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## The Quantum Eraser Phenomena

Einstein once said, "...for us physicists believe the separation between past, present, and future is only an illusion, although a convincing one." This is an interesting quote about the macro world of physics, but what about the micro quantum world of physics? Theoretical Physicists like John Archibald Wheeler (July 9, 1911 – April 13, 2008) had some definite ideas about time and the zero-point field. In 1945, he devised a thought experiment that would show that time past, future, and present, is quite different in the quantum field from our everyday experience. In 1986, the ability to technically do this experiment emerged and it was completed successfully.<sup>1</sup> Wheeler's predictions were proven correct. The details of this experiment are what we shall next consider.

This test is also known as the "Delayed Choice" or "Retro-causality" experiment (Figure 8-1). It was based on a variation of the double slit experiment using lasers, half-silvered mirrors (M1, M2), detectors (D1, D2), and full silvered mirrors (A, B). In the Figure 8-1, a laser burst encounters M1 and splits into one or two directions unobserved like the double slit experiment. Next, it reflects off mirrors A or B still unobserved. As the particle crosses over point P it is detected as a particle by either D1 or D2, which tells us which path the photon took as a particle expression of light.

Figure 8-2 is the same as Figure 8-1 except that we add the second half-silvered mirror M2. M2 allows the split beam to now interfere with itself at point P, thereby creating a constructive interference wave pattern always detected by D2. This shows that the split beam is always traveling both paths or there would be not interference with M2. This displays the wave property of the photon. Remember it can be either one. It depends upon the choice of the experimenter whether to use M2 or not. This choice

decides whether the path of the photon is a wave traveling both paths, or a particle traveling only one of two possible paths.

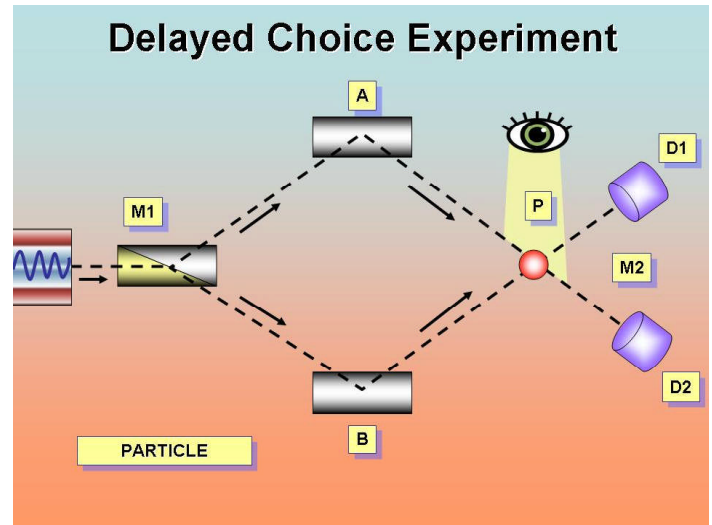


Figure 8-1: Without the second half-silvered mirror

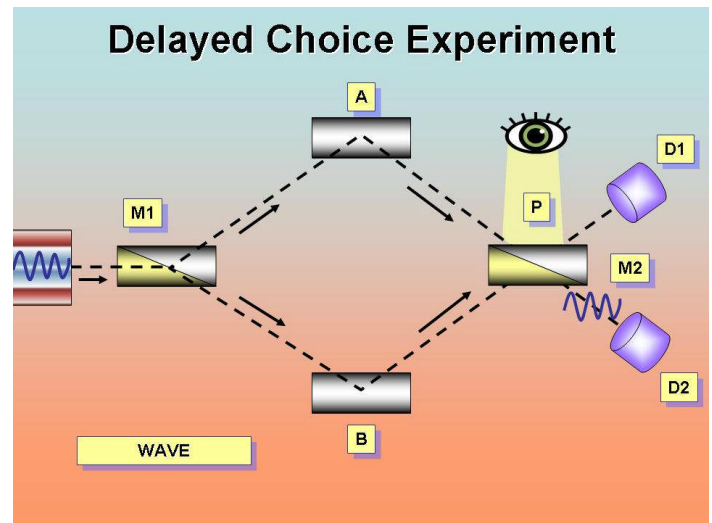


Figure 8-2: D2 always detects a wave when M2 is inserted.

