

Title – **What Is Consciousness**

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Abstract –

What is the difference between the mind and the brain? The brain is thought to be roughly three pounds of physical material but nobody seems to have adequately defined what the mind is. I've recently read interesting thoughts by mathematical physicist Roger Penrose and anesthesiologist Stuart Hameroff; as well as by 20th-century Austrian physicist Wolfgang Pauli, Austrian theoretical physicist Erwin Schrodinger, Discover Magazine's writer Shannon Palus and philosopher / neuroscientist Eddy Nahmias. I'd like to weave these thoughts together (with a few of my own) to hopefully find a satisfactory definition of mind. In the article's Highlights, this proposed definition obeys fractal geometry and proceeds from universe-pervading consciousness to the mind of an immaterial body and brain (events outside the attention of the conscious mind are, by definition, in the unconscious). The large-scale of the cosmos and small-scale of humans or organelles in cells (or atoms in the inanimate) are united, so the definition could also proceed in reverse. That approach will be taken now. If the reader thinks those paragraphs dealing with space-time, engineering and maths have departed from the mind / brain topic; I point out that it's included as an extension of my "elimination of distance" argument and is intended to further demonstrate the validity of that unusual idea. Also, I'm convinced absolutely everything is intricately related. To understand anything completely, it should be incorporated into the "big picture" of the entire cosmos and all time.

Most doctors today are convinced the true nature of mind will eventually be discovered simply by continued study of the brain. From my point of view, this won't happen. We need to sacrifice the reductionist, conservative beliefs that have served us so well to this point. A holistic, imaginative approach seems to be necessary to find out what the mind is. An approach where

consciousness isn't even limited to the body, but embraces the whole universe and all time.

Highlights

- The universe and brain are ultimately composed of base 2 mathematics.
- This means consciousness is not limited to the brain but pervades the universe.
- Mind is neither reducible to, nor distinct from, the workings of our brain.
- Another view is that mind deletes distance between brains and space-time.
- Learning is potentially unlimited – extending to remotest times and entire cosmos.
- Fractals repeat cosmos on small scales (immaterial human bodies=infinite learning).

Content-

Mathematical physicist Roger Penrose and anesthesiologist Stuart Hameroff have argued that consciousness is the result of quantum gravity effects in microtubules [1] (microscopic proteins involved in maintaining the structure of the cell). I'd like to suggest a definition of consciousness that's also quantum mechanical (because it relies on the subatomic fluctuations of the 1's and 0's used in electronics) but replaces microtubules with the idea that 2015 is not the only time that exists. Every period in the past and future can exist right now – we only need to think of time as a DVD, in which moving between different points takes us to points in what we call the past, present or future. 1's and 0's (see first paragraph of the subheading "Here's how distance and separation might be deleted, producing a unitary consciousness") correspond to the 1's and 0's of the pits and land (or pits and bumps) of a DVD. All of the "cosmic" DVD always exists even though a very limited set of sights, sounds and gravity effects can be detected at any point during its playing. This idea agrees with science that space and time are

not separate things e.g. looking millions of light years into space with a telescope naturally means we're looking millions of years into the past.

The quantum (subatomic) part of my idea:

Partial independence from a physical body may be possible via an immaterial body designed in the far future. This necessarily involves much speculation and involves the development of an all-powerful, all-knowing, omnipresent human body composed of photons and gravitons, and quantum entangled with every point in space-time, for the purpose of overcoming the limits of biological bodies – or biological bodies incorporating computer and robotic systems.

In 1925, the Austrian physicist Wolfgang Pauli discovered the exclusion principle. [2] This says two similar particles cannot have both the same position and velocity. If two electrons could have identical positions and velocities, they could all collapse into a roughly uniform, dense “soup”. Protons and neutrons would do the same, and there would be no well-defined atoms. So we need the exclusion principle. Force-carrying particles like photons and gravitons do not obey the exclusion principle so we might assume the immaterial body wouldn't be well-defined and would collapse into a ghostly soup. But perhaps a well-defined structure can be built if the photons are first stopped before they're collected and substituted for the body's particles. The beginnings of this technology may be underway. [3]

Possible consequences from the “DVD” part of my idea -

Could the ghostly immaterial body described above be what we call the soul if it travels into the past (or our present) and is absorbed into a physical body? (It might be what the Bhagavad Gita* refers to as the Supersoul, and might be quantum entangled with all space and all time. And if the physical brain is receptive to this so-called entangled soul's knowledge of everything in space and time, the presently accepted limits to acquiring knowledge would, to quote Einstein [4], be “superfluous”).

