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Reflection on How Einstein's Relativity & Quantum Physics have Decrypted or Helped Understand the Mysteries of Surrealist Poetry

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Abstract
Quantum physics and relativity are two epistemic fields that study the laws of nature at the level of the subatomic particles (electrons, protons, quarks, neutrons, etc…) and that of gigantic objects (galaxies, solar systems, quasars, black holes, wormholes, gravity, etc…) respectively. Both are eminently revolutionary theories because they have achieved two epistemological breaks. As a matter of fact, they have managed to cause us to decrypt hidden aspects of the universe and reality by enabling us to understand them very differently and optimally. In Newtonian/classical physics for instance, time is the same everywhere and irreversible, relativity shows us that it is flexible and can even vary and dilate based on the speed of a device being used (the case of the twins' paradox); gravity is a force in Newton, but in Einstein's general relativity, it is a geometrical curvature that creates the distortion in the fabric of the space-time continuum and even provides a theoretical framework for time travel (Riemannian differential geometry). With respect to quantum physics, it has helped us to comprehend that everything can be connected to everything in the universe, principle pertinently summarized by Dr. Erwin Schrödinger's aphorism as follows: the total number of minds in the universe is one. In fact, consciousness is a singularity phasing with all beings." This principle explains what is known as quantum entanglement demonstrating that two subatomic particles distant from millions of miles apart in space can be connected instantaneously. It follows that when we activate one, the other reacts instantaneously because this activation affects the other immediately regardless of the distance. Precisely, the principle of quantum entanglement or interconnectedness and the distortion of spacetime continuum by gravity share important similarities with surrealist poetry. One of the most salient of these similarities is the esthetic canon of the collage or brutal connection of two realities aprioristically unrelated in space and time but cryptically linked. André Breton, scientist and founder of the Surrealist School of poetry and author of Vases Communicants and Nadja consistently illustrated those similarities in these two works and several others. It follows that quantum physics and relativity have contributed to shape the very matrix of surrealist poetry and surrealism. The goal of our study is to analyze how these two epistemic fields have enlightened the mystery of surrealist poetry and find the hermeneutic rationale behind such illumination. We will use a transdisciplinary approach to knowledge showing that there are hidden connections between most epistemic fields by virtue of which findings in some can explain or solve problems inherently associated with others.

Keywords: Quantum Physics, Quantum Entanglement, Surrealism, Surrealist Poetry, Power of Creative Imagination, Subatomic and Atomic Particles, Quantum Nonlocality, Nonlinearity, Indeterminism, Interconnectedness, Heisenberg's Uncertainty Principle, Surrealist Collage, Modus Operandi, Modus Faciendi, Hermeneutic Framework, Heuristic Framework, Epistemic Areas, Epistemology, Specularity, Haptics, Semiotic Analysis

Introduction

Relativity and Quantum physics stand out as two revolutionary and complementary epistemic fields. As a matter of fact, both have achieved an epistemological break to usher a new golden age in sciences and physics in particular. In the process, they have managed to decrypt hidden aspects of the universe, which became possible to cause us to envision reality differently, profoundly, and more sagaciously. Unlike Newtonian and classical physics, relativity that studies the laws of physics and phenomena at a macroscopic level (galaxies, solar systems, gravity, black holes, wormholes, distortion of spacetime continuum, speed of light, theoretical assumption of time travel, parallel universes, etc…) has proven that time is not the same

