

CONSCIOUSNESS VOL 3

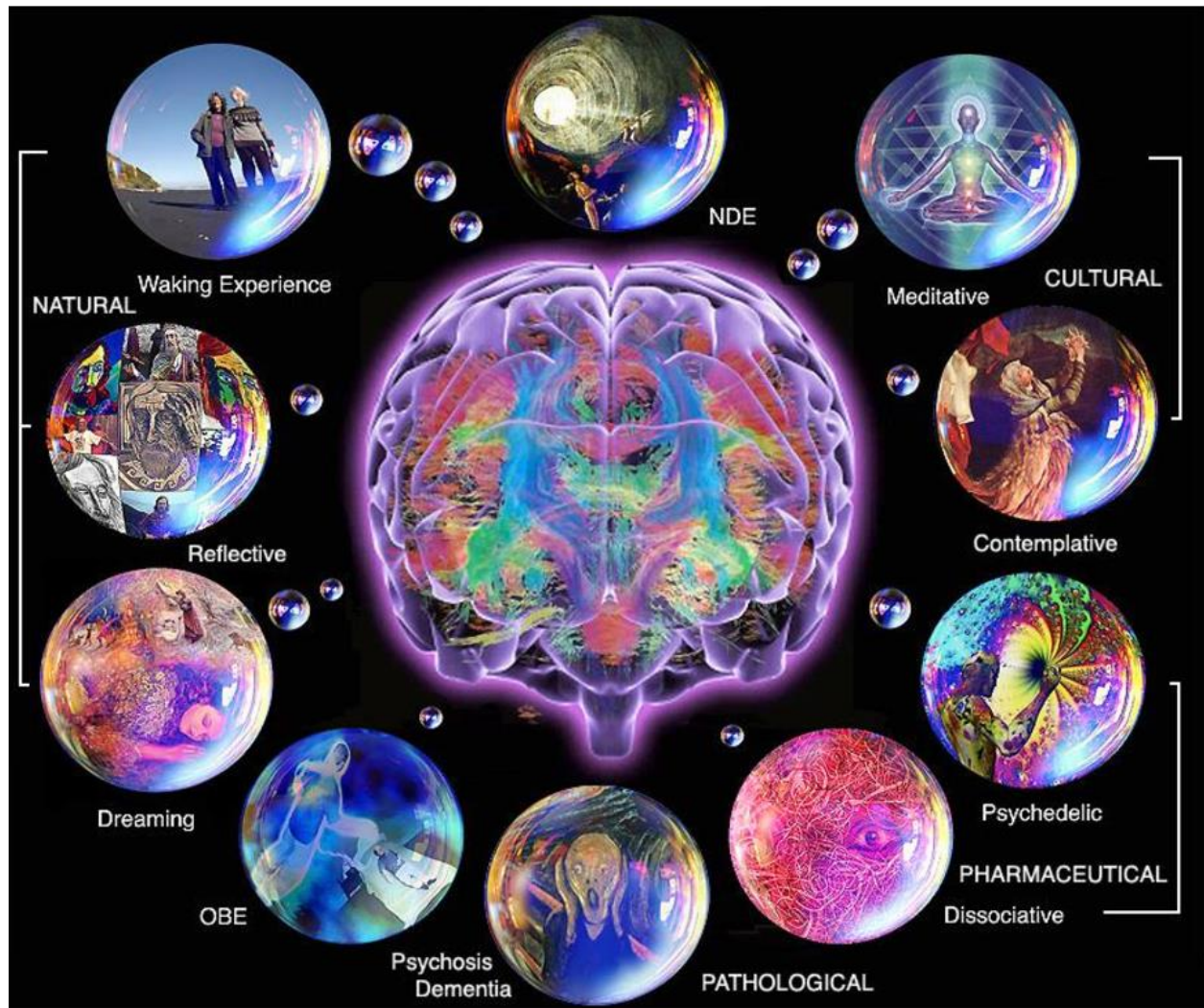


Fig 1: A representative spectrum of prominent mental states

The Cosmology of Conscious Mental States

Explore the diversity of mental states, and examine to what extent these are both a product of specific known brain processes and yet may access a complementary aspect of existence to the cosmology of the physical universe and its natural biosystems, potentially giving mental states an existential cosmological status. The case is made that the cosmology of mental states reflect a deeper physical principle connecting quantum entanglement with the brain wave processing evolved in higher organisms to solve the computational intractability of open environmental dilemmas, which go beyond Bayesian statistics and causal prediction, into multiple nested Schrodinger cat paradoxes, hinting at a meta-evolutionary paradigm of conscious cosmological integration. Part I of this two-part article contains: A Natural Classification of Mental States; The Physiology of Mental States; & Subjective Consciousness.

Quantum and Multidimensional Explanations in a Neurobiological Context of Mind

The possible relevance of physical–mathematical multidimensional or quantum concepts aiming at understanding the (human) mind in a neurobiological context is examined, including entanglement, superposition, holonomic, and quantum field theories.

Examine the possible relevance of physical–mathematical multidimensional or quantum concepts aiming at understanding the (human) mind in a neurobiological context. Some typical features of the quantum and multidimensional concepts are briefly introduced, including entanglement, superposition, holonomic, and quantum field theories. Next, we consider neurobiological principles, such as the brain and its emerging (physical) mind, evolutionary and ontological origins, entropy, syntropy/neg-entropy, causation, and brain energy metabolism. In many biological processes, including biochemical conversions, protein folding, and sensory perception, the ubiquitous involvement of quantum mechanisms is well recognized. Quantum and multidimensional approaches might be expected to help describe and model both brain and mental processes, but an understanding of their direct involvement in mental activity, that is, without mediation by molecular processes, remains elusive. More work has to be done to bridge the gap between current neurobiological and physical–mathematical concepts with their associated quantum–mind theories.

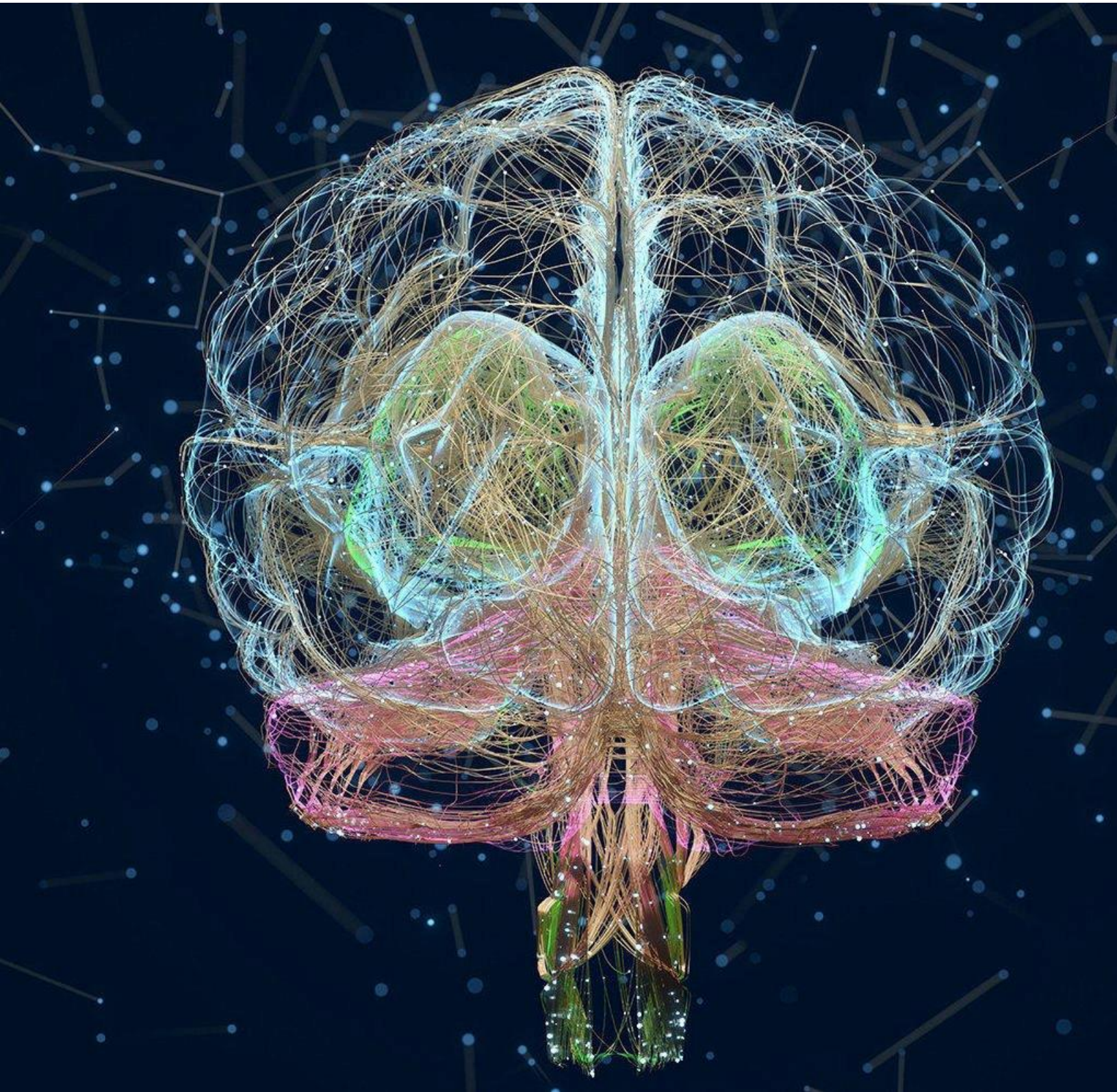
Searching for a mind's brain: questioning underlying biophilosophical assumptions

Assess the applicability of a number of biological and neurobiological concepts to biophilosophical concepts of life and mind and concludes that the philosophical concepts are only partially compatible with the biological concepts and need to be adapted to align with current (neuro) biology.

Assess the applicability of a number of biological and neurobiological concepts to biophilosophical concepts of life and mind. Life, as instantiated by viable cells and organisms, is considered as a prerequisite of mind. Views such as embodied cognition, external mind or scaffolding theories were ignored. The biological characteristics of life and mind that are in particular relevant in the present context are: reversibility and irreversibility of brain processes, distinction between metabolic and potential brain energy, and the continuous turnover of brain constituents. The (bio) philosophical

concepts multiple realizability, teleology, autopoiesis, panpsychism, supervenience and emergentism are shortly introduced and assessed in such a biological context. The assessments lead to the conclusion that the philosophical concepts are only partially compatible with the biological concepts and need to be adapted to align with current (neuro) biology. The presently discussed options favor the idea that emergence fits best with the (neuro) biological principles, provided that the mind is considered a neurophysiological process, thus with a time-dimension. Bridging theories to couple neural brain processes directly to mental processes have as yet to be developed.

What is consciousness?



Since I've never had surgery or procedures that required anesthesia, my awareness of consciousness changing happens when I drift off to sleep. That is ... before my strokes.

The night of my first TIA (transient ischemic attack), I liken to speeding and not getting caught, until you're pulled over. Over the years my blood pressure would spike (during pregnancies and corporate mergers). I'd make lifestyle changes: healthier eating and exercise. I even tried biofeedback. My blood pressure would come down and then I'd get caught up in life and it'd creep up again.

Then, 15 years ago I watched myself in the mirror while having my hair colored. My stylist added waves of caramel (and a bit of red for my husband). I got caught. As I told my stylist a funny story about a trip to Rome with my mother, something was off. I tilted my head — *that's odd ... I can hear the words in my head, but they're not coming out of my lips*. My inside conscious experience wasn't connected to my outside body experience.

What is consciousness? What's its purpose? And why is understanding consciousness so important?

what is consciousness?

How to describe consciousness? There are thoughts, memories, ideas, and perceptions all swirling in our heads, but there's something else. An awareness; an observer of sorts that *isn't* the thought or memory.

Consciousness is all about awareness.

According to neuroscientist [Anil Seth](#), Co-Director of the Centre of Consciousness Science at the University of Sussex, there's been an explosion of scientific research on consciousness over the last 25 years: neuroscience, biology, psychology, physics, computer science, etc.

Intelligence is not consciousness. Consciousness has more to do with our nature as living and breathing organisms.

Anil explains in his [Ted Talk](#) there are two different ways to think about consciousness:

1. experiences of the *world* around us: sights, sound, smells, [multi-sensory](#)
2. experience of [Being You](#)

Our perceptions of the world surrounding us are constructed. Our brains exist in a hard, bony skull. No light, no sound penetrates that protective structure. Information comes into our brains via electrical impulses. Our brains combine this information and make the best guess based on our previous experiences.

Our brains are prediction machines. The world comes to us as much from the inside out as from the outside in.

During my TIA, I felt like I was underwater listening to the hair salon fan sucking fresh air in and dye chemicals out. I was fully aware of the disconnect between my inside thoughts and my outside body's lack of agency. Not scared. Very curious. I smiled and thought — *This is really weird. What's happening?* Everything seemed to be happening in slow-motion.

My brain had no experience of a stroke to “predict” a stroke experience. Maybe if I were standing and my legs collapsed I'd of been more scared.

[Fun Facts](#)

- the average weight of the adult human brain is 3 pounds
- brain 2% of body weight; uses 20% of the total body oxygen & energy
- neurons travel 150 mph in the brain
- 95% of all decisions take place in the [subconscious](#)
- brain waves are more active during dreaming than in the normal waking state when we walk around, think, feel, talk, and do stuff
- we have [2 brains](#): 1 found in our head & 1 found in our gut

what is the purpose of consciousness?

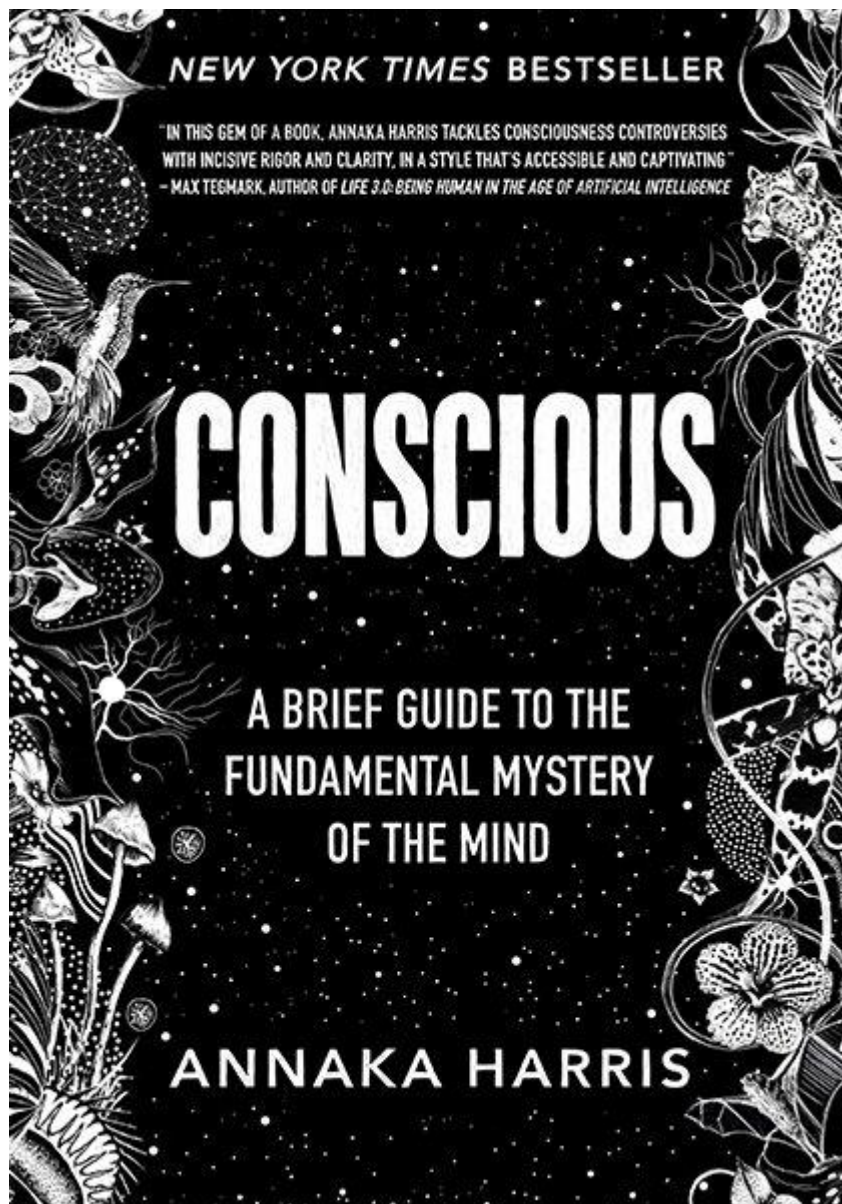
Within each of our brains, there are billions of neurons generating a conscious experience. Our unique conscious experience. Nobody shares the same experience. We can't, we're different living organisms. Without consciousness, there is no world and no self.

In Annaka Harris' book [*Conscious*](#) she describes how consciousness, our awareness of an experience, is slightly *after* the fact. That means consciousness, as an observer, needs all the signals going into the brain to sync up first. In neuroscience, this is referred to as "binding." A fancy editing trick because signals enter the brain at different speeds.

Imagine you're playing tennis. For vision, light waves travel faster than the sound waves of the ball hitting the racket. All our sensory inputs reach our nervous system and brain at different speeds. They need to be combined by the brain before we "experience" the tennis ball *thwacking* the racket.

"Your perception of reality is the end result ... the brain hides the difference in arrival times. How? What it serves us as reality is actually a delayed version. Your brain collects all the information from the senses *before* it decides upon a story of what happens ... The strange consequence is that you live in the past."

—[David Eagleman](#)



[Conscious](#) by Annaka Harris

why is understanding consciousness so important?

Previously I described [dreaming](#) as a downshifting in my consciousness, not an off-button or snooze button.

Question: when I'm dreaming, does my consciousness hang out tethered to me? And the same with every person and living creature? If so, where are our edges? Do they overlap or bump into each other and then back off?

When I'm awake and interacting with upset people, I often *feel* off. Is that energy from their consciousness spilling out? Have we become [entangled](#)? From a scientific measurement perspective, I'm intrigued by new scientific measurements for brain activity - how our thoughts can be measured *outside* our heads.

There are various methods of measuring the electrical impulses in our brains:

1. [MRI](#) (magnetic resonance imaging): still image of the brain's structures
2. [fMRI](#) (functional MRI): observes the brain *while* functioning
3. [MEG](#) (magnetoencephalography): extracts patterns of electrical activity *inside* the brain from the measured magnetic field *outside* the head

There's a light storm of synapses firing when consciousness is active. Our consciousness is a form of [embodied energy](#) — a capturing of all the memories and experiences we hold in our bodies and minds walking around with each of us. It's not like a coat you decide to leave in the closet. Although there are personas that we, I put on, a layer of protection when I feel vulnerable and protective of my energy being drawn elsewhere without my permission like a tornado pulling me in.

When exploring consciousness as an awareness, Annaka introduced a new term to me. [Umwelt](#): the given experience of any particular animal, based on the senses used by that organism to navigate its environment. Pet owners will attest to conscious experiences they witness with their companions. But overall, we humans think we are the smartest, therefore the only ones with consciousness.

