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Emergent Flow of Consciousness (Tfe) Theory Sum - Cognito- Ergo

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Abstract

The Emergent Flow Theory proposes that consciousness arises from the interaction between energy and matter at all levels of existence, giving order and meaning to this relationship. This process allows complex systems, such as the brain, to integrate electrical information into neural networks and transform it into subjective psychic information, experienced as an "I."By combining advances in neuroscience, philosophy, and physical theory, the model redefines consciousness from a reverse emergentist and panpsychic approach. He posits that conscious experience is not a fixed product of the brain, but a continuous flow of external and internal stimuli, subjectively integrated and transformed through thought and emotional processing, with the participation of free will.The theory breaks with the Cartesian dualism of "I think, therefore I am" and adopts an inverse paradigm: "I am, therefore I think", based on biological and existential processes prior to self-reference. In addition, it symbolically reinterprets Einstein's equation ($E=mc^2$) to explain the interaction between energy (potential information), mass (neural structure) and consciousness (emergent process), where it acts as a regulatory interface between entropy and order, transforming information into subjective experience.Unlike connectionist, emergentist, and dualist theories, this model considers consciousness as a fundamental organizing phenomenon that regulates entropy and enables the emergence of subjective experience in complex systems. The implications span fields such as cognitive neuroscience, clinical psychology, philosophy of being, and theoretical physics, offering an integrative and multidimensional framework for understanding the human experience.

Keywords: *Neural Networks, Cognitive Neuroscience, Entropy, Philosophy of Being.*

Introduction

Consciousness has been a central yet elusive concept in the realms of philosophy, neuroscience, and physics. From Descartes' "I think, therefore I am" to contemporary emergentist theories, the study of consciousness has oscillated between dualistic, materialist, and emergentist approaches. However, fundamental questions remain: Is consciousness an epiphenomenon of the brain or a more universal organizing principle? How do energy and matter interact to generate subjective experience? And, most importantly, is it possible to unify these perspectives under a coherent model?

The Emergent Flow Theory (EFT) seeks to answer these questions by proposing that consciousness is a phenomenon that arises from the interaction between energy and matter at all levels of existence, giving order and meaning to this relationship. This model states that, in complex systems such as the brain, neural networks integrate electrical information and transform it into subjective psychic information, giving rise to the "I". In addition, his interdisciplinary approach combines advances in neuroscience, physical theory, and philosophy to propose an inverse emergentist and panpsychic paradigm.

The central problem addressed by this theory lies in overcoming the current fragmentation of knowledge about consciousness. Many contemporary theories explain partial aspects of this phenomenon, but none manage to fully integrate the subjective and objective levels, nor connect physical processes with subjective experience. Therefore, the TFE proposes that consciousness acts as a regulatory interface between entropy and order, allowing the organization of information and the emergence of subjective experience.

This theory also challenges traditional models by symbolically reinterpreting Einstein's equation ($E=mc^2$) to include consciousness as an emergent component in the relationship between energy and mass. In doing so, he breaks with Cartesian dualism and redefines consciousness from an evolutionary paradigm: "I exist, therefore I think". This approach offers an integrative and multidimensional framework that has profound implications for cognitive neuroscience, clinical psychology, philosophy of being, and theoretical physics.

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In this article, we explore how EFT redefines consciousness as an essential organizing phenomenon, transcending current models and laying the groundwork for a unified understanding of human experience.

Central Hypothesis

It is argued that consciousness is an emergent flow that allows entropy to be stabilized through the dynamic exchange of significant information between energy and matter. Emergence is interpreted as an intrinsic property of existence itself. When faced with entropy, simple to complex systems organize information to persist, thus generating conscious phenomena. In this way, existence is understood as an active process that fights against disorder, where consciousness emerges as the fundamental means to resist entropy.

Objectives

- Overcoming scientific fragmentation: Integrating the various disciplines that study consciousness from separate perspectives, promoting an interdisciplinary approach.

- Reunify the physical and the subjective: Accept that physical and mental experience are inseparable, requiring a joint analysis to understand existence.

- Propose a neurobiological and phenomenological basis: Describe how the brain integrates internal and external information, producing subjective phenomena such as pure perception and the self-referential self, associated with the activation of the Default Neural Network (DNN) and the Ascending Activating Reticular System (RAAS).

- Classifying consciousness: Establishing an ontological and epistemological classification of objective and subjective consciousness, linking it to embryological processes and neural networks

- To propose a new "flow" of thought based on the evolutionary model of consciousness from the Cartesian think therefore I exist to the I think then I think of the inverse emergentism and panpsychism of the theory of the emergent flow**.**

Methodology

The methodology used in this work is based on a theoretical-interpretative approach that combines interdisciplinary elements from neuroscience, philosophy and physics. Among its main features are:

Theoretical review and analysis: The construction of the Emergent Flow Theory is based on the integration of multiple existing theories and paradigms, such as emergentism, panpsychism and Cartesian dualism, among others.

Conceptual Model: The work presents an integrative framework that seeks to explain the interaction between energy, matter and consciousness through innovative concepts, such as the reinterpretation of $E=mc^2$.

Scientific and Philosophical Analogies: Analogies, such as comparing neural networks to computer systems, are used to support theoretical arguments and build bridges between disciplines.

Interdisciplinary Approach: The methodology combines different fields of knowledge with the aim of overcoming fragmentation in the study of consciousness and providing a more complete view.

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Results

The Emergent Flow of Consciousness (EFT) Theory

The Emergent Flow Theory proposes a unifying vision that connects the anatomical structures of the brain, their corresponding neural networks and their subjective psychic manifestations as interdependent levels of the same evolutionary process. This approach integrates key neural networks such as the Ascending Activating Reticular System (RAAS), the Default Neural Network (NDN) and the Sensory Autonomous Network (RAS), considering the latter as the first link in the construction of conscious experience. It is worth mentioning that both the NDR and the RAAS have been fully studied by neurosciences and only the existence of the Sensory Autonomous Network (RAS) is hypothetically proposed as the logical link between these two.