everywhere in the universe and is slowed down when a person is inside a device that is travelling very fast compared to a person inside a static/stationary device. This phenomenon is pertinently illustrated in the example of "the twins' paradox". Additionally, general relativity, unlike Newtonian physics, shows gravity, not as a force, but a geometrical curvature that creates a distortion in the fabric of spacetime continuum. This technically conditions us to materialize time travel. With respect to quantum physics, unlike classical physics, it deals with the study of the universe of very tiny particles, atoms, and subatomic particles, electrons, protons, neutrons, quarks. It teaches us that distance/space and time can be an illusion. Since everything is connected to everything in space and time, consciousness is a singularity and functions non-locally and non-linearly**.** This means that the past, the present and future co-exist, are reversible, and we are virtually endowed with the ability to communicate with anyone in the universe on the one hand. This was summarized by Dr. Erwin Schrödinger in his famous aphorism "The total number of minds in the universe is one. In fact, consciousness is a singularity phasing within all beings." On the other hand, two points distant from millions of miles apart in space can be connected instantaneously. This principle explains why subatomic particles distant from millions of miles can still be connected through a process/principle called quantum entanglement. It follows that when we activate one, the other reacts instantaneously because this activation affects the other immediately. Precisely, Surrealist poetry aligns with these guiding principles of non-linearity, non-locality, and distance as an illusion, ab initio associated with relativity and quantum physics. For instance, the principle of the surrealist collage consisting in the possibility of coalescing two seemingly distant and unrelated realities clearly vindicates space and time as an illusion through relativity and quantum physics. Moreover, quantum physics apprises us of the fact that nothing is set in stone, and everything can exist but as a virtuality and becomes factual after being observed. In her book *Quantum Physics and the Power of the Mind* Nancy Patterson illustrates this fundamental principle. She asserts: "Quantum physics confirms that a thing can only exist if it is observed. The quanta are organized according to the influence of the mind of the observers. When something is observed, the quanta merge into subatomic particles and then into atoms, followed by molecules, until finally something in the physical world manifests itself as localized temporal spacetime experience, that can be perceived through our five physical senses. This leads to something that appears to be reliable, and it is part of what people usually understand as physical reality." (p.7) These two instances, among several others, corroborate the deep similarities between relativity-quantum physics and surrealist poetry. In this paper, we aspire to show how these two revolutionary epistemic fields of physics have influenced surrealism and managed to enlighten its school of poetry. From there we will infer the hermeneutic postulates that condition their influence.

Heuristic Materials, Solutions, and Approach

Surrealism was both a school of painting and poetry tinged with ideological proclivities that soared between the two world wars. However, its golden age reached its apex after the Second World War. As a poetic school, it was formalized and standardized by André Breton, a scientist and medical doctor. Still, its esthetic program and canons drew their inspiration from Tristan Tzara and Dadaism. The Dictionary of Important Theories, Concepts, Beliefs and Thinkers defines it as follows:

> Movement in art and literature, flourishing in Europe and the United States between the world wars, that rejected the phenomenal world and located reality in the subconscious. The movement founded and led by the poet André Breton and named after a word coined by Guillaume Apollinaire in 1917, was a direct descendant of DADA and its fascination with chance. In his Surrealist Manifesto of 1924 and subsequent pronouncements, Breton defined surrealism as "pure psychic automatism" whose goal was to merge REASON and unreason, CONSCIOUSNES and the UNCONSCIOUS, into an absolute reality- a super-reality." He urged freedom from conventional morality and the liberation of the artist's inexhaustible imagination. Surrealist poets such as Paul Eluard used automatic writing, free association, and other techniques to create irrational but subconsciously resonant imagery. The movement drew inspiration from FREUD's writings-particularly his theory that the surreal landscape of dreams symbolically manifests unconscious thoughts and desires-and from the idea that only the imagination holds the key to meaning and reality. (pp.12-13)

From a meticulous analysis of this definition, it can be inferred that Breton systematized the rejection of reason, logic, and consciousness, because of two major flaws:

-This triptych (reason, consciousness, logic) constituted a straitjacket that stifled creativity, imagination, and art to bring them to an epistemic standstill;