After watching documentaries like [My Octopus Teacher](#) with Craig Foster, I'm humbled by the intelligence and *umwelt* in other living creatures. According to Craig, the most important lesson he learned was that we are not visitors here. We are part of the process.

Here I am fifteen years later. I appreciate the complexity of my memories and the cataloging of my experiences that create my consciousness, an ecosystem called me. When I see someone struggling with getting the right words out. My granddaughter learning to speak, a foreigner at the airport struggling to communicate, or someone with Alzheimer's, or aphasia from a stroke or other

brain injury. I try to slow down. Look them in the eye. Listen to understand what their consciousness wants to communicate to my consciousness.

Over the centuries science continues to confirm what seemed ludicrous for a long time. *Copernicus* demonstrated that we are not the center of the universe. *Darwin* taught us through evolution that we are related to all living creatures. With [*consciousness research*](#), we continue to see that we humans are part of not apart *from* the rest of nature.

How do you perceive your consciousness?

How could we possibly not be aware of elements of reality that we do perceive? Credit: Neuroscience News

The Brain's Interplay of Consciousness and Perception

Summary: Researchers have been studying hemispatial neglect, a condition where stroke patients fail to acknowledge what happens in the left side of their visual field, despite possessing intact visual abilities.

In a quest to uncover the intricate relationship between attention and conscious perception, neurologists identified five clusters of brain activity linked to the processing of attention. Their findings challenge existing theories that suggest attention and conscious perception are unrelated functions, providing evidence that the two indeed interact.

This opens up new avenues for understanding not only cognitive disorders but also the general nature of human consciousness.

Key Facts:

1. Hemispatial neglect is a condition where patients are unaware of a part of their environment, not due to visual impairments, but due to attention issues.
2. The researchers identified five clusters of electrical activity associated with the maintenance and redirection of attention in frontoparietal networks.
3. The findings challenge current hypotheses that attention and conscious perception operate in isolation, providing supporting evidence of their interaction.

Source: Paris Brain Institute

Almost half of patients who experienced a stroke in the right cerebral hemisphere later develop a very unusual symptom: they lose the ability to perceive what is happening in the left side of space.

As a result, they tend to eat only the right side of their plate, ignore people on their left, and have great difficulty finding their way around. This disorder, known as hemispatial neglect, does not involve basic visual abilities, which remain intact.

“These patients see very well. The problem lies elsewhere! They are not aware of a part of their environment, not because they do not receive visual information, but because they are not paying attention to it,” describes Paolo Bartolomeo, neurologist, and researcher at Paris Brain Institute.

“The treatment of these patients consists, in a way, of re-educating their attention abilities.”

How could we possibly not be aware of elements of reality that we do perceive? To answer this question, we need to understand the nature of the relationship between consciousness and attention.

Researchers have been trying to formalize it for many years, but several competing theories coexist, none of which has prevailed.

To find out more, Paolo Bartolomeo and Jianghao Liu, a doctoral student in the PICNIC team, decided to put these theories to the test.

Gabor to starboard

“We wanted to describe the interactions between attention and conscious perception in the finer details, not only to elucidate attention disturbances in certain cognitive disorders but also to better understand human consciousness in general, ” explains Jianghao Liu.

“Clinical studies tell us that attention is necessary, though not sufficient, for conscious perception, but we didn’t know how this is translated in the brain. Thus, we tried to uncover the mechanisms of attention processing in frontoparietal networks.”

To shed light on these questions, the researchers focused on so-called exogenous attention, i.e., attention focused on environmental stimuli. Conventional neuroimaging techniques such as fMRI and EEG are insufficient to obtain precise data on brain activity during cognitive tasks.

The team, therefore, used intracerebral electrophysiological recordings from 13 epileptic patients who had been implanted with deep brain electrodes to treat drug-resistant epilepsy.

Participants in the study were asked to perform a cognitive task that involved detecting a target called a Gabor patch, which can become barely discernible by changing the contrast of the black and white bars composing it.

The target appeared on the left or right of a screen and was preceded by a visual cue (a simple black dot) – either correct (announcing the side on which the target appeared) or misleading (announcing the wrong side). In some cases, the Gabor patch did not appear at all.

Supporting neural evidence

“This experiment allowed us to determine that manipulating the participants’ attention via the visual cue could modify their ability to consciously perceive the Gabor patch and describe what they had seen,” explains Jianghao Liu.

“Their attention capacities were either inhibited or increased tenfold depending on the stimuli. At the same time, we observed that specific neural networks were involved in the different types of interaction between attention and conscious perception.”

More specifically, through electrophysiological recording, the researchers identified five clusters of electrical activity associated with the maintenance and redirection of attention in frontoparietal networks. They then used white matter tractography, an imaging technique, to ensure that these clusters matched the architecture of anatomically observable neural projections.

Finally, they checked the robustness of these results using a computer model to ensure that the neural dynamics they observed were not specific to epileptic patients and could be generalized eventually.

“For the first time, we have been able to map the areas of the brain involved in the interaction between attention and conscious perception, says the researcher.”

“This is a great advance: certain current hypotheses claim that conscious perception and attention are two functions perfectly isolated from each other and rely on different networks. Our data shows the opposite.”

These interactions between attention and conscious perception most certainly shape our perception of the world, as our attention is constantly drawn to new events, big or small, in our immediate environment.

“Now we want to determine whether attention to endogenous events – in other words, events arising from our thoughts, our internal sensations, our inner life – could also affect consciousness,” concludes Paolo Bartolomeo.

“After all, our ability to pay attention to ourselves is as fascinating as our ability to perceive the rest of the universe.”

About this consciousness and perception research news

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Image: The image is credited to Neuroscience News

Original Research: Open access.

[“Fronto-parietal networks shape human conscious report through attention gain and reorienting”](#) by Paolo Bartolomeo et al. *Communications Biology*

Abstract

Fronto-parietal networks shape human conscious report through attentional gain and reorienting

How do attention and consciousness interact in the human brain? Rival theories of consciousness disagree on the role of fronto-parietal attentional networks in conscious perception.

We recorded neural activity from 727 intracerebral contacts in 13 epileptic patients, while they detected near-threshold targets preceded by attentional cues.

Clustering revealed three neural patterns: first, attention-enhanced conscious report accompanied sustained right-hemisphere fronto-temporal activity in networks connected by the superior longitudinal fasciculus (SLF) II-III, and late accumulation of activity (>300ms post-target) in bilateral dorso-prefrontal and right-hemisphere orbitofrontal cortex (SLF I-III).

Second, attentional reorienting affected conscious report through early, sustained activity in a right-hemisphere network (SLF III). Third, conscious report accompanied left-hemisphere dorsolateral-prefrontal activity.

Task modeling with recurrent neural networks revealed multiple clusters matching the identified brain clusters, elucidating the causal relationship between clusters in conscious perception of near-threshold targets.

Thus, distinct, hemisphere-asymmetric fronto-parietal networks support attentional gain and reorienting in shaping human conscious experience.

A Controversial Theory Says Consciousness Might Secretly Live in Your Brain's Electric Currents



These invisible signals could be the key to it all.© TUMEGGY/SCIENCE PHOTO LIBRARY - Getty Images

- Many theories attempt to explain consciousness, but one that's gaining traction is the idea of electromagnetic (EM) fields—specifically, ephaptic fields—coordinating consciousness in the brain.
- A new article in *Scientific American* lays out the case for this intriguing theory and shows how EM fields could bridge the speed gap and explain consciousness.
- There's still a long way to go to affirm these EM fields' role in consciousness, but increasing evidence shows that they (at least) play a role.

[Nature](#) abhors a vacuum, and the same can be said about mysteries of science. Whenever some phenomenon seems inexplicable—at least, with the theories and laws that make up the foundation of our knowledge—a multitude of hypotheses quickly fill the void. This is particularly true in physics, where new observations have spawned ideas related to chaos theory, string theory, and cold dark matter

theory (among many others). But the same can also be said for the scientific world of the conscious mind.

Simply put: we don't really know why we think (and, therefore, are). But a multitude of theories attempt to explain the biological phenomenon of consciousness that underlies our very existence. Some theories compare the brain to a computer, with neurons as stand-ins for transistors. Other theories believe the brain to be non-algorithmic, and that consciousness perhaps has a [quantum quality](#).

But one theory in particular is gaining some experimental traction as of late. It explores how human consciousness could be explained through the electromagnetic fields—known as “ephaptic fields”—produced by neurons through synaptic firing. These fields are what allow an electroencephalogram (EEG), for example, to pick up [brain](#) activity.

“The ‘ephaptic’ in ephaptic coupling simply means ‘touching,’” Tamlyn Hunt, an affiliate guest in psychology at University of California Santa Barbara’s META lab, wrote in an opinion article [published in Scientific American](#). “Though not well-known, the effects of ephaptic fields result from the textbook electric and [magnetic](#) interactions that power our cells.

“Intriguing [experimental](#) results,” he continued, “suggest these same forces play a bigger role in the brain than one suspected and perhaps even in consciousness.”

Hunt went on to describe how, in 2019, researchers from Case Western Reserve University in Ohio completely bisected the [hippocampus](#) of a mouse. Despite the severance, the team still recorded activity that could “leap” across the cut—a phenomenon only possible through electric field coupling. This effect dissipated once the severed sections were separated by more than 400 microns.

“It was a jaw-dropping moment,” senior author Dominique M Durand [said at the time](#). “For us and for every [scientist](#) we told about this so far.”

This electrical effect could help explain another problem in our current, neuron-based understanding of consciousness—normal spike pathways are too slow to explain cognitive function. However, when coupled with the speed of these ephaptic field effects, that [speed](#) increases some 5,000 times over, [according to another study from 2020](#).

While this [theory](#) appears to be gathering steam, there's still much more to explore. Ephaptic fields and other theories of consciousness rely on these computable methods, but few tackle what's known as the "hard problem" of consciousness—how those biological processes create subjective experience.

That said, if the history of science shows us anything, it's that these vacuums of understanding filled with various hypotheses eventually do crystallize into fact with enough evidence, [data](#), and verification. Solving the mystery of consciousness is one of the most complicated scientific endeavors undertaken by humans, but as the biological machinations of the brain are slowly revealed, the fuzzy contours of consciousness are gaining clarity.

Consciousness Is Force Of Being, Not Merely Awareness



At the heart of Sri Aurobindo's notion of the triple transformation of human consciousness lies a unique reshaping of the Upanishadic philosophical tradition from a prism of a meaningful life-affirming philosophy. As he maps out the psychic, spiritual and supramental dimensions of consciousness in the 'Life Divine,' this idea becomes a counterpoint to the philosophical paradigm that all existence, and thereby consciousness too, is an illusion, maya.

For Aurobindo, this life itself is unique, for it gives an opportunity to understand, open up and realign ourselves with the Divine consciousness. The seeker has to work on his nature to become a fit instrument and a material channel for the descent of this consciousness. The concept of descent of the Divine supramental consciousness into our very physical bodies gives a unique evolutionary thrust to Aurobindo's vision, which he posited would materialise sooner than later, as nature forces us to transcend the merely physical dimension and pattern of life.

The question of consciousness was central to Aurobindo's philosophy of life and existence. Consciousness was not just a way of knowing reality but could be looked upon as something that takes the seeker beyond the human mind into a divine or cosmic dimension of reality. Echoing Hegel in mapping out the evolution of human consciousness, Aurobindo sees this phenomenal reality as expressing, but one dimension of that universal consciousness, and all layers of this consciousness synthesise in the Supermind. Aurobindo then takes it a step further and visualises the descent of the universal consciousness into the physical body as the next step in evolution.

Consciousness is the "Force of Being", Aurobindo says, not merely awareness. It is possible to "seek the union of our soul of mind with universal mind, our soul of life with universal life, our soul of body with universal physical existence, consciously". Chit Shakti, consciousness, presents itself to itself through forms and procedures of nature, and it is this Spirit pervading through matter that Aurobindo urges us to strive to know through experience. To call upon that cosmic consciousness is the true calling of every seeker, which will, in turn, give impetus to the evolutionary impulse.

This unique notion of the descent of cosmic consciousness, the overmind, into the manifest world through the transformation of human consciousness is at the heart of his poetic opus, 'Savitri', wherein he reinterprets the ancient Upanishadic story of Savitri and Satyavan, as a story of spiritual freedom from ignorance. Savitri is the instrument for descent of Divine Grace, who overcomes death, suffering and ignorance through her burning, single-minded focus on bringing back Satyavan to life. This spiritual quest sets the stage for emergence of a new divinity within us, which transcends mortality.

Aurobindo then contends that the story of Savitri shows the way for the individual soul to ascend to a higher dimension of consciousness, wherein the manifest world would be revealed as a materialisation of this absolute consciousness. To be thus blessed by Divine Grace, our inner guru, like Savitri, would provide a new meaning to the here and now of existence, without which life would merely be like the theatre of the absurd, devoid of purpose and directionless.

Scientists Explore Panpsychism: Is Consciousness Everywhere?

What if consciousness isn't just a human trait—or even limited to living beings? Imagine a universe where every particle, from the smallest quark to the brightest star, carries a flicker of awareness. This radical idea is at the heart of panpsychism, a theory that redefines how we view existence itself.

Far from mere speculation, panpsychism has gained serious attention from scientists and philosophers seeking answers to one of life's greatest mysteries: the nature of consciousness.

Could this be the key to understanding the universe—and our place within it?

What Is Panpsychism?

Image Credit: agsandrew/Deposit Photos

Panpsychism is the philosophical view that consciousness is not exclusive to humans or animals but is a quality inherent in all matter. This means that every particle, every quark, photon, and even inanimate objects, like rocks and stars, have some form of consciousness.

This theory challenges the conventional belief that consciousness emerges only from complex neural processes.

The roots of panpsychism stretch back to ancient philosophy. Early thinkers like Thales and Plato, and later figures such as Spinoza and Leibniz, pondered the idea that all things possess a soul or mind-like quality.

In contemporary philosophy, scholars like Philip Goff and David Chalmers have rejuvenated the discussion, arguing that panpsychism offers a viable solution to the “hard problem” of consciousness — the challenge of explaining how and why we have subjective experiences. [\(ref\)](#)

Modern Theories Supporting Panpsychism

Image Credit: agsandrew/Deposit Photos

Two significant theories have provided modern frameworks that resonate with panpsychistic ideas: Integrated Information Theory (IIT) and Orchestrated Objective Reduction (Orch-OR) theory.

Integrated Information Theory (IIT), developed by neuroscientist Giulio Tononi, posits that consciousness arises from integrating information within a system. According to IIT, any system that integrates information in a specific, irreducible way has some level of consciousness. This suggests that even non-biological systems, if sufficiently complex, could possess consciousness. [\(ref\)](#)

Orchestrated Objective Reduction (Orch-OR) theory, proposed by physicist Roger Penrose and anesthesiologist Stuart Hameroff, ventures into the quantum realm. They suggest that consciousness arises from quantum processes within the brain’s microtubules, tiny structures within neurons.

This theory bridges the gap between the physical brain and the seemingly ethereal nature of consciousness, proposing that quantum mechanics plays a crucial role in generating conscious experience. [\(ref\)](#)

The Appeal & Criticism of Panpsychism

Image Credit: rolffimages/Deposit Photos

Panpsychism is appealing because it offers a solution to the enigmatic nature of consciousness that eludes purely physical explanations. It circumvents the need for consciousness to emerge suddenly and inexplicably from complex brain functions, suggesting instead that consciousness is a fundamental aspect of the universe, much like space and time.

However, the theory faces significant challenges. One major issue is the “combination problem” — how simple forms of consciousness in basic entities combine to form the complex, unified consciousness we experience.

Critics argue that panpsychism’s broad definition of consciousness may dilute its meaning, making it difficult to test and verify scientifically.

Despite these challenges, panpsychism is gaining traction among some philosophers and scientists. The notion that consciousness is a fundamental feature of the universe invites us to reconsider our place in the cosmos and the nature of reality itself.

It challenges us to view the world not just as a collection of inert objects but as a vibrant tapestry of conscious experiences.

Looking Ahead

Image Credit: agsandrew/Deposit Photos

While panpsychism remains controversial and speculative, it continues to inspire intriguing debates and research. As we look deeper into the mysteries of consciousness, theories like panpsychism push the boundaries of our

understanding and encourage us to explore new frontiers in science and philosophy.

For those captivated by the idea that everything around us might possess a sliver of consciousness, panpsychism offers a profound and mind-expanding perspective.

Whether you find it plausible or outlandish, it undeniably renews your sense of wonder about the world.

Source:

1. utm.edu

Universal Consciousness

What does it mean to be one with the ‘Universal Consciousness?’

Image used under license from Shutterstock.com (image by Tanshy)

In my last few articles in the Yoga series, I talked about the ‘Universal Consciousness.’

While [Demystifying Yoga- Part 4](#) explains what Universal Consciousness is, what does it mean to be one with the universal consciousness??

What would it feel like to finally attain nirvana or spiritual awakening??

As humans, we are so used to an objective reality or an objective goal that it gets difficult to move towards a subjective goal where we can't define or visualize what the outcome looks like. But how can anyone explain or visualize something that is beyond human imagination? While science (or I should say, pockets in science) today believe in 'Wholeness' or a 'Deeper underlying Reality,' there is still no objective definition for this 'Deeper Reality.'

Max Planck said, "Science cannot solve the ultimate mystery of nature (consciousness), for, in the final analysis, we ourselves are part of the mystery we are trying to solve."

Let's see how Vedanta explains this 'Universal Consciousness,' which, as per me, is the best explanation or the closest understanding we can get of this state. Every human being passes through the 'waking,' 'dreaming,' and the 'deep- sleep' states. Vedanta defines a fourth state, the state of 'Universal Consciousness,' called 'Turiya.' Let me explain this fourth unknown state by walking you through the three known states and based on the known, let's theorize the unknown.

Do you remember any of your dreams vividly, a dream where you lived a lifetime, or maybe a nightmare that left a deep imprint on your conscious memory?

We sometimes live a lifetime in a dream, feeling the emotions, the pain, and the pleasure of the dreamer and believing the dream to be a reality'. It is only when we wake up that we realize that it was all a dream! We come out of our dream when we naturally transition to the 'waking' state or when the dream is so jarring to our emotions that we are thrown out of our sleep (everyone will remember a nightmare which wakes us up rudely but gives us a sense of immense relief that it was not real). As a 'deep-sleeper,' we experience deep, relaxed sleep and are in touch with our subconscious mind, but it is not an experience that the conscious mind registers or remembers.

I recently watched the movie Inception once again; what a brilliant portrayal of spiraling dreams as the plot moves across the three (four) levels of dream- state or levels of subconscious minds of the actors.

Now for a moment, imagine that your current state of wakefulness is just another state or another level of dream. When the right trigger comes your way, you will wake up to a completely different level, the fourth level where you realize that this entire life that you were living was just another dream. You might have lived a lifetime as a 'waker,' but now in this fourth state, you realize that this was just a blink in your lifetime in 'Turiya.' Just like a bad dream can jolt you back into

the ‘waking’ state, an extreme life experience, excessive pain or hurt can suddenly take you into the state of ‘Turiya’ or when you finally die and leave your gross body, you move naturally into this fourth state of ‘Universal consciousness.’