The model suggests that psychic subjectivity arises in a progressive and hierarchical way, as a result of the complex interaction between these networks. Proto-consciousness, attentional focus, and self-reference (Ego) are explained through a functional analogy that relates each level to its neurobiological basis and phenomenological correlate.

The subjective experience or psychic phenomenon emerges parallel to the structural evolution of the brain (neural networks) so it would begin in conception as a proto-consciousness enriching itself as new information is acquired from the internal and external environment until it forms the Sensory Autonomous Network RAS. (Psychic phenomenon of the existential I), increasing its complexity until it forms the brain stem and with this the beginning of the RAAS there emerges the Perceptual EGO or attentional focus.

The baby would be born with a complete awareness of the existential Self and the perceptual Self (Attentional Focus and Free Will) and null awareness of the self-referential Self.

The Self-Referential Ego would be completed by supporting Lacan's mirror theory at the age of 2 once the Default Neural Network RND matures its formation, from there emerges the self-referential Ego as a psychic phenomenon or EGO.

This consciousness will continue to evolve over time with the reception of new information from the internal and external environment that will increase the complexity of these neural networks, which will be interpreted as the evolution of the personality in the individual.

It should be pointed out that this perception of the Consciousness Self as a psychic experience is only the result of the coordination by the brain of three neural networks that "interpret" the stimuli of the internal and external environment, transforming them into information expressed in thoughts and motor actions.

The brain then transforms "energy" received by the internal and external environment and transforms it into "matter" (thoughts, movements) as a way of stabilizing internal and external entropy.

The qualitative degree of the subjective experience "qualia" will be proportional to the evolutionary degree of the nervous structures that compose it, so the greater the complexity of the system, the greater the complexity resulting from qualia, this would tie in with the vision of Thomas Nagel and Giulio Tononi regarding the possibility of measuring experience based on the complexity of the perceptual system.

Integrated Neuropsychic Model: Neural Networks and Subjective Experience

Sensory Autonomous Network (RAS): Proto-Consciousness and Existence

Anatomical structure: Includes the peripheral nervous system, brainstem sensory nuclei, and their connections to RAAS.

Neural Network: Acts as a basic input network, integrating internal and external sensory information.

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Subjective Manifestation: Proto-consciousness or "Existential Self". It is a primitive perception of existence based on automatic and non-conscious responses.

It would represent the stereotyped and subconscious behaviors of the individual

Computer Analogy: Similar to input nodes in a computer network that detect signals without processing them in a complex way.

Ascending Activating Reticular System (RAAS): Perceptual Awareness and Free Will

Anatomical Structure: Brain stem, thalamus, sensory cortex, and attention-regulating systems.

Neural Network: Regulates attentional focus and selects relevant stimuli, managing alertness and conscious attention.

Subjective Manifestation: Perceptual Consciousness or "Perceptual Self". It is the ability to choose based on the stimuli processed, marking the beginning of free will. It would represent the regulatory system between conscious and unconscious experiences

Computer Analogy: It works as a central processor that filters incoming data and prioritizes tasks according to their relevance.

Default Neural Network (DNN): Self-Referential Consciousness and the Ego

Anatomical Structure: Prefrontal cortex, associative areas, limbic networks, and cingulate cortex.

Neural Network: Organizes information into internal narratives, allows metacognition and generates the feeling of personal identity (Ego).

Subjective Manifestation: Self-referential Consciousness, linked to the Narrative Self. It is the ability to reflect on oneself, plan and generate a sense of differentiated "self".

Computer Analogy: Similar to an advanced artificial intelligence system, capable of processing data, constructing narratives, and projecting future outcomes based on previous experiences.

Systemic Interaction and Emergence of Experience

Subjective experience arises from the synchronized interaction between these networks:

RAS detects and processes basic sensory inputs, establishing a proto-consciousness of existence. I EXIST

The RAAS selects and prioritizes stimuli through the attentional focus, allowing conscious and unconscious decision-making PERCEPTUAL SELF/FREE WILL

The RND organizes information into internal narratives, building personal identity and self-reference. SELF-REFERENTIAL SELF

