

Consciousness Endomitosis: A Cyclic Cosmological Theory

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A cyclic cosmological theory called “Consciousness Endomitosis Theory” (CET) is proposed. Whatever is taken as being real, any particle, any structure in the universe, any object, or any type of interaction, all of them are derivative from consciousness, and are described as modulations of consciousness. In CET, consciousness is assumed to be the field from which all other fields described by general relativity and quantum mechanics emerge and into which all of them coalesce. Other cosmological cyclic models can be partly embedded within CET or can be shown to be compatible with it, including some apparently distant models like Steinhardt and Turok’s two-brane cyclic model, as well as other models much closer to CET principles, like Amoroso’s Noetic Field Theory (2000, 2003, 2006) and Di Biase’s Quantum Holographic Informational Model (2019). In CET, consciousness is metaphorically compared to a spherical cell in which an iterative endomitotic process takes place, a process that flows into the “Big Bang.” Once the evolution of visible universe is completed, “Big Crunch” triggers endomitosis reversal. Time, space, energy, mass and the four fundamental interactions are reinterpreted in the light of this cosmic dynamics of consciousness.

Keywords: consciousness, cyclic cosmology, Big Bang, holons, non-duality

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Introduction

Science should take the “hard problem” of consciousness (Chalmers, 1995) to the foreground of its priorities. Accepting this premise, this paper describes a cyclic cosmological theory which not only includes the consciousness “element” but goes much further and states that the nature of consciousness is coextensive with the cosmological dynamics. For CET, any cosmological theory should be inherently a theory on consciousness. *Universe* and *consciousness* are just two distinct words to refer the same and only reality. In this sense, the human mind that produces scientific theories can be viewed as a specific modulation of consciousness aimed at making maps of a reality created by itself.

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If we keep in mind that I am not a physicist nor a mathematician, most readers will conclude that the “map” outlined in this paper is, at best, an essay in *metaphysical philosophy*, defined by A.N. Whitehead as “the endeavor to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted” (Whitehead, 1978: 3). However, my exploration in metaphysical philosophy was triggered by a very specific scientific quest. The theory I am about to outline here can be described as a plausible picture of what Max Planck (1931) could have meant with his famous words: “I regard consciousness as fundamental. I regard matter as derivative from consciousness. We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness.”

Scientists seem to overlook an utterly obvious fact, namely, that all scientific theories are produced by the human mind. In so far as they are descriptive, explanatory and predictive tools, scientific theories are maps of a territory called “reality.” Haramain, Brown and Val Baker (2016) admit that consciousness has been a controversial subject within science because it goes much deeper than explaining a particularly complex phenomenological state of the brain. It pierces “right to the heart of our conception of the material world,” in such a way that an investigation of the nature of consciousness “as it turns out, is inextricably linked with the exploration of the nature of reality” (Haramain et al., 2016: 658).

Whatever the degree of complexity any theory could reach, it cannot be more complex than the mind itself. All scientific theories are subject to the limitations that the human mind imposes upon them. We tend to define “mind” as a set of sensory-perceptive-thinking processes of any kind and “reality” as all possible contents of those processes, but this implies a process/content and a subject/object duality of which we should be cautious.

CET holds that consciousness is neither an emergent quality grounded in biological structures, nor the most evolved property / special function of the mind. Consciousness cannot be defined as a “variable” in any equation, nor it should be treated as a parameter, a force, or a kind of energy, not even as a “unified field” (Hagelin, 1987), unless all particles and interactions are explicitly described as modulations of such a unified field. For CET, consciousness is the only “substance” reality is made of. In other words, consciousness is the unique and absolute ontological primitive. Hence consciousness is ultimately all there is to any physical structure and to any mental process. Consciousness ontologically constitutes the *unus mundus* (in Jung’s sense) from which physical and mental realities seem to emanate as separate domains but equally subordinated to the same laws. Science can only deal with objects (either physical or abstract), but consciousness has no objective property. That is why any conventional scientific approach to consciousness is doomed to failure. Notwithstanding what has been said, some scientific approaches point in the right direction, like Amoroso’s definition of awareness as “a fundamental scale invariant complex cosmological system representative of the structural phenomenology of the universe itself” (Amoroso, 2006: 350).

Contrary to both lay and scientific understanding, but in adherence to some spiritual traditions, CET holds that nothing (no-thing) has consciousness or awareness ultimately. Thus, objects like atoms, molecules, planets, or animals do not have awareness. Not even us human beings do. Only consciousness is aware, though its awareness is embodied in a myriad of objects (including us) that are just made of consciousness. In this sense, CET can be articulated with Meijer and Geesink’s view:

The central postulate of the present paper, in this respect, is that consciousness can be regarded as the most basic building block of nature and consequently is present

at all levels of the fabric of reality. It can be expressed at each level as a dynamic recurrent informational structure, since nature is equipped with a dedicated quantized background, consisting of a fractal matrix of interconnected (entangled) toroidal wave/wormhole structures, that enables the coupling and integration of various modalities of field information (Meijer & Geesink, 2017: 71).

Only consciousness is aware, and all its modulations (humans included) are objects seemingly separated from it. The case of the “human object” is very special in that it erroneously assumes that s/he is *the* “aware subject” and arrogantly believes that s/he can distinguish degrees of subjectivity or awareness in other objects. Thus, the first group of humans thinks that dogs or monkeys are aware subjects *like themselves*. For a second group, rabbits, ants, amebas, or even plants, should be included as *having* awareness. Some people even think that inorganic structures like atoms, stones, rivers, planets are also aware subjects in the sense that they *have* awareness as an inherent property. This latter group is called “panpsychists.” The three groups share the same misunderstanding.

No-thing *has* awareness, and consequently, no-thing can be aware of any-thing. Only consciousness itself can be aware, though its awareness (what CET calls the “aware side” of consciousness) is embodied (what CET calls the “being side” of consciousness) in a myriad of objects which are just *made of* consciousness. In this sense, CET is compatible with Kastrup’s idealist ontology, which can be summarized by his own words as follows:

There is only cosmic consciousness. We, as well as all other living organisms, are but dissociated alters of cosmic consciousness, surrounded by its thoughts. The inanimate world we see around us is the revealed appearance of these thoughts. The living organisms we share the world with are the revealed appearances of other dissociated alters (Kastrup, 2018: 153)

The counterintuitive fact that reality is made of consciousness and only consciousness reveals itself as a self-evident truth under certain circumstances induced by meditative states. If this counterintuitive fact is not at least intuited by scientists, very rarely will they attempt to include consciousness as a “variable” within a description of the universe. Should this fact (that reality is made of consciousness and only consciousness) be experienced and comprehended by scientists, any description of the universe not based upon it will seem irrelevant – if not utterly absurd – to them.

In the light of Steinhardt’s classification of three types of cosmic paradigms commonly invoked to explain the nature of the universe (Steinhardt, 2003), namely, “Unchanging Universe,” “Created Universe,” and “Cyclic Universe,” CET belongs to the third paradigm. Other cosmological cyclic models tried to introduce some sort of “spiritual reality” as a core element. Thus, according to Kragh (2018), Zandstra reformed his previous views on an oscillating universe and reconsidered the problem of the finite number of past cycles by proposing the highly unorthodox idea of “a series of occult non-physical interventions at every compression” in order to maintain a cyclic universe with eternal past existence. For Kragh, “these occult forces he described as originating in a conscious spiritual reality, a divine being of some sort,” which explains why “his attempt to introduce spiritual philosophy in science was politely ignored by his fellow astronomers” (Kragh, 2018: 199).

