

Entropic-Syntropic Evolution

*Addendum 7 to Beyond Darwin: The Hidden Rhythm of Evolution*¹

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Following one of his surprising mathematical discoveries, Carl F. Gauss stated: “*Now that I have the solution, I just need to find the logical process that leads to it.*” In the present investigation, we find ourselves in a situation similar to that of Gauss. Throughout these pages, we have shown that, far from being a mere product of chance and meaningless, evolution follows a very precise rhythm of unfolding and folding between an original pole, basically of energy, and a final pole, basically of consciousness. How is this possible? What mechanism causes things to happen this way? So far, we have mainly limited ourselves to recounting some facts and to revealing the surprising pattern that links them. In this addendum, we will try to provide the key to explaining this mysterious behaviour of the evolutionary universe. As we will soon see, the transactional interpretation of quantum mechanics will provide us with the final clue.

Let us first delve a little into history to grasp the profound implications of the matter at hand. In the 1850s, the physicist and mathematician Rudolf Clausius established the concept of a thermodynamic system and postulated the thesis that in any energy transformation process, a small amount of energy is gradually dissipated across the system boundary. Energy thus gradually and irreversibly passes from a state of high potential and availability to a state of low potential and unavailability. Clausius coined the term “entropy” to refer to the physical magnitude that measures that amount of energy that is not reusable to do work and which is inexorably lost in the environment. The universe as a whole —which is an isolated system— tends to progressively distribute energy uniformly, increase its degree of homogeneity and disorder, and maximize entropy, and is therefore condemned to thermal death when it finally reaches the state of thermodynamic equilibrium. In this respect, the physicist Arthur Eddington affirmed that “*entropy is the arrow of time*”, as it forces physical events to move in a certain temporal direction, the one that is familiar to us, i.e. from the past to the future.

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At the same time as Clausius was developing the science of thermodynamics, Charles Darwin was expounding the theory of evolution. Controversy was served! While according to the second law of thermodynamics the processes of energy transformation inevitably tend towards dissipation, uniformity, disorder and homogeneity, it turns out that, at the same time, the processes of biological evolution move in exactly the opposite direction, i.e. towards order, differentiation, complexity and organization. Could it be that evolution does not follow the principles of thermodynamics? The response from the currently dominant scientific paradigm is limited to clarifying that the second law is only applicable to closed and isolated systems, that complex systems are open —that is, they exchange matter and energy with their environments—, and that, although they decrease the entropy in their interior —generating order among their components—, they do so at the cost of increasing it around them., Note that this answer only indicates that *there is no contradiction* between the second law of thermodynamics and the appearance of complex systems, but it *does not explain* this appearance at all, nor does it explain their subsequent maintenance without degradation, and even less so, their progressive development towards higher levels of complexity and organization. Not to mention, of course, the harmonic rhythm in which this surprising display of creativity takes place, as we have seen in our research.

Given that classical thermodynamics has not been able to explain the creative dynamics of life, there have been numerous authors over the course of more than a century who have attempted to provide an answer, from very different perspectives, to the dilemma thus posed. Let us recall, for instance, the “*élan vital*” of the French philosopher Henri Bergson (1859-1941), the “*entelechy*” of the German biologist Hans Driesch (1867-1941), the “*synchronicity*” of the Swiss psychiatrist Carl Jung (1875-1961), the “*Omega point*” of the French palaeontologist Pierre Teilhard de Chardin (1881-1955), the “*negative entropy*” of the Austrian physicist Erwin Schrödinger (1887-1961), the “*negentropy*” of the French physicist Léon Brillouin (1889-1969), the “*general plan*” of the Hungarian physicist-chemist Michael Polanyi (1891-1976), the “*principle of syntropy*” of the Hungarian physiologist Albert Szent-Györgyi (1893-1986), the “*syntropy*” of the American architect Richard Buckminster Fuller (1895 -1983), the “*higher laws*” of the Hungarian physicist Eugene Wigner (1902-1955), the “*biotonic laws*” of the German physicist Walter Elsässer (1904-1991), the “*chreode*” of the British biologist Conrad Waddington (1905-1975), the “*stratified stability*” of the Polish mathematician Jacob Bronowski (1908-1974), the “*retrocausality*” of the physicist French Olivier Costa de Beauregard (1911-2007), the “*holomovement*” of the American physicist David Bohm (1917-1992), the “*dissipative structures*” of the Russian chemist