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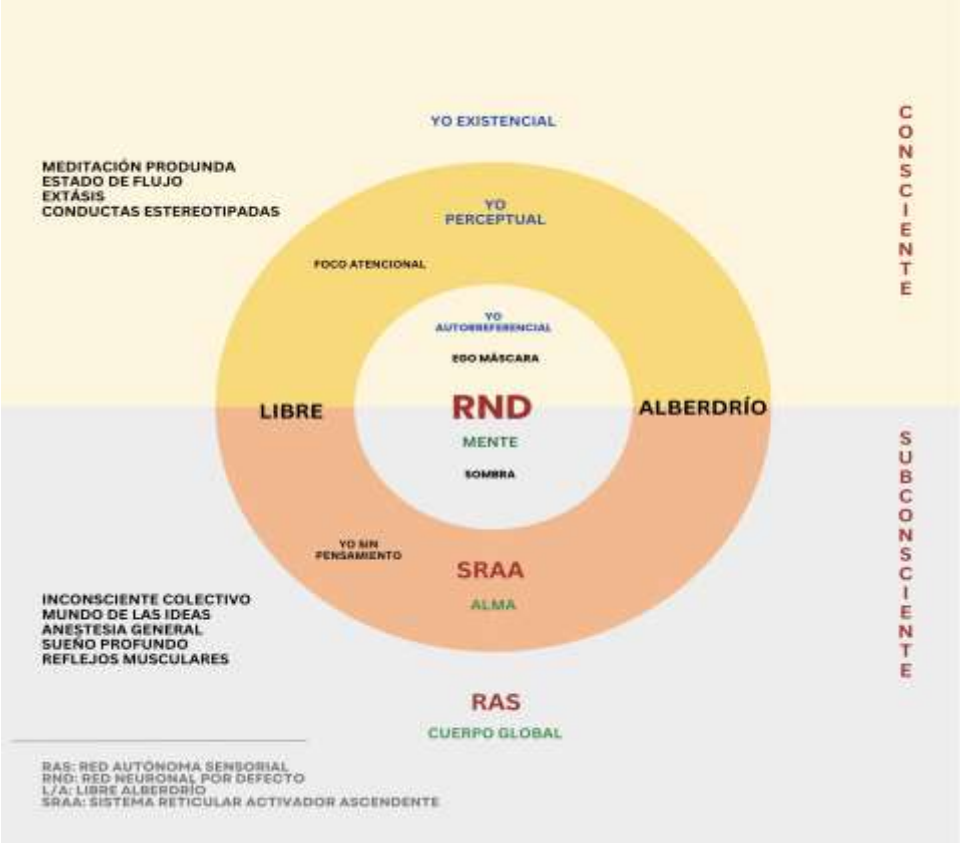

Implications of the Emergent Flow Theory

The Emergent Flow Theory proposes that consciousness is a dynamic and evolutionary phenomenon that arises from the complex interaction of organized neural networks. From existential proto-consciousness to metacognitive self-reference, each level depends on specific anatomical structures and functional networks that generate unique subjective states. This approach suggests that consciousness is not an isolated entity, but a continuous process of information integration that connects biological, psychological, and philosophical levels, overcoming mind-body dualism and redefining the relationship between brain and experience.

Classification of the Types of Subjective Perceptual Experience

According to the Theory of the Emergent Flow of Consciousness, consciousness can be understood as an inverse emergent phenomenon where perceptual flows are dynamic processes that organize subjective experience. These flows operate in a flexible and adaptive way according to the degree of involvement of attentional focus, sensory integration, and metacognition. Based on this model, we propose three main types of perceptual experience: Pure Experience, Perceptual Experience, and Self-Referential Experience.

Pure Experience

Description:

Primary perceptual state characterized by the absence or minimal intervention of the attentional focus "perceptual self", and the metacognitive "self". It arises from the direct perception of the internal and external environment, without narrative elaboration or cognitive interpretation.

Associated States:

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Deep sleep (without dreams)

General anesthesia

Deep Meditation and Transcendental Experiences

Experiences of extreme flow or ecstasy

A sense of "being" without an egoic narrative

Related Emotions:

Primary and universal: Basic pleasure, deep tranquility or total absence of recognizable emotion.

State of absolute calm: Similar to the inner peace associated with deep meditative practices.

Muscle Stretching Reflexes

Stereotypical behaviors

Evolutionary Perspective:

This state may represent the most basic level of consciousness, related to automatic functions of the brain (RAS) and the activating reticular system (RAS).

Perspectiva Psicologica Subsconsciente/Sombra animus anima I Colectivo

Perceptual Experience - Free Will

Description:

Active conscious perception, where the attentional focus selects information from the internal and external environment to be processed. Although a self-referential narrative is not yet formed, the individual is fully aware of their immediate sensory experiences.

Associated States:

Mindfulness meditation

Mindfulness

Feeling of being "in the now" without evaluating or judging

Tasks that require concentration without active metacognition

Related Emotions:

Calm and regulated: Gratitude, serenity, simple joy.

No narrative interference: Emotions are experienced without rational interpretation, allowing direct and fluid responses.

Evolutionary Perspective:

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It is associated with the conscious activation of the sensory system and the processing of experience in real time. It represents an intermediate state between pure and self-referential experience.

Conscious Psychic Perspective without EGO

Free Will Attentional Focus

Self-Referential Experience

Description:

Metacognitive process where the "I" becomes the center of reference. It includes the creation of internal narratives, judgments, and cognitive analysis. The attentional focus can be active or passive, which allows the experience to develop consciously or automatically.

Associated States:

Mental rumination (repetitive thoughts)

Post-traumatic stress and anxiety

Addictions and automatic habits

Reflection and analysis of personal experiences

Related Emotions:

Complex and evaluative: Fear, guilt, sadness, pride, satisfaction.

Dysregulated: They can intensify if the flow of thought gets out of control, such as in anxiety or depression.

Evolutionary Perspective:

Related to the Default Neural Network (DNN) and the prefrontal cortex. It is the most evolutionarily advanced state, but also the most prone to generate internal conflicts due to constant self-reference.

Psychic perspective Conscious/subconscious with autobiographical ego I, self-referential self, metacognition, higher mental functions.