Consciousness Endomitosis Theory is based upon a cyclic concept that, as Steinhardt emphasizes, is at least as old as recorded history. He indicates ancient Hindu cosmology as a

good example of it and, in fact, some essential elements of the CET theory clearly resonate with metaphysical elements of Hindu cosmology. To be more precise, the very structure of CET theory connects with ideas from the Vedanta Advaita, a version of the non-dual wisdom that permeates most of East and West ancient spiritual traditions.

Science is the search for Truth/Reality, but science can only produce maps of Truth/Reality, that is, relative truths about a relative reality. Truth/Reality cannot be reached by any conceptual device, no matter how fine-grained or complex it could be. According to the non-dual wisdom transmitted in traditions like Vedanta, Zen Buddhism, or Sufi -to mention just a few of them- the only way to *know* Truth/Reality is by *being* it. Truth/Reality shows itself to us, humans, in those lapses of time during which time itself, words, and concepts just disappear, in other words, in those lapses of time where mind “dissolve” itself, so to speak.

CET is inspired by Advaita Vedanta

The philosophical underpinnings of CET are to be found in the non-dual vision of the Advaita Vedantic tradition. In its most recent reformulation, this non-dual vision has been taught with portentous clarity by Rupert Spira (see, for example, 2008, 2017a, 2017b), and CET is particularly in debt with Spira’s teachings. According to this non-dual vision, experience and consciousness are two words with the same meaning. When we put our belief about the dual structure of reality – represented by pairs as subject/object or mind/matter – to the test of experience, it simply collapses. Our experience, which only speaks of itself, is continually telling us that itself, pure consciousness, is the permanent *background* of all knowledge, the ultimate *witness* before which everything arises and fades away and the only *substance* out of which everything is made.

If we ground our daily experience on this recognition of the omnipresent and eternal primacy of consciousness, we begin a progressive realignment of all aspects of our life. As a result of this realignment, the multiple sources of “internal” conflicts – which derive in their entirety from our identity as separate subjects governed by a mind/ego and are projected onto “external” conflicts – gradually disappear. CET has been thought and depicted from the conviction that, ultimately, any cosmological model should serve to improve the quality our life on this planet. By anchoring our understanding of the cosmological processes in the pervasive terrain of consciousness, we foster such improvement.

The non-dual traditions teach that the dissolution of mind equals a complete cease of its activity, which equals reintegration of mind back into consciousness, a process also known as “meditation.” As Meijer and Geesink said:

Through deep insights, contemplations, meditation and reasoning, we can recognize some intrinsic aspects of such an all-embracing universal consciousness. However, our limited minds, being individual parts of the cosmic consciousness, operate in time-space-energy constraints and inner conditioning, that only partly can reflect the true nature of reality (Meijer & Geesink, 2017: 71).

“Those who are attached to things – Chinese philosopher Xiong Shili lamented – look upon the universe as though it was a machine and equate human life with dust -why do they not reflect within themselves?” (Xiong, 2015: 185). The reflection within themselves that Xiong asked for is the true meditation or the sinking back of mind into consciousness. When meditators successfully dissolve their mind, they *know* consciousness because they feel to *be* consciousness. In this experience, any differentiation between *knowing* and *being* simply

disappears. When they return to their normal body-mind functioning, meditators can engage themselves in that progressive realignment of several aspects of their lives mentioned before. In some cases, this realignment could include an attempt to communicate the experience of mind dissolution to other humans, even though they know that no words will be able to capture the profundity of the experience.

However, some of those meditators try once and again to find adequate metaphors to convey the meaning of that unique experience. Metaphors, analogies, and similar devices are the best resources at their disposal, as a literal description is impossible. In articulating CET, I have made my best effort to express with words what cannot be expressed by words, with the hope that these words will help us to develop a better understanding of consciousness.

Strictly speaking, the verb “to be” can be linked to consciousness alone. Only consciousness *is*. Consciousness can be defined as a cosmic totalitarian presence. As said before, nothing else is or could be because there is nothing else. No-*thing* is apart from consciousness. Things just *seem to be* other than consciousness, but everything *is* ultimately consciousness. We can define a “thing” as whatever can be perceived and/or labelled/conceptualized, that is, a form/name dyad, also known as “object.”

Consciousness itself cannot perceive or conceptualize any object. Perception and conceptualization are the business of the mind. In other words, the universe *is* (made of) consciousness, but the universe *is not* conscious. This confusion between ontology and epistemology is a common misunderstanding in “New Age” spiritual circles. Consciousness *has* the universe, not the other way around. Like any “material” object, the mind is just a type of modulation of consciousness. More specifically, the mind is a type of activity, but never an entity itself. This activity consists of sensing, perceiving, and thinking, that is, being aware of things/objects. When we say “I am aware,” we mistakenly assume that the “I” who is aware is an individual separated entity -an *ego*- that has the quality or property of being aware. In so doing, we simply ignore the fundamental truth that the only “I” that is aware is consciousness itself, not me, not you, but consciousness. If we talk about substance, consciousness is the only substance. If we talk about context or medium, consciousness is the only context or medium of everything. Going a bit further, if we talk about subjects and objects, consciousness is the only subject (albeit temporally localized in many points of subjectivity or specific perspectives) and the only object (albeit manifested in a multiplicity and diversity of “things”). Consciousness does not “emerge” from anything, because it is the very ground from which everything emerges. Consciousness is not a property, but the unique substance of which all existing physical properties are modulations.

This being the case, our task amounts to explaining why and how there are humans like us thinking about it at all. This is a ramification of the old question, “why is there *something* (a manifest universe) instead of *nothing*?” CET theory is aimed at explaining the cosmic process through which consciousness expresses itself as a manifest universe where minds capable of inquiry appeared. In this endeavor, CET could also be articulated with Amoroso’s principles of noetic cosmology and his model known as HAM (Holographic Anthropic Multiverse). In Amoroso’s own words, HAM’s noetic cosmology “allows awareness to be defined as a fundamental scale-invariant complex cosmological system representative of the structural phenomenology of the universe itself” (Amoroso, 2003: 272).

A visual aid to introduce the basic tenets of CET

Any theory about consciousness is, by definition, approximate and simplistic, but we must make our best effort to construct the best image we can think of. Figure 1 shows the

main elements and processes of CET. I suggest a sphere-like shape only as a visual aid to capture the whole cyclic dynamics of the universe/consciousness. In that sense, the usage of terms like “upper,” “lower,” “upwards,” or “downwards” is a concession to facilitate the understanding.