Ilya Prigogine (1917-2003), the “attractor” of the American mathematician Edward Lorenz (1917-2008), the “theory of catastrophes” of the French mathematician René Thom (1923-2002), the “fractal geometry” of the Polish mathematician Benoît Mandelbrot (1924-2010), the “Akashic field” of the Hungarian systems theorist Ervin Laszlo (1932), the “anthropic principle” of the Australian physicist Brandon Carter (1942), the “morphogenetic fields” of the British biochemist Rupert Sheldrake (1942), the “Feigenbaum numbers” of the American mathematician Mitchell Feigenbaum (1944-2019), the “self-organized criticality” of the Danish physicist Per Bak (1948-2002), the “Eros” of the American integral philosopher Ken Wilber (1949) and so on. Yes; it would seem that there really is something more than entropy in this evolutionary universe.

Our research is clearly in tune with many of the proposals mentioned above, some of which are even very close to solving the issue raised at the beginning of this addendum. Let us recap the question: What mechanism in nature is capable of causing evolution, in counterbalance to the second principle of thermodynamics, to follow a very precise divergent-convergent spiral pattern between an original pole of energy and a final pole of consciousness? As we have stated, the transactional interpretation of quantum mechanics may provide us with the long-awaited answer. Let us now look at some approaches that point in this direction.

In 1940, the Italian mathematician Luigi Fantappiè (1901-1956) sought to find a unified theory of the physical and biological world that would explain the emergence of complex and organized forms in a universe dominated by entropy. He thought that the solution to this enigma had to be found in the fundamental principles of physics, in the very structure of the equations that combine quantum mechanics and special relativity. A key equation in this field is the d’Alembert operator, which, in the relativistic Klein-Gordon generalization of the Schrödinger wave equation, admits two types of solutions: **divergent waves**, described by the so-called “retarded potentials”, that branch from the original emitting source, and **convergent waves**, described by the “advanced potentials”, that converge at a future point that acts as an absorber or attractor. On analyzing the mathematical properties of these two solutions, Fantappiè found that, while the positive solution moves forward in time and tends towards dissipation, disorder and homogeneity, the negative solution moves backward in time and tends towards concentration, order and complexity. He thus understood that the first solution actually follows the law of **entropy** —from the Greek *en* = divergent, and *tropos* = tendency— while the second obeys a symmetric law that he called **syntropy** —from the Greek *syn* = convergent, and *tropos* = tendency—. Observing that the properties of the law of

syntropy were exactly those characteristics of living beings, Fantappiè concluded that the increase in complexity in the evolutionary process is a consequence of the advanced — retrocausal— waves that emanate from attractors located in the future and go backwards in time. That is why, he stated, “*advanced waves are the essence of life itself*”. Life is caused by the future.

We insist that, far from being a mere product of speculation, these retrocausal waves appear in a rigorous mathematical way when the fundamental equations of special relativity and quantum mechanics are studied jointly. What is truly surprising is that the researchers who made their theoretical discoveries later refused to accept their real existence, not for scientific reasons, but simply because of the preconception that the final causes were impossible. However, Luigi Fantappiè refused to eliminate half of the solutions of the fundamental equations of the universe and consistently argued that life is subject to a double causality: efficient causality and final causality. He thus proposed replacing the mechanistic and deterministic model of the universe with a new, entropic-syntropic model, in which the expansive forces (entropy) and the cohesive forces (syntropy) worked together, so that the unfolding of phenomena was not only a function of the initial conditions, but also depended on a final attractor.

One of Fantappiè’s main students, the physicist Giuseppe Arcidiacono (1927-1998), together with his twin brother Salvatore (1927-1998), a chemist by profession, re-examined the unitary theory of the physical and biological world of their mentor in order to clarify the separation established between entropic and syntropic phenomena. They proposed a new version of the theory in which they argued that there are actually no “pure” entropic or syntropic events, but that there exist both entropic and syntropic components acting together, in all phenomena, whether physical or biological. The result is an entropic-syntropic model of the universe with a “cybernetic structure” that makes it possible to establish a link between Fantappiè’s unitary theory and the most recent research on systems theory, chaos and complexity.