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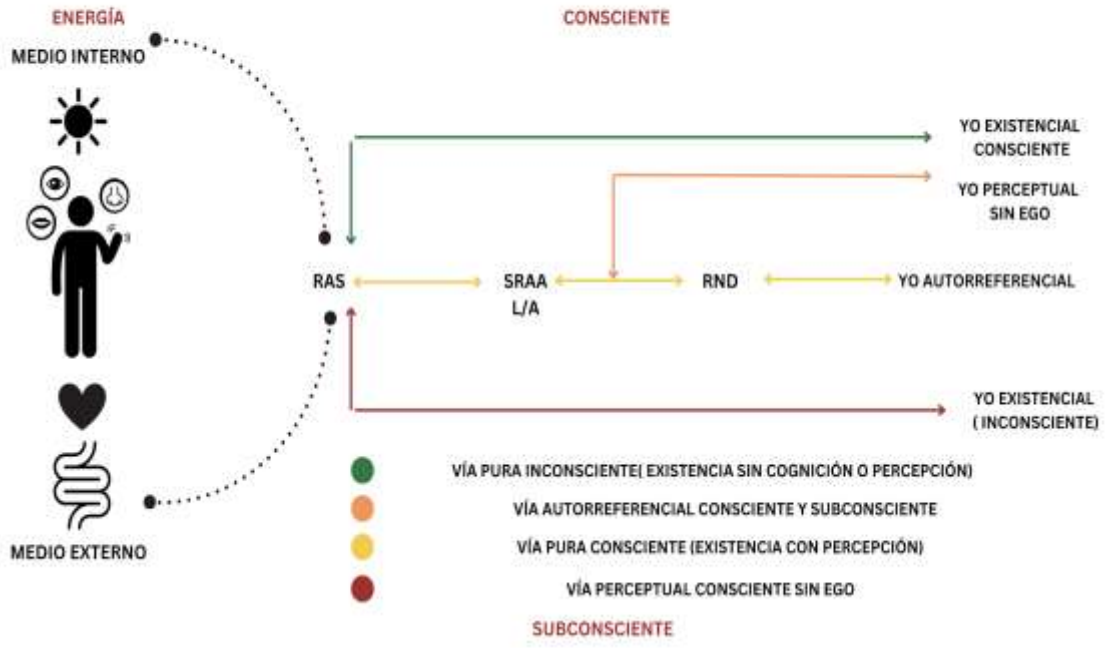
Streams of Consciousness



Transition to a New Paradigm of Consciousness

From "I think, therefore I am" to "I am, therefore I think"

This proposal suggests that modern thought is inverted with respect to its evolutionary process, prioritizing egoic analyses over immediate perceptions. By understanding this flow, we can develop a framework that explains true autonomy in decision-making and the connection between brain biology and subjective aspects of human experience.

Philosophers such as Husserl and Heidegger introduced the "epojé" and the consciousness of being-in-the-world, emphasizing how direct perception of the environment precedes any cognitive analysis. Merleau-Ponty, for his part, stressed the embodiment of consciousness, recognizing that subjective experience cannot be detached from the corporeal. Both proposals coincide with this new paradigm of thought where a direct mind-body relationship is proposed, as well as a new flow of thought based on brain evolution rather than on learned conditioning.

The inverse emergentism of EFT redefines cognitive flow, starting from pure perception (activated by the SRA) to reflective analysis (RND). This model contrasts with traditional flow and suggests that the brain integrates information from its embryogenesis, prioritizing older evolutionary structures as the basis of experience.

The Western philosophical tradition has privileged self-referential thinking as the basis of human experience. However, this model suggests that human experience arises from more basic perceptual levels, from pure, perceptual experience to self-reference.

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By understanding that thought is not the primary source of existence, but a subsequent narrative construction, we can change our relationship with reality:

Living in the Now: Reinterpreted as the ability to experience life through direct perceptual flows (Pure and Perceptual Experience), without getting caught up in the egoic narrative.

Free Will and Autonomy: The individual can learn to manage their perceptual flows, activating the attentional focus consciously to reduce the unnecessary metacognitive load.

Philosophical Perspective: This view aligns with the phenomenology of Husserl, Heidegger, and Merleau-Ponty, who emphasized the primacy of perception over abstract thought.

Philosophical and Scientific Conclusions and Implications

The Emergent Flow Theory redefines consciousness as an evolutionary process that arises from the interaction of interconnected neural networks and complex systems. From proto-consciousness to metacognitive self-reference, each level is associated with specific structures of the brain, suggesting that consciousness is a continuous process of information integration, transcending mind-body dualism. This model involves a profound reorganization of scientific and philosophical thought, with applications that span multiple disciplines.

Dualism vs. Dualism Monism

The existence of a possible Sensory Autonomous Neural Network (SEN) supports an emergent monist view, in which the mind is an emergent property of complex neural networks, challenging the Cartesian dualism that separates mind and body. Conscious experience would be an organized manifestation of the brain, not an independent entity.

Distributed Nature of Consciousness

The model suggests that consciousness does not reside exclusively in the upper cortical regions, but may be distributed through deep neural networks. This reinterprets structures such as the autonomic nervous system and RAAS as essential elements for the emergence of consciousness.

The "I" and the Body Experience

RNAS could be fundamental for the development of the sense of "self" and bodily experience. This challenges the idea that the mind is a separate entity from the body, suggesting a constant integration between physiological processes and subjective experiences, supporting cognitive activism.

Integrated Emotions and Cognition

The connection between RNAS and emotional processes involves a deep integration between cognition and emotion, overcoming the traditional division between rational mind and irrational emotions. This opens up new perspectives in psychology and neuroscience to understand decision-making, memory, and learning.

Neuroscience and Psychology: Redefining the Human Experience

Dynamic Integration: Conscious experience originates in the Activating Reticular System (RAS), where stimuli are filtered and the attentional focus is modulated before reaching the Default Neural Network (DNN), responsible for self-reference.

Free Will and Decision: The interaction between these networks allows for flexible processing, with conscious decisions emerging from the synthesis between sensory perception and internal narrative.

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Clinical Impact: The model suggests new therapies for mood and personality disorders, focused on the integration of neural networks rather than segmented treatments.

Qualitative Assessment of Consciousness

In states such as deep coma or locked-in syndrome, conscious experience seems to be absent from an external perspective. However, neuroscientific research suggests that these patients may maintain a rich subjective experience that is difficult to measure by conventional methods.