Why this sphere appeared is obviously not a valid question, as the idea of cause or “ultimate source” is contained within the sphere. In fact, it could be the case that this question as such arises only at some stages of each cycle of the sphere dynamics. In the same way, any question about *where* the sphere is suspended or allocated, or about what there is “outside” it, are not valid questions either, as the idea of space and space itself are specific contingencies within the sphere. The same applies for the idea of time and time itself: any question about *when* the sphere began to exist is not valid, as the idea of time (and even the idea of existence!) are specific contingencies within the sphere. Therefore, if the ideas of cause, space, and time cannot legitimately be invoked in inquiring into the existence of consciousness as a universal whole, then we can logically conclude that consciousness must be eternal and infinite, that is, uncaused and beyond time and space. Before I develop a deeper argumentation about the elements and processes of CET, let us see an overall description of them.

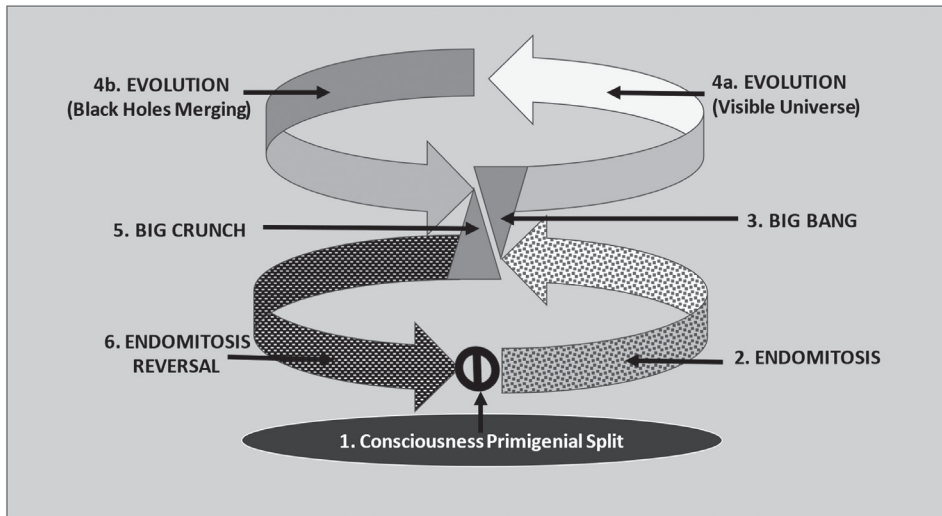


Figure 1. Elements and processes of CET.

In CET consciousness is designed as “I,” and it is imagined as a sphere with two hemispheres. Consciousness dynamics at its widest cosmic scale consist of four *processes*, indicated by even numbers in Figure 1 (#2, #4a, #4b and #6), and three *singularities*, indicated by odd numbers (#1, #3 and #5).

Whereas processes #6 and #2 are consecutive (endomitosis starts when endomitosis reversal ends), processes #4a and #4b are parallel. In its turn, processes #6 #4a and #4b start simultaneously. Three transitional points between processes or singularities are identified in CEM:

#1: Between endomitosis reversal (process #6) and endomitosis (process #2), this transitional point is called “Consciousness Primigenial Split.”

#3: Between endomitosis (process #2) and evolutionary processes (#4a and #4b), this transitional point is called the “Big Bang.”

#5: Between evolutionary processes (#4a and #4b) and endomitosis reversal (process #6), this transitional point is called “Big Crunch.”

Each new cosmological cycle starts with the occurrence of two simultaneous singularities, namely, Big Bang (#3) and Big Crunch (#5).

Let us briefly describe these seven basic components of CET (four processes and three singularities):

1. Singularity #1 is the *Primigenial split of consciousness* by which “I” transforms itself into the string “I-AM-AWARE-that-I-AM-AWARE.”
2. Process #2 is *Endomitosis*. It consists of the iterative endoreplication of the string “I-AM-AWARE-that-I-AM-AWARE.”
3. Singularity #3 is the *Big Bang*, the end of endomitosis. In Big Bang, the ocean of endoreplicated being/aware strings resulting from the iterative endomitotic process (an ocean of about 10^{100} strings) “cross” the celestial equator of the sphere and transform themselves into time/energy/space/mass at a new Big Bang. After each Big Bang, strings become “holons” in CET.
4. Processes #4a and #4b correspond to *Evolution*. Big Bang is the starting point of the evolution of the visible universe as we conventionally know it. CET defines evolution as the process (#4a) through which time/energy/space/mass tetrads, known as “holons,” recover a maximum degree of entropy (that of pre-Big Bang strings). According to CET, all holons head unavoidably to their collapse into a black hole. In this sense, evolution is a return journey that runs through a progressive merging of black holes or “blackholization” (#4b). For CET, evolution can also be described as the progressive “blackholization” of the universe.
5. Singularity #5: *Big Crunch* is the final unification of a single black hole. Throughout process #4b, individual black holes are growing up by absorbing matter or by merging with other black holes. Mass and energy cease with their absorption by black holes, but time and space keep alive insofar as there are two or more black holes in the universe. Finally, when there is just one single black hole, time and space also cease. All the content of this whole unified black hole “cross” the celestial equator of the sphere, becoming a new “ocean” of being/aware strings.
6. Process #6: *Endomitosis reversal* is the process through which the ocean of being/aware strings resulting from Big Crunch progressively collapse their dyadic structure. That is, each of the strings “I-AM-AWARE-(that)-I-AM-AWARE” transforms itself into “I-AM-AWARE” (thereby dissolving the right half or what CET calls the “objective side” of the string).

Once this overall description of the model has been made, we proceed to a more detailed argumentation for each singularity and process.

The primigenial split of consciousness: a linguistic characterization

It is my contention that, when Max Planck (1931) said in a newspaper interview, “[I] regard consciousness as fundamental” or “we cannot get behind consciousness,” he was pointing to the experientially obvious fact that there is nothing *outside* consciousness, *prior* to consciousness or *other* than consciousness. And when he regarded matter “as

derivative from consciousness,” Planck meant that nothing is made of a substance other than consciousness, which implies that what we call mass/energy are a sort of space-time modulations of consciousness.

Let us imagine a pristine state of pure, perfectly still consciousness. Such a state would be an absolute nothingness, not even a vacuum! In other words, the factual existence of such a state is impossible from a logical point of view. For consciousness to be at all, it cannot remain in any pristine state of pure, perfect stillness. Two arguments will show why this is the case:

1. If consciousness *is* at all, there must be something that could be aware of that *isness* of consciousness. Given that there is nothing (no-thing) other than consciousness, only consciousness could be aware of its isness. In other words, only consciousness can be the *subject* or witness of its own being. And not only that: consciousness *needs* to be the subject of its own being to exist at all.
2. If consciousness *is aware* at all, there must be something of which consciousness could be aware of. As there is nothing (no-thing) other than consciousness, only consciousness could be that of which consciousness is aware of. In other words, only consciousness can be the *object* of its awareness. And not only that: consciousness *needs* to be the object of its awareness to existing at all. Consciousness is implicitly self-aware.

In sum, consciousness transcends any supposedly pristine state of pure perfectly stillness and split itself because *awareness* would equal to nothing (non-existent) if there is no being to be aware of, in the same way, that *being* would equal to nothing (non-existent) if there is no awareness to be aware of it. Thus, any notion of only-pure-awareness or only-pure-being must be discarded: the dual nature awareness/being is inherent to consciousness.