- They (reason, consciousness, logic) failed to harness all the resources that provide our life and existence with unlimited powers: dreams, treasures of the subconscious and unconscious mind, madness, instinct, chance, randomness, alchemy, raw nature, and ebullient energy. The so-called civilization has reduced us into functional Lilliputians by brainwashing us and coercing us to use but a tiny fraction of our full mental and intellectual capacities as human beings. Incidentally, when Socrates tells us "*Gnothi seauton"* (γνῶθι σεαυτόν) which means "know thyself!" written down on the frontispiece of the Temple of Apollo in Delphi, he wants to remind us of our limitless cornucopia of possibilities and treasures dormant inside us and that just need to be awakened and harnessed. Moreover, and more importantly, our 'civilization' has literally failed in its mission: to endow us with a higher quality of life. Instead of a higher quality of life, it has epitomized the worst nightmares during the world wars through a horrific carnage by enacting/materializing the most awful instincts of the raw beast in battlefields. As a matter of fact, its bestiality found the most pertinent resonance in Terentius famous aphorism: "homo homini lupus", which means: "man is a wolf for man" because the most barbaric scenes of savagery and teratology were perpetrated in the battlefields during the two world wars. So, where were civilization, reflection, reason, logic, and order? Why didn't these wonderful faculties prevent humanity from drifting into the animal kingdom realms? In the final analysis, Breton and his followers realized that these wonderful faculties purportedly

conceived to nurture our education and make us better humans, turned out to constitute sheer logocentrism or, at best, nothing but meaningless words; hence their decision to rethink how human life can function by researching into sciences and other epistemic sources that factually enrichen, optimize, and illuminate our very existence: psychoanalysis (function of dreams, unconscious and subconscious minds, automatic writing), psychiatry (madness), alchemy, mysticism (randomness, objective chance, psychic powers, precognitive abilities), metaphysics, quantum physics, relativity**,** and anything that has been inhibited from our endless possibilities because of the so-called civilization/reason**.** Accordingly, all these epistemic sources became precious assets likely to sharpen surrealism and get it to soar up diligently, effectively, and efficiently. Among them, the most important ones were quantum physics and relativity because these two fields of knowledge subsumed the lacunae and forces that had been missing in our life to cause us to delight it in its fullness. They were endorsed by surrealist poetry, illuminated this poetic school and its very foundations. Our study explores three very important tenets of quantum physics and relativity that have contributed to nurture surrealist poetry: Interconnectedness of reality/quantum entanglement (1); perspectivism/ uncertainty principle (2); imagination as a powerful source of creative power (3). Let us explore the tenet of interconnectedness first.