Now here is where it gets interesting. What would happen if we delayed our choice about using M2? The laser would split at M1, reflect off mirrors A or B as potential particles, and would be ready to collapse into a particle at point P and be detected by

D1 or D2 telling us what path it took. However, if at the last nanosecond we insert M2, the particle instantly becomes a wave and changes its whole trajectory from the laser to the detector instantly! It would have had to travel both paths to be a wave that interferes with itself. This is called backward causality or the quantum eraser.

The delayed choice of the experimenter causes the singular particle path to become a double path or wave being reflected at both mirrors A and B. One solution to this is that the photon is always a wave in superposition until detected or observed. Even still, the choice of the experimenter still determines the photonic path taken and the modality of light expressed, wave or particle, and that the choice can be delayed. Thus, backward causality happens at the quantum level instantly, faster than light. Space is nonlocal and time is not linear.

### **Classical World Implications**

Since macro-systems in the classical world are made up of subatomic quantum systems, what are the effects of the quantum world upon the classical in regards to causality? Or more succinctly, what if the zero-point field, which consists of what I like to call three-dimensional (3D) time and one-dimensional (1D) space, coordinates coherent time space events? In 3D time past, present, and future are all present at once. Space is nonlocal and 1D. At the deepest level of the zero-point field may exist what has been called scalar waves.<sup>ii</sup> These waves are beyond the laws of electromagnetic waves, are amendable, and respond to coherence and consciousness. They also travel faster than light.

Considering all this, what is implied by the delayed choice experiment is perhaps future causes are contributing to present day effects. In addition, by being in the present moment, it may be possible to change the past. This may actually be the explanation behind spontaneous healing. Spontaneous healing may be the erasing of the original cause of the disease to begin with.

When a laser emits one photon toward a beam splitter, it becomes two twin entities, which are tied together in the quantum world. This is called entanglement. No matter how far apart they are from each other, if one is affected, the other one instantly is affected, faster than light speed. Einstein

did not like this scenario and referred to it as “spooky action at a distance.” For Einstein, nothing could move faster than light.

Physicist Alain Aspect, in 1982, carried out his best-known experiments, which confirmed that “quantum entanglement” for twinned photon pairs is irreconcilable with Einstein's worldviews. Aspect showed that if one of the twin photon's spin vector is changed, so would its twin's vector change accordingly, faster than what light speed could account for. This is because the twin photons are entangled and coherent. At the Big Bang everything that is, was entangled and compressed into a point smaller than a green pea. From the point of view of the quantum field, everything is still entangled.

### **From the Real to the Hypothetical**

As a hypothesis, how would entanglement, superposition, coherence, wave functions, backward causality, and the zero-point field that contains them, look as twin events in the classical world? What kind of events would qualify as reflections of this kind of quantum phenomena generated from the field? Like splitting a laser beam and getting two entangled photons, could a singular time potential event split into two entangled space time realities. What qualities might it have? Let us consider this possible list.

- The events must be synchronized in and beyond time.
- The events must be coherent to each other and resonate measurable comparisons, names, relationships, dates etc.
- The events should be entangled in the quantum world and that entanglement should be reflected as two collapses of related events that have correlated meaning.
- From a delayed choice perspective, each event could have been the cause of the other excluding linear time frames.
- The zero-point field would be the best explanation of such paired events.

Two events I believe that fit these criteria are the twin assassinations of John F. Kennedy and Abraham Lincoln. It may not seem obvious at first, but the list compiled below is beyond random chance mathematically. Lincoln also dreamed of his own assassination one week before it actually happened.

So here are the entangled space-time items listed below. Notice the harmonic of 100 years between the events as well as the inversion of the names of key people and relationships.

1a. Abraham Lincoln was elected to Congress in 1846.