It would be complete nonsense to say that something is devoid of awareness or devoid of being. All existing structures in the universe (all “holons” as CET call them), irrespective of their “size” (from subatomic particles to galaxies) or “complexity” (from atoms to human brains), contains the two halves (that is, all existing structures are instances of being/awareness dyads). However, for this to be accepted, the concepts “awareness” and “being” should be defined with the most encompassing terms. Thus, *awareness* ranges from the most basic reactivity of the smallest subatomic particles to the linguistically reportable self-awareness or introspective reflection done by humans.

In its turn, *being* ranges from the briefest or simplest existence of the smallest subatomic particles to huge structures as stars or galaxies.

Consciousness *is one*, but it seems to be *two*. Its *oneness* implies a *twoness*. We know that ‘1=2’ is false from a mathematical point of view, and, in principle, any physics theory which could admit ‘1=2’ to be true seems to be *prima facie* false. But if we cannot imagine a context in which ‘1=2’ could be accepted as true, then the so-called “non-dual” wisdom traditions would be just fairy tales. I am aware that most scientists take dogmatically for granted that those traditions are indeed just fairy tales. In my view, they are not. The truth of ‘1=2’ cannot be logically demonstrated in mathematics or experimentally proved in a laboratory under any scientific theoretical corpus (not yet, although quantum research could be getting closer to this). But it can be experientially verified through a very specific type of procedures that fall under the label “meditation.” Unfortunately, most mathematicians and physicists do not practice meditation (let’s not confuse meditation with mindfulness, prayer, or any technique aimed at body-mind wellness).

In figure 1, #1 corresponds to the “lower” pole of the sphere. This pole is defined as the non-dimensional region where the primigenial split of consciousness takes place, thus transforming itself into the first awareness/being dyad. As said before, CET holds that this split is of logical necessity for consciousness to exist at all. But how did it happen? To explain this process, I will use some grammatical approaches with the hope that it will facilitate understanding.

Let us denote what was previously described as “a pristine state of pure perfectly still consciousness” by the pronoun “I.” If consciousness could speak, “I” would be the only word in its vocabulary. By using the same reasons (A and B) previously put forward to demonstrate that, for consciousness to exist at all, it cannot remain in any pristine state of pure perfect stillness, now we can state that the pronoun “I” is an abbreviation of “I am.” If “I” exists at all, then “I” is. In other words: “I am” is implicit in “I.” For example, the meaning of the statement (a) “I agree with Mary” equals that of (b) “*I am* [and] I agree with Mary.” If I did not exist – if *I was not* – how could I agree with somebody at all?

This trivial observation leads to a second one, not so trivial: “I am” is an abbreviation of “I am aware.” If “I am,” then “I am aware.” In other words: “I am aware” is implicit in “I am.” Thus, the meaning of the statement (a) “I agree with Mary” equals to the meaning of the statement (c) “*I am aware that I agree with Mary.*”

If *I am not aware* that I am, how can I *be agreeing* with somebody at all?

The picture is yet incomplete. The statement “I am aware” (which, as we have just seen, is a logical extension of the pronoun I), must be supplemented by an object (either explicit or ellipsed in actual linguistic usage) to be meaningful at all. By virtue of the argument (B), in the absence of any other “thing” apart from consciousness itself, only consciousness can become its own object. If there is no-thing of which consciousness could be aware of, then consciousness can only be aware of its being aware. That is, consciousness must look at itself *as if* it was an object. (This “as if” will be a core issue in CET). Therefore, “I am aware” equals to “I am aware that I am aware.” Let us recapitulate:

Step 1: “I” implies “I am”

Step 2: “I am” implies “I am aware”

Step 3: “I am aware” implies “I am aware that I am aware.”

Put it in other words, this self-reflexive statement (step 3) was implicated -in David Bohm’s sense-inside the pronoun “I.” Consciousness needs to seemingly split itself into an awareness/being dyad because otherwise, it would not be viable at all.

Endomitosis

It is good news that researchers use biological metaphors in describing cosmological processes where consciousness is profoundly involved (see, for example, Hamein et al., 2016). CET is also inspired by a core biological metaphor: endomitosis. Endomitosis, like endoreduplication and cytokinetic mitosis, is one type of cell endoreplication. In a broad sense, endoreplication is defined by some authors as the general phenomenon by which cells undergo DNA replication in the absence of subsequent cell division (membrane split). It is a relatively unknown phenomenon, as admitted by Gandarillas, Molinuevo and Sanz-Gómez (Gandarillas et al., 2017). According to these authors, the process itself initiates due to a deregulation of the proliferative cell cycle leading to dramatic changes that are still not completely understood, but likely originate the diversity of variants. In sum, researchers do not understand very well the mechanisms underlying the activation and inhibition of

endomitosis (Erenpreisa et al., 2005; for a description of the fascinating machinery of endomitosis).

By using this endomitosis metaphor, CET holds that consciousness is like a cell in which an iterative endomitotic process takes place. It is a very special cell indeed, as it is 100% made of a pure nucleus. This nucleus split into two identical halves with no separation between them (space does not exist yet). After this primigenial split, consciousness becomes a sort of binucleate cell. Now, “each” nucleus feels its counterpart to be some “other” with whom it can “interact,” although both sides are identical. Please notice that I use the words “feel” and “interact” as mere concessions for the sake of the explanation. Strictly speaking, half of *something* cannot feel its other half nor can interact with it because “feel” and “interact” would imply a separation between both halves. If there was separation, then they were not two halves of the same thing but two different things on their own.

When the primigenial split occurred, each half appeared as an “alter” to the other half. There is no difference of substance between them, no difference of size or any other quality, but now each side is a “subject” from its own perspective and an “object” from the perspective of the other side. (Once again, the very notion of “perspective” is a concession, as perspectives require separation, and this is not the case yet.)

Being is what consciousness “sees” from its *aware* “perspective,” and *aware* is what consciousness “sees” from its *being* “perspective.” In the upper hemisphere, throughout the evolution of visible universe, we will find two corollaries of these statements: as *awareness*, consciousness “is” and “sees” *matter*; and as *being*, consciousness “is” and “sees” *mind*.

The primigenial split produced the first case of “I am aware that I am aware.” Let us leave aside this characterization in linguistics terms. Henceforth, “I” will not be considered as a pronoun, nor “I am aware that I am aware” as a sentence or statement any further. Instead, “I am aware that I am aware” will be considered a *string*. Thus, the string “*I am aware that I am aware*” is made of two strands (being and aware) apparently separated by “that.” The aware strand (also known in CET as “subject-strand” or “left strand”) corresponds to the left half (in bold) of the string, and the being strand (also known in CET as “object-strand” or “right strand”) corresponds to the right half.