Without knowledge of Fantappiè’s work, the Italian experimental psychologist Ulisse Di Corpo (1959) independently formulated the theory of syntropy in 1977 from a slightly different starting point. Instead of starting from the d’Alembert operator of the wave equation of quantum mechanics, as Fantappiè had done, he began by working with the original and complete energy-momentum-mass equation of Einstein’s special relativity: $E^2 = p^2 c^2 + m^2 c^4$, where E is energy, p is momentum, m is mass, and c is the constant for the speed of light. As this is a second-degree equation, it always has two solutions: one positive and one negative. The positive solution describes energy that diverges forward

in time from a past source, while the negative solution describes energy that diverges backward in time from a future source. At the time, this second solution was considered unacceptable because it implied retrocausality, i.e. the effect took place before its cause. Einstein managed to solve this problem by considering that momentum, p , is practically equal to zero, because the speed of physical bodies is extremely small compared to the speed of light. In this way, the complex Einstein equation of energy-momentum-mass was simplified into the now famous equation $E=mc^2$, which has only one positive solution.

However, in 1924, the Austrian theoretical physicist Wolfgang Pauli discovered the spin of electrons. Spin is an angular momentum, a rotation of the electron on itself at a speed close to the speed of light. Thus, in this case, momentum, p , cannot be considered equal to zero and therefore the energy-momentum-mass formula must be used in its full version. For this reason, in 1928, when combining Einstein's special relativity with quantum mechanics, the British theoretical physicist Paul Dirac applied the complete energy-momentum-mass equation to the study of electrons and once again encountered the unwanted dual solution —positive and negative— in the form of electrons and their antiparticles. The Dirac equation thus leads to a universe made of matter moving forward in time and antimatter moving backward in time. The antiparticle of the electron, predicted theoretically by Dirac, was observed experimentally in 1932 by the American physicist Carl Anderson —by photographing the traces of cosmic rays in a cloud chamber— and was given the name *positron*. Anderson thereby became the first person to empirically prove the existence of the negative energy solution and waves that propagate backward in time, from the future to the past. The negative solution was thus no longer an impossible mathematical absurdity, but became empirical evidence. We now know that each subatomic particle has a corresponding antiparticle that flows in the opposite direction of time, from the future to the past: antielectrons, antiprotons, antineutrons and so on.

The meeting between Ulisse Di Corpo and the cognitive psychologist Antonella Vannini, in 2001, relaunched research on the entropic-syntropic theory. [Some of the information contained in this addendum is taken from the *Syntropy Journal* digital publication — <http://www.sintropia.it/journal/index.htm>— edited by Ulisse and Antonella since 2005]. At the time, Fantappiè was not able to devise a way to reveal the existence of future causes in the laboratory. In recent decades, however, a growing number of studies —by Dean Radin, Dick Bierman, James Spottiswoode, Patrizio Tressoldi, among others— have demonstrated the existence of prior reactions to stimuli in the parameters of skin

conductance or cardiac frequency. For her part, in her doctoral work, Vannini managed to carry out four experiments using heart rate measurements to study Fantappiè's proposal regarding retrocausality and António Damasio's learning effect. The hypothesis on which she worked was very simple: if life is supported by syntropy, the parameters of the vital systems that support life, such as the autonomic nervous system, should show retrocausal activations. Her thesis provided ingenious methodologies and positive experimental results that succeeded in turning syntropy studies from a mere hypothesis into a sound scientific theory supported by rigorous mathematics and abundant experimental evidence.

Around 1940, the American theoretical physicists John A. Wheeler (1911-2008) and Richard Feynman (1918-1988) proposed what is known as “absorber theory”, which is an interpretation of electrodynamics that derives from the assumption that the solutions of the electromagnetic field equations must be invariant under time inversion symmetry. It is hence a symmetric theory in time. In general, Maxwell's equations and the equations of electromagnetic waves have two possible solutions: a retarded solution —moving forward in time— and an advanced solution —moving backward in time—. In principle, there is no apparent reason for the breaking of time reversal symmetry, pointing to a preferential direction of time. Nonetheless, advanced solutions are normally ruled out in the interpretation of electromagnetic waves. In absorber theory, however, charged particles are considered both as emitters and absorbers, and the emission process is related to the absorption process in the following way: both the retarded waves that travel from the emitter to the absorber and the advanced waves that travel from the absorber to the emitter are taken into consideration; the sum of the two, however, results in causal waves, although retrocausal solutions are not ruled out a priori.