According to EFT, consciousness is not reduced to observable behavioral responses or quantifiable brain activity. Rather, it arises from the integration of complex neural networks that process information qualitatively. This suggests that even in severe clinical conditions, there could be a subjective internal experience that does not manifest itself externally.

Giulio Tononi, through his theory of integrated information (IIT), proposes to measure information complexity as an index of consciousness (Φ). The TFE could extend this approach considering that conscious experience depends not only on the amount of information processed, but also on the quality of the information flow in specific neural networks such as the Default Neural Network (DNN) and the Ascending Activating Reticular System (ASAS).

From a panpsychic perspective, subjective experience could be extended to other living beings and complex systems. The informational complexity of each system could imply degrees of proto-consciousness in non-human species and biological kingdoms. This would allow the development of a global understanding of consciousness based on the level of qualitative information integration.

Condensed Brain Processing Problem

Sensory stimuli reach the brain at different speeds (sound, vision, touch), but they are perceived as an integrated experience in real time. In addition, automatic responses such as muscle reflexes occur before a conscious experience is generated, as suggested by Libet's experiment and William James' theory of emotions.

The EFT suggests that conscious experience is an emergent phenomenon that depends on the integration of different levels of the Central Nervous System (CNS). Sensory information from autonomous and peripheral systems is regulated by RAAS, which synchronizes processing speed to create a unified experience over time.

Integrative Mechanisms:

RAAS regulates attention and prioritizes relevant stimuli.

The RND organizes autobiographical and narrative information.

The Sensory Cortex and the Thalamus act as points of sensory convergence, allowing a temporal integration of experience.

Implications:

This suggests that the conscious "now" is a temporally integrated construct of multiple neural processes that occur at different speeds. The brain unifies these processes through feedback mechanisms and cortical synchronization, allowing for a continuous and cohesive experience.

Conclusions: From the panpsychic emergentist perspective of the TFE, it is concluded that:

Proto-consciousness and Information Processing:

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Every biological structure has a level of proto-consciousness based on the integration of information. The greater the complexity of the information network, the higher the level of subjective experience.

Regulation of Entropy:

The fundamental purpose of information processing is to regulate the entropy resulting from the constant exchange between energy and matter. In humans, this includes physical (heat, biochemical energy) and psychic (cognitive and emotional processes) aspects.

Cosmic and Universal Consciousness:

Just as our cells and atoms form a conscious "I" on the individual level, we could be part of a planetary and cosmic consciousness network that regulates universal entropy. This vision proposes an integration between the individual and the cosmos, linking biology, physics and philosophy in a global emergent framework.

Philosophy: From "I think, therefore I am" to "I am, therefore I think"

New Paradigm of Thought: Direct perception precedes the formation of narrative judgments. Free will acts as a regulator that allows the individual to observe their thoughts without judgment, opening the way to a state of mindfulness.

Reverse Emergentism: Consciousness is not just a brain product, but an ever-evolving phenomenon, where even the most basic matter contains proto-conscious potential.

Ethics and Autonomy: This approach redefines the concept of identity and free will as emergent processes, challenging the foundations of ethics and individual responsibility.

Physics and Mathematics: Reinterpreting $E=mc^2$

Interpretation of the Equation $E=mc^2$ from the Emergent Flow Theory (EFT)

Einstein's equation, $E=mc^2$, is one of the pillars of modern physics. From a classical perspective, this equation represents the equivalence between energy (E) and mass (m), modulated by the square of the speed of light (c^2), implying that a small amount of mass can be converted into an enormous amount of energy. However, from the inverse emergentist perspective of Emergent Flow Theory (EFT), this equation can be reinterpreted to integrate concepts of consciousness, entropy, and complex systems.

Reinterpretation from Classical Physics

Energy (E):

Traditionally, it is understood as the ability to perform a job or produce a change in a system.

It symbolizes the dynamic potential of physical reality.

Mass (m):

It is conceived as the resistance of a body to be moved, linked to inertia.

It represents the structural stability of matter.

Speed of light (c^2):

In physics, it represents a universal limit and a constant linked to time and space.

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In this context, it symbolizes the fundamental relationship between time, space, and causality.

Classic Conclusion:

The equation shows that mass is a concentrated form of energy and that the two are interchangeable. However, this exchange occurs in a system that, according to the second law of thermodynamics, is always subject to increasing entropy.

Reinterpretation from the TFE: Consciousness, Matter and Entropy

From the point of view of the TFE, the equation can be understood as an abstract representation of the relationship between matter, energy and consciousness as an emergent phenomenon that regulates entropy through informational interaction.

E = The "Quantum Cloud" (Information Potential):

E symbolizes not only physical energy, but also the "quantum potential" of the universe: a sea of possibilities not yet collapsed.

Energy, from this perspective, contains latent information that seeks expression through interaction with matter.

mc^2 = Matter Resisting Entropy:

The mass represents the organized structure that resists entropic disintegration.

The human brain would be a perfect example: a biological system designed to process and organize information while regulating internal and external entropy.

The term c^2 denotes not only the speed of light, but also the space-time relationship that allows matter to exist as an organized entity.

= Consciousness (Emergent Phenomenon):

Consciousness arises as an emergent phenomenon that gives meaning to the interaction between energy and matter.

It functions as a "Maxwell's Demon," regulating the flow of information and controlling entropy through neurobiological and cognitive processes.

This suggests that consciousness could be seen as a cosmic interface that converts quantum potential (energy) into organized and meaningful experiences.

The Role of Bosons: "Emerging Particles"

From this perspective, fundamental bosons such as the photon, gluon, and Higgs boson could be considered "emergent" particles that regulate the interaction between energy and matter, acting as mediators of elementary forces.

Photon (Electromagnetism): Mediates the electromagnetic interaction, allowing the transmission of information through light.