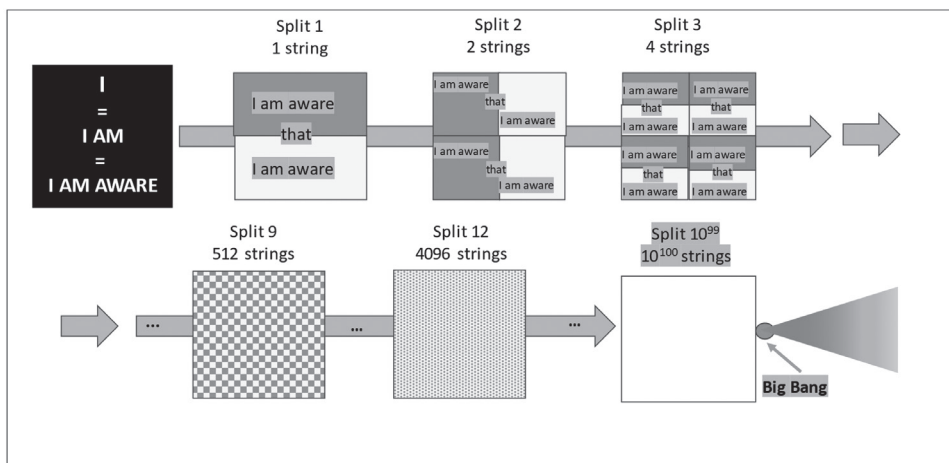


Figure 2. The process of consciousness iterative endomitosis

Endomitosis (see figure 2) is defined in CET as the iterative endoduplication of strings through which consciousness expresses its dual nature as being and awareness. Why has consciousness to express its dual nature at all? We could discard this question as not valid by arguing that *why* questions are a product of the mind's obsessive search for "reasons" and causality in the objective world and. Given that mind is just a modulation of consciousness, any question as to why consciousness does this or that is absurd. But we can make some compassionate concessions and give some answers. The question "Why has consciousness to express its dual nature at all?" anticipates the more metaphorical question "Why does consciousness forget or give up the knowledge of its own eternal and infinite nature?" or "Why would consciousness freely do such a thing?" Spira provides us with a rather poetic answer:

We cannot give a reason. Any reason would make itself part of manifestation and, as such, part of the objective world for which we were seeking a cause. At best, we can say that it is simply an overflowing of itself into manifestation, a sacrifice of its own inherent peace and freedom, an impulse of love in which pure consciousness or God's infinite being pours itself out into form for no reason, and then, finding itself imprisoned within its own creation, begins the return journey. (Spira, 2017: 188-189)

A beautiful answer indeed, but there is a simple answer: consciousness has no option; it would not be viable at all unless it expresses its dual nature.

By the end of endomitosis, CET estimates that the number of strings is about 10^{100} (that is, endomitosis ends after roughly 10^{100} splits). Leaving well behind its initial state as a seamless and perfectly homogeneous unity, endomitosis makes consciousness go through a sort of progressive granulation. The strings are like granules of consciousness that will transform themselves into separated particles at the Big Bang.

Big Bang

For CET, Big Bang occurs when endomitosis ends due to -metaphorically speaking- "replication errors." Biology teaches us that in any process of cell division or replication there exists a risk of DNA damage. These errors in the copying process are well described. Sometimes one error becomes a discovery in terms of its adaptive functional value, and sometimes it has fatal consequences. Following the consciousness endomitosis metaphor, CET suggests that Big Bang is caused by a transcriptional error in consciousness's DNA. Let us explain why and how these errors happen. All strings have this form:

I-AM-AWARE-THAT-I-AM-AWARE

A closer inspection of the string permit us to detect four types of forces (here represented by the symbol "§"), three of them inside its structure and one outside (the left side of the string is in bold to indicate "subject-side" of consciousness; the right side is "object-side"):

§ ⁴	I §¹ {(AM §² AWARE) THAT §³ (I §¹ AM §² AWARE)}	§ ⁴
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Force §¹: by virtue of this force, the first **I** of the string (the “subject-**I**” or “left **I**”) attracts all other elements of the string, preventing them from dispersal, that is, protecting the integrity of the string. Notice that the action of force §¹ appears again inside the string, the right “**I**” of the string).

Force §²: by virtue of this force, the aware and the being sides attract each other, preventing any separation between them. Notice that the action of force §² appears again between the two elements of the right “**AM AWARE**” of the string.

Force §³: by virtue of this force (which corresponds to the word “that” in the grammatical characterization of the string) the subject-**I** of the string apparently separates itself from itself as a subject and from its awareness and being aspects. This apparently repulsive force becomes itself ultimately attractive in the sense of linking subject/object.

Force §⁴: by virtue of this force, each string is linked to all other strings.

These four forces can be allocated along with two imaginary areas:

- a) Left area: Force §² and Force §³
- b) Right area: Force §¹ and Force §⁴

Throughout the sequence of iterative splits, four components of the strings (**AM**, **AWARE**, **AM**, **AWARE**) and these four types of force seem to replicate themselves “smoothly.” CET holds that strings reduce more and more their “size” at every split and, at a given point, they are so “tiny” that they eventually lose their capacity to act as an expression of the dual nature of consciousness anymore, and the four forces operating inside and outside the strings seem to become irrelevant.

Consciousness has been playing a sort of “as if” or simulation game throughout the endomitosis process because the essence of all strings is that **I** see itself *as if* it was an object. This fictitious game ends when consciousness reaches a limit of its endomitotical capacity. At that limit, consciousness has no option and the fracture between **AM AWARE** and **AM AWARE** – the *aware* and the *being* sides of every string respectively – occurs. It is a factual fracture, not another imaginary split of mutual perspectives, but a fracture necessary for consciousness to keep itself viable. In that sense, we can say that Big Bang is simply a survival mechanism for consciousness.

Big Bang is the singularity at which the components of the consciousness strings (except “**I**”) and the four types of force transform themselves simultaneously. Eventually, consciousness brings its dual nature to the extreme by fracturing itself: there is a visible manifested or object side “out there.” CET holds that the following transformations take place at Big Bang (see figure 3):

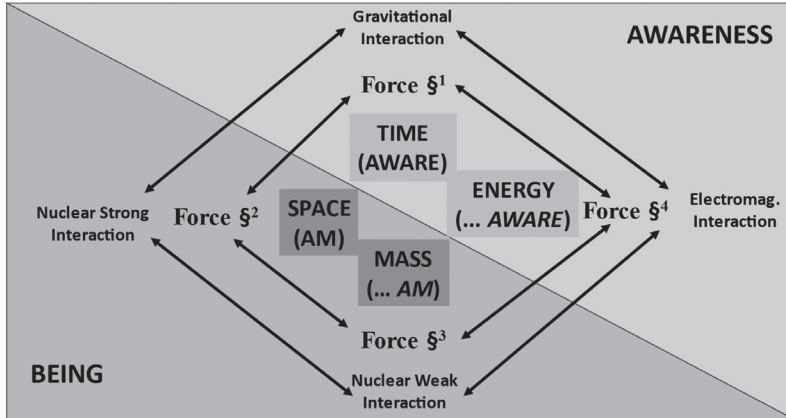


Figure 3. Structural correspondence between components and forces of being/awareness strings and fundamental interactions of physics.