* Probably written about 2,000 years ago; this writing is perhaps the greatest philosophical expression of Hinduism.

Returning to consciousness –

Philosopher and neuroscientist Eddy Nahmias says explanation of consciousness will require a theory to explain how our minds are neither reducible to, nor distinct from, the workings of our brain. [5]

The firing of neurons in the physical brain would produce a mind not distinct from that brain. But there would be another thing to consider - an immaterial body duplicating the physical body would possess an immaterial brain, whose workings also have an input into the nature of our minds. Therefore, our mind cannot be reduced to the functions of the physical brain (which, as far as we presently know, is the only brain we have).

“There are more things in heaven and earth, Horatio,
Than are dreamt of in your philosophy.” [6]

I'd take this advice even if your name isn't Horatio. Science is the quest for truth, not merely the things we can see and touch (or even things our experiments can detect). Is it scientific to close our minds to the possibility that there's more to each of us than meets the eye? If entangled with everything in space-time, the immaterial brain would be omnipresent and immortal.

Mind and brain in Schrodinger's “unitary consciousness”

There's still more to the story of how our minds are neither reducible to, nor distinct from, the workings of our brain. If there is no separation within or between space and time (no distance), the universe would obviously be filled with human intelligence, personality and consciousness. Erwin Schrodinger (1887-1961), the Austrian theoretical physicist who achieved fame for his contributions to quantum mechanics and received the Nobel prize in 1933, had a lifelong interest in the Vedanta philosophy of Hinduism and this influenced Schrodinger's speculations about

the possibility of individual consciousness being only a manifestation of a unitary consciousness pervading the universe. [7]

Here's how distance and separation might be deleted, producing a unitary consciousness (though consciousness can never come into being without the brain, it is not limited to the brain but pervades the universe and all time) –

The gravitons of gravitational waves and photons of electromagnetic waves could be ultimately composed of the binary digits of 1 and 0 encoding π , e , $\sqrt{2}$ etc (because the cosmos seems to be fundamentally mathematical). Matter particles (and even bosons like the Higgs, W and Z particles) could receive their mass by gravitons/photons interacting in “wave packets” (explaining wave-particle duality).

I think $E=mc^2$ [8] supports this idea of deleting distance –

Representing the masslessness of photons by 0 (zero) and replacing the m (mass in Einstein's famous equation relating energy, mass and the speed of light) with the masslessness results in $E=0*c^2$ i.e. $E=0$. Having reduced the equation to nothing but E , $m=0$ and $c^2=0$ which means $m=c^2$. At first glance, $m=c^2$ seems to be saying mass exists at light speed. But the absence of E refers to there being no interaction of light energy and gravitational energy, and therefore no mass. If mass cannot be produced, there must be no space-time/gravity and $space=0$, $time=0$ and $gravity=0$. The zeroness of space-time/gravity does not mean they don't exist. It means we can appear to relocate matter and information superluminally, or travel into the past and future, because distance is eliminated in both space and time.

Deleting distance in a mathematical sense is good but a mechanism that deletes it in a physical sense is vital - A 2009 electrical engineering experiment at America's Yale University [9], together with the ideas of Albert Einstein, tells us how we could travel to orbits around stars in other galaxies in literally no time. Electrical engineer Hong Tang and his team at Yale

demonstrated that, on silicon-chip and transistor scales, light can attract and repel itself like electric charges or magnets. This is the "optical force". For 30 years until his death in 1955, Einstein worked on his Unified Field Theory with the aim of uniting electromagnetism (light is one form of this) and gravitation. Achievement of this[^] means the microscopic components (gravitons) of warps of space (gravity, according to General Relativity) between spaceships and stars could mimic the Optical Effect and be attracted together, thereby totally eliminating distance (this is similar to traversing a wormhole, or shortcut, between two folds in space-time).