From the start, the traditional interpretation of quantum mechanics —the Copenhagen interpretation— has shown a fierce reluctance to accept negative solutions as actually existing, i.e. those that move backwards in time, which naturally follow on from the fundamental equations. Diverse research over the last century has shown, over and over again, the major difficulties of this standard interpretation in assuming certain empirically contrasted phenomena, such as non-locality, entanglement and retrocausality. This led the American physicist John G. Cramer (1934) to propose an alternative interpretation in 1986, which he called the Transactional Interpretation of Quantum Mechanics (TIQM). Inspired by Wheeler and Feynman's “absorber theory”, the transactional interpretation describes quantum interactions in terms of a **standing wave formed by interference between retarded (forward in time) and advanced (backward in time) waves**. It is

a “pure” interpretation of quantum mechanics, in the sense that it does not add anything ad hoc, but simply provides a physical referent for a part of the mathematical formalism used in standard textbooks —advanced waves— that the traditional interpretation has repeatedly eliminated. Its predictions are therefore the same as those of the Copenhagen interpretation, but nevertheless it avoids many of its problems and solves, in a simple and elegant way, all the great quantum mysteries, such as the EPR paradox, Schrödinger’s cat, Wigner’s friend, Wheeler’s retarded solution, etc. This model thus provides a clear visual picture that explains, without any artifice, the puzzling experimental results that appear daily in quantum physics laboratories around the world. According to the astrophysicist and science writer John Gribbin, Cramer’s interpretation of quantum mechanics “*provides the best complete picture of how the world works at the quantum level*”, and, “*hopefully, it will replace the Copenhagen interpretation as the standard way of thinking about quantum physics for the next generation of scientists*”.

This transactional model may be summarized as follows. The emitter produces a retarded wave of “offer”, forward in time, which travels towards the absorber, causing the absorber to produce an advanced wave of “confirmation”, backward in time, which travels back to the emitter. The interaction is repeated cyclically until the net exchange of energy, momentum, angular momentum and other conserved quantities satisfies the quantum boundary conditions of the system, at which point the transaction is definitively completed and the real quantum event, the “collapse of the wave function”, occurs. Of course, the “pseudo-temporal” sequence in this account is only a semantic convenience to describe a process that is actually timeless, given that, according to the laws of relativity, time does not pass at all from the point of view of waves, because, as they travel at the speed of light, their moment of departure and their moment of arrival are one and the same moment. An observer unaware of these internal mechanisms of nature would perceive only the completed transaction, which could be reinterpreted as the passage of a single retarded photon —i.e. positive energy— traveling at the speed of light from an emitter to an absorber. In a more simplified version, we could say that the emitter produces an “offer” wave that travels to the absorber, that the absorber then returns a “confirmation” wave to the emitter, and that the transaction is finally completed with a “handshake” —a standing wave— through space-time, via which a bidirectional contract is sealed between past and future. As Cramer states “*This universe (...) advances in time at the quantum level through a chain of handshakes between the past and the future (...) The future goes back to make an accommodation with the past that allows a quantum event to happen, to become reality. Each quantum event emerges into reality as a result of a feedback loop between the past and the future. These are allowed time-shaped loops that give rise to the universe*”.

