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## **Theology and Physics Series**

**St Mary's University, Twickenham, London**

**Quantum superposition and human consciousness:**

**Anything in common?**

### **Quantum mechanics and the correlated world**

At the beginning of the 20<sup>th</sup> century, physicists started to realise the Newtonian mechanics (set of laws centred on the concept of gravity and gravitational forces) was not able to fully explain how matter works.

Physicists found out that gravitational forces were much weaker compared to electromagnetic forces. This was the starting point of the development of Quantum Mechanics, namely of the theory that investigates the nature and behaviour of matter, molecules, atoms, nuclei using electromagnetic waves.

Quantum mechanics is perhaps the most successful physics theory of all. It is the theory of the atoms and of how matter can change and/or its change can be influenced. Quantum mechanics is based on the idea of “probabilities”, namely it is similar to throwing dice and counting how many times a certain number is coming



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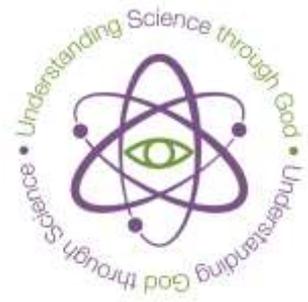
out: there is a chance that a specific number will come out but it is impossible to know with certainty when that number will occur.

The mathematical framework on quantum mechanics is pure beauty and elegance because it shows how everything is connected to everything in a harmonious pattern. As Lynne McTaggart wrote in her book entitled *The intention experiment*, “things had no meaning in isolation; they had meaning only in a web of dynamic interrelationships [...] The universe was not a storehouse of static, separate objects but a single organism of interconnected energy fields in a continuous state of becoming”. This means that the actions of subatomic particles can influence each other no matter how distant they are from each other. This phenomenon is known as quantum entanglement that Einstein notoriously defined *spooky action at a distance*. As Bruce Lipton wrote in his book *The biology of belief: Unleashing the power of consciousness, matter and miracles*, “the universe is one indivisible, dynamic whole in which energy and matter are so deeply entangled that it is impossible to consider them as independent elements”.

Niels Bohr and his protégé Werner Heisenberg (two of the fathers of Quantum Mechanics) found that it is impossible to know everything about the subatomic world, which means that if you know where a subatomic particle is in space, you cannot



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possibly know where it is going and at which speed. This is known as the *Heisenberg principle of uncertainty*. For example, do we really know where an electron (subatomic particle which orbits around an atomic nucleus in an atom) is? According to quantum mechanics, an electron can exist in multiple states and at the same time. To explain this concept Schrödinger designed his famous thought experiment known as the Schrödinger cat: *“a cat is penned up in a steel chamber, along with the following device (which must be secured against direct interference by the cat): in a Geiger counter, there is a tiny bit of radioactive substance, so small, that perhaps in the course of the hour one of the atoms decays, but also, with equal probability, perhaps none; if it happens, the counter tube discharges and through a relay releases a hammer that shatters a small flask of hydrocyanic acid. If one has left this entire system to itself for an hour, one would say that the cat still lives if meanwhile no atom has decayed [namely no radioactive phenomenon has occurred]. The psi-function [namely the wave function, which is a mathematical object that describes all the physical properties of a particular system, in this case the cat inside the box containing the radioactive source] of the entire system would express this by having in it the living and dead cat (pardon the expression) mixed or smeared out in equal parts”* (E. Schrödinger in *Die gegenwärtige Situation in der Quantenmechanik (The present situation in quantum mechanics)*, *Naturwissenschaften* (1935), 23 (49): 807–812).



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Hence, according to quantum mechanics, the cat is neither dead or alive but it is the *sum* (or superposition) of the two states. The reader is probably shouting NONSENSE by now! How can the cat be simultaneously dead and alive? This is contrary to every logic.

### **Human consciousness and measurement**

Eugene Wigner (theoretical physicist who was awarded the Nobel Prize in 1963 “*for his contributions to the theory of the atomic nucleus and the elementary particles, particularly through the discovery and application of fundamental symmetry principles*” (The Nobel Prize Foundation, 1963)) went a step farther and proposed another thought experiment known as Wigner's friend: a friend of Wigner performs the Schrödinger's cat experiment after Wigner leaves the laboratory. It is only when Wigner comes back to the laboratory that he learns the result of the experiment (namely if the cat is dead or alive) from his friend.

With this thought experiment, Wigner wanted to introduce the concept of “human consciousness” as a pivotal aspect of the quantum mechanics measurement process. This means that Wigner wanted to demonstrate that human consciousness dominated everything. What does this mean? It means that if you as a human being



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with your own consciousness, look at the cat then it is your consciousness that determines if the cat is dead or alive, namely it determines existence. The same concept was beautifully expressed by the great philosopher and mathematician René Descartes with his famous “*cogito ergo sum*” (I think therefore I am).