Given this narrative, we can intellectualize what ‘Universal consciousness’ means, but can we now describe what it feels to be in this fourth state?? Can a dreamer explain what it is to be when awake?? Can a dreamer even fathom the state of ‘Wakefulness’ in the dream state?? We can meditate and touch our subconscious, which is an expression of the ‘Universal consciousness,’ but that will still not give us an experiential understanding of what this fourth state entails.

You can’t solve the problem with the same consciousness that created it... Einstein

[Demystifying Yoga- Part 5](#) explains the connection between this ‘Universal consciousness’ and Quantum physics. Quantum physics, however, does not still have answers to a lot of questions like quantum entanglement, where entangled particles show a simultaneous change in state, no matter what the distance is between them. This violates Einstein’s theory of relativity, and our picture of reality would completely collapse if this were the case.

In my next article, I will talk about an alternate interpretation of Quantum physics, which was expounded by David Bohm, an

American-born British quantum physicist who was a leading expert in theoretical physics, neuropsychology, and philosophy. He is regarded as one of the greatest and most influential theoretical physicists of the 20th century. Bohm believed that there was a deeper reality beneath the quantum level, a 'Wholeness' which connects the entire micro and the macrocosm.

“The notion of a separate organism is clearly an abstraction, as is also its boundary. Underlying all this is unbroken wholeness even though our civilization has developed in such a way as to strongly emphasize the separation into parts.”

— David Bohm, *The Undivided Universe: An Ontological Interpretation of Quantum Theory*

The Unified Field and the Quantum Nature of Consciousness

“Information is the resolution of uncertainty.” – Claude Shannon
We're getting closer to incorporate consciousness as an integral part of the scientific picture of the “physical world”. Not only celebrated physicists of the 20th century such as Max Plank, John Wheeler, David Bohm, Niel Bohr, Erwin Schrödinger argued that consciousness is a fundamental property of our Universe but the new pleiad of scientists such as John Hagelin, Sir Roger Penrose,

Stuart Hameroff, Giulio Tononi, Christof Koch, Donald Hoffman, Robert Lanza embarked on their quest to put consciousness on the new solid scientific footing and dimensionality. Naturalism with its Newtonian mechanics and classical interpretation of reality is valid only within its domain of applicability, namely human perceptual reality, whereas quantum theory paints a drastically different picture. As Max Plank once said: "Science cannot solve the ultimate mystery of nature. And that is because, in the last analysis, we ourselves are a part of the mystery that we are trying to solve." Nothing is real for us until perceived, and all we know is our own inner experience. That's why scientists have to deal with the mystery of how there can be anything but a first-person reality. No matter how you slice it, everything leads back to the conscious observer. Do we live in 5D conscious observer space-time where the unified field of consciousness is the 5th dimension, space of all probabilities? Out of trillions first-person experiences available to you in any given moment somehow you get to experience only one of them thus collapsing all other potentialities except one which manifests in a Conscious Observer Moment (COM). A series of sequential COMs creates your continuous flow of time and your unitary sensation of "reality".

In a recent paper, published in PloS Biology, proposing the Two-Stage Model of Consciousness, researchers Michael Herzog and Frank Scharnowski argue that our conscious perception comes in discrete snapshots, "time slices", like 3D images flicking quickly

through a projector. This theory, as its name suggests, shows that consciousness is in fact developed in two stages – conscious and unconscious moments few hundred milliseconds long – on and off. With pen or laptop, we can construct extended patterns of thought and reasoning that we could never formulate with our bare brains. In writing, we are not simply recording our thinking but doing the thinking. Philosophers of mind Andy Clark, who formulated the Extended Mind Hypothesis, and David Chalmers, known for the Hard Problem of Consciousness, propose that mental states, such as beliefs and memories can also be located “externally”, as extended cognition. Andy Clark argues that humans are “natural-born cyborgs” – we commonly incorporate external tools into our daily routines of thinking and being – we might have overemphasized the exceptionalism of the human brain at the expense of the concept of mind. All throughout human history we designed tools, but tools designed us back by shaping our minds. Perhaps this new, technologically extended mind is something worth noticing. Over time, we tend to “outsource” more and more of our cognition to our technology. One could easily envision the Future of Networked Mind – boxes, wires, tires, keyboards, and crude mechanisms will disappear from sight while our technology keeps on minituarizing and blending with us and our environments up to the point when we’ll do most of our thinking on the “Cloud”. It follows that consciousness doesn’t arise from the brain activity, as some neuroscientists still believe, but rather “non-local” consciousness arises from quantum processes at large. To use the metaphor of our Information Age, consciousness is to humans as

the Cloud is to computers. One may come to realization that a basic building block of consciousness is not some kind of neural correlate but a discrete, “digital”, Conscious Observer Moment. COM is a self-collapse of the quantum wave function – a point in the infinity of probabilistic space, or as a quantum physicist Dr. John Hagelin refers to as the Unified Field – that’s how integrated information “feels” like when collapsing “the superposition” of all other potentialities.

Stuart Hameroff, M.D., Professor, Anesthesiology and Psychology, Arizona State University, was the first researcher to suggest that your stream of consciousness is in actuality a domino-like effect self-collapse of the wave function. This is what crystallizes your subjective reality by eliminating multiple other possibilities. According to Penrose-Hameroff’s Orchestrated Objective Reduction (Orch-OR) Model, “Consciousness is a process in the structure of the Universe, connected to the brain via quantum computations in microtubules”. Consciousness, or at least proto-consciousness, is theorized by them to be a fundamental, intrinsic property of the Universe, present even at the first moment of the Universe during the Big Bang. This quantum computational, holoinformational view of consciousness shows us directions toward a unified theory of consciousness. Once information is understood as an irreducible principle of the Universe with a status more fundamental than energy, matter, space and time, it becomes

the unifying principle, capable of connecting consciousness to the Universe as a whole, to the totality of space and time.

I'm inclined to consider consciousness not only intrinsic, (quantum nonlocal, holoinformational) to the world in which we live but also an emergent feature of the highly integrated networks, as consciousness evolves in stages of complexity since the Big Bang. As Guilio Tononi's Integrated Information Theory (IIT) implies, probably all complex systems – certainly all creatures with brains – have some form of consciousness. Another neuroscientist, Tononi's collaborator, Christoff Koch, sees IIT as promising because it offers an understanding of Panpsychism that fits into modern science. In an academic paper, Koch and Tononi make the profound statement that their theory “treats consciousness as an intrinsic, fundamental property of reality”.

Eminent physicist John A. Wheeler realized how important information is in relation to consciousness. Wheeler proposed an elegant information-participatory Universe that is a brilliant and insightful model of brain-mind-Cosmos interaction. With his famous “it from bit” concept he unites quantum information theory to consciousness and physics: “...every it – every particle, every field of force, even the space-time continuum itself – derives its function, its very existence, entirely – even if in some contexts, indirectly – from the apparatus-elicited answers to yes-or-no questions, binary choices, bits”. “It from bit” symbolizes the idea

that every item of the physical world has at bottom – at a very deep bottom, in most instances – an immaterial source and explanation; that which we call reality arises in the last analysis from the posing of yes-no question and the registering of equipment evoked responses; in short, that all things physical are information-theoretic in origin and this is a participatory universe”. While Wheeler emphasized bits at his time, it appears that intrinsically quantum-mechanical forms of information – now known as “qubits” – are more fundamental. In recent years a growing number of theorists have been exploring whether these curious quanta of information may hold the answer to combining quantum theory and general relativity into a quantum theory of gravity. In 1990, when Wheeler coined the phrase “it from bit” to encapsulate a radical new view of the universe – at the most fundamental level, all of physics has a description that can be articulated in terms of information – this new worldview received little support, but now in hindsight, we can see that it was truly visionary. Wheeler divided his own life into three parts. The first part he called “Everything is Particles.” The second part was “Everything is Fields.” And the third part, which Wheeler considered the bedrock of his physical theory, he called “Everything is Information.”

Max Tegmark, MIT’s astrophysicist, author of “Our Mathematical Universe”, puts forth consciousness as a mathematical pattern, a state of matter in classical terms, but information at a deeper level of reality, which he calls “perceptronium”. This is how our

integrated information “feels” like, when being processed in certain complex ways, from a certain vantage point. Consciousness is emergent and substrate-independent: it’s not just particles we’re made of but information patterns that really matter. Donald Hoffman, cognitive scientist at UC Irvine, who has developed The Interface Theory of Perception, points out: “Evolution has shaped us with perceptions that allow us to survive. But part of that involves hiding from us the stuff we don’t need to know. And that’s pretty much all of reality, whatever reality might be.” All organisms, from one-celled bacteria to humans, live in different perceptual realities. In a sense, any conscious agent lives in their own “virtual world”. Your body is a collection of trillions of cells and microorganisms. While a certain process in your body is “unconscious” to you, it is an interaction within the network of entangled conscious agents in your body, having their own conscious experience, at their own layer of existence.

The good news is that all these best theories of consciousness to date are not mutually exclusive but rather mostly complementary. In an effort to combine the theories, one might hypothesize that COMs are points in the probabilistic space, and the totality of all Conscious Observer Moments in the quantum multiverse form the Unified Field, placing the current state of human consciousness into the 5D “rule set”. A distinct possibility of higher dimensional observer realities remains to account for up to 10^{500} potential universes of String Theory. Could our own future Strong AI

computing all probabilistic outcomes to the minute details be, in a sense, a 6th dimensional being? Although this “Conscious Observer Moment” Hypothesis, has never been officially articulated from this particular perspective and far from accepted by mainstream science, it’s not some kind of wild metaphysical speculation – it’s confirmed time and again by quantum physics experiments. It looks like a radically novel approach, and currently available for claiming the credit for, if developed into a more comprehensive theory. Some could point out that there’s no place for the first-person subjective experience in science. However, mathematics and logic are inexorably pushing science to a more post-materialist stance, whereas perhaps developing a mathematically precise model of consciousness, based on COMs, is needed. After all, it is now widely-accepted “non-local”, holographic 4D space-time, where all points of space-time are equally real and eternally present – be it 1 million years in the past or 5 million years into the future. Baffled about our non-linear nature of reality? See my recent article for more detailed explanation (Misconception #1): How soon will we be able to reverse-engineer human consciousness in order to create artificial consciousness, or perhaps, larger consciousness system could fill any container with a sufficiently intergated network? When could we safely upload our own consciousness to the alternative computational substrate? Once we crack our “neural code”, we might discover some sort of algorithmic or meta-algorithmic sequence of causality-driven COMs, which creates our subjective stream of consciousness. For reductionist delight, Digital Physics would also demonstrate that

any COM must be considered as data, information, so a stream of consciousness, a series of sequential COMs that creates your subjective reality, is merely a data stream. As derived from Einstein's General Relativity Theory, all 3D space and all time exist now, as if on "hard drive", but the 5th dimension is needed to validate all the probabilities that can logically happen in static 4D space-time, which, by the way, scientists refer to as the "Block Universe". For example, suppose you are in San Francisco today, having an appointment at the office located at 1 California St., on 23rd floor, at 4 pm – so we just defined approximation of a "physical system" in 4D space-time. The 5th dimension is needed to pinpoint a COM out of an infinitely large stack of probable COMs perceived by you's who is having a meeting today in "parallel San Franciscos". Each COM represents a point in the probability distribution, i.e. a certain probability of you havng a certain interaction during your meeting, having a certain mental state, and so on. Our "now" is a moving point within the 5th dimensional probability space. "Is there some sort of visual aid to help picture that 5th dimension?" – you might ask. In fact, Rob Bryanton has created the following video for this concept – "Imagining the 5th dimension": Video: 10thdim by Rob Bryanton – "Imagining the 5th Dimension" As a big proponent of Digital Physics, as you probably know by now, I would presume that information could be projected into 5D observer reality from the 2D surface of information-storing "holographic plate" at the distant cosmological horizon, according to the Holographic Principle, as one of my other conjectures, but that's a good topic for another day.

The COM Hypothesis also might offer a possible solution to the famed Fermi's Paradox – why, in the vastness of space, don't we see the signs of intelligent alien life? The answer may be surprisingly straightforward – alien life has evolved in an alternate conscious observer space-time, i.e. parallel universe. The Universe that we observe is “specific” to our lineage of biological life with a so-called “Common Observer” effect. There may be billions, if not trillions, of alien civilizations in our Milky Way galaxy alone, all around us, but currently imperceptible to us. As far as I know, this solution to the Fermi's Paradox was first proposed by Dr. Robert Lanza in his Biocentric Universe Theory. Video: Biocentric University – The Biocentric Universe Model Biocentrism is another elegant theory of consciousness. The Biocentric Universe Theory by Dr. Robert Lanza, a scientist in the fields of regenerative medicine and biology, accounts for consciousness being fundamental to our Universe. It is consciousness that creates the material universe, not the other way around. I'd argue, though, once we add artificially conscious agents, this theory would need to be renamed, like Mindcentrism or something of the sort. There's a certain mechanism in biology, called quantum tunneling in photosynthesis, that might help explain why we get to perceive only one subjective timeline with maximum “existential opportunity” all along, even though we don't necessarily see it that way at first. The Biocentric Universe also makes the Quantum Immortality hypothesis more compelling. Read my related article here: Consciousness and time are intimately interwoven. Time is change (between static 3D universes), 4th dimension. The flow of

time is a rate of change, computation, and conscious awareness is a stream of realized probabilistic outcomes. “The flow of time doesn’t exist outside of consciousness“, says Hameroff, “The flow of time is an illusion”, muses Tegmark. In other words, 1 second doesn’t exist, but 10 COMs do exist, duration doesn’t matter, information does matter. Human life, just like anything else in our computable multiverse, may be quantified – about 3 billion heartbeats, 50 billion COMs, 10^{16} operations per second by a human brain. Seth Lloyd, MIT’s professor of mechanical engineering and physics, argues that our Universe (or rather quantum multiverse) is a giant quantum computer, performing 10^{106} operations per second (smarter than all humans combined by orders of magnitude?), computing all possible paths from start to finish with all potential timelines. Ultimately, consciousness might be computable, according to the Computational Hypothesis of the brain function by a neuroscientist David Eagleman, measurable as in Tononi’s IIT (measure dubbed phi), quantifiable via feedback loops, as proposed by a theoretical physicist Michio Kaku, and via hierarchical “pattern recognizers”, as writes Ray Kurzweil in his book “How to Create a Mind: The Secret of a Human Thought Revealed”. While a renowned British physicist Sir Roger Penrose has introduced a “non-computable” element of consciousness, like understanding and qualia, the Conscious Observer Moment hypothesis fills the gap between the unified field of consciousness and the computational functionality of the brain with more argumentation in my coming book. Human-level Artificial Intelligence and above, which we call AGI or Strong AI, will, one day, be endowed with their own

subjectivity at digital timescales, with, perhaps, thousands, if not millions of COMs per second as opposed to only 10–30 COMs/sec. for a human. Also, “the larger consciousness system” (whatever it may be) would help “compute” the Penrose “non-computable” element of consciousness which he defines as our human understanding, by linking a sufficiently intergated network (say, AGI) to the fundamental space-time geometry matrix (Tononi calls it “qualia space”) and “subjectivity emergence” should take place. Deeper understanding comes when a conscious agent gets to perceive numerous patterns in complex environments and analyze that complexity from the multitude of perspectives. As Isaiah Berlin once said: “To understand is to perceive patterns”. So any human-level artificially intelligent agent would be endowed with some sort of inner experience of their own, however, substantially different from that of an ordinary biological human. Influenced by the concepts of Digital Physics in his work Tom Campbell, NASA physicist, author of the “My Big T.O.E.”, contends that our information-based reality is but virtual, probabilistic and subjective. Campbell argues that our reality has evolved from what he calls a “Digital Big Bang”. Our subjective experience is a stream of realized probabilities. “If you understand the Double Slit experiment, you understand how our reality works”, says Campbell, “Everything we do is not much different from the Double Slit experiment. Reality equals INFORMATION.” A swiss AI researcher Jurgen Schmidhuber hypothesizes that this universe and your own life are run on a very simple and fast program computing all logically possible universes. However, it doesn’t make you

insignificant in the “Grand Scheme of Things”, because in order to compute your whole life separately with all its “ups and downs”, every fleeting thought, it would take enormous computing power and would be an incredibly difficult task even for the most advanced computers. Without you, the whole system would be incomplete and could fail! If you were a “programmer” of our beloved world, you would have created it as a Virtual Reality and had access to any observer reality experiences throughout the whole history of the multiverse. In his paper “The Physical World as a Virtual Reality”, Brian Whitworth introduces the concept of Quantum Realism which posits that the quantum world is real and generates the physical world as an interface, i.e. a virtual reality. You could embody any living creature or historical personage, and variations thereof, in any epoch, any planet, or universe, with any initial conditions, for that matter. That would be effectively your avatar in such simulated reality. See my article with elaborations on the Simulation Hypothesis and probabilities we inhabit a Matrix-like world, here: if consciousness is fundamental to our Universe, as I concur with the scientists, mentioned in the article, then a conscious observer should be included in our models, and one of the most likely places (as in String Theory) would be the probabilistic space where our human subjective experience takes place from a certain vantage point, orthogonal to static 4D space-time. Digital Physics, with information as the basis for our reality, often undercuts or overlaps String Theory, but seemingly, has a more parsimonious model of the workings of the quantum multiverse as well as inflationary multiverse. It’s just better

physics!-by Alex Vikoulov

Read more at: <https://abzu2.com/the-unified-field-and-the-quantum-nature-of-consciousness/>

POLITICS AND SOCIETY

Mind matters: A new approach to consciousness and contemplation

Science still can't explain what in us groans at the alarm clock, why we're gladdened by a carolling magpie, or like the smell of coffee.

This riddle – what is consciousness? – is sometimes called the “hard question”, because despite advances in brain mapping and neuroscience, the nature of consciousness remains a mystery.

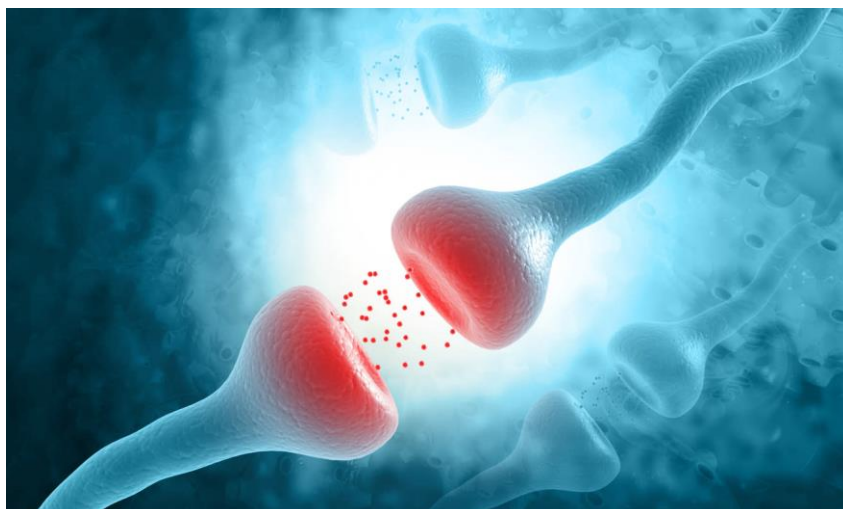
“We don't know how firings of neurons in the brain give rise to our subjective experience of the world,” says philosopher Jakob Hohwy.