Extending the work of John Cramer, the American physicist and philosopher of science Ruth E. Kastner (1955) has developed a new Transactional Interpretation, called Relativist Transactional Interpretation (RTI) or Possibilist Transactional Interpretation (PTI), which holds that quantum wave functions do not move in the physical universe, but exist as “possibilities” in Hilbert’s multidimensional space, from which transactions emerge in the “real” universe. Kastner proposes considering the outgoing offer waves and the many incoming confirmation waves as “possible” transactions, existing outside of space-time, of which only one becomes empirically “real”. She suggests defining them with the term “potentia” —with which Aristotle called the ability to be something in the future—, in tune with the statement by the German theoretical physicist Werner Heisenberg: “Elementary atoms or particles are not real in themselves; they form a world of potentialities or possibilities, and not so much a world of things or of facts or data”. In this sense, Kastner states that offer and confirmation waves are sub-empirical and pre-space-time “possibilities”, i.e. they have not yet appeared in space-time, and therefore calls them “incipient transactions”.

Kastner calls for a new metaphysical category to describe those “not quite real possibilities” which, far from being mere abstractions, constitute a higher-dimensional world whose structure is described by the mathematics of quantum theory. She raises the need to consider such “possibilities” as part of a reality that encompasses much more than what is contained in space-time. In fact, space-time events, the events of the concrete world that we experience around us with our five senses, are products that emerge from the transaction processes —timeless and non-local— that take place in the quantum realm. The “iceberg” metaphor used by Freud to describe the human subconscious can equally be applied to Kastner’s “ontological realm of possibility” or “quantumland”. “Quantumland” refers to the mass of the iceberg that exists beyond our sight, while the tip, the space-time appearance, is only a small part of everything that is the physical universe. Although they take place outside of space-time, quantum processes constitute a fundamental part of that universe.

At the beginning of this addendum, we wondered how it was possible for evolution to follow such a precise unfolding and folding rhythm between the original and final poles, as has been shown throughout this research. And we asked the question: Is there some natural mechanism capable of causing things to happen in such an unexpected way? We thus suggest that we may find the long-awaited answer in the so-called Transactional Interpretation of Quantum Mechanics. For this reason, in the previous paragraphs we have summarized the basic points of Luigi Fantappiè’s entropic-syntropic theory, on the

one hand, and of John Cramer's transactional interpretation, on the other. Next, we shall recall some fundamental ideas of our "non-dual evolution" to then consider how Fantappiè and Cramer's proposals provide us with the definitive key to explaining the mysterious evolutionary pattern.

As we have previously seen, all manifested reality inexorably appears in the form of dualities —there is no object without a subject, no energy without consciousness, or outside without inside— and, as all opposites are mutually dependent, we can understand them as polar manifestations of a reality that transcends them and that is "prior" to said dualization. We hence proposed that the original quantum void posed by physicists and the final mystical void experienced by contemplatives are no other than one and the same Void, perceived by physicists objectively and by contemplatives subjectively, but which, in itself, is neither objective nor subjective, but "prior" to this dual perspective. Finally, we clarified that this Emptiness does not refer to a distant metaphysical reality, but to the simple and pure Self-evidence of each present instant, which encompasses in itself all the manifestations of energy and consciousness that are observed in the space-time universe. According to this perspective, ultimate reality is hence not solely energy, as the materialists claim, nor solely consciousness, as the spiritualists claim, but the ineffable non-duality of these two apparent facets. The universe, dear reader, is made up of the simple and evident Presence that you are in this precise timeless moment that is Now and always Now.