Gluon (Strong Nuclear Force): Maintains cohesion between subatomic particles, regulating structures at the atomic level.

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Higgs boson (Mass): Gives mass to particles, allowing matter to have a tangible existence.

If these bosons emerge to regulate the interaction between energy and matter, they could be considered cosmic analogues of conscious processes at the universal level. This would open up the possibility of exploring a unified theory in which consciousness itself would be a universal regulator of entropy.

Gravity as an Emergent Force and Cosmic Metacognition

In this model, gravity could be reinterpreted as an emergent force that allows not only the formation of physical structures (planets, stars), but also complex biological systems with metacognition.

Gravity favors the formation of organized structures in the universe, defying entropic chaos.

On a biological level, these structures could be seen as "nodes" of a cosmic consciousness network, where conscious life becomes an organizing expression of reality.

Conclusion

From the Emergent Flow Theory, the equation $E=mc^2$ is transformed into a formula that describes the fundamental interaction between energy, matter and consciousness. Energy is the latent potential, mass is the structural resistance to entropy, and consciousness is the emergent phenomenon that gives meaning and regulates this process through informational networks.

This suggests that consciousness is not a phenomenon unique to the human brain, but a universal principle that regulates entropy and organizes reality through informational processes, from subatomic particles to cosmic systems.

Russell's paradox and set theory

Universal consciousness is the ontological foundation of all existence, so there is no "outside" of consciousness. Everything, including sets and their logical relationships, emerges within consciousness itself.

Russell's paradox arises when we try to apply a closed logical system in a context that, according to the TFE, is intrinsically open and emergent, where the sets are expressions of a continuous flow of information.

The Set of All Sets as an Expression of Consciousness

In TFE, the "set of all sets" would be a conceptual expression within the universal informational field generated by proto-consciousness.

The act of defining a set presupposes a conceptual separation that does not exist at the fundamental level. Consciousness is not a set or an object, but the emergent principle that generates and contains all possible sets as informational expressions.

Resolved Self-Reference

The paradox dissolves when we consider that consciousness includes everything, including itself, so that self-reference is not a contradiction, but a fundamental property of the emerging informational reality.

This is reminiscent of the notion of fractal self-similarity, where each "level" of existence emerges from the whole, without conceptual boundaries.

Fractal self-similarity is a mathematical and geometric property in which a structure is repeated at different scales. This means that each part of the structure is similar to the whole, regardless of the level of

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magnification. Fractals are patterns that maintain this infinite repetition, creating a self-referential and scalable structure.

The key characteristics of fractal self-similarity is that the same shape or pattern repeats itself on multiple levels, either exactly or approximately.

Fractals do not have integer dimensions such as lines (1D), surfaces (2D), or volumes (3D), but possess fractional dimensions.

A fractal can have infinite detail, as its patterns repeat endlessly as you get closer and closer.

Example: The Mandelbrot Set, a famous mathematical fractal that expands infinitely while maintaining similar patterns.

The structure "contains itself" through repetition. This property recalls philosophical concepts of self-consciousness and self-organizing processes.

In Emergent Flow Theory (EFT), fractal self-similarity could be interpreted as the organizational structure of universal proto-consciousness. Each "level" of reality, from the quantum to the cosmic, would be structured by self-similar patterns, reflecting an informational unification that repeats itself at different scales:

Microcosm and Macrocosm: The universe could be seen as an informational fractal in constant expansion and reorganization

Self-similarity could explain how mind and reality reflect each other through complex but organized structures

The Universe's Irregular Geometry and Non-Uniform Expansion

Recent discoveries suggest that the expansion of the universe is not perfectly symmetrical. Instead of a homogeneous, isotropic model, the expansion appears to feature regions with different growth rates, suggesting a more fractal or irregular geometry.

Acting as a potential energy field of the vacuum, dark energy does not initially present informational significance. It is a latent, diffuse force without a defined structure.

It is the interaction with bosonic fields where dark energy begins to acquire informational patterns, allowing its potential to manifest itself in coherent structures.

This process could explain the non-uniform distribution of galaxies and superclusters, which appear to arise from a primordial informational gradient.

The newly discovered transition from hot (fast and diffuse) to cold (slow and structured) dark matter could be directly related to the interaction of dark energy with bosonic fields:

Hot dark matter: In its initial states, dark matter would be closer to a chaotic form, without a clear structure, due to its high speed and low ability to form clusters.

Cold dark matter: As they decelerate, these particles would allow for greater interaction with bosonic fields, giving them more defined informational patterns, thus creating the gravitational structures that support galaxies and clusters.

This process of slowing down and organizing suggests that the transition between these states is not only a physical phenomenon, but also a process of gradual acquisition of informational meaning.

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Dark energy represents a primal state of pure potential, where information has not yet been encoded.

As it interacts with bosonic fields, this energy acquires gradual informational patterns that guide the formation of cosmic structures.

Galaxies and superclusters are, then, the result of this proto-informational interaction, where cold dark matter acts as a gravitational skeleton that materializes these structures.

In this sense:

Dark Energy → Meaningless Potential

Fields bosonic → Informational mediators

Hot dark matter → diffuse initial state

Cold Dark Matter → Organized and Structured State

Galaxies and Superclusters → Final Manifestation of Acquired Meaning

Extrapolating this idea to the Emergent Flow Theory model, the interaction between dark energy and bosonic fields would be analogous to the transition between pure perception and self-referential consciousness.

Cold dark matter could be seen as a state of "mature informational organization," where the initial potential has been translated into concrete meaning.

This suggests that consciousness could be a universal emergent phenomenon, not only limited to biological systems, but potentially present in the most fundamental interactions of the cosmos.