“We can imagine a computer that's wired up just like a brain. We can also easily imagine that computer is not conscious. It's just the firing of neurons. It's very hard to make the bridge from firings of neurons, electrical discharges between the cells, and then, what makes you, you.”

Professor Hohwy studies the science and philosophy of consciousness in his Cognition and Philosophy Lab. He'll also head Monash University's new [Centre for Consciousness and Contemplative Studies](#), which has received \$12 million in philanthropic funding from Martin and Loreto Hoskings' Three Springs Foundation.

The centre, due to open in early 2022, will be led by philosophers and humanities researchers and house neuroscientists, psychologists, and medical doctors.

It will be a leading research centre for consciousness and contemplative studies, teaching contemplative practices to students and the broader community, and will also conduct interfaith dialogue.



“We don’t know how firings of neurons in the brain give rise to our subjective experience of the world,” says Professor Jakob Hohwy.

A philosophical and physical problem

Contemplative practices are being studied alongside consciousness, because the ways in which they change our physical and emotional states is “both a philosophical problem, and a mind/body problem”, Professor Hohwy says.

Philosophers have long tried to explain what in us gives rise to subjective experience, he says.

“And it’s also now increasingly a scientific question ... Neuroscientists and psychologists are trying to explore the brain-basis of consciousness.”

Meditation and contemplative practices are also important in most religious traditions. Meditation is integral to Buddhist practice, for instance, and has also informed Buddhist philosophical ideas about consciousness, says philosopher and Buddhist scholar Monima Chadha.

“In Buddhism, these two things are intimately connected. They’re not studying consciousness and doing meditation, they’re thinking of the study of consciousness as providing the theoretical background for these meditative practices – why they work, and all of that,” she says.

“Meditation is not an investigative method leading to new discoveries about the mind. The Buddhist approach is premised on the idea that meditative practice serves to turn principles like impermanence, no-self, that are proven through scriptural study and rational inquiry into objects of experience.

"In this sense, meditative understanding is continuous with, and dependent upon, preceding philosophical analysis; it has no independent epistemic value of its own," she says.

"It's very unusual for anyone in consciousness science or research to think that there could be any change in any consciousness state without some change in some brain state."

Can science alone investigate this paradox?

"It's a good question, because I think there's a quite strong feeling that when we do the neuroscience of meditation and consciousness that we're trying to reduce away," experiences "that can't be materialised or reduced," Professor Hohwy says.

The challenge for the centre is to find ways of researching these mysteries, in a way that honours the complexity of human experience and the scientific method.

Spiritual traditions have long acknowledged the difficulty.

According to the Buddhists, meditation should lead to the attainment of "four immeasurables" – loving kindness, empathy, compassion, and equanimity – Dr Chadha says.

She hopes the centre can "devise ways of thinking about how they might be measured".

Could meditating for, say, 10 minutes a day, help one become more compassionate, for instance, and can this be assessed in a lab?

Where psychology and science meet

Professor Hohwy envisages engaging psychologists and cognitive scientists to collaborate with this task.

"It's very unusual for anyone in consciousness science or research to think that there could be any change in any consciousness state without some change in some brain state," he says.

“There’s a materialist foundation for this, but that’s not the same as saying that you can explain every subjective aspect of consciousness by just listing changes in neurons that fire certain ways. That’s where the interesting philosophical work is done. What are the limits to our capacity of explaining subjective experience?”

He says Dr Chadha’s background in Buddhism has been useful in placing mindfulness practices in a historic and philosophical context, rather than simply seeing it as “a product, an app on the phone”.

“The ethical side, the interpersonal side of this, is really important and exciting, as far as I’m concerned,” Dr Chadha says.

The centre will also look at “other faith traditions and secular and humanist traditions, to see what the contemplative practices look like there”, he says.

Scientists Closing in on Theory of Consciousness

Probably for as long as humans have been able to grasp the concept of consciousness, they have sought to understand the phenomenon.

Studying the mind was once the province of philosophers, some of whom still believe the subject is inherently unknowable. But neuroscientists are making strides in developing a true [science of the self](#).

Here are some of the best contenders for a theory of consciousness.

Cogito ergo sum

Not an easy concept to define, consciousness has been described as the state of being awake and aware of what is happening around you, and of having a sense of self. [[Top 10 Mysteries of the Mind](#)]

The 17th century French philosopher René Descartes proposed the notion of “cogito ergo sum” (“[I think, therefore I am](#)”), the idea that the mere act of thinking about one’s existence proves there is someone there to do the thinking.

Descartes also believed the mind was separate from the material body — a concept known as mind-body duality — and that these realms interact in the [brain’s pineal gland](#).

Scientists now reject the latter idea, but some thinkers still support the notion that the mind is somehow removed from the physical world.

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But while philosophical approaches can be useful, they do not constitute testable theories of consciousness, scientists say.

"The only thing you know is, 'I am conscious.' Any theory has to start with that," said Christof Koch, a neuroscientist and the chief scientific officer at the Allen Institute for Neuroscience in Seattle.

Correlates of consciousness

In the last few decades, neuroscientists have begun to attack the problem of understanding consciousness from an evidence-based perspective. Many researchers have sought to discover specific neurons or behaviors that are linked to conscious experiences.

Recently, researchers discovered a brain area that acts as a kind of [on-off switch for the brain](#). When they electrically stimulated this region, called the claustrum, the patient became unconscious instantly. In fact, Koch and Francis Crick, the molecular biologist who famously helped discover the [double-helix structure of DNA](#), had previously hypothesized that this region might integrate information across different parts of the brain, like the conductor of a symphony.

But looking for neural or behavioral connections to consciousness isn't enough, Koch said. For example, such connections don't explain why the cerebellum, the part of the brain at the back of the skull that coordinates muscle activity, doesn't give rise to consciousness, while the [cerebral cortex](#) (the brain's outermost layer) does. This is the case even though the cerebellum contains more neurons than the cerebral cortex.

Nor do these studies explain how to tell whether consciousness is present, such as in brain-damaged patients, other animals or even computers. [[Super-Intelligent Machines: 7 Robotic Futures](#)]

Neuroscience needs a theory of consciousness that explains what the phenomenon is and what kinds of entities possess it, Koch said. And currently, only two theories exist that the neuroscience community takes seriously, he said.

Integrated information

Neuroscientist Giulio Tononi of the University of Wisconsin-Madison developed one of the most promising theories for consciousness, known as integrated information theory.

Understanding how the material brain produces subjective experiences, such as the color green or the sound of ocean waves, is what Australian philosopher David Chalmers calls the "hard problem" of consciousness. Traditionally, scientists have tried to solve this problem with a bottom-up approach. As Koch put it, "You take a piece of the brain and try to press the juice of consciousness out of [it]." But this is almost impossible, he said.

In contrast, integrated information theory starts with consciousness itself, and tries to work backward to understand the physical processes that give rise to the phenomenon, said Koch, who has worked with Tononi on the theory.

The basic idea is that conscious experience represents the integration of a wide variety of information, and that this experience is irreducible. This means that when you open your eyes (assuming you have normal vision), you can't simply choose to see everything in black and white, or to see only the left side of your field of view.

Instead, your brain seamlessly weaves together a complex web of information from sensory systems and cognitive processes. Several studies have shown that you can measure the extent of integration using brain stimulation and recording techniques.

The integrated information theory assigns a numerical value, "phi," to the degree of irreducibility. If phi is zero, the system is reducible to its individual parts, but if phi is large, the system is more than just the sum of its parts.

This system explains how [consciousness can exist to varying degrees](#) among humans and other animals. The theory incorporates some elements of panpsychism, the philosophy that the mind is not only present in humans, but in all things.

An interesting corollary of integrated information theory is that no computer simulation, no matter how faithfully it replicates a human mind, could ever become conscious. Koch put it this way: "You can simulate weather in a computer, but it will never be 'wet.'"

Global workspace

Another promising theory suggests that consciousness works a bit like computer memory, which can call up and retain an experience even after it has passed.

Bernard Baars, a neuroscientist at the Neurosciences Institute in La Jolla, California, developed the theory, which is known as the global workspace theory. This idea is based on an old concept from [artificial intelligence](#) called the blackboard, a memory bank that different computer programs could access.

Anything from the appearance of a person's face to a memory of childhood can be loaded into the brain's blackboard, where it can be sent to other brain areas that will process it. According to Baars' theory, the act of broadcasting information around the brain from this memory bank is what represents consciousness.

The global workspace theory and integrated information theories are not mutually exclusive, Koch said. The first tries to explain in practical terms whether something is conscious or not, while the latter seeks to explain how consciousness works more broadly.

"At this point, both could be true," Koch said.

What are the four main theories of consciousness?

In the early days of modern consciousness science, back in the 1990s, researchers focused on identifying empirical correlations between aspects of conscious experience and properties of brain activity. This search for the “neural correlates of consciousness” was motivated in part as a response to concerns, pervasive through much of the 20th century, that consciousness lay beyond the remit of science altogether. But despite its many successes, this approach is limited because correlations aren’t explanations, no matter how many you identify.

In recent years, however, there has been a blossoming of neurobiological theories of consciousness. This is a sign of the field’s growing maturity, because it is only when couched in terms of a theory that experimental findings can deliver a satisfactory understanding of [consciousness](#).

There are currently four main theoretical approaches in consciousness science. According to higher-order theories, a mental state is conscious when another mental state – higher up in a hierarchy – says that it is. For these theories, the devil is in the detail about what kinds of “higher-order” representations count for consciousness.

Global workspace theories propose that mental states are conscious when they are broadcast widely throughout the brain, so that they can be used to flexibly guide behaviour. A good way to think about global workspace theory is that consciousness depends on “fame in the brain” – conscious mental states have access to a wide range of cognitive processes in ways that unconscious mental states don’t.

Take our [online consciousness course](#), where experts Anil Seth, Nicola Clayton and Christof Koch reveal neuroscience’s deepest mystery

These two theories focus on functional aspects of consciousness and emphasise frontal (at the front) and parietal (towards the back and off to the sides) brain regions. By contrast, [integrated information theory](#) focuses on phenomenological aspects of consciousness – what it is like, experientially – and proposes that consciousness is associated with a posterior cortical “hot zone”, located towards the back of the brain and including parts of the parietal, temporal and occipital lobes. According to this theory, consciousness depends on the ability of a system to generate integrated information.

The fourth approach, known as predictive processing, is more indirect, being used primarily to build explanatory bridges between aspects of consciousness and their underlying neural mechanisms. There are several examples of this approach, ranging from those which associate consciousness with top-down signalling in the brain to my own [“beast machine” theory](#). For these theories, the idea is that by progressively accounting for diverse aspects of consciousness, they can ultimately shift from being theories for consciousness science towards being theories of consciousness itself.

A New Science of Consciousness?

Mankind is gaining a wholly new understanding of the mind and of reality itself. Intriguingly, these discoveries were intimated in the ancient *Upanishads*.

By Varun Khanna, India

The study of consciousness has been of interest to scientists, philosophers and laypeople alike for millennia. But the struggle to define consciousness has been more perplexing than productive, due to its intangible nature.

How can we describe something that we cannot perceive with our senses? We can know what it is like to perceive, and what it is like to have consciousness, but for thousands of years scientists have failed to pinpoint with any measure of certainty what consciousness actually is. Furthermore, when attempting to study consciousness, the method by which we can study it is elusive. Is it necessarily limited to the philosophical realm? Can there be a hard science of consciousness?

By current empirical scientific standards, it is difficult to study consciousness objectively and holistically because either we do not know enough about the brain or there are seemingly nonphysical components to consciousness that are rendered totally subjective by the scientific method. We can ask: Must the methods employed to study consciousness be borrowed from the natural scientific disciplines, like biology, chemistry or physics, or can it be studied by the psychological or philosophical disciplines, with an independent epistemology and methodology? And do we know that the questions we are asking are valid, or are we missing something altogether?

The very definition of consciousness is a challenge, because different worldviews use similar terms to mean disparate things. Humans may have some common experience of being conscious, but the definition of consciousness and its origin differ, based as they are on divergent philosophies. In the West alone, varying theories regarding consciousness have been proposed by philosophers in the last several centuries—from Descartes (1596-1650) and Spinoza (1632-1677) to Nagel (b. 1937) and Chalmers (b. 1966). Today we have multiple distinct and arguable philosophies of consciousness.

It may be argued that a sufficiently similar definition has allowed us to begin performing meaningful research on consciousness. Yet, the field of consciousness studies clearly enjoys no true consensus. On that ambiguous note, we begin a review of the various contemporary theories, theories which will lead us compellingly into the main subject of our investigation—the Upanishadic approach to consciousness.

When studying consciousness from a Western scientific perspective, there appear to be two general approaches. One is an empirical method, which asks questions of an evidence-based kind, seeking to locate consciousness in a specific region of the brain, or to identify consciousness as a product of brain activity. This approach asks questions like “What parts of the brain are associated with conscious experience?” or “What does brain activity look like in different states of consciousness, like dream sleep and dreamless sleep?” or “When does a conscious experience arise, in relation to the associated neurological change?” Such a third-person objective method of study can reveal physical changes and characteristics in exquisite detail; it is useful in understanding the brain and its relationship to our conscious experiences, but it cannot examine causality between consciousness and changes in the brain, for example, or tell us anything about the fundamental nature of consciousness. Similarly, identifying the seat of “fear” in the brain can tell us nothing about the nature of fear itself.

The other general approach to the study of consciousness in the Western scientific model is a first-person method. This involves self-observation and is psychological in nature. Questions like “How does it feel to see the color blue?” or “What is it like to have a nose?” may be asked through this approach. This method reaches more into the subjective experience of being conscious, but it can at best only reveal qualities of being conscious, such as being happy, sad or curious. It is silent about the nature of consciousness itself. This method is useful in understanding the relationship between various stimuli and their associated feelings, or even the feeling of having various qualities, like joyfulness or tallness, but reaches its limit when we ask, “What is the nature of that which is experiencing these feelings?”

In the Western philosophical world, several theories about the nature and properties of consciousness have arisen over the centuries. For example, the theory called “substance dualism” holds that there are two distinct substances that cannot be reduced to any common existential ground: matter and consciousness. This theory, then, considers consciousness a nonphysical substance. Another theory, “property dualism,” proposes that consciousness evolves as a property of complex physical systems, yet (as in substance dualism) is itself nonphysical. A third methodology, “functionalism,” states that consciousness is just a function of the brain, and is not a separate substance.

The current popular paradigm within the Western scientific world is that of physicalism, which assumes that only the physical world exists, and that consciousness is a product of brain activity, inseparable from the brain. When the brain dies, consciousness ceases. Though this theory is currently in fashion, it is but one of many theories of consciousness that have come in and out of fashion. As Max Velmans observes, “Being out of current fashion does not mean they are entirely wrong.”

India’s Contribution

Within the world of Indian philosophies, there are even more ways to look at consciousness. According to Advaita Vedanta, a system of non-dualism, the entire perceived world is an “illusion” (*maya*) and, in fact, only consciousness (*chit*, *chaitanya*, *jnana*) exists; instead of being bodies with a consciousness, we are consciousness itself, inhabiting an illusory body, due to false identification (*adhyasa*) with the illusory world (*samsara*).

The experience common to all worldviews is that of being conscious. As Descartes pointed out, one finds it difficult to deny one’s own conscious existence. It follows that the study of consciousness is one of humankind’s most fundamental investigations, a quest confounded by the highly elusive nature of its subject.

Even though consciousness has finally moved to the forefront of 21st-century scientific inquiry, from a philosophical perspective the current methods of inquiry seem incapable of fully encapsulating the object of their study: we are using physical methods to pursue consciousness, and these methods can only reveal physical properties. If, as many believe, there is more to consciousness than electrical impulses and chemical interactions within the brain, then current scientific methods will prove insufficient in revealing the nature of consciousness.”

In the Upanishads

The *Upanishads*, written thousands of years ago in the Sanskrit language, can serve as new reference texts for this exploration, because the nature of reality, which includes the study of consciousness, is of vital interest to the ancient Indian philosophical texts. The *Upanishads* assert that consciousness is not limited to the physical realm, but rather pervades the physical realm, just as space pervades any object with a form. If this is the case, then a research method that reveals only physical properties will necessarily fail in this quest.

An illuminated palm-leaf, hand-written in Sanskrit

The *Upanishads* are the philosophical capstones of the *Vedas*. Since *Veda* means “knowledge,” the *Upanishads* are also traditionally referred to as Vedanta, or the “culmination (*anta*) of knowledge (*veda*).” These texts inquire into the nature of truth, consciousness and happiness, boldly questioning the commonly held notion of happiness residing in finite, worldly pleasures.

It is useful to examine a few instances where the *Upanishads* grapple with consciousness, both implicitly and explicitly. Through these examples we will attempt to show how the *Upanishads* address consciousness in a broader context, citing its definitions and the means and purposes of knowing it. Before highlighting these teachings, we must understand that the *Upanishads*, like many ancient texts, are cryptic. Quoting and translating them directly is not always enough to understand the full meaning; we must apply careful reasoning to extract meaning from them.

For that reason, numerous scholars have commented on them over the millennia. We turn for insight to Shankara, one of the most celebrated commentators on the core Vedantic texts. With his help, we explore what the *Upanishads* teach about consciousness. The interested reader will want to explore beyond this handful of examples.

The *Chandogya Upanishad* is among the more ancient. Its sixth chapter contains a story about the student Svetaketu and his teacher and father, Uddalaka. Svetaketu returns home from his studies at the gurukula, arrogantly convinced that he knows everything worth knowing. Uddalaka challenges him, “Did you ask about that teaching through which the unheard becomes heard, the unfathomed becomes fathomed, and the unknown becomes known?” Svetaketu, unfamiliar with this instruction, asks his father to reveal it to him. Uddalaka obliges, and commences

saying, “In the beginning, all this before you was Existence alone, only One, without a second.”

Saying “Existence” (*sat*) here, according to Shankara, implies a subtle, all-pervasive thing, which is without distinctions, singular, without parts, and is Consciousness. This word, *sat*, he states, is known from all the *Upanishads*. In other words, Existence is the primal substance from which the entire universe, made up of names, forms, qualities, actions, space and time, arises. But that is not to say that Existence is separate from creation, for creation is just Existence qualified by names and forms. Existence must pervade all things that exist, for if it does not, then those things it does not pervade would not exist. It must be without distinctions, for Existence is a binary—there is no range of existence. It can be said to be singular for the same reasons already mentioned, for if there were more than one existence, the question must still be asked, “Do they exist?” If they do, then they are within the realm of a higher, singular Existence.

Uddalaka proceeds to explain that *sat*, Existence, envisioned itself as becoming many, and it was this vision from which the universe arose. Here, an interesting discussion takes place. The very fact of Existence’s envisioning, according to Shankara, is justification enough to declare that Existence is also Consciousness (in other *Upanishads* called *chit*, or *jnana*). How can this be so? The *Upanishads* already established that Existence is singular, without a second, and beyond qualification in the beginning. Then how could it perform the action of envisioning? To do so it must be conscious. But being conscious implies a quality of Existence, and Existence has already been stated not to have qualities.