Interconnectedness/quantum entanglement

André Breton was a scientist, and more precisely a medical doctor and psychiatrist. He and his followers (Philippe Soupault, Max Ernst, Paul Eluard, Aragon, to mention but a few) analyzed the noetic, intellectual and sociological phenomena of their time and realized that their bourgeois society was driven by a very superficial and incomplete existential perception of life and reality, which, to use a philosophical simile, could be equated with taken the shadows from Plato's Allegory of the Cave for the intrinsic essences. Therefore, they decided to reject this spurious, empty, or shallow epistemic paradigm to feed intellectual and artistic life with the ontological pith that was missing. Then, enlightened by the principles of sciences, they operated an epistemological shift/break to finalize their theoretical and esthetic program. Inspired by the scientific principle of "communicating vessels" they found out that most existential realities and epistemic areas are cryptically connected just like communicating vessels. The concept "communicating vessels" ('vases communicants" in French) concomitantly became a metaphor and the title of one of Breton's major works in which he explored and illuminated how poets, artists can use their creative power and talents to synergize elements and areas (dreams and reality for example) that are aprioristically disconnected but factually connected through cryptic links. Mary Ann Caws has written an insightful article titled "Linkings and Reflections: André Breton and His Communicating Vessels" to explain Breton's *Vases Communicants.* She shows that its underlying principle is driven by a scientific tenet found in physics. Indeed, communicating vessels allow liquids to flow between connected containers until levels equalize, demonstrating interconnectedness. Therefore, the concept of "communicating vessels'' ("Vases Communicants" in French) was used as a metaphor to suggest interconnectedness. **[…]** In Breton's application of the concept to the mind: the waking universe and that of dreams can be assimilated to vessels, blended by the fluid, transformative power of dreams and objective chance. However, the very concept of interconnectedness stems from quantum physics through the pioneers of this epistemic field pertinently summarized by Dr. Erwin Schrödinger who stated**: "**The total number of minds in the universe is one. In fact, consciousness is a singularity phasing with all beings." Since everything is connected to everything - the mind being a singularity- 'vases communicants', as a powerful metaphor, functions by virtue of three interconnected semantic ingredients: surreality, dreams, and objective chance. The ceaseless flux of energy and images is apophantic because it generates "surreality", an eminently refined phase coalescing the universe of dream and that of reality, which makes it possible to decrypt higher truths (1). Dreams are not limited to escapes but seminal connections linking the unconscious to the conscious whereby they can influence the way we comprehend reality and its complex ramifications (2). Objective chance (in French "le hasard objectif ") manifested as strange encounters and seemingly unrelated, random events, turns out to be the materialization of interconnectedness (3). In the final analysis the metaphor reaches such a degree of sophistication that its semantic analysis undergirds/subsumes "a reality where imagination, desire, and the objective world are not separate but constantly flow into each other, creating a richer, more marvelous experience of life." It operates as if it were, by virtue of an ontogenetic process, conditioned to ceaselessly reinvent reality and, by extension and motu proprio, language itself. We consider that interconnectedness enables concepts, items seemingly unrelated to coalesce. Space and time are flexible substances**.** Besides, the past, present and future and space co-exist as reversible, not linear variables**.** Additionally, the dream functions like a bridge, a wormhole, that is, a concept built by gravity in Einstein's General Relativity. Indeed, in this famous theory he has demonstrated that space and time are two concomitant substances. They are inseparable. Both co-exist and form the concept of the fourth dimension spacetime continuum. Gravity is the geometrical curvature that can create a distortion of the spacetime continuum that was mathematically and structurally formalized by Einstein through the assistance of Riemannian differential geometry. Since space and time are flexible substances and can be warped by gravity, strictly and technically speaking, it becomes possible to travel back in time and in the future. This principle finds its application to/in the surrealist idea of contradictory perspectives where compositions often include warped perspectives, optical illusions, or gravity-defying elements that distort space and time. This approach enhances the feeling of unreality and challenges viewers to interpret the world differently. Dreams become a wormhole, a spacetime tunnel or short cut enabling them to bridge reality and imagination, the past and present, the present and future, the unconscious and conscious, the conscious and subconscious. They also provide a type of hermeneutic framework for exploration, self-exploration, and introspection that endows the researcher with the ability to find truths. In such hermeneutic and heuristic enterprises, everything becomes connected to everything. Regarding poetry and art, they become an interesting semiotic analysis because researchers need to decrypt reality through signs, symbols, and hidden connections in light of such

interconnectedness. The following surrealist instances by Paul Eluard and Lautréamont illustrate this quantum and relativistic principle that buttresses interconnectedness: ‘‘Beau comme la rencontre fortuite sur une table de dissection d’une machine à coudre et d’un parapluie.’ and: “La terre est bleue comme une orange”