1. From the left half of the 10^{100} strings:
 - **AM** transform itself into **SPACE**
[When Amoroso says that “space -whatever it is- is the most fundamental concept of the universe” (2006: 335), is referring to this *Amness*.]
 - **AWARE** transform itself into **TIME**
[If we remember that “I am” implies “I am aware,” then we can understand what Amoroso (2006: 339) means by “the transformation of space into time.”]
2. From the right half of the 10^{100} strings:
 - **AM** transform itself into **MASS**
 - **AWARE** transform itself into **ENERGY**
3. Forces:
 - Force §¹ transform itself into electromagnetic interaction.
 - Force §² transform itself into strong nuclear interaction.
 - Force §³ transform itself into weak nuclear interaction.
 - Force §⁴ transform itself into gravitational interaction.

“**I**” does not transform itself because it is a constant integrative force with an invariant value throughout both hemispheres. Amoroso points in the right direction when he says that “the action of consciousness is not a 5th fundamental force, but an integration of the electromagnetic and gravitational force” (Amoroso, 2000: 96). The “**I**” in CET roughly correspond to the complex “Superlocal Hyper-Geon” postulated in Amoroso’s HAM cosmology, described in these terms:

This fundamental Geon energy is the primary quantum of action of all existence; it fills the immensity of space (nonlocally) and controls the evolution of the large scale structure of the universe, is the origin of life (the ‘elan vital’) of classical philosophy and finally is the root of the ‘light of consciousness’ (Amoroso, 2000: 95).

Thus, “**I**” is a cosmological constant that pervades both hemispheres of the consciousness sphere. In the “lower” hemisphere, the **I**-constant sets in motion and keeps the whole

endomitotic process going forwards. In the “upper” hemisphere, the I-constant makes all space/time/mass/energy configurations (henceforth, S/T/E/M) to evolve in the same direction, namely, towards their disintegration by being absorbed into black holes and the merging of black holes into a final single unified black hole (Big Crunch).

Undoubtedly, the space/time “transcriptional error” that happened at Big Bang made a huge change: the relationships between the now fragmented elements of old strings are henceforth subject to proximity and duration. We must remember that after the primigenial split, there was no difference, no separation between the two halves (being/awareness) of that first string. Their distinction was just a matter of non-dimensional topology and illusory reciprocal perspective. But with the introduction of the space-time “error,” things changed dramatically. The “arms” of 10^{100} strings made the “mistake” of converting themselves into **SPACE** (from the left **AM**) and **MASS** (from the right **AM**). When Amoroso (2003: 259) postulates that “space is the most fundamental ‘form or substance’ of existence; and the origin of all structure and thus geometry,” he is referring to the space that corresponds to the left **AM** of the strings in CET.

On the other hand, the “aware” of those 10^{100} strings made the “mistake” of converting themselves into **TIME** (from the left **AWARE**) and **ENERGY** (from the right **AWARE**). From then onwards, all generations of post-Big Bang strings (known as “holons” in CEM) feel the tension between its original *being-awareness unlimited nature* and its acquired *space-time limited condition*, in such a way that each string (holon) cannot but solve this tension.

In principle, CET can also be articulated with the *Holoinformational Model of Consciousness* (Di Biase, 2009), where information, space-time, mass, energy, and consciousness are non-local quantum information entangled with the quantum holographic cosmos. But this model seems to consider consciousness just another “element” o variable in cosmological equations, which is contrary to CET main thesis. I will subscribe to Di Biase’s proposal that information and consciousness are a cosmic primacy (Di Biase & Amoroso, 2008; Di Biase, 2009) if it is explicitly accepted that information is just an abstract codification of consciousness, but not an ontological reality or substance distinct from consciousness. In the same vein, a true primacy of consciousness is not compatible with Bohm’s idea -underlined by Di Biase (2019: 80) that the superimplicate order allows us to “understanding consciousness, energy, and matter as expression varieties of a same informational order.” CET would reformulate Bohm’s idea by suggesting that the superimplicate order allows us to understand information, energy, and matter as expression varieties of consciousness. Having said that, I agree with Di Biase that quantum information and entanglement are the way consciousness acts over matter, energy and space-time in-forming this universe.

Evolution (a): the odyssey of holons and the tetradic structural field

The first instances of post-Big Bang holons, already endowed with the space-time error, were probably some of those particles known as quarks, leptons and photons. Things like the so-called “spin” of these particles are the external *appearance* of their internal *feel*. Like the rest of the so-called “intrinsic properties” of all subatomic particles, spin is merely an expression or outer manifestation of their tension between their original *being-awareness unlimited nature* and their acquired *space-time limited condition*. The behavior of any subatomic particle and of any more complex structure is subject to the same dynamics: resolving the ontological tension, which basically consists of restoring a state of equilibrium.

Inspired by Ken Wilber’s views (1995), CET assumes that the entities of the visible universe are tetradic structures called “holons.” Each holon is a tetrad of **SPACE-TIME-**

MASS-ENERGY. In some types of basic holons, one or even two domains of its tetrad can have zero-value. For example, the holon is known as “electron,” which has zero mass. Each of the four vertices in all tetrads corresponds to a distinct structural drive. Thus, each holon is constantly subject to a *tetradic structural field*. These are the four drives:

- a) self-Preserving: **SPACE** is the dimension in which all holons manifest their tendency to preserve their integrity;
- b) self-Transcending: **TIME** is the dimension through which holons evolve by increasing their depth and complexity. (The depth and complexity of a holon is measured by the number of lower levels of holons that it is composed of. For example, in a sequence of holons like “atom > molecule > plant > invertebrate animal > human,” each holon is deeper and more complex than the previous one. For a full explanation (Wilber, 1995));
- c) self-Dissolving: **MASS** is what all holons lose in the first place when their disintegration occurs (obviously, it does not apply for zero mass holons);
- d) self-Adaptative: **ENERGY** is what all holons need in the first place to reach the best adaptation to their environments.

This *tetradic structural field* permits CET to formulate the basic “laws of holons” or basic trends of visible universe dynamics:

- a) First law: all holons tend to conserve the space they occupy.
- b) Second law: all holons tend to transform themselves in a more complex holon with the minimum amount of time in this process.
- c) Third law: all holons with mass tend to conserve it.
- d) Fourth law: all holons tend to make the most efficient use of energy for their adaptative purposes.

CET holds that this *tetradic structural field* of the visible universe is the single unified field that integrates the four fundamental interactions. This single unified field is “**I**.” Thus, theoretical equations that describe each fundamental interaction can be linked to a corresponding drive of holons:

- a) self-Preserving can be roughly described in terms of nuclear strong interaction;
- b) self-Dissolving can be roughly described in terms of nuclear weak interaction;
- c) self-Adaptative can be roughly described in terms of electromagnetic interaction;
- d) self-Transcending can be roughly described in terms of gravitational interaction.

Before the space-time transcriptional error occurred, the sameness of being and awareness was absolute. If we had asked any endoreplicated string what the nature of its *being* was, the string would have replied “I am *awareness*,” and if we had asked of what it was *aware*, the string would have replied “of *being*” or “I am aware of being aware.”

Once the space-time “transcriptional error” occurred, being and awareness seemed to separate their paths within the post-Big Bang strings or “holons.” Sooner or later, holons will be unavoidably absorbed by black holes. Until this absorption by a black hole takes place, holons simply evolve, that is, they transcend themselves by increasing their complexity or “depth.” At any time in their evolution, they will have a) some external “appearance” as felt from the “second person” perspective of other holons and b) some knowing activity (internal or “first-person” “feel”). A holon can be defined as a string with a *form* and a *knowing* activity. In the case of humans, an abyss seems to exist between “to be” and “to know.” The mere

suggestion that both can coalesce into one or that both are sides of the same coin provokes incredulity and disapproval in most circles. In mathematical/physical terms, such an idea would mean that the product of energy by time equals to the product of mass by volume.