From this it follows, he concludes, that Existence does not *have* consciousness—it simply is Consciousness. How can it be said that these aspects are one and the same entity? If Existence were separate from Consciousness, then Consciousness, or the ability to envision, would not exist. And if Consciousness were separate from Existence, then Existence would not have the ability to envision. Thus, according to Shankara, Consciousness and Existence must be synonyms for each other.

Another text drives home the identity, the oneness, of Existence, Consciousness and Brahman: the *Taittiriya Upanishad*, which states, “Brahman is truth, knowledge and infinite.” Shankara sheds some light on this terse statement. He writes:

As for *satya*, a thing is said to be *satya*, true, when it does not change the nature that is ascertained to be its own; and a thing is said to be unreal when it changes the nature that is ascertained to be its own. Hence, a mutable thing is unreal... So

the phrase *satyam Brahma* (Brahman is truth) distinguishes Brahman from unreal things.

From this it may follow that (the unchanging) Brahman is the (material) cause (of all subsequent changes); and since a material cause is a substance, it can be an accessory as well, thereby becoming insentient, like earth. Hence it is said that Brahman is *jnanam*. *Jnana* means knowledge, consciousness. The word *jnana* conveys the abstract notion of the verb (*jna*, to know); and being an attribute of Brahman along with truth and infinitude, it does not indicate the agent of knowing.

To the rishis, the authors of the *Upanishads*, an “end” or a “theory” was meaningless without a method of attaining it. So how can Consciousness be known? In answer to this question, the *Aitareya Upanishad* lists the ways in which Consciousness (*prajnana*), the all-perceiver, can be perceived; that is, the forms in which the effect of Consciousness can be witnessed. Here, the names and attributes of Consciousness are mentioned:

It is this heart (intellect) and this mind... It is sentience, rulership, secular knowledge, presence of mind, retentiveness, sense-perception, fortitude, thinking, genius, mental suffering, memory, ascertainment, resolution, life-activities, hankering, passion and such others. All these, verily, are the names of Consciousness. ...The universe has Consciousness as its eye, and Consciousness is its end. Consciousness is Brahman.

A logical question was first asked: We often mention Consciousness, Existence or Brahman as a final Truth, but how can we actually know it? Any activity related to living, knowledge and emotion is referred to here. Where there is life, there can be seen the effects of Consciousness. Through these effects, Consciousness can be known, for it is the principle that underlies them all. But does this just mean life as we know it? The *Upanishad* does not stop there. Those creatures that “do not move” are also included under the purview of Consciousness, which indicates that even inert objects are included as effects of Consciousness. The *Upanishad* goes on to state that the entire universe has Consciousness as its substratum and as its goal. Meditation on these effects of Consciousness brings one to the knowledge of Consciousness itself.

How to Realize Immortality

How else can one achieve the realization of Consciousness? In the *Katha Upanishad* it is said, “The unintelligent people follow the external desires. They get entangled in the snares of the widespread death. Therefore, the discriminating people, having known what true immortality is in the midst of impermanent things, do not pray for anything here.” Reducing one’s desires for objects of the external world is also a means to this realization.

Finally, King Yama, or Lord Death, tells Naciketas in the *Katha Upanishad*, “Arise, awake, and learn by approaching the excellent ones.” In the *Mundaka Upanishad* it is said, “For knowing that Reality, he should go, with sacrificial [twigs] in hand, to a teacher versed in the *Vedas* and absorbed in Brahman.” Value is placed upon learning directly from a teacher who is already a knower of Brahman, because according to Shankara, no means of knowledge pertaining to worldly things can be a valid means of knowing Brahman, for its scope must necessarily be limited to what can be perceived.

But then, why should one strive to achieve this realization? In Indian philosophical literature, no inquiry takes place without a clear purpose in mind. So what is the purpose of knowing Brahman? The purpose of this inquiry becomes clear at the end of the *Aitareya Upanishad*, when the text declares, “Consciousness is Brahman.” In fact, nothing other than Consciousness truly exists. What is the practical application of this knowledge for a person? The final section makes it clear:

Through this Self that is Consciousness, he ascended higher up from this world; and, getting all desires fulfilled in that heavenly world, he became immortal. He became immortal.

Immortality is the goal. Immortality is the end. Identification with Consciousness means that one is finally identified with Brahman, with Truth Itself, the unchanging, eternal Reality, and is freed from the suffering of limitation. This immortality, or identification with Brahman, gives rise to fearlessness and bliss. The *Kena Upanishad* corroborates this attainment:

It (Brahman) is really known when It is known with (i.e. as the Self of) each state of consciousness, because thereby one gets immortality. (Since) through one’s own Self is acquired strength, (therefore) through knowledge is attained immortality.

The *Brihadaranyaka Upanishad* also verifies this ideal: “This (Self-knowledge) is (the means of) immortality,” and also, “I believe that Self alone to be the immortal Brahman... Knowing (It), I am immortal.”

What is that person like who sees this Consciousness in all? How does he behave? The *Katha Upanishad* offers a simple description: “He is *akratu*, without desires.” Desirelessness is the quality of the man who can see the infinitude of the Self. If he knows himself to be infinite, then nothing can possibly be desired, for he already has and indeed is everything. The *Taittiriya Upanishad* describes him as fearless: “The enlightened man is not afraid of anything after realizing that Bliss of Brahman, failing to reach which, words turn back along with the mind. Him, indeed, this remorse does not afflict: ‘Why did I not perform good deeds, and why did I perform bad deeds?’”

What is consciousness?: The human eye is but one of the pathways of perception being explored by scientists.

With all this in mind, the Upanishadic understanding of Consciousness may be summarized as follows: Consciousness is the underlying principle of awareness, the ultimate witness, of all of creation and beyond. It is one with the fundamental Existence of all things, and is one with Brahman, the most subtle substratum of all. It is the Self. The *Upanishads* do not philosophize about some “other,” but rather expound the Self that is within all of us, available for realization here and now. It is the “I” within all.

How can Consciousness be realized? By meditating upon its effects in the world and knowing them to be nothing but the effects of a higher Consciousness. It is realized through the cessation of desire for finite objects, but also the inculcation of desire for knowledge of that through which everything becomes known. It is realized by finding a teacher of this knowledge who is well versed in the *Vedas* and established in knowledge of Brahman.

Why should one strive to realize Consciousness? To gain immortality. To befriend infinite bliss. To perceive the ultimate knowledge. To transcend duality. Consciousness, one with Existence, one with Brahman, is the cause of the universe, and to know it implies, according to the *Chandogya Upanishad*, knowledge of the nature of everything. To know Consciousness is to be free from the sorrow of suffering and to be free from the cycle of birth and rebirth. It is liberation. To know Consciousness, according to the *Upanishads*, is to be free of the suffering associated with finitude forever by identifying oneself with the infinite, immutable, immortal glory of Brahman.

The Evolution of Science 101

Remember when European science was adamant that the earth is flat? That notion, so aligned with human observational skills of the day, was disproved some 2,400 years ago. It took another 1,800 years before Copernicus convinced most that the Sun, not the Earth, was at the center of the universe. And here we are, 500 years after that disorienting revelation, about to be shocked again by science—this time, the science of the mind.

The old science (still alive and well and in the majority) tells us life begins with protobacteria, evolves to single-celled then multicellular organisms, into (OK, this is Simple Science) fungi, plants, protozoa, insects, worms, reptiles, and mammals such as Homo sapiens in all his cerebral glory. With man came the cerebral cortex, that complex mechanism inside of our skull which, they say, creates consciousness. Old-school scientists don't quite know what consciousness is, but they are certain that it is an epiphenomenon of matter and when the brain dies, consciousness ceases to exist.

The new science of consciousness retorts, “No, no. The brain does not create consciousness. Consciousness creates the brain, and continues after brain death.” Evidence of the nonmaterial existence of consciousness is drawn from near-death experiences, out-of-the-body experiences, non-local awareness, reincarnational experiences and the wild world of quantum physics, where even particles separated by great distances seem to be aware of each other in some mysterious way.

The new science is in its infancy. Like Copernicus and Galileo, its acolytes are pioneers who suffer the derisive slings and arrows of the die-hard physicalists—those who hold to a material source for consciousness. But there are many who are convinced that, like the Pope who threw Galileo into a cell for his heliocentric heresies, the nay-sayers will ultimately be proven wrong and a new science of the mind will emerge, setting the stage for the greatest of all discoveries. Spoiler alert: some have already made those discoveries. Check out the conferences held every two years in Tucson, Arizona: www.consciousness.arizona.edu/archived.htm

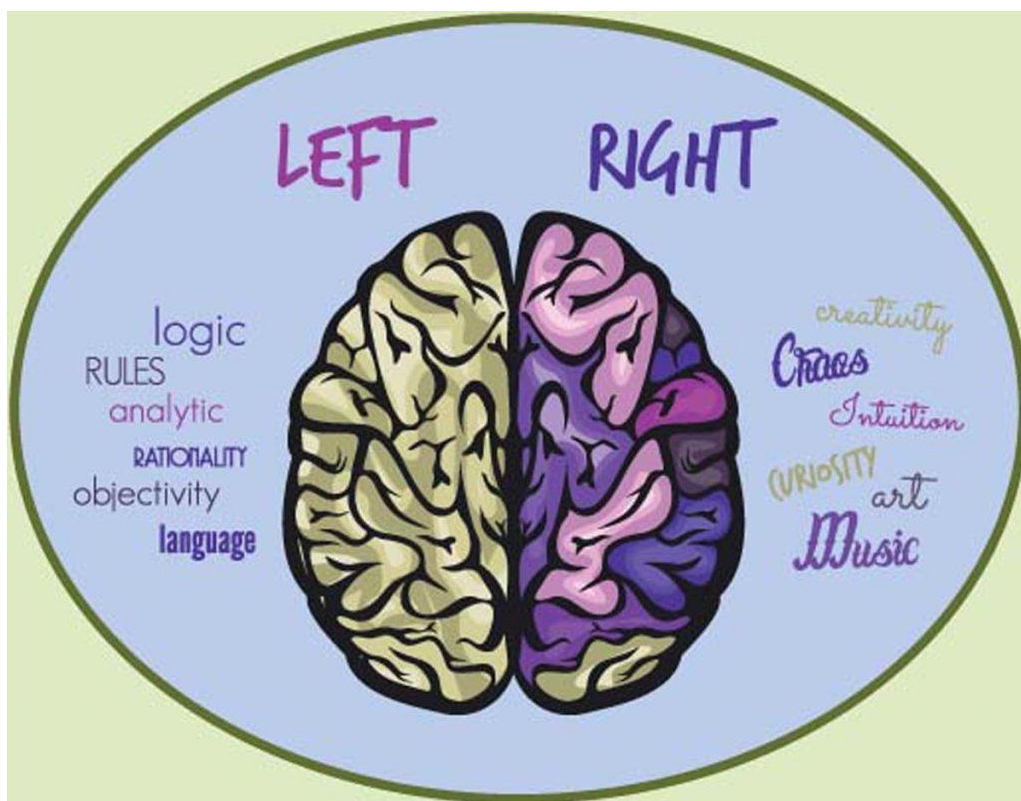
Brain & Mind

Glimpsing the New Science of Consciousness

The old science declares that perceptions, feelings, instincts, reasoning and memory all derive from neurological activity in the cranium. The conclusion, quite naturally,

is that when you die, or when the brain dies, consciousness ceases. But a new field of inquiry, drawing from quantum physics, concludes that reality is less material than once thought. This view gives credence to the survival of the soul after death, and has deep roots in Hindu metaphysics. We share here reflections from the field's trailblazers.

For at least two thousand years thinkers have tried to explain the human mind and disagreed heatedly, but a consensus has formed around one thing. When you try to figure out where the mind comes from, you find yourself in a strange domain filled with mirrors, illusions and a shaky grasp on reality. The mind is harder to hunt down than the mythical unicorn, because the hunter and the hunted are the same. This frustrating obstacle has led to speculation that swings between two extremes—at one extreme, consciousness is pure illusion created by brain chemistry. At the other extreme, consciousness is a given that defies exploration, much as water is a given to a fish. We can't jump out of our minds to land on a place where objective observations could be made, just as a fish cannot land on dry land as a way to peer under the sea. Both are categorically impossible.



Must the riddle of the mind remain a riddle? Our position is radically different from the vast majority of brain researchers, who attempt to unravel the intricacies of the mind by dissecting the intricacies of the human nervous system. We hold that mind doesn't need the brain in order to exist. It precedes all living things by being

fundamental to the universe. In other words, human beings are part of a conscious universe.

Over the past decade or so, this notion has gained in stature, even though it began as a ridiculed fantasy. Some leading cosmologists are circling back to the insights of quantum pioneers like Max Planck and Erwin Schrödinger. Planck declared that it was impossible to “get behind” consciousness, meaning that it can’t be explained by referring to anything more primal. Schrödinger held that consciousness cannot be subdivided; there is only one consciousness, even though it appears to be subdivided into billions of individual minds. To use an honored analogy from India’s Vedanta tradition, pure gold can be made into countless objects, but in essence they are the same gold.

Planck, Schrödinger and their like-minded colleagues never pursued this line of investigation very far, being consumed with the new frontiers of quantum mechanics and the challenge to create a complete account of microscopic phenomena. Today, the physicists who are circling back can take advantage of brain science, which gives them a continuous view of mind, from the biggest to the smallest, from the entire cosmos to the subatomic particles that constitute all objects, including the human brain.

One of the most open-minded cosmologists, Max Tegmark of MIT, is a gifted explainer of difficult mind-brain-cosmos issues. Tegmark goes further than traditional physicalists. He has become identified with a tag line: Consciousness is a state of matter. However, this view still remains materialistic, in that subatomic particles come first and foremost, arriving from the quantum vacuum carrying information, which then becomes one of the primary trademarks of consciousness. By transferring and building up more complex information structures, one arrives at the human brain and its potential for creating artificial intelligence in computers of the future—everything depends on how powerful their information processing becomes.

Quantum physics is a two-edged sword when it comes to explaining the mind. Its predictions and theoretical approach have been used to justify a conscious universe or not, depending on the perspective of the thinker who is wielding the theory. But there is a consensus on the necessity of mathematical models. This is where Tegmark has fascinated his peers, because—totally believing in mathematics as the ultimate model of reality—he wants to rescue the materialist view by positing that matter can have the property of consciousness. His ambitions are, quite literally, cosmic. He wants to deliver a universe where math is compatible with mind.

The higher you climb, the farther you may fall. In Tegmark's case, critiques have emerged in equal measure with praise. He himself poses the most troubling problems that must be confronted:

1. Since it is agreed among quantum theorists that subatomic particles are essentially mathematical constructs, with no fixed properties that resemble tangible objects, how did rocks, clouds, mountains and trees get their physical properties? It looks like creation out of nothing. How do we get from numbers to the hardness of granite and the sweetness of strawberries?
2. To date, there has been a chain of discoveries of ever more potent mathematics to explain the structure of the cosmos. But what if the chain isn't endless? We may be at the point where Nature's patterns, and the math that describes them, run out. If that's true, then the mathematical models will no longer work, just as every previous model going back to the Greeks has succumbed. The big difference is that no one trained to view math as the ultimate tool of science can conceive of what would replace it.
3. What gives some kinds of matter the property of consciousness and not others? Oxygen has the property of being gaseous, while iron is metallic. The difference can be explained using the periodic chart of the elements. No such chart exists for why the sugar in your brain participates in thinking, while the sugar in a sugar cube does not, until you consume it. No explanation exists for why the electrons that are being sent around the brain are somehow associated with thought, while the same types of electrons are found in the cores of nuclear reactors. If the electrons and elementary particles are common to both, would we conclude that brains and reactors are the same? Of course not.
4. "Information" is a dubious foundation for consciousness. You can make heavier elements by adding more protons to an atom and more atoms to a molecule, but is it true that the great achievements of the mind (represented, for example, by Mozart, Shakespeare and Einstein) were gained simply by adding more information? A Mozart symphony contains no more and no less information than a symphony by one of his hack contemporaries. Besides, doesn't information require someone to make sense of it? Random computer streams of 0's and 1's have no meaning independent of the algorithms that someone has devised in advance, using a mind. So tracing mind back to 0's and 1's seems like circular reasoning.
5. There is a limit to all models, because reality is too complex to be whittled down. The great mathematician John von Neumann supposedly said that the only

adequate model of a neuron would be a neuron. In other words, you can't explain the mind by reducing it to anything else.

Tegmark offers an eloquent exposition of his claim that matter may have consciousness as one of its basic properties. He and others in the same wave of cosmologists are nibbling around the fringes of a universe that may be entirely mindful. One camp is willing to call itself "panpsychist," meaning that in some way everything is conscious. This would be the same as accepting Schrödinger's original notion that consciousness is holistic and cannot be subdivided. A radically new view of reality emerges if you accept this one idea, sending shock waves through brain science, quantum physics and cosmology.

Here are three quotations from Vashishtha, a Vedic sage writing many centuries ago, almost eerily anticipating the most far-seeing speculations in current cosmology.

The entire universe is forever the same as the consciousness that dwells in every atom, even as jewelry is non-different from gold.

Cosmic consciousness alone exists now and ever; in it are no worlds, no created beings. That consciousness reflected in itself appears to be creation.

The world exists because consciousness is, and the world is the body of consciousness.

By Deepak Chopra, MD; Rudolph E. Tanzi, PhD; Menas Kafatos, PhD; Subhash Kak, PhD; and Neil Theise, MD

MANIFESTO

For a Consciousness-Based Science

By Deepak Chopra, Menas Kafatos and Rudolph E. Tanzi

The greatest mystery of existence is existence itself. There is the existence of the universe and there is the existence of awareness. Were it not for awareness, even if

the universe existed as an external reality, we would not be aware of its existence, so for all practical purposes it would not exist.

Traditional science assumes, for the most part, that an objective, observer-independent reality exists—that the universe, stars, galaxies, sun, moon and earth would still be there if no one was looking. However, modern quantum theory, the most successful of all scientific creations of the human mind, disagrees. The properties of a particle, quantum theory tells us, actually do not exist until an observation takes place. Quantum theory contradicts traditional, Newtonian physics.

Most scientists, although respecting quantum theory, do not follow its implications. The result is a kind of schizophrenia between what scientists believe and what they practice. When we examine the materialistic hypothesis of traditional science, we find it more a metaphysical assumption than a scientific assertion. How can we assert that an observer-independent reality exists if the assertion itself depends on the existence of a conscious observer? This raises an additional dilemma: Who or what is the observer, and where is this observer located?

When scientists in general describe empirical facts and formulate scientific theories, they forget that neither facts nor theories are an insight into the true nature of fundamental reality apart from any observer. According to quantum theory, what we consider to be empirical facts are entirely dependent on observation. The scientific observer in this case is an activity of the universe called Homo sapiens, usually with a Ph.D. in physics, biology, neuroscience or other branches of science. However, many scientists have never really asked the question, “Who am I?”