The first instance that can be translated as “beautiful like the chance encounter of a sewing machine and an umbrella on a surgical/dissection table” takes us to the very core of the surrealist collage, a tenet by which two seemingly unrelated items (sewing machine (1), an umbrella (2) are brutally connected creating a clash, vivid poetic shocks triggered by their extreme unlikeliness and semantic distance. Here the location of the encounter is very unlikely as well (dissection/surgical table). However, when we transcend the first impression of shocks, unrelatedness and disjointedness and dig deeply, we decrypt connections, As a matter of fact, a sewing machine sews, repairs fabric, material, patches holes in a cloth; a dissection table is a place where surgeons “sew”, dress pieces of human skins to ‘repair’ injuries and wounds, bandage holes in human skin. In this process, surgeons also protect wounds and injuries from possible infections using antibiotics and antiseptic products. Similarly, an umbrella is a tool conceived to protect a person from water when it is heavily raining. Consequently, when we dig deeply, we find out that the major elements of this line are not factually fortuitous; they are cryptically and logico-semantically related. Precisely, the link or common denominator is the function ascribed to each of them: to repair cloth, dress wounds, bandage skin, protect all these items (from infections (dissection/surgical table), from water/rain(umbrella), the therapeutic/reparatory function (sewing machine (repair cloth), dissection/surgical table (repair/redress wounds). It follows that they are intrinsically and functionally interconnected. Most surrealist texts subscribe to this modus operandi governed by the collage.

The second one means: “the earth is blue like an orange”, a dreamlike line, can be analyzed like the first one. Indeed, the similitude between both items is the concept of spherical structure or roundness. De facto, the earth is round, spherical; and the orange is round as well. Additionally, perceived from above, a spacecraft, satellite or telescope, the earth appears to be blue. However, when the reflection of the sun is projected on it, it can appear orange viewed from above because the sun can look orange with its rays as well. Therefore, the common denominator that generates the link between the earth and the orange turns out to be the concept of roundness inherent in the form of the earth and that of the orange, and the colors blue (perceived from a spacecraft) and orange (viewed through the process of specularity, the reflection of the color of the sun at a specific point in time). It follows that both objects are interconnected on the basis of their spherical structure, and their chromatic aspect (blue color from space and spacecraft, and orange color created by the reflection of the sun) and can be used to enlighten dream scenes from a solid hermeneutic framework.

Therefore, the surrealist modus operandi conditions us to envision scenes of life differently and under different lens because they are polyvalent, polysemic, versatile, reversible, fluidic within a universe that is intrinsically fluidic as well. This is precisely one of the most important canons of quantum physics highlighted by the fact that reality/experiment depends on the observer, which leads us to perspectivism.

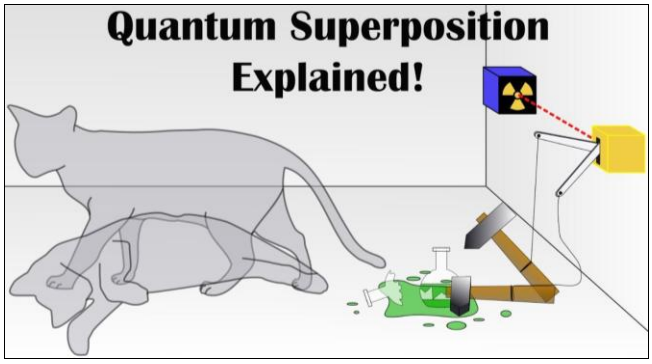
-Perspectivism/ Multiple Perspectives/Unexpected Juxtapositions (Heisenberg’s uncertainty principle (nothing is set in stone),

Surrealism shows us that reality is not the same everywhere and perceived the same way from everybody. This idea has been nurtured by quantum physics. Indeed, the quantum world is a universe where nothing is set in stone and can be viewed very differently. The way reality is viewed or perceived depends on the observer. A Latin scholar had depicted it very judiciously as follows: “Quidquid recipitur ad modum recipientis recipitur.” “Everything that is observed/perceived is observed/perceived according to the subject who observes/perceives it”. This gives way to perspectivism. The most simplistic instance of perspectivism lies on the experiment known as wave-particle dualism. It is buttressed by the fact that subatomic particles can be viewed as particles or waves because they comply with the behavior of both waves and particles**.** The German philosopher and physicist Werner Heisenberg laid out the foundations of this principle known as “uncertainty principle’’. In a book titled *The Great Scientists from Euclid to Stephen Hawking* he revealed that electrons and subatomic particles did not possess a physical form that could be visualized or described in words -sometimes they behave like particles and at other times like waves (p.140). This principle can be extended to many different areas because nothing is set in stone, just like dreams and reality, life and death can co-exist in the quantum world, wave and particles can co-exist, dreams and reality alike in the surrealist realms. The quantum superposition experiment or the Schrödinger's cat also known as the Copenhagen experiment restrengthens and corroborates this fact and, by the same token, provides a very illuminating expression of sheer perspectivism.