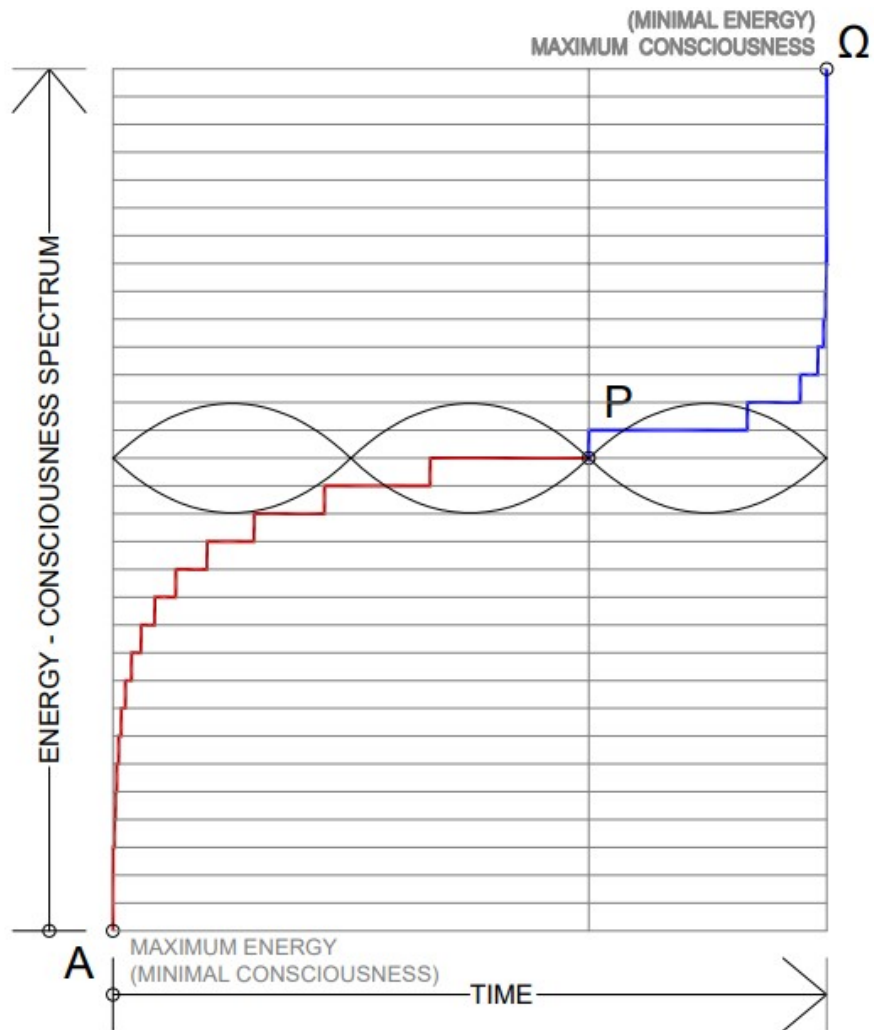
We have also stated that, as there is no separation between subject and object in this absolute Self-evidence, and therefore it is not "something" that can be seen by "someone", in order to manifest itself relatively before itself it needs to be polarized in appearance as subject and object, in the same way that 0 can dualize into +1 and -1 without changing its intrinsic value. For this reason, we proposed that, in its attempt to see itself, Self-evidence apparently dualizes as an original pole (basically of energy) and a final pole (basically of consciousness), thus generating, in the same primordial moment, an illusory distance between the two, which, on vibrating —like the guitar string in our hypothesis— gives rise to a whole range of harmonics, which are precisely the "potential levels of stratified stability" (Bronowski) that will be successively updated through the cycles of the evolution that we have studied, covering the entire spectrum of reality from the most basic strata —of enormous energy and little consciousness— to the highest —of little energy and enormous consciousness—.

It is also important to understand that everything happens in the absolute Now and that time is simply an imaginary construction with which our minds order the emergence of

successive relative instants. For this reason, when we use the terms “past” or “future”, we are not talking about distant situations, but are only referring to partial aspects of the immutable timeless Now that contains in itself the totality of “time”. We stated a moment ago that the unmanifested Emptiness is apparently polarized as subject and object so as to perceive itself subject-objectively in infinite ways. Via this ploy, Self-evidence can delve into the furthest corners of its own infinity —fleetingly identifying its absolute Here-Now with any relative point-instant of pixelated space-time—, in order to contemplate itself from a certain perspective from there —at any level of the spectrum of energy-consciousness—, immediately returning to its original fullness. The time dimension is thus purely imaginary. Everything actually happens from moment to moment. This departure and return instant after instant between the non-dual foundation and its finite and fleeting manifestation in space-time allows the *potential* levels of stability of the energy-consciousness spectrum to be *actualized* in the relative world of forms, i.e. the entire hierarchy of standing waves —musical harmonics— generated at the same original instant. For an integral understanding of the universe, we will thus have to refer to three different, although dynamically interrelated, facets: **non-dual absolute reality** —the simple and timeless Self-evidence without form—, **potential relative reality** —the potential spectrum of energy-consciousness generated in the original polarization— and **space-time relative reality** —the actualization moment after moment of the successive potential levels of stratified stability—.