Many neuroscientists still don't believe that quantum theory has anything to do with the brain. They would assert that “I,” the conscious observer, is solely an epiphenomenon of the brain—that consciousness is produced by the brain, just as gastric juices are produced by the stomach and bile is produced by the gall bladder. But any neuroscientist worth his or her tenure will admit that there is no satisfactory theory in neuroscience to explain how neurochemistry translates into conscious experience. How do electrochemical phenomena in the brain create the appreciation of the beauty of a red rose, the taste of garlic, the smell of onions, the feeling of love, compassion, joy, insight, intuition, imagination, creativity, free will, or awareness of existence of self and the universe? There is no physicalist theory based on classical physics to explain these subjective experiences. Nor is there any obvious means for coming up with such a theory.

With traditional science in this impasse, it might be time to question some of the basic assumptions about so-called independently existing reality. We must remind ourselves that science is a methodology and not an ontology. Current science is based on a physicalist ontology—the basic belief that reality is physical and mind is an epiphenomenon of matter (the nervous system). Nonetheless we are baffled when asked to explain how matter becomes mind.

We suggest here a fundamental revision in our most cherished scientific assumptions. We boldly suggest that matter, force fields, particles, waves, even the fabric of space and time are not denizens of fundamental reality but that they are perceptual and cognitive experiences in consciousness. This proposal concurs with the theories of most of the great physicists who founded quantum theory almost a hundred years ago.

But we are also going beyond, taking the statements of quantum theory to the next level: All of physical reality is a perceptual experience in consciousness alone. The experience may turn out to be different for different species. What is physical reality to a bat, a honey bee, a nematode, a whale, a dolphin, an eagle, an insect with numerous eyes? There is no fixed physical reality, no single perception of the world, just numerous ways of interpreting worldviews as dictated by one's nervous system and the specific environment of our planetary existence.

We propose that there is a basic flaw in the current scientific worldview, which assumes that facts emanating from human perception and particularly from observations made with human scientific methods are the only fundamental truth. Furthermore, the subject/object split that is the basic premise of current scientific methods has led to the creation of arguably detrimental technologies including mechanized death, petroleum products in our food, genetically modified foods, global warming, extinction of species, and even the possible extinction of the human species.

Building on the quantum view of the cosmos, which accepts a non-local, entangled reality in which observers are fundamental, we suggest the next natural step—a new science rooted in consciousness. This new science will strive to interpret the entire universe, with all its observers, all modes of observation and all objects observed, as nothing other than consciousness and its manifestations. We believe this is the most reasonable and rational approach; that rejecting it will lead nowhere and force us to accept randomness and lack of purpose as the hallmarks of the universe. Ultimately, such a rejection leads to the conclusion that our own very existence has no meaning. We suggest that perceptual objects experienced in consciousness, including our very brains, are not the source of consciousness. We

suggest rigorous testing of this radically different ontology. We feel a holistic science that does not separate observer from that which is observed would lead to the unraveling of the mysteries of the universe which presently seem beyond reach, leading to an understanding of a conscious universe in which all are differentiated activities of a single field that is an undivided wholeness and in some sense bridges external reality with inner being.

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Rudolph E. Tanzi, Ph.D. (right) is a Professor of Neurology at Harvard University and Massachusetts General Hospital and an internationally acclaimed expert on Alzheimers disease and neurogenetics. He is the author of over 500 articles and the co-author with Deepak Chopra of *Super Brain* and *Super Genes*.

The Three States of Consciousness – 3D, 4D and 5D: Which One Do You Live in?

If I asked you to talk about the states of consciousness, how would you answer?

Would you say that being awake and asleep are states of consciousness or would you have a more spiritual answer such as [astral travel](#)? Is [déjà vu](#) a form of consciousness and what about meditation?

Well, you can make a case for all of these, but there are some that believe **we live in three different states of consciousness** and these are **3D**, **4D**, and **5D**. We can live in any one of these states or a combination of all three, with the majority of people doing just that.

So what are these three states of consciousness?

The 3D State of Consciousness

As it would suggest, living in a 3D state means that **you see the world in a physical way**. You use your five senses, and your thoughts are not important when it comes to living in the real world. People will know your character through physical things such as your house, your car, your clothes and you worry about money and not having enough material things. You see **life as a competition** where there are winners and losers and you want to be at the top of the pile. You worry about [missing out on things](#) but have trouble when it comes to deep emotions and empathising.

Those that live in a 3D state have no desire to understand any [deeper meanings to life](#) or achieve a higher level of spirituality. They are happy staying with the material world.

The 4D State of Consciousness

This is described as a 'gateway' to the next [level of consciousness](#) – the 5D state. Those who live in this state are far more aware that there is something 'out there' and that we should all connect with each other. They rely more on their thoughts and dreams than their five senses and believe that **there is more to life than we can physically see**.

People who live in this state know that what they put into their bodies is important and tend to lead a healthier lifestyle. They are compassionate and find it easy to show empathy to others.

They believe **they are born with a purpose**, are often associated with the environment, and use their [sixth sense](#) to full advantage. They want to know what the universe has to offer and believe that we are all here for a reason.

The 5D State of Consciousness

Those who have attained the 5D state know that [we are all connected](#) and there is no such thing as good or bad, just experiences that we should learn and grow from. Everyone has a higher purpose and these people can easily see the bigger picture, which is that the universe is all about love and connectedness.

We are all equal, and personal wealth is immaterial. Your job is to live your true life as authentically as you can and you feel **a deep connection with Mother Nature and the Universe**.

You have a very strong sense of intuition and believe in things that are beyond the physical realm.

The Higher States of Consciousness

Some people believe that there are even higher levels of consciousness, such as 6D and 7D.

It is believed that these levels can only be attained after we leave our physical bodies. But some are said to move into these states through [lucid](#)

[dreaming](#), meditation, or by taking certain plants and herbs that alter our consciousness.

According to this perspective, because these higher states of consciousness are accessed outside of our bodies, we are free to travel wherever we want and in a matter of seconds. Time is also immaterial and no longer linear which makes it feel as if we are living in a timeless world.

It is said that in these states, there is no fear but unconditional love for everyone.

Finally, moving on to the next levels of 8D, 9D and 10D, here we have the ability to return ourselves back to the universe and travel onto other galaxies and stars, spiritual practitioners claim. This is in order to achieve the next levels of spirituality and continue on our journey of self-enlightenment.

References:

1. <http://in5d.com>

UNDERSTANDING THE 3 STATES OF CONSCIOUSNESS: 3D, 4D, AND 5D

There is no doubt that other dimensions or realms exist in this Universe. You may have seen them yourself through your dreams or through astral travel. You may have felt the experience of déjà vu, or simply felt through a meditation that there is so much more to what we can comprehend.

Just like we have different dimensions in this Universe, we also have different dimensional states of consciousness. These dimensions available to us on Earth are referred to as 3D, 4D and 5D.

These dimensions are not actual places but rather they are states of consciousness. Here on Earth, we are all living life in either 3D, 4D, 5D or a combination of all three.

In fact, it is most likely that majority of people on Earth are moving back and forth across two or three of these dimensional states of consciousness depending on where they are in their lives.

Even though we are all living on the same planet and are surrounded by the same world, our perception of it will be different depending on which state of consciousness we are choosing to see things at.

Those perceiving things from a 3D state are going to walk through life much differently to someone perceiving things from a 5D state.

If you are curious what dimensional state your consciousness is at, here is a brief explanation of each:

Living from a 3D State

3D consciousness is viewing things from a purely physical state. You are seen as an individual that is separate from others.

Life feels like “the survival of the fittest” and you are identified by the way you look, the job you have, the car you drive and the people you surround yourself with. You feel fearful about missing out or not having enough.

Things are perceived as being good or bad and life is a competition. There is not enough for everyone and some people have to miss out. Fulfilment is found in making money and social status.

Your thoughts have no power over your reality and what comes your way in life is simply a coincidence. You rely on your five sense to move through the world.

There is a lot of joy in living life from the 3D state but pain and deeper emotions can be difficult to manage.

In a 3D state there is no desire to go within or to look at things from a deeper standpoint. Life is played out by skimming the surface. There is no desire to dig deep or to understand the deeper meaning behind things.

Living from a 4D State

Many people believe that the 4th dimensional state acts like a “gateway” to the 5th. When in 4D it is easy to travel back to a 3D state, however this jump in consciousness is much more difficult when you reach a 5D state.

4D consciousness begins to awaken to the idea that we are all connected and that there is more to life than what meets the eye.

Thoughts are powerful and can shift the way reality is perceived. Duality and the idea of good and bad is still experienced, but there is more compassion and understanding behind it.

There is an opening to the importance of diet, meditation and leading a healthy lifestyle. What you put into your body becomes important and there is a desire to pay attention to how your actions effect the environment and those around you.

There is a strong desire to find your purpose and to follow your passions. You understand that life is meant to be enjoyed and that you are worthy to live the life of your dreams.

You perceive the world through 6 senses and your intuition starts to grow and expand. You seek a deeper meaning to life and you can start to see the synchronicity/magic of the Universe.

Living from a 5D State

Once you reach a 5D state of consciousness, it is very difficult to go back to a 3D state.

From this level of consciousness you begin to understand that we are all one and we are all connected. Life becomes an adventure of growth and there is no such thing as good or bad. There is a higher purpose for all things and every experience holds meaning.

There are stronger feelings of love and connectedness with others, the planet and even the galaxies around us. Love and compassion reign supreme and there is a lack of judgement. You understand that everyone is just on their own journey.

Everyone is considered to be equal and there is a desire to live from a place of pure authenticity. You understand that your purpose is to live your truth and to seek the joy.

From this state, you know that there is no competition and there is enough in the Universe for everyone. You feel overwhelming emotions of love and compassion for life, Mother Earth and the stars.

Your intuition is extremely strong and you feel connected to angelic beings.

It is important to remember that these states of consciousness are not “better” or “worse” than the other. Every soul on this Earth has their own journey to walk and their own reasons for choosing which dimensional state to live from.

Even Higher States of Consciousness

What is more interesting than these dimensional states are the ones that come next.

There are higher states of consciousness, but these are believed to be only accessible after we have left our physical bodies. It is possible however, to access these states through meditation, our dreams and even with certain herbs/plant medicines.

In higher states of consciousness there are 3 key differences –

- Perception of time
- Power of thoughts
- Feelings of oneness

It is believed that in 6D and 7D our thoughts are so powerful that all we have to do is think about a location and we can travel to it.

Without a physical body, in these states we can fly wherever we want, as fast as we want and we have a very strong understanding of unity consciousness.

Time is not linear and cannot be measured, instead time feels endless.

There is no fear in these states of being and everything is perceived from a place of pure, unconditional love.

In higher states like 8D, 9D and 10D, it is believed that we are able to return our energy to the Source, merge with others in our soul group and travel to different galaxies.

In these higher states we can also reincarnate either back to Earth or other star systems. The soul can also choose to continue moving up to higher levels of consciousness.

Consciousness in The Universe

The nature of consciousness, the mechanism by which it occurs in the brain, and its ultimate place in the universe are unknown. We proposed in the mid 1990's that consciousness depends on biologically 'orchestrated' coherent quantum processes in collections of microtubules within brain neurons, that these quantum processes correlate with, and regulate, neuronal synaptic and membrane activity, and that the continuous Schrödinger evolution of each such process terminates in accordance with the specific Diósi-Penrose (DP) scheme of 'objective reduction' ('OR') of the quantum state. This orchestrated OR activity ('Orch OR') is taken to result in moments of conscious awareness and/or choice. The DP form of OR is related to the fundamentals of quantum mechanics and spacetime geometry, so Orch OR suggests that there is a connection between the brain's biomolecular processes and the basic structure of the universe. Here we review Orch OR in light of criticisms and developments in quantum biology, neuroscience, physics and cosmology.

...

1.1 Introduction: Consciousness in the Universe

Consciousness implies awareness: subjective, phenomenal experience of internal and external worlds. Consciousness also implies a sense of self, feelings, choice, control of voluntary behavior, memory, thought, language, and (e.g. when we close our eyes, or meditate) internally-generated images and geometric patterns. But what consciousness actually is remains unknown. Our views of reality, of the universe, of ourselves depend on consciousness. Consciousness defines our existence. Three general possibilities regarding the origin and place of consciousness in the universe have been commonly expressed.

Consciousness is not an independent quality but arose, in terms of conventional physical processes, as a natural evolutionary consequence of the biological adaptation of brains and nervous systems. This prevalent scientific view is that consciousness emerged as a property of complex biological computation during the course of evolution. Opinions vary as to when, where and how consciousness appeared, e.g. only recently in humans, or earlier in lower organisms. Consciousness as an evolutionary adaptation is commonly assumed to be epiphenomenal (i.e. a secondary effect without independent influence, and also illusory (largely constructing reality, rather than perceiving it)). Nonetheless, consciousness is frequently argued to confer beneficial advantages to species. Overall, in this view, consciousness is not an intrinsic feature of the universe.

What is cosmic consciousness and how to connect to it?



We vividly affirm the presence of an Ego every time we lose control and get stuck in the awfulness of our chaotic ways, unhealthiness, laziness, addiction, and disorders; Whether is freaquing out, shutting down, going crazy, or causing harm to ourselves or to other around us.

It's about time to accept the presence of a Hero consciousness that freely brings us back into nurturing light, protects us from the negative ways of life, and equips us with the necessary love energy to further strengthen our sanity, our cosmic nature, and self-esteem; from chaos to cosmos; from chaotic to cosmic energy; from disorder to order: from disease to ease: and once recorded in the history of humanity as potentially destructive, hostile or harmful to anyone whether or not we even believe it is there or even exists

Cosmic consciousness

Cosmic consciousness encompasses all the positive qualities needed for a fulfilling life, which exist within you. Unlike ego consciousness, cosmic consciousness is a **non-arbitrary** and unwavering force that cannot work against your growth, progress, or moral values. Meaning: it will never betray you or abandon you. Cosmic consciousness represents the intelligent and supernatural life forces and good principles that sustain you physically and spiritually until you die.

The cosmic consciousness sense represents the intrinsic energy within each individual that remains steadfast, trustworthy, and committed to safeguarding and guiding them. It is the source of energy that vigilantly oversees and ensures that individuals are not overwhelmed by an excess of light energy beyond their capacity to manage.

For example

For example, our bodies do not decompose while we are alive due to cosmic consciousness. Also, regardless of how poor our behavior becomes toward ourselves and others, neither our internal moral compass nor our free will ever abandons us or shuts down. Most importantly, due to our cosmic nature, there has never been, and there never will be a time when humankind has to worry about their life energy's true agenda. There's no need to fear that we don't respect our own existence or the existence of others enough to deserve waking up all over again after falling asleep into total darkness as many times as we wish and feel like it.

The origin of cosmic consciousness

People sometimes refer to the origin of cosmic consciousness as the eternal soul, the infinite source of light, or the power within. It possesses a power greater than all the forces of the universe combined. Many philosophers defined the human mind as the most powerful device in existence due to its undeniable powers and abilities to endlessly evolve, adapt, and spiritually restore itself beyond its limitation over time. Based on beliefs, cosmic consciousness is a power without which the universe will be a very meaningless place of empty matter.

However, science quickly claimed this existential power and wrongfully denied the existence of spiritual matter and forces that could support mental and human evolution because they could never study them logically due to a lack of physical evidence, knowledge, and religious coordination.

Though the search for cosmic consciousness has been around for over 3000 years right up to the present, the first man to ever publish evidence of the existence of cosmic consciousness in the late nineteenth century was none other than the founding father Dr. Richard Maurice Buck and the author of the book called cosmic consciousness and the Evolution of the human mind, in which he explains why he appraises cosmic consciousness as both the most challenging subject in spirituality and the highest stage of spiritual and mental evolution.

Strategically, without forcing any quid pro quo spiritual campaign on anyone, he also added the names of famous spiritual world leaders like Jesus Christ, the Buddha, and Muhammad to emphasize the difference between those who have achieved cosmic consciousness and those who have not yet started their hero journey and reach that level of complete oneness of mind, body, and spirit with the cosmos. This is not a religious call, and I'm not religious; I respect everyone's belief system, but my heart and soul believe in Jesus Christ, whose exploits, by the way, have inspired the search and study of cosmic consciousness around the world to the point where the term cosmic consciousness was renamed Christ consciousness or Christ level of awareness or hero consciousness, in attempt to refer to the best of ways to be human.

THE HERO'S JOURNEY TO COSMIC CONSCIOUSNESS

The hero's journey represents a universally recognized framework and an invitation to embrace a higher level of consciousness for anyone open to it. It is an essential aspect of spiritual development, offering valuable guidance on how to effectively shift the ego from being perceived as an adversary to becoming a valuable asset for the human mind. ... Recognizing that cosmic consciousness is inherently present within each individual and always available as a guiding force could greatly facilitate humanity's journey. Consequently, this post will much shorter.

You, I, and everybody who has ever lived understands that breathing is not the same as knowing how to breathe properly, eating is not the same as knowing how to nourish yourself correctly, and healing, speaking, resting, and living are entirely different from mastering how to rest, live, communicate effectively, and stay healthy despite life's challenges... And the list could go on and on for days..

So let's move on.

If we can all agree that the cosmic consciousness scope is indeed too vast to be compressed by the objective guiding's measure of science, ***then you have come to the right place to improve your understanding of this knowledge.*** Cosmic consciousness is not another religion but what's already inside you, awaiting your faithful command to fruitfully awaken.

It's an invitation to embark on a journey of self-discovery, a chance to develop improved problem-solving abilities, nurture a deeper relationship with oneself, elevate personal values intelligently, transform your mindset with cosmic perspective, and experience true mental tranquility. Yet, without the roadmap to the mind that I've uncovered, this profound quest could consume a lifetime.



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WHAT IS COSMIC CONSCIOUSNESS & HOW TO ACHIEVE IT?

Many people question whether there is such a thing as higher consciousness. A tiny fragment of the population believes they have in some way interacted with a higher entity – God or a higher version of themselves – whilst others presume it to be a myth. Whether or not you believe in God, there is a part of every being that believes in a higher-self and in this blog we will talk about his level of consciousness and ways to achieve it. For decades, spiritual traditions around the world have asserted a hidden reality that can be uncovered via transcending the five senses. Some attain it via religious practices whilst others attain it with meditation and perseverance.

Of course there is no “one shoe fits all” method to achieve cosmic consciousness as many traditions suggest several ways of attaining and accomplishing the process of transcending. However, some proven methods include various practices such as meditation, prayer or even renunciation.

That being said, what is cosmic consciousness really?

Cosmic consciousness, in simple words, is a form of higher consciousness or a spiritual level of both awareness and consciousness.

In other words, cosmic consciousness is a term used to describe or characterise a state of self-consciousness. The notion of cosmic consciousness indicates that a person disembarks themselves from their egoistic viewpoint or the identity that they associate with and relate to the creation that does not depend on or that is limited by their ego. It is believed that this sort of awareness is connected with an involvement of knowing or interacting with God or of transcending the five senses whilst also finding a hidden consciousness or reality that extends beyond the perceivable world viz the universe. In other words, cosmic consciousness is an inherent element in mankind that can be achieved by training your mind and body whilst at the same time being disciplined in practising what you preach. Although cosmic consciousness exists in every being yet not many know how to activate this level of consciousness, which brings us to the next title which is how to achieve this level.