It is- cursorily expressed- a thought experiment by which scientists put a cat inside a box and spill some radioactive material in it. The radioactive source is connected to a Geiger counter to monitor the radiation. The cat is locked in one portion of the box, and the radioactive material is in the other. However, they put a hole that enables the material to enter the portion of the box where the cat is locked. Then, arises the question: is the cat dead or alive? According to classical physics (known for its determinism/predictability/causality), the cat is dead (effect) if the amount of radioactivity is sufficiently high (cause), but according to quantum physics (known for its indeterminism/probabilism/unpredictability/non causality) the cat is both alive and dead. This is known as the hermeneutic undecidability or indeterminism (unpredictability/uncertainty) that feeds the very matrix of quantum physics. It also illustrates a principle known as 'quantum superposition' ('both dead and alive') in quantum physics that shows how atoms behave at the quantum level. Yet, when one looks (observation-> things must be observed to exist) in the box, one sees the cat either alive or dead, not both alive and dead. This poses the question of when exactly quantum superposition ends and reality resolves into one possibility or the other. Schrödinger's seemingly paradoxical thought experiment has become part of the foundation of quantum mechanics. The existential status of the cat is predicated on an indeterministic, probabilistic criterion in such a way that its ambiguous status ("dead and alive") subsists and persists in the realms of the limbo until or unless it is observed, tested and proven. This explains why quantum physics considers that the cat is both dead and

alive. To attest to its real existential status, one must observe it by opening the box, test and verify its condition, and then fully be cognizant that it is either dead or alive. But for this prior observation,
testing, and verification, the quantum physicist must acknowledge that the cat status is in the realms of the limbo and, accordingly, dead and alive; hence the indeterministic mode of the operation that features the quantum status. Such is how entities operate in the universe of surrealism as well. De facto, they are in an ambiguous state of ontological duality. In Breton's *Nadja*, this idea of superposition, indeterminism revealed through dream and reality, conscious and unconscious, conscious and subconscious is developed eminently. Breton's masterpiece usually transcends the borders between the rational and irrational, juxtaposing and coalescing reality and dreams, madness and lucidity (Is Nadja, the eponymous character crazy or not mentally healthy, or both?), the natural and phantasmatic to evoke hidden desires, fears, emotions, and enlighten them. The coalition of reality and dream to decrypt truths, and create requires plenty of imagination, a faculty shared by quantum physics and surrealism concomitantly.

Illustration of Quantum Superposition



Imagination as a powerful source of creation

One of the key concepts of relativity and quantum physics is the power of imagination subsequently borrowed by surrealism. To live a full-fledged life and make dreams a reality, we need to use our imagination. Einstein once stated: "Imagination is more important than knowledge […] Logic can take you from point A to point B, imagination can take you everywhere." (p. 21) In the same vein, Bruce Lee found out that reality and dreams are connected, not opposite. He emphasized the power of imagination and creation in his *Wisdom of the Way* by saying: "The dream of today is the reality of tomorrow." (p. 18)

In quantum physics, reality depends on us because we are creators and use our imagination for this specific purpose. In *Quantum Physics and the Power of the Mind*, Nancy Patterson states: "One of the theories that emerge from the foundations of quantum physics is that we manipulate the fabric of life by thinking about it **(which means, added by me, "imagining it")**. Our thoughts have an expression that comes out and therefore brings us to what we focus on to make it a reality." (p. 7)

