



BP – Glossary

(Back Page links all will be active by Oct 5)

Consciousness is a creative, self-organizing intelligence that interconnects the universe across time and space and comes from beyond space-time. Consciousness shares those characteristics or properties with [light/photons](#).

Copenhagen Interpretation (of quantum physics)

From the book *Schrodinger's Kittens and the Search for Reality* by physicists [John Gribbin](#): “Other people, notably including the Germans Werner Heisenberg and Max Born, made major contributions to the package of ideas that became the Copenhagen Interpretation, But [Neils] Bohr was always its most evangelical proponent. The package was essentially complete by 1930...But it rests on some quite bizarre concepts.

The key concept is the so-called ‘collapse of the wave function’, In seeking to explain how an entity such as a photon or an electron could ‘travel as a wave but arrive as a particle, Bohr and his colleagues said it was the act of observing the wave that made it ‘collapse’ to become a particle...

*But this is only part of the story. How can the wave of a single electron interfere with itself, and how does it choose which point on the screen to collapse on to? According to the Copenhagen Interpretation, this is because what actually passes through the experiment is a wave of probability, not a material wave at all. The equation that describes how a quantum wave moves – derived by Austrian Erwin Schrodinger – is not describing a material wave like the ripples on a pond, but actually describing the probability of finding the photon (or electron, or whatever) at a particular place.” **MORE***

MORE: “On this picture, largely derived from Born’s work, an electron not being observed literally does not exist in the form of a particle at all...some cosmologists (among them Stephen Hawking) worry that it implies that there must actually be something ‘outside the Universe’ to look at the Universe as a whole and collapse it’s overall wave function. Alternatively, [John Wheeler](#) has argued that it is only the presence of conscious observers, in the form of ourselves, that has collapsed the wave function and made the universe exist.

In the Copenhagen Interpretation, an entity such as an electron is neither a wave nor a particle but something different, something we can’t describe in everyday language. But it will show us either a



IMAGINE CONTINUUM CENTER

particle face or a wave face...it may have other properties as well, that we are not clever enough to measure at all and know nothing about."

Arthur Zajonc: *"the Copenhagen (Neils Bohr and colleagues) interpretation is not explained in terms of a detailed physical model. It is as Anton Z says, "a primary unexplained notion." One alternative is to invoke observation (without explaining what it is) as that which breaks quantum entanglement and leads to the classical readings of our scientific instruments. Another, advanced by the famous physicist Eugene Wigner, breaks the infinite web of entanglement through human consciousness which produces classical reality when the nonphysical mind of a human observer gets involved."*

Heisenberg's Uncertainty Principle

"Wave particle duality, or complementarity, is related to the famous uncertainty principle discovered by Heisenberg: it is impossible to measure both the position and momentum of a quantum object at the same time. Momentum is a wave property... going somewhere and spreading out. Position is a definite particle property.

We can't get all the information pinned down; as much as 18th, 19th, and 20th science elevated predictability to an ultimate goal, unpredictability rules. But again, nowhere is there evidence that unpredictable = random.

*"David Bohm would say there really is an underlying cause for the apparent randomness, our ignorance of the initial state of the photon." - **Arthur Zajonc, Amherst physics professor, author, Catching the Light***

"At the beginning of the 20th century many phenomena began to be discovered that were incompatible with the ideas of classical [conventional] mechanics, and another mathematics began to emerge...the theoretical breakthrough came when Heisenberg tried to model what was going on and found that in order to get the models to come out right he had to assume that, contrary to the rules of ordinary arithmetic, the order of the mathematical operations mattered.

In essence he discovered that he had to start treating mathematical quantities less like numbers and more like actions...something completely nonsensical from a classical point of view.... "

Henry Stapp, a quantum physicist who worked with both Wolfgang Pauli and Werner Heisenberg; author Mind, Matter, and Quantum Theory.



CONTINUUM CENTER

The **Quantum Leap** is an unpredictable jump an electron makes from one level of orbit around the nucleus of an atom to another. Science as we know it believes in ultimate predictability...that we will soon know enough about the tiniest workings of the universe to then be able to predict the larger movements and outcomes on the level of large-scale objects (visible to the naked eye).

That's been the belief. But the truth of the matter is you can't predict when an electron will make a leap to a new level. (**Observation** changes its course.) Unpredictability rules when you get down to subatomic levels underlying the macro level we perceive with our 5 senses and empirical investigations so far.

Unpredictable is not necessarily the same as random.

When you take into account the **Observer Effect and **Non local causation**** a picture of life emerges in which work done on the inside to move one's self out of one's "comfort zone" emotionally, sets the stage for quantum leaps.