How to achieve or unlock cosmic consciousness?

The first step to cosmic consciousness or awareness is self-awareness. Self-awareness is a concept that inculcates us contemplating our place in the universe. This is a continuous journey wherein one needs to learn to self-appraise and self-improve oneself – this can be achieved by looking at yourself and working on areas that need “fixing”.

This being said, it is a long and taxing process to unlock this level as it requires full attention and dedication. Although many of us are imbued with the ability to pursue the cosmic energy field, not many are able to unlock it because we tend to give up when we “fail” to attain cosmic consciousness at the snap of a finger.

Step 1 of attaining cosmic consciousness

One way to go about this is via meditation. Meditation is a process that requires you to focus all your energy and concentration to a focal point in your mind to disembark all your thoughts from the pressure or negativity around you. With meditation, you can awaken and activate your third eye chakra – the Ajna linked to perception, awareness, and spiritual communication. By unlocking the third eye chakra, we then need to focus on merging the 3rd eye chakra with the crown chakra to attain cosmic consciousness. When meditating, it is vital that you think about the problems that are within your control and unlock suitable solutions to those problems. Additionally, you should allow yourself to explore the root cause of those problems and focus on releasing every burden

lingering or associated with it. For instance, paying heed to what attitude, behaviour or action is causing the problem you should yearn for a solution to avoiding it.

Step 2 of attaining cosmic consciousness

The second step to unlocking a higher consciousness is by turning self-awareness to self-improvement.

How to turn self-awareness into self-improvement?

Meditation alone is not going to help you achieve cosmic consciousness however when paired with other methods such as self-improvement, it is an effective technique. By recognising your areas of improvements and bringing them to your attention or your consciousness levels, you stand a higher chance of attaining cosmic consciousness. It is important to note that a significant aspect of cosmic consciousness is one's ability to be aware of life as well as the universe and its entirety and how these "elements" are interconnected. With this level of consciousness, one is able to see things in a unified mode. Paired with belief, conquering a higher level of consciousness becomes easier – and truth be told, there is nothing as satisfying as introducing yourself to the universe – as this gives birth to a new and improved version of your former self.

Why should you opt for cosmic consciousness?

In order to gain an enhanced and clearer understanding of your existence, it is important to introduce yourself to cosmic consciousness. Of course, reaching this kind of consciousness takes a lot of dedication and patience but if you are someone who wants to broaden their general view of the human form and life as a whole, then finding your way to cosmic consciousness is the way to go.

You must align the energies of your mind and body to attain the highest level of consciousness with tried and tested methods. Every person's ability to attain this level may vary but with patience and perseverance, attaining cosmic consciousness becomes easier.



SCIENCE of Cosmic Consciousness and Unlimited Energy Field

The concept of **Cosmic Consciousness** and the **Unlimited Energy Field** is a fascinating intersection of science and spirituality. Here are a few key ideas:

1. **Akashic Field Theory:** Proposed by philosopher Ervin Laszlo, this theory suggests that the universe is an intricate web of information and consciousness, connecting everything that exists. The Akashic Field, or A-Field, is a field of information that permeates the cosmos and shapes our reality¹.
2. **Cosmic Consciousness:** This idea posits that consciousness is a fundamental aspect of the universe, as essential as matter and energy. It suggests that our ordinary experiences are grounded in an all-pervading cosmic consciousness².
3. **Unified Field:** This concept refers to a field of infinite possibilities and intelligence, often associated with divine or supreme unity. It is believed to be a source of higher states of consciousness and spiritual experiences³.
4. **Panpsychism:** This philosophical view holds that consciousness is a universal and fundamental feature of all things. It suggests that even the smallest particles possess some form of consciousness⁴.

These ideas challenge traditional materialist views and offer a new perspective on the nature of reality, suggesting that consciousness and energy are deeply interconnected and fundamental to the universe².

Here are some additional resources and concepts related to Cosmic Consciousness and the Unlimited Energy Field:

1. **Cosmic Consciousness: A Study in the Evolution of the Human Mind** by Richard Maurice Bucke: This book explores the idea of cosmic consciousness as a higher form of consciousness beyond ordinary human experience.
2. **What Is Cosmic Consciousness? The Quest for Hidden Reality** by Deepak Chopra and Menas Kafatos: This article discusses the intersection of quantum physics and higher consciousness, suggesting that consciousness is a fundamental aspect of the universe.
3. **Infinite Consciousness**: This concept posits that consciousness is an infinite energy field that creates different realities based on sensory perception. It aligns with the philosophical view of panpsychism, which suggests that consciousness is a universal and fundamental feature of all things³.
4. **Consciousness Is Everywhere in the Universe**: This article explores the idea that we are all immersed in a cosmic consciousness with unlimited capacity for change and evolution.

These resources delve deeper into the fascinating interplay between consciousness, energy, and the universe. If you're interested in exploring further, these might be great starting points!

Concepts and Theories:

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Additional Resources:

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Do plants and trees have consciousness?

Science has come a long way, but we still haven't cracked all the mysteries nature holds. One of these mysteries is how plants and trees work on a sensory level, as well as how they behave, both individually and as a group. Many of us talk to plants, and indeed we're told that they must be given love to grow healthy. After all, [plants](#) and trees are living beings. But do they feel pain, do they communicate with each other, and are they somehow conscious?

There is research

The possibility of plants feeling and/or thinking has baffled scientists for a long time. Plant neurobiology is the field of research dedicated to the study of how plants process information from their environment.

Plant gnosisophysiology, or plant cognition, studies things such as memory and learning (even though plants don't have a brain).





Trees are polite to each other

Trees are quite polite to one another. A phenomenon known as [crown shyness](#) happens in certain trees. This is when crowns don't touch each other. They don't overlap each other's branches, and they allow sunlight to reach the soil. This phenomenon has been puzzling scientists for years, with a consensus for the reason not yet being reached.

Theory

One of the possible reasons is that trees do this as part of a defense mechanism to help prevent the spread of diseases, as well as to share sunlight.



Crown shyness

Interestingly, not all trees behave like this. This is more common among trees of the same species as well as the same age. Still, it shows that there is some sort of recognition of both the environment and their neighbors.



They share resources

Trees that avoid touching share sunlight with their peers, but they also share other resources through their roots.

Mycorrhizal networks

These underground networks are made of strands of fungus that grow between the roots. They essentially connect the whole forest. Plants and fungi communicate using these networks, which includes the sharing of resources such as carbon and nitrogen.

The largest and oldest trees use this network to nurture younger trees, sharing the resources they need to grow. But it gets even more interesting: "mother trees" seem to recognize their family, and, as a result, share more nutrients with relatives when compared to strangers.





They 'talk' to each other

These plant-fungus networks are used for more than just sharing resources. They are also used to communicate with each other.

They help each other out

An injured tree sends out chemical alert signals so that other trees may brace for danger. Dying trees go as far as sharing all of their resources through the network. It turns out the forest cooperates and has more in common with us than we originally thought.



They communicate through scents

Communication between trees and plants is not just done underground. Plants actually have a sense of smell and react to certain odors.

Maple trees, for instance, use scents to warn others of danger, according to a study. Scents are used to send alarm signs to their neighbors, ranging from alerts about insect attacks to fruit ripening, and everything in between.



They can call for help

Speaking of insects, when plants are under attack, they release volatile molecules that make up particular scents.

Jasmine

One of these molecules is jasmine, which is emitted by jasmine flowers to alert nearby plants of aphids. So, next time you drink a cup of jasmine tea, it's best to do so away from plants, if you don't want to scare them!



Chain reaction

Molecules such as jasmones also alert predatory insects about the presence of plant attackers, so they can rush and actually help the distressed plants.

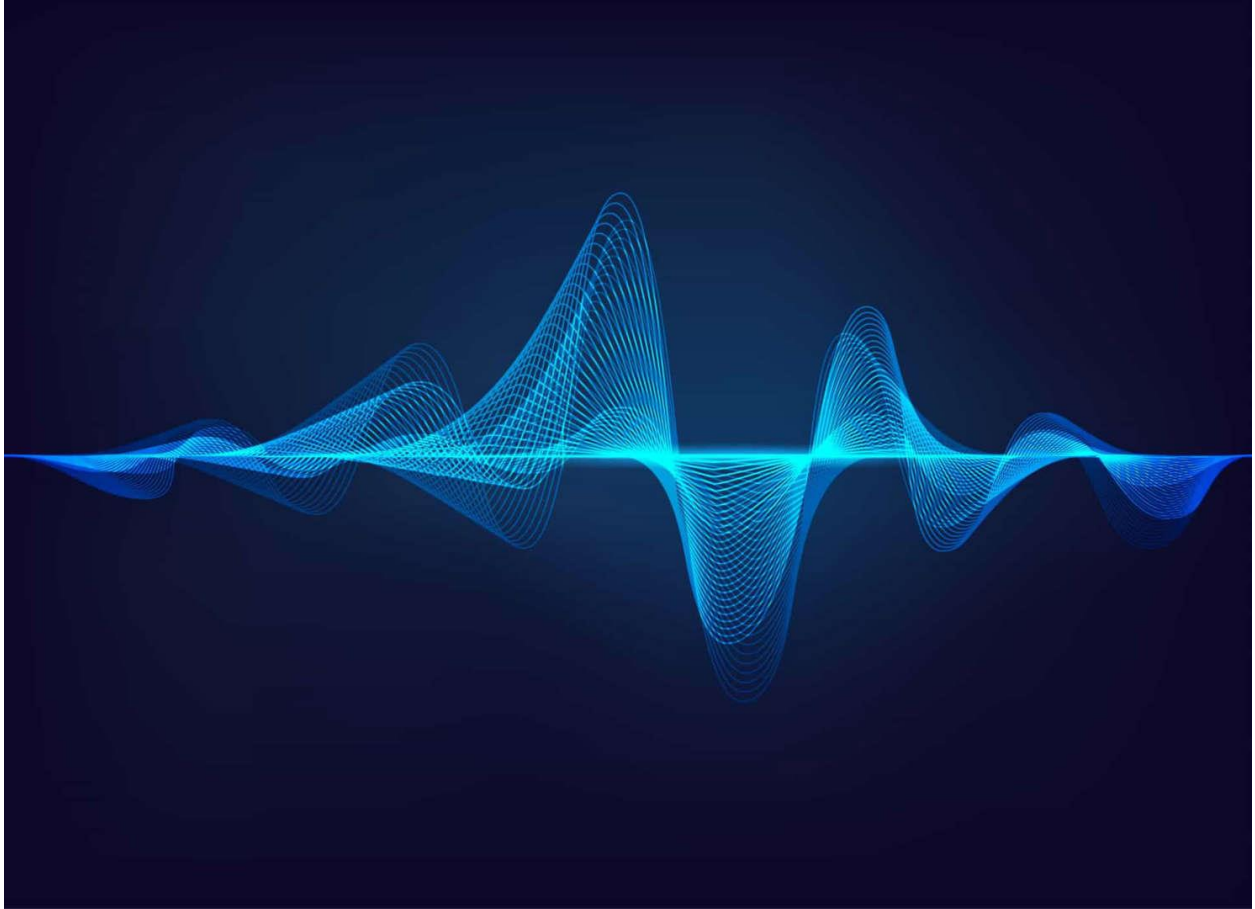
Lawn

And as for the distinctive smell of a freshly-cut lawn, yes, it's essentially the grass crying for help while being under attack.



They recognize family

This behavior, most commonly associated with animals, is also present in plants. As a result, related plants get more resources shared through the roots, more light, and consequently produce more fruit and seeds.



They are vocal, vibrational

Trees emit sound frequencies. These are all ultra-low-frequency infrasound or high-frequency ultrasound, so humans can't hear them. Other plants and animals, however, might.

They can 'hear'

As plants and trees emit frequencies, they can also detect vibrations through the air. Particularly, they seem to detect sounds that are relevant to their survival, such as water or the sound of insects.

Flowers can also 'hear' the sound of bees, and react by producing more nectar, making them more appealing for the insects and ensuring pollination occurs.



While plants do not have eyes as such, they are sensitive to light. In fact, they do have eye-like organs called ocelli, that act like lenses to detect light. In addition, there is also the possibility that ocelli are able to sense both colors and shapes.

They learn

Through their senses, plants can actually learn and have the capacity to remember. It's believed they do so through associative learning (e.g. by associating the presence of wind with the existence of light), but the exact mechanism remains unknown.

They can remember

Plants can also remember. A study found that a plant that reacted by moving its leaves when touched, stopped doing so after learning the threat was not real.

Can they feel pain?

Plants don't have the same pain mechanisms as animals, so they do not feel pain as we do. They do, however, react to injuries, and do produce pain-suppressing substances, which makes us wonder why they need them. Plus, it has been found that, like animals, plants also respond to anesthesia.



How about consciousness? Are plants conscious?

So, are plants conscious? Well, to begin with, we need to have a universally clear definition of what consciousness is (which we don't). What we know is that plants seem to be aware of their surroundings and can indeed communicate.

A study has also found that plants are able to "distinguish self from nonself." Does this make them conscious? No one can say, for sure. In conclusion, more research is needed.

Largest Organism in The World Could Officially Be The Oldest Living Thing



Green Aerial Outline of Pando© Provided by ScienceAlert

Age might well be just a number, but for a plant in Utah known affectionately as Pando, it could be a digit that leaves all other living things in the dust.

Sequencing hundreds of samples of material collected from the vast network of quaking aspen ([*Populus tremuloides*](#)), a team of scientists in the US has estimated the 106-acre (43-hectare) wood may have started as a lonely seedling long before the end of the [last ice age](#), some 34,000 years ago.

Incredibly, less conservative estimates confirm it's possible that the tree may have even sprouted tens of thousands of years before that.

Though [the study](#) is yet to be peer reviewed, its conclusions [help confine speculations](#) over how long this one clonal organism has stood in place, which have ranged wildly from several thousand to more than a million years.



Pando stretches across 106 acres, 103 of which are visible from above. (Friends of Pando)

Pando already attracts attention from biologists for its impressive size, considered by some to be the single largest organism on the planet.

Though the aspen appears to be 47,000 distinct trees rising above the soil, all share the same genetic heritage and the one web of interconnected roots, effectively making them all chips off the same ol' block.

The record holder for a solitary tree's age is an [unnamed bristlecone pine](#) in California's White Mountains, thought to be a smidge over 5,000 years old.



Bristlecone pines are some of the longest-lived non-cloning plants. (Piriya Photography/Getty Images)

Yet clonal organisms like Pando – a name that translates into 'I spread' – [play by different rules](#). Its genome of chromosome triplets doesn't mix easily with others within its species, limiting the plant's reproduction to asexual clones that remain connected while rooting its way through the environment.

Whether we consider creeping populations of near-identical cells to be one individual or an army of closely-related units, clonal organisms have a knack for persisting in one place where their sexually-reproductive cousins easily wither. Asexual reproduction has allowed some species of fungi to [survive for centuries](#) in one place as a single ongoing mass, for example.

Pando has already been suspected of [being extremely old](#). To place harder limits on its actual age, the research team collected around 500 pieces of root, leaf, and

bark from its trees, as well as specimens from other, unrelated aspen, and sequenced their DNA.

Applying analytical techniques to pick out changes that have emerged over time, the researchers identified 4,000 genetic variations across the various samples. The patterns of their mutations told an intriguing story, one their models suggest dates back anywhere from 16,000 to 80,000 years.

"You would expect that the trees that are spatially close are also closer genetically," University of Chicago geneticist Rozenn Pineau told Helena Kudiabor at [Nature](#).

"But this is not exactly what we find. We found a spatial signal, but that is much weaker than what we expected."

Further studies on why its history of mutations has spread in this way and how Pando protects its genome to avoid accumulations of less-helpful genes could tell us why the plant and others like it live to such a ripe old age.

With fears that Pando's [days might be numbered](#), it's critical we learn as much as we can about the plant's ability to [handle whatever humans](#) and [the natural world](#) might throw at it.

Similar studies on other clonal organisms may even push the aspen from its perch. There's a patch of *Posidonia oceanica* seagrass off the Spanish island of Formentera which some venture might be [more than 200,000 years old](#).

We can only hope Pando sticks around to reach such a number.

The world's oldest forest dating hundreds of millions of years old has been discovered



The forest is believed to be about 386m years old, which makes it older than the Amazon© David McNew/Getty Images

There are some pretty old forests in this world – but the one which dates back the furthest is actually in [upstate New York](#), of all places.

A network of trees that is thought to have once sprawled about 400 kilometres (250 miles) was found in Cairo, USA, at the bottom of a sandstone quarry.

The forest is believed to be about 386 million years old, which makes it older than the [Amazon rainforest](#), India's legendary jungles and the remote forests of southeast Asia.

A team led by scientists at Binghamton University, New York State Museum and Cardiff University mapped about 3,000 square metres of the forest in the foothills of the Catskill Mountains in the Hudson Valley in 2019.

The forest contains early plants called cladoxyloids, which are similar to ferns, and Achaopteris trees, which have fronds for branches.

A single example of a third type of tree was also uncovered, which remained unidentified but could possibly have been a lycopod.

All these trees reproduced using only spores rather than seeds.

Dr Christopher Berry, a paleobotanist at Cardiff University, said in 2019: "You are walking through the roots of ancient trees.

"Standing on the quarry surface we can reconstruct the living forest around us in our imagination.

"This would have looked like a fairly open forest with small to moderate sized coniferous-looking trees with individual and clumped tree-fern like plants of possibly smaller size growing between them.

"In order to really understand how trees began to draw down carbon dioxide from the atmosphere, we need to understand the ecology and habitats of the very earliest forests, and their rooting systems.

"These remarkable findings have allowed us to move away from the generalities of the importance of large plants growing in forests, to the specifics of which plants, in which habitats, in which types of ecology were driving the processes of global change.

"We have literally been able to drill into the fossil soil between the trees and are now able to investigate geochemical changes to the soil with our colleagues at Sheffield University.

"We are really getting a handle on the transition of the Earth to a forested planet."

Oldest Plants in the World

Across the world, some plants have defied time, surviving for thousands “ even tens of thousands “ of years. These ancient organisms have withstood climate changes, natural disasters, and the test of centuries, adapting in incredible ways to ensure their survival. From resilient trees and clonal shrubs to hardy mosses and unique desert plants, each of these botanical wonders tells a story of persistence and adaptability. Many of these plants are found in extreme environments, which have shaped their unique characteristics and lifespans. By understanding these ancient species, we gain insights into the remarkable resilience of life and the hidden history written within each leaf and branch. Here’s a look at some of the oldest plants still alive on Earth today.



Pando (*Populus tremuloides*)

Pando, also known as "The Trembling Giant," is a clonal colony of quaking aspens estimated to be 80,000 years old. Located in Utah, it is considered the heaviest and oldest living organism in terms of its extensive root system. Despite appearing as individual trees, each trunk is genetically identical and connected to a massive underground root network. Over millennia, Pando has survived by continually sending up new shoots even as older ones die off. Climate change and grazing threats have, however, put Pando at risk in recent years. Conservationists are working to protect this ancient organism from further harm. Pando's remarkable age and size make it one of the most extraordinary examples of plant longevity.