However, how do we imagine effectively and efficiently? Here she provides cursory theoretical guidelines to show its modus faciendi: "The most fantastic research in quantum physics is the double-split experiment. Every single thought as energy, directly and instantly influences the quantum field. Thus 'quanta' merge into a localized, observable experience event, an object, or other influence. This process is the basis for how everyone creates their own reality. [,,,] Those who understand and comply with universal laws are conscious creators, while others create their life experience by default. As a result, they attribute everything they have experienced as a consequence of their unconscious thinking on superstitious beliefs such as luck, fate, chance and fortune. We know, however, that conscious creation is also the basis of the law of attraction and the law of cause and effect!" (p.8)

Additionally, both quantum physics and surrealism explore and exploit the broad spectrum of possibilities provided by creative imagination; exploit, and harness the phenomenology of perception, the law of attraction, and show that facts and fiction can merge, deprived of demarcation line. The most striking examples of imagination, the exemption of demarcation line between facts and fiction, reality and dreams and its cornucopia of possibilities can be found in *Nadja,* and *Vases Communicants*.

It follows that imagination turns out to be a very powerful blending faculty. In this respect, it functions haptically, synergistically, emotionally, and noetically because it is catalyzed by and involves four major criteria:

- The science of touch (haptics), which means the vivid graphic feeling that the object of the dream is virtually within easy reach and is unquestionably about to materialize,
- The diligent combination of specific and often seemingly unrelated areas (synergy) whose effective blending enhances the possibility of materialization,
- Vivid emotion that nullifies doubt, multiplies/proliferates the possibilities of materialization,
- Vivid thought (noesis) and mental force that generates the direction, the vector that leads to materialization

Whenever these four criteria are combined, imagination will necessarily blossom and lead to powerful creation. Since imagination is a blending tool, it enables us to synthetize forces of existence: inner world and outer word, reality and dreams, craziness and lucidity, virtuality and facts to illuminate and create a polyscopic approach to existence. That is precisely what André Breton's *Vases Communicants* is about and pertinently depicted by the metaphor suggested by the very title of the work. This metaphor is deictic because it points to, highlights the ontological finding of life: enacting a reality without border, nurtured by a broad spectrum of possibilities: imagination, aspirations, and the objective world are not separate but constantly flowing into each other, creating a richer, more marvelous experience of life, and art itself. This pattern of spectrum of possibilities and lack of separation between the objective world and the inner world stems from the very essence of quantum physics. De facto, Nancy Patterson vindicates it in her book and asserts: "Quantum physics is also known as the physics of possibility. This theory is contrary to the common idea that the outside world is real, and the inside world is a fable. It says that whatever happens inside ultimately determines what happens outside. The world in which we live is created by our thoughts. (p.81)

Relativity has also nurtured surrealism in its principle of imagination as a powerful tool that generates numerous possibilities existing in the universe. Einstein's formula

regarding Special Relativity was created and formalized in 1906 as $E = mc^2$ means Energy equals mass times the speed of light squared, revealing that mass and energy are **interchangeable forms** of the **same substance**, with a tiny bit of mass holding immense energy because the speed of light squared (c^2) is a huge number, explaining nuclear power and atomic bombs. It signifies that mass is condensed energy, and vice-versa, a fundamental concept from Einstein's theory of relativity.

Breakdown of the equation

- **E (Energy):** The energy contained within an object or released from it.
- **m (Mass):** The amount of matter an object has.
- **c (Speed of Light):** Approximately 186,000 miles per second (or 300,000 km/s).
- All this demonstration clearly substantiates the fact that the universe is fraught with possibilities. Mass is condensed energy. So, it can be transformed into energy just like energy can be transformed into mass. Both are interconvertible.

c^2 (Speed of Light Squared): a massive number that shows how much energy is locked in even a small amount of mass.