Hence according to Wigner the fact that you are a human being with your own consciousness determines the fact that the cat is alive. Wigner went another step farther and asked the following question: How do you know that you are alive? You and the cat belong to the same universe. Therefore, if you do not know if the cat is dead or alive (because you have not looked into the box yet) how do you know that you are alive? You could be dead without even knowing it. So, who determines that you are alive? It is Wigner that looks at you and at the cat that make both you and the cat be alive. But then who makes Wigner alive? Well it is Wigner's friend who looks at Wigner himself and in so doing he makes him alive, and so on and so forth. Therefore, there is an infinite chain of people looking at other people until you reach the so-called “*cosmic consciousness*”, which is an ethereal entity that envelops the universe and that looks at us and in so doing it makes us alive (including the cat!).

Consciousness is an inextricable part of reality. Nothing really happens in the physical world unless a conscious mind observes it.



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### Human consciousness and reality

To understand what reality is, we need to go beyond our senses (feeling, tasting, seeing, smelling, hearing) and to create a new paradigm. What is happening inside our body, brain, nervous system, etc may be caused by some kind of observer-matter interrelationship which is making reality “real” for us because it determines how we perceive reality. Different people can perceive things, feel things, see things, taste things in different ways.

The information that our brain process tells us that there is much more to what that we perceive with our senses. Therefore we know nothing about the reality that surrounds us but what is filtered out through our sensory system.

Quantum mechanics can shed some light onto the mystery of reality.

Quantum mechanics shows the potentiality and the “waves” of the information that we receive from the reality that surrounds us. But what waves are we talking about here? They are the waves of the “universal ocean”, of the ocean of pure “potentiality”, of “abstract potential existence”. These waves are mathematically described by the so-called *wave functions*, namely mathematical entities that contain in themselves all the information about the object that they correspond to (for



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example, a chair, a flower, a human being). A wave function is like a passport, a record on which all important information about that specific human being is contained.

Physics tries to grasp the meaning of reality, to understand what reality is made of and what the building blocks of life are. However, the meaning of life and the universe slips through our fingers and physicists come up with theories which are increasingly abstract until we reach pure abstraction. That is what quantum physics and all the theories that stemmed from it (the most important being the unified field theory that allows all the fundamental forces of nature to be written in terms of a single field) are. These theories are manifestations of pure abstract potential, pure abstract being, pure abstract self-awareness which raises the vibrations (namely understanding and knowledge) of particles, people and everything that we see in the universe.

In the past 50 years or so hundreds of experiments with random number generators (machines that produce only 0s and 1s) have been performed. During the experiment an operator keeps pressing the button of the random generator until a large number (above 100) of 0s and 1s is produced. You can ask the operator to make the machine produce more 1s than 0s and to perform the experiments until



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this does not happen. The question is: did it really matter that the operator tried tirelessly to produce more 1s than 0s? The answer is “Yes, it does matter” because the intention of the operator to produce more 1s than 0s is correlated with the operator himself and the random generator. Therefore, if you wish more 1s than 0s to be generated, the random generator will eventually produce more 1s than 0s.

Human brains are correlated to each other through “*intentions*” and this allows two or more people to be connected and to share each other experiences. This reminds us of the “action at a distance” phenomenon in quantum physics according to which all particles are connected through forces that act on the particles even if the latter are not in physical contact. Hence, our collectiveness (namely the fact that we are all connected to each other) has enough flexibility to permit the creation of what we imagine. This means that our intentions are strong enough to make things happen, to affect reality. However, this occurs only when we are conscious of this and we believe it.

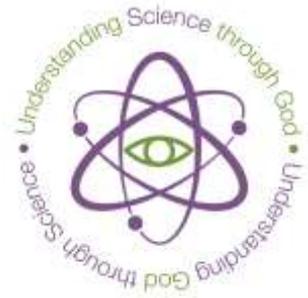
There is a very close relationship between the human mind and the universe: both are structures in layers from the most superficial to the most profound. If we use our mind in a very superficial level (ordinary thoughts) then we are limited in power and so we cannot affect reality. However, if we are able to reach our deepest level of consciousness then we can affect reality.

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Another important aspect that we need to keep in mind is that there are different worlds: the world that we see, the world of our cells, the world of our atoms, the world of our nuclei. Each of these worlds is totally different from the others (different languages, different mathematics) but they are all complimentary. They are just different levels of truth because the atoms that make us are as true as our macroscopic physiology.

The deepest level of truth discovered by science and philosophy so far is the "*truth of unity*": At the deepest level of reality all of us are ONE.