal Consciousness Reality, according to the 'Individual Human Consciousness Free-Choice Hypothesis' the moral choices executed by each Individual Human Consciousness at any single- or multiple- USCF's frame/s can- and does- affect- the singular Universal Consciousness Reality's Dynamic-Equilibrium 'balancing-act' of future/s* (and potentially also of past) USCF's frames' occurrences.

We therefore obtain a completely new understanding of "time" – not as strictly depending upon any relativistic or quantum measurement/s, nor as flowing "uni-directionally" (e.g., from the past to the future but not vice versa), nor as being "fixed" (e.g., based on past relativistic or quantum effects); but rather,

as being computed continuously by the singular Universal Consciousness Reality for each exhaustive spatial-pixel/s in the physical universe and as being interactively affected by 'past'- 'present'- and 'future/s*'-USCF's frames' comprising Individual Human Consciousness' moral-choices (and the Universal Consciousness Reality's balancing 'Dynamic-Equilibrium' mechanism)... This new conception of "time" (as well as of the other three basic physical features of 'space', 'energy' and 'mass') as being continuously computed by a singular (unitary) 'Universal Consciousness Reality' significantly alters our basic understanding of the physical universe as being totally dependent upon- and merely a manifestation of- a singular Universal Consciousness Reality. Finally, this new conception of "time", "space", "energy" and "mass" is also associated with the centrality of Individual Human Consciousness, which is seen as truly "inseparable" from the singular Universal Consciousness Reality as well as possesses the potential to "expand" and alter any exhaustive spatial pixel in the physical universe, "reverse-time", and can also affect certain "past"- "present"- and "future/s*"- occurrences based on moral/immoral conscious actions which "trigger-off" the Universal Consciousness Reality's 'Dynamic-Equilibrium' balancing principle.

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