The concept of quantum leap as a new operating assumption is to realize that no matter how long things have been a certain way in your own life, or for how many other people like you, at any unpredictable moment it could jump to a new level. The way to grease the skids so to speak for quantum leaps is to practice taking emotional risks and getting out of your comfort zones.

MORE

MORE: Emotions are a primary aspect of intelligence but our conventional scientific paradigm sees emotions as not real and as secondary by-products of the brain. As individuals and as a society, we have learned to ignore or medicate emotions, and when it comes to the negative ones, it's pretty apparent neither approach works very well.

Emotions and our **emotional brain** need to be better understood. We are largely stuck in ruts of life because we have failed to develop the emotional well-being that underpins the unpredictable leaps we can make like Edo Walker,

<http://www.startribune.com/local/minneapolis/249151451.html>

And Continuum Center Executive Director, Jane Barrash, made a film about quantum leaps:

Making the Quantum Leap: over the rainbow, through the 'hoods and down the rabbit hole...on ice 8-min

preview: <http://www.youtube.com/watch?v=Rva3lfntK-o> MORE

From inner city classrooms to ice arenas, doctors' visits to top scientific commentary, *Making the Quantum Leap* is the first real-life, real-time documentary story about the quantum scientific concepts and theories describing a promising new universe of possibility...With humor, drama, surprise and inspiration, this movie is a powerful



CONTINUUM CENTER

demonstration of how to make “impossible” things come true in our magical, interconnected universe.

Jane Barrash “retired” from ice skating at age thirteen and 36 years later announced she would train for a 50th birthday performance. Despite many twists and turns (and a broken foot), the Quantum Leap Event was held April 21, 2007. Footage and photos captured a modern-day fairy tale and, amidst scenes and synchronicities that could never have been scripted, the story just kept going. *Produced by Martin Berglin and Nic Bocek; directed by Jane Barrash.*

I liked your movie quite a lot. It is very well done and I am fascinated by your work. Ron Henderson - Founder, Denver Film Festival

Most excellent. What can become of us all if we follow the Yellow Brick Road. Ron Jensen

Bravo! Great and powerful story for all. A transformational epic. Thank you for sharing. Christopher Kondo

Incredible. A much needed source of inspiration and guidance deserving of an international audience. Heather DeAtly

END OF MORE

Roger Sperry Split Brain Research

Neuroscientist, Roger Sperry won a Nobel Prize in 1981 for his research with patients whose corpus callosum connecting their **left and right hemispheres** was severed. He discovered each side had strengths and specialties. He went on to clarify his thoughts about looking at the new post-materialist understanding of consciousness and the brain: *“Current concepts of the mind-brain relationship involve a direct break with the long established materialist and behaviorist doctrine that has dominated neuroscience for many decades. Instead of renouncing or ignoring consciousness, the new interpretation gives full recognition to the primacy of **inner conscious awareness as a causal reality**.”*

On these new terms, science no longer upholds a value-empty existence, in which everything, including the human mind, is driven entirely by strictly physical forces of the most elemental kind. We get a vastly revised answer to the old question “What does science leave to believe in?” that gives us a different image of science and the kind of truth science stands for.”

Robert Ornstein: Psychology of Consciousness, 1972 *“One mode is verbal and rational, sequential in operation, orderly; the other intuitive, tacit, diffused in operation, less logical and real, a mode we often devalue culturally, personally and even physiologically.”*

Schrodinger’s Cat

The bottom line is that the Copenhagen Interpretation works, in the sense it provides a series of recipes – involving uncertainty, the collapse of the wave function, probability, the role of the observer and the



CONTINUUM CENTER

holism of experiments – which physicists can use to predict the outcome of experiments. But it doesn't *explain* anything. This realization is not new...the best known example of quantum absurdity was also developed, by Schrodinger, in an attempt to persuade his colleagues that the whole package of ideas was so ridiculous that it ought to be abandoned. I refer of course to the famous cat-in-the-box 'thought experiment', which for all its familiarity [the cat turned 80 years old in 2015] is still an example of the difficulties that any improved interpretation of quantum theory must be able to explain.

Depending on how you like to view the situation, you can imagine that the room contains a cat that is both dead and alive at the same time, or a cat that is neither dead nor alive, suspended in limbo. But you cannot, if the Copenhagen Interpretation is correct, imagine that the room contains either a simple dead cat or a simple live cat, until somebody looks.

<http://ed.ted.com/lessons/schrodinger-s-cat-a-thought-experiment-in-quantum-mechanics-chad-orzel>

The Universe contains a "Maybe". The **Observer Effect** and the role of **Meaning**, combine to explain how we unconsciously, daily, affect outcomes by 'collapsing' (taking on a particle nature or dense 3 dimensional form) Maybes into Singularities...probabilities/possibilities into actualities.