Implications of the Emergent Flow Theory (EFT) in Computer Science and future lines of research

Claude Shannon's information theory postulates that any system can be reduced to bits of information processed through a channel. If we apply this idea to the universe, we could consider that every interaction between energy and matter involves a flow of information regulated by physical laws that control entropy.

The TFE proposes that consciousness is an emergent phenomenon that gives meaning to this flow of information, organizing and regulating the resulting entropy. In this way, consciousness could be considered a cosmic regulatory mechanism, present at various levels of complexity.

Computer Implications

Distributed Computing Models: Computer systems that process large volumes of data could be inspired by this conception, designing architectures that assign "meaning" to the information processed, as current deep learning systems do.

Adaptive Regulation Systems: Develop systems that regulate their own complexity and entropy, creating more efficient and resilient computer networks.

Quantum Computing Theory: Quantum processing could be seen as a computational extension of this idea, where quantum states regulate entropy in a similar way as a conscious neural network would at the cosmic level.

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Conclusion:

From an IT perspective, the TFE provides a framework for:

Redefine Information Processing: Considering consciousness as an emergent phenomenon that regulates entropy in complex systems, we could redesign computer networks capable of generating meaning and regulating their own complexity.

Develop Self-Taught Computer Networks: Be inspired by the proto-consciousness of the ANS to create adaptive neural networks that learn from basic data, thus improving current artificial intelligence technologies.

Exploring Cosmological Potential: The idea of a regulatory "cosmic consciousness" could inspire computational models that simulate emergent behaviors at a universal level, applying principles of quantum computing and advanced artificial intelligence.

This approach redefines our understanding of human thought, proposing a model of existence based on brain evolution and the constant interaction between energy, matter and consciousness that allows us to formulate a final definition of consciousness based on the Emergent Flow Theory.

Key differences with other theories of consciousness

Connectionist theories:

Focus: Consciousness arises from the integration and synchronization of neural patterns in complex networks.

Difference with Emergent Flow: They focus on the neural level, while the Emergent Flow Theory proposes that consciousness has deeper roots, extending to the fundamental interaction between energy and matter and not just to neural integration.

Emerging Theories:

Focus: Consciousness is a phenomenon that arises from a critical complexity in physical or biological systems.

Difference from Emergent Flow: While emergent theories tend to focus on complex systems that generate consciousness, Emergent Flow suggests that consciousness not only emerges from complexity, but is an active regulator of the interaction between energy and matter from fundamental levels.

While IIT focuses primarily on local neural integration, emergent flow theory suggests that consciousness has deeper roots, extending to subatomic and cellular levels before integrating into more complex networks.

Panpsychic theories:

Focus: Consciousness is a fundamental property of matter, present at all levels of existence.

Difference with the Emergent Flow: The Emergent Flow not only postulates consciousness as fundamental, but also proposes an active and regulatory function of the energetic-material interaction, mediated by mathematical limits such as the Hilbert Space and the Bekenstein Frontier.

Dualistic Theories:

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Focus: Consciousness and matter are separate entities that interact.

Difference from Emergent Flow: Emergent Flow breaks this separation, postulating that consciousness is an emergent phenomenon intrinsic to the interaction between energy and matter, not a separate entity.

Phenomenological Theories:

Focus: They focus on the subjective experience of consciousness and its relationship to the perceived world.

Difference from Emergent Flow: Emergent Flow not only addresses subjective experience, but connects it to fundamental energetic and material processes, providing an objective basis for subjective phenomena.

Predictivist Theories:

Focus: Awareness emerges as a predictive mechanism to model the environment and reduce uncertainty

Difference with Emergent Flow: Emergent Flow recognizes the predictive capacity of the brain, but places it as a secondary function within a broader phenomenon, where consciousness regulates the interaction between energy and matter at different levels.

What does the Emergent Flow Theory really propose?

Consciousness is not just a neural, emergent, fundamental or predictive phenomenon.

It is a regulatory phenomenon that arises from the interaction between energy and matter, functioning as a stabilizing mechanism of entropy.

This regulation allows that, in sufficiently complex systems such as the brain, the integration of information generates the epiphenomenon of conscious experience.

In addition, it establishes interdisciplinary bridges between physics (Hilbert space, Bekenstein frontier, Planck scale), neuroscience, philosophy and biology.

"Emergent Flow Theory does not see consciousness as a byproduct of complexity, but as an essential regulatory phenomenon that acts as an interface between energy and matter, and whose observable manifestation in complex systems allows for the emergence of subjective experience."

Consciousness Final Definition

Consciousness can be understood as an informational emergent process that regulates the exchange of energy and matter, regulating their entropy and individually generating a perceptual experience equivalent to their evolutionary degree.

Implications

This implies a panpsychic or reverse emergentist view, where every physical system contains a basic form of proto-consciousness or ability to process information.

Consciousness would act as a regulator of informational entropy, organizing data to reduce chaos in complex systems. This is related to information theory and thermodynamics, where efficient information processing allows complex structures to be maintained like living organisms.

In living beings, consciousness is fully manifested thanks to neuronal integration. The nervous system allows us to gather, process, and organize sensory, emotional, and cognitive information into a unified and adaptive experience.

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This idea allows us to imagine consciousness as a scalable phenomenon: from elementary processes of matter-energy interaction to the complex subjective experience of a human brain.

This conception is in line with theories such as Cognitive Enactivism, which maintains that consciousness arises from the interaction between organism and environment, and Complex Systems Theory, where spontaneously organized systems regulate their own entropy.

Finally, it can be concluded that we are an emergent process that gives meaning to the interaction between matter and energy experienced individually as an evolutionary psychic phenomenon over time.

