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Entangled Matter and Light

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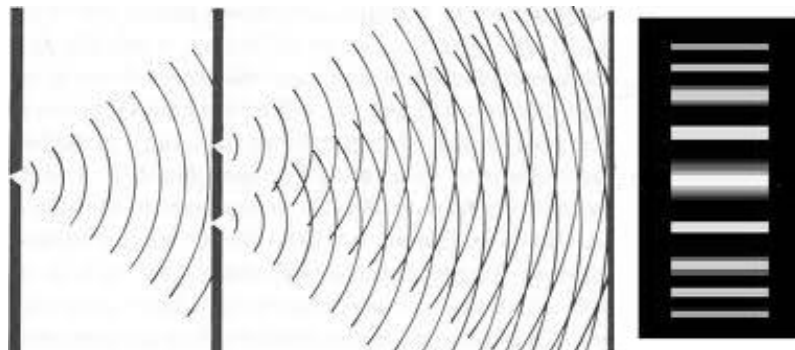
In article **8-Entangled States**, I have discussed the Schrödinger's Cat thought experiment and concluded that the universe is a **non-local, 4-dimensional fractal energy field**. The fractal aspect comes from the self-similar structures that we encounter at all levels. The reason for this self-similarity is also the consequence of entanglement. If living systems have developed from an original cell, then they are correlated and their wave structure is entangled. As external conditions change the living systems change too. This is necessary for survival, and this is what we call "evolution". But not "evolution of the fittest", rather "**entangled evolution**".

Entanglement happens instantaneously and with the help of a wave which travels faster than light. This aspect of evolution has been discussed under the heading of Spiritual Human in article **9-Morphic Field and Zeitgeist**. In his book *The Rebirth of Nature*, **Rupert Sheldrake** explains his view about the **Morphic Fields** as follows (1):

According to the hypothesis of formative causation Morphic fields are a new kind of field so far unknown to physics with an intrinsically evolutionary nature....The more often a pattern of development is repeated, the more probable it is that it will be followed again. The fields are the means by which the habits of the species are built up, maintained, and inherited.

What Sheldrake calls "repetition" is what I call "fractal iteration". As the number of individuals increase within a species, the field becomes re-iterated and creates small changes which are in accordance with the Quantum Mechanical **Principle of Uncertainty**. This uncertainty is linked to indeterminism which contributes to the adaptation of the whole species. We now have a new paradigm or model of evolution, which accepts that all members of a given species are energetically entangled and behave as a single global organism.

Entanglement can be observed not only among living beings but at all levels of nature, even among light waves. A typical example is the double slit experiment. The drawing below shows interference patterns formed by entangled light waves.



The double slit experiment is a typical example of entanglement. There is initially only one light (laser) wave. As the wave hits the surface with two slits, two waves start to propagate. but because they were originally one, they are entangled. When they meet again at the surface of a screen they interfere with each other and form interference patterns. At the right side of the above drawing we see how the pattern appears. There is strong bright line at the center of the screen, corresponding to the mid-point of the slits. On each side of this bright line we see alternating light and dark lines, becoming dimmer as their distance increases from the center. One way of interpreting this picture is to say that the entanglement of the waves becomes weaker as they move away from the central source.

If we try to observe from which slit the *photon* has passed, by sending another photon wave on their trajectory, the wave function collapses and the interference pattern disappears. Even this simple case of entanglement is still not understood and intensely debated.

Regarding our daily experiences, it has been observed that entanglement happens between identical twins. There are many observations about identical twins, indicating that their energy fields are entangled. There is the example of two boys who have been raised in different surroundings but have married two girls having the same name, and many other such observations exist. It also happens that mothers are strongly entangled to their children. They feel when the child has a problem. This is because in the beginning of the child's life mother and child were entangled, sharing the same food and the same energy.

I would say that all things in this universe is entangled, because if there was a **Bing Bang** they were all correlated within a tiny space. As the universe expands this correlation becomes weaker and give the impression that material objects are independent from each other. In fact this is a mistake of observation. If we choose to participate instead of observing we will see that entanglement is a fact.

In article **5-The Coupled Universes**, I have claimed that the wave function of particles and anti-particles are *entangled* and exist as a potential energy, which can be observed when the pair disintegrate into a common light wave. This high energy state is shown in the last drawing of the above article 5. My claim is that there exist two universes which are entangled with each other. One is our observable universe where all particles move slower than light, and the other universe is the **Tachyon Universe**, where all particles move faster than light. When Tachyons tunnel into our universe their speed reduces below the speed of light, thus becoming detectable to our instruments as anti-particles. They can only exist for a very short time and when they collide with their entangled twin; both disintegrate and vanish as light energy.

(1) **The Rebirth of Nature**, Rupert Shaldrake, Park Street Press, USA, 1994, page 110.