In Figure 15 we have once again represented the complete pattern of the unfolding-folding process between the original pole of energy —A— and the final pole of consciousness — Ω —, as it manifests itself in global evolution and in the individual development of the human being. Let us remember that this trajectory can locate its "fundamental sound" at any level of the energy-consciousness spectrum, as we expressed previously. We saw that the inflection point —P— of the trajectory was located on the border between the "material" and "vital" levels in the case of human phylogeny, and between the "mental" and "soul" levels in the case of our ontogeny.

As we have stated in the previous paragraph, given that each point-instant of the relative world is born and returns, moment after moment, from and towards its timeless foundation, we can also affirm that this complete unfolding-folding trajectory similarly reflects the whole life of each moment —what Ken Wilber calls *microgeny*—, which can be focused on any level of the energy-consciousness spectrum, from the most physical to the most spiritual planes.



LUIGI FANTAPPIÉ	ENTROPY - SYNTROPY THEORY	<p>ORIGIN</p> <p>CAUSALITY DIVERGENCE ENTROPY</p> <p style="text-align: center;">EFFECT</p> <p style="text-align: center;">RETROCAUSALITY CONVERGENCE SYNTROPY</p> <p style="text-align: right;">FINAL ATTRACTOR</p>
JOHN G. CRAMER	TRANSACTIONAL INTERPRETATION	<p>EMITTER (PAST)</p> <p>RETARDED WAVE "OFFER"</p> <p style="text-align: center;">TRANSACTION "HANDSHAKE"</p> <p style="text-align: center;">ADVANCED WAVE "CONFIRMATION"</p> <p style="text-align: right;">ABSORBER (FUTURE)</p>

FIGURE 15

At the bottom of Fig. 15, we highlight the resonance between our evolutionary scheme —the unfolding-folding fractal pattern between pole A and pole Ω — and the proposals of Fantappiè —regarding the entropic-syntropic (divergent-convergent) dynamics between the original source and the final attractor— and Cramer —regarding the “handshakes” of retarded “offer” waves and advanced “confirmation” waves between emitters and absorbers. Herein lies the answer to the question we posed at the beginning of this addendum as to what natural mechanism can cause the evolutionary pattern to unfold in such an unexpected way. The entropic-syntropic theory and the transactional interpretation make it clear to us that **all the events of the space-time universe arise, moment after moment, via the simultaneous and coordinated action of flows from the actualized “past” and the potential “future”, and, ultimately, from the original emitter and final absorber.** In this sense, we could complement Einstein’s phrase about “*God does not play dice with the universe*”, stating that he does, but that he only counts the winning moves. That is, of all the potential offer waves from the past, only those that are in resonance with the confirmation waves from the future are updated in space-time. This, in turn, brings to mind Teilhard de Chardin’s idea about “*the preferential utilization of chance*”.

This approach greatly clarifies the so-called “anthropic principle”, which suggests that we live in a carefully adjusted universe, i.e. in a universe that seems to have been meticulously arranged to allow the existence of life and mind, because, if any of the basic physical constants had been different, the appearance of life as we know it would not have been possible. If, as we see here, all the events of the universe arise from the interaction and consensus between the past and the future, it is completely natural that, without having to resort to any external designer, the first events of the universal process were already fully coordinated and adjusted to future events. How could it be otherwise! In the same way, with respect to our divergent-convergent pattern, we must state that all the successive levels of the evolutionary ladder —which, as we saw in our research, unfold at the rate set by the second harmonic— are defined, like all quantum interactions, by **standing waves formed by interference between retarded (forward in time) and advanced (backward in time) waves**, which is precisely the core of Cramer and Kastner’s transactional interpretation!

From the perspective of the mechanistic paradigm, our proposal regarding a fractal pattern of unfolding-folding between the original and final poles in the evolutionary process is complete nonsense. However, as we have just seen, from the syntropic and transactional perspective, this pattern is precisely the most natural, coherent expression

with respect to the intrinsic simultaneously causal and retrocausal mechanism of the universe. Materialism has tried to understand the world by dispensing with half of it and has failed in its attempt to explain life, mind or consciousness. It has sufficed to take reality in its entirety in order to shine light on all areas of the panorama. Isn't it time to change the paradigm?

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