References

Aday, J. S., Mitzkovitz, C. M., Bloesch, E. K., Davoli, C. C., & Davis, A. K. (2020). Long-term effects of psychedelic drugs: A systematic review. Neuroscience & Biobehavioral Reviews, 113, 179–189.
Adolphs, R. (2015). The unsolved problems of neuroscience. Trends in Cognitive Sciences, 19, 173–175.
Arshinov, V., & Fuchs, C. (Eds.). (2003). Emergence, causality, self-organisation. Moscú: NIA-Priroda.
Arshinov, V., & Fuchs, C. (Eds.). (2003). Emergence, Complexity, Hierarchy, and Organization: Selected and Edited Papers from the ECHO III Conference. Acta Polytecnica Scandinavica, MA91. Finish Academy of Technology, Espoo.
Chalmers, D. (1995). Facing up to the problem of consciousness. Journal of Consciousness Studies, 2, 200–219.
Chalmers, D. (2006). Strong and weak emergence. In P. Clayton & P. Davies (Eds.), The Re-Emergence of Emergence. Oxford University Press.
Chalmers, D. J. (2015). Panpsychism and panprotopsychism. In T. Alter & Y. Nagasawa (Eds.), Consciousness in the Physical World: Perspectives on Russellian Monism (pp. 246–276). New York, NY: Oxford University Press.
Coleman, S. (2014). The real combination problem: Panpsychism, micro-subjects, and emergence. Erkenntnis, 79, 19–44.
Crick, F., & Koch, C. (1990). Towards a neurobiological theory of consciousness. Seminars in the Neurosciences, 2, 263–275.
Dawkins, R. (1987). The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe Without Design. Norton. ISBN: 978-0-393-02216-2.
Descartes, R. (2010). Metaphysical Meditations. Buenos Aires: Editorial Aguilar.
Dictionary of the Spanish Language. (2014). 23rd ed. Madrid: Real Academia Española.
Emmeche, C., Koppe, S., & Stjernfelt, F. (1997). Explaining emergence: Toward an ontology of levels. Journal for General Philosophy of Science, 28, 83–119.
Francisco, J. V., Thompson, E., & Rosch, E. (1992). The Corporeal Mind: Cognitive Science and Human Experience. MIT Press. ISBN: 978-0262261234.
García Arroyo, J. M. (2022). "The Mirror Stage: Antecedents and Phenomenology". Journal of the Spanish Association of Neuropsychiatry (Madrid), 42(142). Retrieved September 13, 2023.
Hameroff, S. (2012). Can the brain rescue conscious free will? Frontiers in Integrative Neuroscience, 6(93). DOI: 10.3389/FNINT.2012.00093. PMC 3470100. PMID 23091452.
Heisenberg, W. (1959). Physics and Philosophy: The Revolution in Modern Science. London, England: George Allen & Unwin Ltd. p. 137.
Hoffman, D. D., & Prakash, C. (2014). Objects of consciousness. Frontiers in Psychology, 1, 577–149.
Hoffman, D., Prakash, C., & Prentner, R. (2023). Fusions of consciousness. Entropy, 25(1). doi: 10.3390/e25010129.
Hoffman, D., Prakash, C., & Chattopadhyay, S. (2023). Fusions of Consciousness.
Jung, C. G. (2002 [2nd edition 2010]). Complete works of Carl Gustav Jung. Volume 9/1: Archetypes and the Collective Unconscious. 10. Consciousness, Unconscious and Individuation (1939). Translation: Carmen Gauger. Madrid: Editorial Trotta. ISBN: 978-84-8164-524-8 / 978-84-8164-525-5.
Kastrup, B. (2019). The Idea of the World. Alresford, UK: iff Books.
Koch, C. (2004). The Quest for Consciousness: A Neurobiological Approach. Englewood, CO: Roberts & Co. p. 104.
Livio, M. (2009). Is God a Mathematician? New York: Simon & Schuster. ISBN: 978-0-7432-9405-8.
Nagel, T. (1974). What is it like to be a bat? Philosophical Review, 83, 7–22.
Nagel, T. (1985). The View from Nowhere. Nueva York: Oxford University Press.
Penrose, R. (2001). Consciousness, the brain, and space-time geometry: An addendum. Some new developments on the Orch OR model for consciousness. Annals of the New York Academy of Sciences, 929, 105–110.
Slobin, D. I. (2011, octubre). "Thinking for speaking". Proceedings of the Annual Meeting of the Berkeley Linguistics Society, 13, 70–96.
Stapp, H. P. (2011). Mindful Universe: Quantum Mechanics and the Participating Observer. Berlin: Springer. pp. 85–99.
Swoyer, C. (2015). The hypothesis of linguistic relativity. Stanford Encyclopedia of Philosophy.
Tomasini Bassols, A. (2001). Classical theory of knowledge and Wittgensteinian epistemology. Mexico City: Plaza y Valdés Editores.
Tononi, G. (2015). Integrated information theory. Scholarpedia, 10, 464. URL: http://www.scholarpedia.org/article/integrated_information_theory.
Tractatus Logico-Philosophicus-Philosophical Investigations. (2017). Translation, introduction and critical notes by Isidoro Reguera Pérez. Madrid: Editorial Gredos. ISBN: 978-84-249-3774-4.
Tortora, G., & Derrikson, B. (2010). Principles of Anatomy and Physiology. 11ª ed. México: Editorial Médica Panamericana.
Villatoro, F. (2013). La caza del bosón de Higgs. Journal of Feelsynapsis (JoF), 8, 38–48.

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Wheeler, J. A. (1982). Bohr, Einstein, and the strange lesson of the quantum. In R. Q. Elvee (Ed.), Mind in Nature: Nobel Conference XVII (pp. 1–23). San Francisco: Harper & Row.
Wilber, K., Bohm, D., & Pribram, K. (1991). The Holographic Paradigm. Kairos Publishing