1b. John F. Kennedy was elected to Congress in 1946.

2a. Abraham Lincoln was elected President in 1860.

2b. John F. Kennedy was elected President in 1960.

3a. Lincoln's secretary was named Kennedy.

3b. Kennedy's Secretary was named Lincoln.

4a. Andrew Johnson, who succeeded Lincoln, was born in 1808.

4b. Lyndon Johnson, who succeeded Kennedy, was born in 1908.

5a. John Wilkes Booth, who assassinated Lincoln, was born in 1839.

5b. Lee Harvey Oswald, who assassinated Kennedy, was born in 1939.

6a. Lincoln was shot at the theater named 'Ford' in box number 7.

6b. Kennedy was shot in car number 7 called 'Lincoln' made by 'Ford.'

7a. Lincoln was with his wife when he was assassinated.

7b. Kennedy was with his wife when he was assassinated.

8a. Lincoln was shot in a theater and his assassin ran and hid in a warehouse.

8b. Kennedy was shot from a warehouse and his assassin ran and hid in a theater.

9a. Booth was assassinated before his trial.

9b. Oswald was assassinated before his trial.

In the classical world, these two events are experienced with Lincoln being assassinated one hundred years before John F. Kennedy. From the quantum field, both assassinations happened at the same time. In fact, everything happens all at the same time in the zero-point field. Events only take on meaning and distance when we experience them in our classical world of linear time. Therefore,

John Archibald Wheeler's definition and purpose of time was, "to keep everything from happening all at once."

From a quantum point of view, these two events are entangled, synchronized, and coherently reflective of each other. What it leaves us asking as a possible hypothesis is, which event caused the other to collapse? Did the assassination of Kennedy cause the assassination of Lincoln in a backward causality scenario? Can we even ask such a question?

My point here is not to prove the quantum relationship between these two assassinations, but to use it as a thought experiment that promotes thinking. How many times a day do we all encounter synchronistic events. You begin humming a song that has not been on the radio in over twenty years. You go to get in your car, turn on the radio, and there it is coming through your car speaker system. Are these events entangled? I believe they are. What do you think? Just because you do not know how to reproduce them in a laboratory does not mean they did not happen. Currently, we do not really know how to test for these types of phenomena using the current scientific method and equipment.

### **Backwards Causality and Theology**

What might be the ramifications of theology both East and West in regards to quantum backwards causality? In the East, the laws of karma would simply be transcended. The law of karma simply stated is that you reap what you sow. This is sometimes called the "sowing and reaping" doctrine and it is in every religion. Perhaps what is indicated here is that like the law of gravity the binds us to the earth, we may learn to fly by understanding the laws of aerodynamics. By understanding the zero-point field, our consciousness may be able to change the past!

In the West, the doctrine of the "vicarious atonement" of Christ might also take on another dimension affected by this quantum eraser. Helena Petrovna Blavatsky in her two great works, *The Secret Doctrine* and *Isis Unveiled*, was very critical of this Christian doctrine and for very good philosophical reasons. She argued that if someone murdered a person, and then was forgiven through the vicarious atonement, the only way it would

make sense is that all of history would have to be changed. In other words, the pain that was created through such an act to the family of the murdered victim, to the parents of the murderer, and countless other ramifications from such an act would have to be erased from history, not to mention the restoration of the victim back to life as if nothing ever happened.

This is a very good argument and she had many more besides this one. However, if the past can be erased as if it never happened, this potentially sheds new light on the whole argument. Perhaps the atonement is a symbol for us as individuals to know that we can change our past if we change our habits. If we learn to focus our consciousness, become mentally and emotionally coherent, we can effect our past from the very present. Then from the point of view of the zero-point field, it has already happened, like spontaneous remission of disease and karma.

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*All back issues are available at the Website.*

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<sup>i</sup> Amit Goswami, *The Visionary Window* (Wheaton, IL: Quest Books: 2000) p. 89.

<sup>ii</sup> Lynn McTaggart, *The Field: The Quest for the Secret Force of the Universe* (New York: Harper, 2008) p. 173