In the same way that the string components and the four forces operating during endomitos were allocated in two imaginary areas (green for “being” and orange for “awareness” in figure 2), the four tensions to which all holon are subject in the visible universe can also be allocated along two axes connecting those two areas (see figure 4).

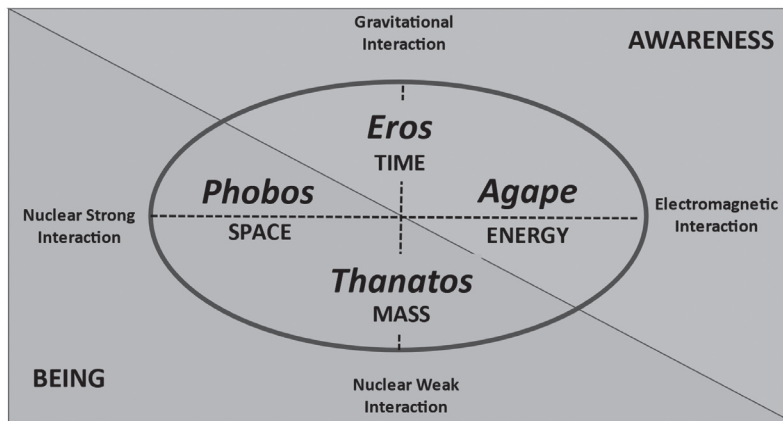


Figure 4. The tetradic structural field of any holon

Both axes have *awareness* as their positive pole and *being* as its negative pole. In the vertical axis, borrowing Ken Wilber’s terms, CET calls these poles “Eros” and “Thanatos.”

Along with this vertical axis, the holon is subject to an increase or decrease of its *awareness* side:

- a) In one extreme of this axis, *Eros* attracts any holon -through gravitational interaction- to its total collapse into a black hole. It represents the tendency of all holons to return to a unified state in which any separation between aware and being sides has been dissolved. *Eros* is the pro-awareness drive *par excellence*.
- b) In the other extreme of this axis, *Thanatos* pulls the holon -through weak nuclear interaction- down to its component subholons. *Thanatos* is the anti-being drive *par excellence* (and implicitly anti-awareness).

In the horizontal axis, borrowing Ken Wilber’s terms, CET calls these poles “Phobos” and “Agape.” Along with this horizontal axis, the holon is subject to an increase or decrease of its *being* side.

- a) In one extreme of this axis, *Phobos* drives the holon -through strong nuclear interaction- into a decrease of its being side by isolating itself from other holons of equivalent complexity. *Phobos* is an anti-awareness drive.
- b) In one extreme of this axis, *Agape* drives the holon -through electromagnetic interaction- into an increase of its being side by union with other holons of equivalent complexity. *Agape* is a pro-awareness drive.

This picture of consciousness as a “One” that becomes a “Four” after Big Bang should remind us of an interesting observation made by Carl Jung and noted by Desmond (2014: 17). In his autobiographical *Memories, Dreams, Reflections*, Jung describes the numbers One and four as follows:

One, as the first numeral, is unity. But it is also “*the unity*,” the One, All-Oneness, individuality and non-duality—not a numeral but a philosophical concept, an archetype and attribute of God, the monad. (...) The necessary statement of the number four, therefore, is that, among other things, it is an apex and simultaneously the end of a preceding ascent (Jung, 1989: 310).

Evolution (b): black holes from CET perspective

Every Space/Mass/Time/Energy tetrad -every holon- is unavoidably heading to its absorption by a black hole. The first black holes appear right after Big Bang, probably since one Planck unit of time onwards. Once formed, no black hole loses its condition as such throughout evolution, tending either to grow by absorbing surrounding energy/matter or to merge with other black holes. CET holds that the blackholed portion of the universe (the accumulated volume of all individual black holes at a given time in the evolutionary process) increases itself at a constant rate throughout evolution. The evolutionary process ends when there is no holon left to be absorbed by black holes, and all individual black holes have merged into one single hypermassive black hole.

Black holes play a crucial role in the cosmic dynamics envisaged by CET. Current scientific evidence corroborates the existence of a variety of black holes in terms of their size, rotation and other parameters. According to CET, such a variety is ultimately explained by how old a black hole is and how it was formed. CET has nothing to say about the mathematical characterization of black holes nor about the physics involved in them, although some insight is suggested: the so called “Hawking radiation” is interpreted from CET’s perspective as a “message” that black holes transmit to signal their position and to somehow “remind” surrounding holons what their unavoidable destiny is.

However, CET holds that certain processes occur inside a black hole, processes of paramount importance for the cyclic dynamics of the cosmos. Holons seem to disappear after being engulfed by a black hole, as each of their four structural components (S/T/E/M) is literally absorbed by the black hole. But holons have something else apart from four structural components: they have a “history.” Any holon carries within itself a record of the path followed in solving the tension between what we called the “original *being-awareness unlimited nature*” and the “acquired *space-time limited condition*.” As said before, CET holds that the behavior of any holon is aimed at resolving this ontological tension, which basically consists of restoring a state of equilibrium. In other words, any holon carries within itself a “biographical” record of the vicissitudes it has been through in conserving its space (first law), transforming itself in a more complex holon with the minimum amount of time (second law), conserving its mass (third law) and making the most efficient use of energy for its adaptative purposes (fourth law). CET holds that these records do not disappear after the holon has been engulfed by a black hole.

According to CET, the main function of black holes is to separate the structural components (S/T/E/M) from these records and to store them (components and records) separately. A black hole is a sort of disassembly plant where “life records” of holons are extracted from their S/T/E/M structure and stored in a separate region (within the black hole). Black holes,

like holons, are also unavoidably destined to collapse with other black holes. Every time two black holes merge, their respective stores of naked tetrads and records simply merge into bigger ones. Evolution ends in a single unified hypermassive black hole – CET calls it “*BlackWhole*” – containing the first warehouse of about 10^{100} naked S/T/E/M tetrads and a second warehouse of an unthinkable number of “holonic records.”