Pando: The world's largest tree and heaviest living organism

Pando is an ancient quaking aspen tree (*Populus tremuloides*) with 47,000 genetically identical stems, or tree trunks, connected to a vast underground root system. Each stem is a clone of the one next to it and originates from a single seed that started growing up to 80,000 years ago during the [last ice age](#).

Pando — Latin for "I spread" — is the largest known tree on Earth and the heaviest living organism on record. The colony extends over 106 acres (43 hectares) and weighs an estimated 6,500 tons (5,900 metric tons), which is equivalent to 40 blue whales or three times the [world's largest single-stem tree](#) — California's General Sherman giant sequoia (*Sequoiadendron giganteum*).

Researchers realized that Pando is a single organism in the 1970s, and geneticists have since confirmed that what looks to the untrained eye like a forest is actually one giant clone, according to the U.S. [Forest Service](#). A recent DNA analysis of hundreds of tree samples suggested Pando is between 16,000 and 80,000 years old, making it one of the oldest living organisms in the world — although that research, which was published Oct. 24, 2024 to the [preprint database bioRxiv](#), has not yet been peer reviewed.

Some of Pando's stems are more than 130 years old, according to the Forest Service, and the plant should continuously regenerate the parts of itself that wither and die. But that hasn't been the case in recent years.

Pando reproduces asexually, creating clones of itself rather than mixing its DNA with that of other trees. The root system produces genetically identical shoots that grow upward, filling in the gaps between stems and keeping the plant alive for thousands of years. But according to a [2018 study](#), aerial images taken of Pando over a period of 72 years show stark signs of decline, including larger gaps in the canopy and aging stems that aren't being replaced by younger ones.



The Pando aspen clone extends across 106 acres. (Image credit: Jon G. Fuller/VWPics/Alamy)

"Imagine walking into a town of 50,000 people where everybody in town was 85 years old," [Paul Rogers](#), an adjunct associate professor of ecology at Utah State University and director of the [Western Aspen Alliance](#), told [National Geographic](#) in 2022. "That's sort of the issue with Pando."

The main culprits for this decline are [animals that eat aspen shoots](#), according to the 2018 study. Mule deer and cattle that graze in Utah's Fishlake National Forest

are chomping off the tops of saplings and killing new growth quicker than the plant can compensate for. Wolves, bears and cougars used to keep the deer population in check, but humans have now eliminated most of these predators.

Pests and diseases are also attacking Pando, with root rot as well bacterial and fungal infections affecting the stems, according to the Forest Service. "Another thought is that the Pando is just old and doesn't have the energy reserves to send up suckering [fresh new shoots]," Kurt Robins, a district ranger of Fishlake National Forest, [said in a video](#).

Aspen stands like Pando support highly diverse animal and plant communities and form an integral part of the ecosystem. "We look at the aspen as a keystone species for what they provide on the landscape."



Methuselah Tree (*Pinus longaeva*)

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The Methuselah Tree, a bristlecone pine in California, is estimated to be around 4,850 years old. Growing in the White Mountains, this tree thrives at high altitudes with cold, harsh climates. Methuselah's remarkable age is due in part to its slow growth and ability to survive with minimal nutrients. Its wood is dense and resistant to decay, allowing it to persist for millennia even as parts of the tree die off. The tree has witnessed countless seasons and changes in climate. Named after the biblical figure, it stands as a symbol of endurance. Methuselah's longevity is unmatched among non-clonal plants.



Jomon Sugi (*Cryptomeria japonica*)

© Image Editorial Credit: Chris 73 / Wikimedia Commons

The Jomon Sugi, a cryptomeria tree found in Japan's Yakushima Island, is estimated to be between 2,000 and 7,200 years old. This tree is Japan's oldest and largest conifer, with a height and trunk girth that commands respect. The humid, forested

environment of Yakushima has provided an ideal setting for the tree's growth. Over the centuries, it has withstood numerous typhoons, earning it a legendary status among locals. The Jomon Sugi is a protected national treasure, drawing thousands of visitors each year. Its ancient bark and roots have weathered the test of time. The tree is both a symbol of resilience and a reminder of nature's wonders.



Zion Curtain Juniper (*Juniperus osteosperma*)

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The Zion Curtain Juniper, found in Utah's high desert, is estimated to be over 1,600 years old. This ancient tree has survived in an environment where other plants struggle due to extreme drought and rocky soil. Junipers like the Zion Curtain adapt by growing slowly and using water very efficiently. Its

twisted branches and dense, resilient bark are symbols of its endurance through centuries. This juniper also plays an essential ecological role, providing shelter and food for wildlife. Despite its age, it continues to grow and thrive, withstanding the region's harsh conditions. The Zion Curtain Juniper is a reminder of the resilience needed to survive in arid landscapes.



Siberian Larch (*Larix sibirica*)

© Image Editorial Credit: Montr'Alais / Wikimedia Commons

Found in the cold forests of Siberia, the Siberian Larch has an estimated age of up to 2,500 years. This resilient conifer grows in some of the harshest climates, withstanding extreme cold and nutrient-poor soil. Its thick bark and needle-like leaves help conserve water and protect against freezing temperatures. Despite these challenges, the Siberian

Larch has flourished, becoming a symbol of strength in Siberia's wilderness. It also provides shelter for animals and helps stabilize the soil in its region. In winter, its needles turn yellow and fall, a rare trait among conifers, enabling it to save energy during the colder months. The Siberian Larch is a testament to adaptation and survival.



Kauri Tree (*Agathis australis*)

© Image Editorial Credit: Michael Beckmann / Wikimedia Commons

The Kauri Tree, native to New Zealand, is estimated to be over 2,000 years old. This towering tree grows in the subtropical forests of the North Island and is one of the largest trees in the world. Its thick, rough bark and expansive canopy create a natural shelter for numerous species. Kauri trees produce a

highly resistant wood, which has helped ancient specimens survive for millennia. However, the species is now threatened by disease and human activities, and conservation efforts are underway. Kauri trees are revered in Māori culture, symbolizing strength and longevity. These magnificent trees are a reminder of the ancient and diverse ecosystems found in New Zealand.



The Olive Tree of Vouves (*Olea europaea*)

© Image Editorial Credit: Eric Nagle / Wikimedia Commons

The Olive Tree of Vouves, located on the Greek island of Crete, is estimated to be between 2,000 and 3,000 years old. This ancient olive tree still produces olives, and its twisted trunk has become a symbol of resilience and heritage. It is considered one of the oldest olive trees in the world and continues to flourish despite its age. The tree has been scientifically analyzed, and its age is celebrated with an annual festival. Over the centuries, it has provided food and oil for countless generations. The Olive Tree of

Vouves is also a symbol of peace and longevity in Greek culture. This ancient tree is a living reminder of Crete's deep agricultural history.



General Sherman Tree (*Sequoiadendron giganteum*)

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The General Sherman Tree, a giant sequoia located in California's Sequoia National Park, is estimated to be around 2,200 years old. This colossal tree is the largest living tree by volume, with its massive trunk and towering height. Despite its incredible size, General Sherman grows in a relatively limited area where sequoias thrive. Its thick bark helps protect it from wildfires, which have allowed it to survive countless blazes. The tree's age and size make it a popular tourist attraction and a symbol of longevity. Giant sequoias are known for their impressive height and width, with some branches thicker

than ordinary tree trunks. General Sherman is a testament to the enduring strength of ancient trees in North America.

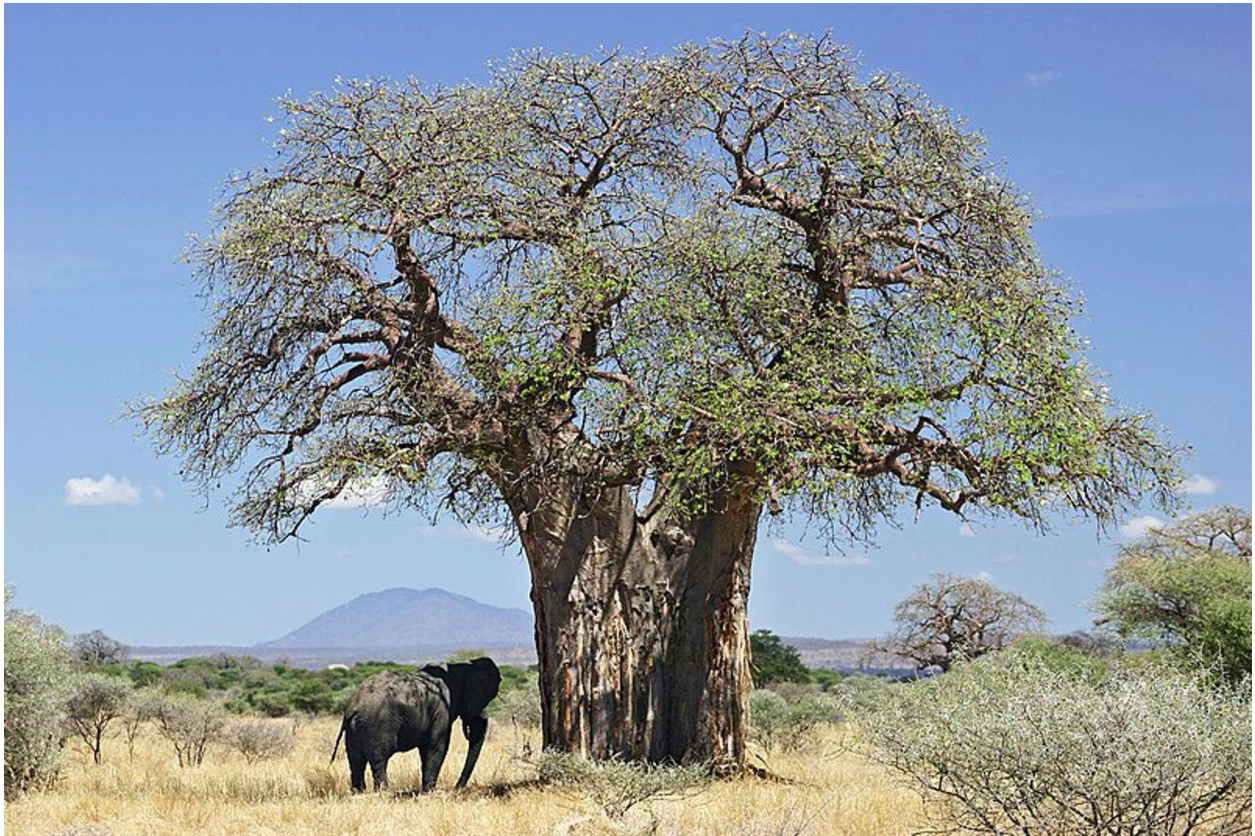


Patriarca da Floresta (*Cariniana legalis*)

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Found in Brazil, Patriarca da Floresta is an ancient tree with an estimated age of over 3,000 years. This species, known as the Jequitibã-Rosa, is native to the Atlantic Forest and is one of the tallest trees in Brazil. It plays a critical ecological role, providing food and shelter for numerous species in its ecosystem. The tree's dense wood and resilient bark have helped it survive fires and human encroachment. Due to its age and size, Patriarca da Floresta is considered a national treasure. It also symbolizes the

endangered state of Brazil's forests and the importance of conservation. This ancient tree has become an icon of preservation and natural history in Brazil.



Baobab of Sagole (*Adansonia digitata*)

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The Baobab of Sagole, located in South Africa, is estimated to be over 1,200 years old. Known for its iconic swollen trunk, this baobab is the largest in South Africa and one of the oldest known baobabs. It has been used by indigenous communities for centuries as a source of food, water, and shelter. Baobabs are uniquely adapted to store water in their massive trunks, helping them survive droughts. The tree's hollow interior has provided refuge for both people and wildlife throughout its long life. Sadly, many ancient baobabs have been dying in recent years due to climate change. The Baobab of Sagole remains a powerful symbol of Africa's unique natural heritage.



Alerce (Fitzroya cupressoides)

© Image Editorial Credit: PatagoniaArgentina / Wikimedia Commons

The Alerce, also known as the Patagonian cypress, is native to Chile and Argentina, with some specimens estimated to be around 3,600 years old. This slow-growing tree is one of the oldest and largest in South America. Its thick, reddish bark helps it withstand forest fires, while its dense wood is resistant to decay. The Alerce thrives in the cool, temperate rainforests of Patagonia, where it forms dense, towering forests. These trees have been used historically by local populations for timber, but deforestation has placed them at risk. Alerces are now protected, allowing them to continue their ancient growth. They are a cherished part of South American biodiversity, representing both resilience and the need for conservation.

'It might pave the way for novel forms of artistic expression': Generative AI isn't a threat to artists — it's an opportunity to redefine art itself

One of the key areas that artificial intelligence (AI) threatens to disrupt is human creativity — and the rise of generative AI has certainly thrown art into the spotlight. While fears remain that AI may replace human input and agency across society, a different approach suggests humans will meld with AI in some capacity — with the new technologies augmenting us rather than undermining us.

In "[Centaur Art: The Future of Art in the Age of Generative AI](#)" (Springer, 2024), computer scientist [Remo Pareschi](#) explores the notion of "centauric intelligence" — an integration of human and computing intelligence — and its impact on the future of art. In this excerpt, Pareschi explains how our primal fears are misguided and argues that the rise of AI may, in fact, help human creative endeavors transcend to new heights.

As we revisit our initial, most pressing concern — will artificial intelligence surpass human creativity in artistic endeavors? — it's crucial to recognize that the question, as commonly posed, is somewhat misdirected. Unlike games such as chess or Go, art cannot be measured by a simple win-lose metric. The fear, however, is similar: could humans be supplanted in artistic production as they have been in high-level chess?

Our analysis, grounded in cognitive considerations and carried out in the pages to come, suggests a nuanced answer. At the pinnacle of creativity — where inspiration, conception and originality reign — AI is an enhancer, aiding in realizing powerful and original works. In such contexts, the human artist's role remains paramount, with AI serving as a tool to augment their creative vision. Conversely, AI's role can become more structured or repetitive. It can automate the production of routine outputs such as certain types of commercial illustrations, brochures, or video game characters. This automation significantly

impacts professionals in these fields, who may rely on such work for their livelihood. Consequently, these individuals may view the advent of AI technologies with apprehension and concern.

Economic and legal implications

The economic threat of generative platforms is closely intertwined with concerns about copyright infringement. A notable legal action in this arena occurred in January 2023, when a group of artists filed a class-action lawsuit against Stability AI, Midjourney, and DeviantArt. The lawsuit centered on the alleged unauthorized use of artists' works to train AI tools, sparking a debate over the legal and ethical boundaries of AI in art.

The highlighted lawsuit underscores the ongoing tension between AI's innovative potential in art and individual artists' rights. Plaintiffs in the case argued that AI tools were creating derivative works based on their styles without proper authorization or compensation. In contrast, the AI art companies defended their actions, asserting that the AI-generated images were transformative and original, thus not violating any laws. In a significant development in October 2023, a US judge dismissed most of these claims due to a lack of direct infringement evidence.

On the other hand, to complicate matters further, the US Copyright Office in September 2023 rejected copyright protection for *Theatre D'opera Spatial*, an artwork predominantly created by AI and crafted by artist Jason Allen. This artwork had previously won an art contest, but the Copyright Office's decision was based on the lack of significant human intervention in its creation. This stance contrasts with the position of Lawrence Lessig, a Harvard Law School professor and a renowned expert on Internet and law issues. Lessig advocates for the recognition of copyright in prompt-generated artworks, arguing that they are original and creative, embodying the human input of the prompter. He believes these works should be treated on par with other technologically aided art forms and that they have the potential to invigorate the art world by inspiring current artists and drawing in new audiences interested in AI's artistic capabilities.

Interestingly, international perspectives on this issue vary. In November 2023, a Chinese court ruled that AI-generated content could be protected under copyright law, which starkly contrasts with the human authorship requirement under U.S. copyright law.

Thus, despite these legal battles, the issue of copyright infringement in AI art remains unresolved, with the potential for future challenges and changes in various jurisdictions. This uncertainty underscores the evolving nature of art in the digital age and the need for a balanced approach that respects both innovation and artists' rights.

A striking example of the social impact of generative platforms is the publication of *Sunyata* by Eris Edizioni, an Italian graphic novel authored by philosopher and digital artist Francesco D'Isla that combines AI-generated images with traditional text. The novel ignited controversy among artists and comic book creators, who criticized its use of AI as undermining artistic integrity and economic fairness. The author and publisher defended their work as a legitimate artistic endeavor, emphasizing their careful use of prompts and adherence to a Creative Commons license.

This case exemplifies the broader debate surrounding AI in art: balancing technological innovation with ethical considerations and the economic interests of human artists. As generative platforms continue to evolve, these discussions will likely intensify, shaping the future of art in the digital era. And yet, we might say that this is nothing new, with history repeating itself — the intersection of technology and art has always been a crucible of innovation and controversy.

Exploring new artistic avenues

Indeed, throughout history, technological advancements, from ink and paper to the development of cameras and computers, have continually opened new avenues for artistic expression. Yet, each technological leap has also brought ethical and social challenges, echoing today's tensions between generativity and control, authenticity and originality, and the impact of digital platforms on the art market.

Historically, resistance to new art forms and technologies is not a novel phenomenon but a recurring pattern. For instance, the advent of photography in the 19th century was initially met with skepticism by some critics and artists, who viewed it as a mechanical, uncreative process threatening traditional art forms. Similarly, introducing sound and color in cinema faced opposition, with concerns about diminishing the artistic value of silent and black-and-white films. Just as photography and color cinema once disrupted artistic norms, today's generative platforms like DALL-E, Stable Diffusion, and MidJourney are provoking similar debates in the art world.

To navigate this complex landscape, the insights of Walter Benjamin and John Maynard Keynes offer valuable perspectives. Benjamin was concerned about losing aura due to the mechanical reproduction of the work of art, but also recognized its democratizing potential. Generative platforms like DALL-E, Stable Diffusion, and MidJourney take this democratization one step further, making artistic creation more accessible and fostering a sense of community and creativity. Allowing users to generate and share art potentially fulfills Benjamin's social role in art.

While Benjamin's insights shed light on the cultural implications of technological advancements in art, John Maynard Keynes's concept of technological unemployment offers a crucial economic perspective. Among his many contributions to economic theory, Keynes, a prominent economist of the 20th century, explored the job loss caused by technological advancements, a form of structural unemployment that he viewed as a 'temporary phase of maladjustment'. This perspective is particularly relevant when considering the fears among artists about AI-powered generative platforms. While some artists worry about the potential for AI to diminish the demand for human-made art, thus impacting their livelihoods, it's crucial to recognize that technological changes can also create new job opportunities and artistic avenues.

Keynes' insights remind us that, despite initial disruptions, technological advancements often lead to the emergence of new roles and industries. In the context of art, generative AI might challenge traditional practices and pave the way for novel forms of artistic expression and collaboration.

Generative AI is transforming the landscape of numerous industries, and the creative fields are no exception. As the figurative arts become a focal point in the

ongoing debate, this book explores hybrid and centauric intelligence — an integration of human and artificial intelligence.