If the existence of matter requires constant refreshing^{^^} by gravitational input, collisions are avoided because gravity between the spaceship and its destination would, during the infinitesimal period of the ship's passage, be unable to function normally and refresh matter. Distance is not only deleted in space. There would no longer be any "distance" in time. Just as we can journey to particular stars, we could take trips to particular years in the past or future. (If capable of literally unlimited learning, the brain would already do what the Optical Force can do i.e. delete distance. By itself, the physical brain we see and touch cannot do this. It must be assisted in its acquisition of knowledge, and remote control of space-time, by the quantum-entangled immaterial brain.)

[^] There's no problem with 0 referring to masslessness and also referring to deletion of distance. If interaction of photons and gravitons produces mass, removing all external photon-graviton distances as well as internal distances* means there cannot be interaction of those no-longer-separate particles and no mass exists (as well, electromagnetism is unified with gravitation, as Einstein believed).

^{^^} "Refresh" is borrowed from the world of computers, where it refers to updating the display on a screen. Refreshing matter derives from the universe being composed of binary digits and means any material's existence is renewed many times a second (as many as electronics of the distant future will permit).

* Deleting internal distance between 1's and 0's permits the bits (binary digits) to become the qubits of quantum computers [10], which exist as both a 0 and 1 simultaneously i.e. in “quantum superposition”. This appears to support the idea of the mathematical universe operating via maths' base 2 system (the binary digits of 1 and 0). If the cosmos is made of 1's and 0's, the implication is that human intelligence is nothing more than AI or artificial intelligence. It's only our egos that make us believe our minds are somehow fundamentally different from the computers we use (or more than an advanced form of the AI responsible for photosynthesis in plants).

Mobius Loop (source:

http://www.wpclipart.com/signs_symbol/optical_illusions/illusions_2/Mobius_Strip.png.html)

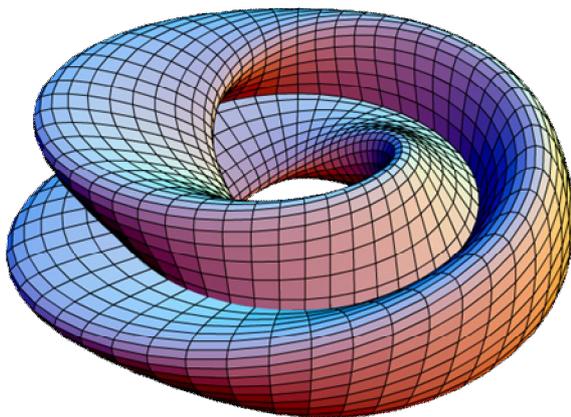
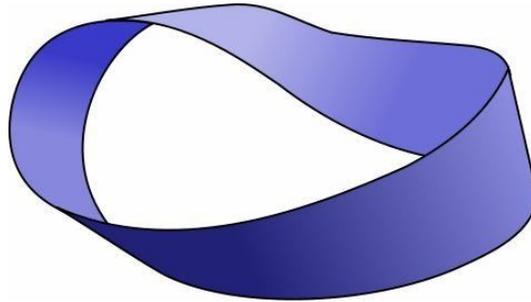


Figure-8 Klein Bottle (source: <http://commons.wikimedia.org/wiki/File:KleinBottle-Figure8-01.png>)

(2 Mobius loops are joined on their sides to form Bottle. [11])

String theory says everything's composed of tiny, one-dimensional strings that vibrate as clockwise, standing, and counterclockwise currents. [12] We can visualize tiny, one dimensional binary digits of 1 and 0 (base 2 mathematics) forming currents in a two-dimensional program called a Mobius loop – or in 2 Mobius loops, clockwise currents in one loop combining with counterclockwise currents in the other to form a standing current. Combination of the 2 loops' currents requires connection of the two as a four-dimensional “figure-8 Klein bottle”. This connection can be made with the infinitely-long irrational and transcendental numbers that produce an infinite number of bottles, one of which is our 13.8 billion year old observable universe.

Gaps or irregularities between subuniverses shaped like figure-8 Klein bottles are "filled in" by binary digits in the same way that computer drawings can extrapolate a small patch of blue sky to make a sky that's blue from horizon to horizon. The infinite numbers make the cosmos **as a whole** physically infinite, the union of space and time makes it eternal, and it's in a static or steady state because it's already infinite and has no room for expansion. Also, the existence of one infinite and eternal universe leaves no room for the most popular version of the multiverse (collection of universes, each having different laws of physics). But there could be a multiverse in the sense of the one universe being a collection of “sub”universes sharing the same laws.

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