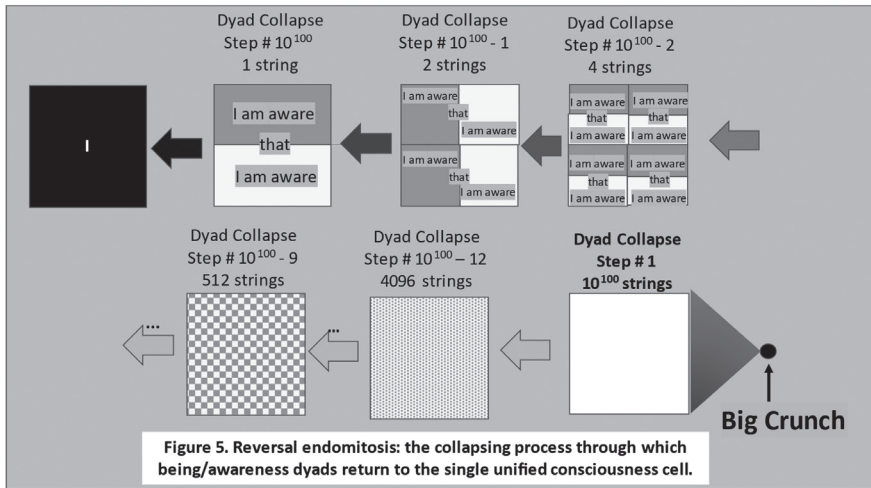
Big crunch

The first warehouse of the *BlackWhole* represents the maximum degree of entropy in the universe, a place where there is no residue of what science calls “fundamental particles” and “fundamental interactions,” a place where there exists just a pack of 10^{100} naked tetrads stripped of their history, waiting for a new Big Crunch, when they will transform themselves back into being/aware strings, and the endomitosis reversal will start again. The second warehouse of the *BlackWhole* represents the maximum degree of negative entropy in the universe, a place where an unthinkable number of holonic records wait for a new Big Bang when these records will be available for a new generation of 10^{100} holons at the start of another evolutionary cycle.

Big Crunch is an adequate name, as the simultaneous transformation of 10^{100} S/T/E/M tetrads into 10^{100} being/aware strings must be very noisy indeed! This noise is accompanied by that produced by the splitting of the *BlackWhole*, whereby the immense store of holonic records detaches itself from it and “travels” to the point where a new Big Bang is about to occur, in order to “orientate,” “inspire” or “guide” holons throughout the next evolutionary process. Let us remember that, according to CET, a new Big Crunch is simultaneous with a new Big Bang where another pack of 10^{100} being/awareness strings transforming themselves into S/T/E/M configurations (holons) subject to the four fundamental interactions.

Endomitosis reversal

CET holds that, once the fracture inside Blackwhole occurs and the holonic store gets detached from the naked tetrads store, the latter collapse into a new pack of strings. That is, the S/T/E/M tetrads convert themselves back into a new pack of 10^{100} being/aware strings. Let us remember the structure of all strings: **I (AM AWARE) THAT (I AM AWARE)**. Step by step, free of S/T/E/M limitations and free of the burden that holonic records could represent, the strings collapse back their “right” or “object” sides, “descending” progressively into a new single unified cell of pure consciousness or “**I**” (see figure 5).



Cosmological cycles are not identical. Each cycle has new features because the evolutionary process does not have to follow the same routes. Holons can be different and find different paths in each cycle. These novelties, which will be stored in black holes, will influence the next evolutionary process. The Big Bang of each cycle is slightly different from the previous one. In each cycle, the holons will have at their disposal more and better tools for their evolutionary process. This means that the evolutionary process of each cycle will be faster than the previous one. Holons will be absorbed by black holes more rapidly in each cycle. Thus, the time distance between two Big Bangs (hence between two Big Crunchs) will be shortened at each cycle. Eventually, after an unthinkable number of cycles, the process of evolution would only last a unit of Planck time. Although endomitosis and endomitosis reversal have no duration because both processes take place outside of time, we can infer their “duration”: taken together, and both processes require for their completion the same amount of time as the evolutionary processes of the previous cycle. Thus, after an unthinkable number of cycles, the processes of endomitosis and endomitosis reversal would also last a unit of Planck time.

Eventually, Big Bang, Big Crunch, endomitosis, and endomitosis reversal all cease to be, the universe disappears, and only **I**, pure consciousness, remains. On whether **I** will freely decide to split itself into a being/awareness dyad once again, CET keeps silent.

Concluding remarks

The image of the universe depicted by CET is one in which each and all fundamental particles of the standard model in physics revolve around the same “message”: *I am aware that I am aware*. Properties and behavior of fermions and bosons and their respective hadrons (baryons and mesons) can be explained in the light of the pervasive tendency to restore the equilibrium of “**I**.” Any isolated instance of “**AM**” (space) or “**AM**” (mass) aims at reconnecting itself with its counterpart “**AWARE**” (time) or “**AWARE**” (energy), and every instance of “**AM AWARE**” do the same with its counterpart ([that] **AM AWARE**). But this reconfiguration of the string is just a requirement for its ultimate dissolution. The universe is based upon a false distinction between the *being* and the *awareness* sides of consciousness, and what we know as “evolution” is a journey to the elimination of this distinction.

CET suggests that it should be possible to reformulate all field equations by reducing its variables and parameters down to their **AM-AWARE-AM-AWARE** elementary seeds. Just to give a basic example, the most famous equation in physics, namely, “ $e = mc^2$ ”, would be translated into CET terms as “**AWARE = AM (AM AM AWARE AWARE)**”, which could be read as follows: “*To realize (or to notice) [my] awareness is to realize (or to notice) [my] being when I am aware.*” The depth of Einstein’s “ $e = mc^2$ ” lies in that it gets very close to the being/awareness unification of consciousness. In any case, though CET is not entitled to participate in mathematics or physics debates, as metaphysical speculation, it is designed to inspire mathematicians and physicists.

Because I *am*, I can *know*. Because I *know*, I know that I *am*. From the point of view of the “being-half,” being is what permits a holon to know. From the point of view of the “awareness-half,” awareness is what permits a holon to be. However, ultimately both points of view are wrong because the difference between halves is fictional. My being and my knowing are *not two*. As a verb, “To be” means “To be aware.” As a noun, “Awareness” means “Being.” Evolution leads holons like you and me to collapse this false distinction. Mind and matter are what the *aware* half and the *being* half of consciousness respectively seemed to become after the Big Bang. But the matter is simply what consciousness looks like when filtered through the mind lens, and the mind is simply what consciousness looks like when filtered through the matter lens. And this will continue to be so irrespective of the scientific perspective adopted. Di Biase said:

Putting all together: Bohm’s quantum holographic physics data, Beckenstein-Suskind holographic principle, Smolin’s holographic web, Maldacena’s duality, the energy-entropy conservation principle of Jacobson, the experimental data of the holonomic theory of Pribram, and its extension made by Di Biase, I see an extended holoinformational universal conscious interconnectedness. A universal entanglement in which each part of the universe, each brain-consciousness, interconnects with all the quantum information stored in the holographic patterns distributed in the whole cosmos, in an indivisible irreducible informational brain-cosmos unity. A universe conceived as quantum-holographic non-local information with consciousness shows us a wider holistic and spiritual cosmovision than the classic materialistic Cartesian-Newtonian paradigm. It can also reconnect our scientific knowledge to the wisdom of the ancient spiritual philosophies of mankind that saw man always interconnected with the cosmos (Di Biase, 2019: 83).

Putting all in a few sentences: I only see *Consciousness* manifested as an interconnected holoinformational universe. I only see *Consciousness* as the substance out of which quantum entanglement is made. I only see *Consciousness’s* playfulness in holographic patterns distributed in the whole cosmos. And yes, I wish I could contribute to reconnect our scientific knowledge to the wisdom of the ancient spiritual philosophies of mankind, particularly those built upon non-dual understandings. That is the first and only interest of CET as a cyclic cosmological theory.

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