Key meanings:

Mass-Energy Equivalence:

Mass and energy are not separate but are two sides of the same coin; mass can be converted into energy, and energy can be converted into mass just like dreams and reality are two sides of the same coin in surrealist poetry. Dreams can be converted into realities and vice versa. In this respect, Bruce Lee said: "the dream of today is the reality of tomorrow" just like the reality of tomorrow is today's dream.

Huge Energy Potential:

Because $c2$ is so large, a small amount of mass (m) can be converted into a vast amount of energy (E)

Consequently, relativity demonstrates the huge possibilities harnessed by the universe, just like quantum physics and surrealism. However, at the root of these limitless possibilities lies imagination and its outstanding creative power.

Conclusion

In light of the analysis that we have conducted hitherto, it can be inferred that surrealism in general and surrealist poetry in particular have been enlightened by Einstein's relativity and quantum physics. As a matter of fact, these two epistemic fields have helped peel off the thick layers of mystery surrounding surrealist poetry. It turns out that André Breton and his followers have drawn their inspiration from relativity and quantum physics. Indeed, the major guiding principles inherently associated with those two epistemic fields have shaped the very matrix of surrealist poetry: interconnectedness/quantum entanglement, wave-particle dualistic perspectivism, imagination as a powerful source of creation, to mention the most important ones. Since relativity and quantum mechanics have provided us with the key to assert our supremacy over the universe or, at least, optimize our understanding of it, it is obvious that surrealist poetry nurtured by the same guiding principles factually catalyzed our better understanding of the universe and life as well. Pre-Einsteinian and pre-quantum eras have supplied us with a shallow, reductionistic, Manichean, and incomplete paradigm of the universe because of their epistemic limitations, ignorance, or probably sheer intellectual selfishness culminating into the denial of sharing. It follows that it became impossible for us as a species to enjoy life as it should be relished by a bona fide, genuine civilization. On the contrary, with Einsteinian and quantum eras, we were provided with a bigger picture of the universe, a better life through the applications of relativity and quantum fields to daily life. Today, their epistemic munificence and applications grant us the luxury of using satellites, transistors, GPSs in planes and cars, Very High Frequency Omnidirectional Range (VHF/VOR) navigation systems, remote sensing devices, high resolution TV sets, computers, nuclear power plants, etc…Moreover, studies by scientists like Breton who was both a poet and a psychiatrist have helped to explore and comprehend how the psyche functions, and to meticulously examine and treat mental cases and states (dreams, madness, hallucinations, brain fog) through the concomitant assistance of poetry, automatic writing, painting, psychoanalysis, alchemy, mysticism, and psychiatry. Breton's works are teleological; they have an implicit purpose (therapeutical): to show how Surrealist techniques can lead to recovery from despair and a richer experience of life. Consequently, relativity, quantum physics, and surrealist poetry have brought an eminently significant contribution to the knowledge of the universe, the human mind/psyche and life itself. They have proven that a shallow, reductionistic, or Manichean approach to knowledge slows down the progress of our society. From that standpoint, it dawns upon us that the hermeneutic postulates that condition the influence of relativity and quantum physics finds its roots in the use of the dominant epistemological paradigm of the twenty-first century, that is, the transdisciplinary approach to knowledge. It is summarized by the fact that there are cryptic connections between most fields of human knowledge, which makes it feasible to use findings in some to explain or resolve problems in others. Precisely, the case of relativity and quantum physics decrypting the mysteries of surrealism is nothing but a cogent case among many others of such transdisciplinary approach to knowledge. In the final analysis, what we should do as scholars is to synergize our noetic efforts and expertise to help solve problems of other disciplines on the basis of the findings achieved in our own disciplines. If we face an epistemological challenge, we can just use our imagination to create or co-create because "imagination, as Baudelaire put it, is the most scientific of faculties."

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