

How the 1999 Experiment Solved Philosophy's Most Intractable Problem

The Delayed Choice Quantum Eraser Experiment Lifts Humanity Out of Darkness

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In 1999, a solution to philosophy's famous "bootstrapping" causal problem suddenly appeared as a result of Yoon-Ho Kim's conducting the first ever Delayed Choice Quantum Eraser Experiment. From Aristotle's famous "unmoved mover" to the supernatural self-creating deity, the philosophical search for the first cause has always resulted in the question of "well, what caused that?". This, until 1999, was the insuperable problem that stymied philosophers and the success of modernity, especially of modern physics, to sufficiently and effectively apply the scientific method has provided a clue to solving the mystery in this now oft-repeated experiment, always with the same results: there is information about the future.

To summarize the experiment, a photon is split into two with one half of the entangled photon landing on a surface at Time A; later on from this, the other entangled half is subjected to a randomized Double Slit process, where it then lands on another surface. What is ultimately mysterious and informing is that both entangled halves of the photon always land in the same way as either in a wave-interference pattern or in a two-bar pattern, while the "choice" of how it will proceed through the "choosing" of the Double Slit process does not happen until after the first half had already landed.

We may incorrectly ask: How did the half-photon know to land one way or the other? However, this is not a question of knowledge. Or, how did time warp to allow a future event to cause a past event? But this is also not a question of time. It shall be made clear below why these answers, and indeed questions, are not on point. The informing answer is that there is a structural feature of our universe that allows for information about a future event.

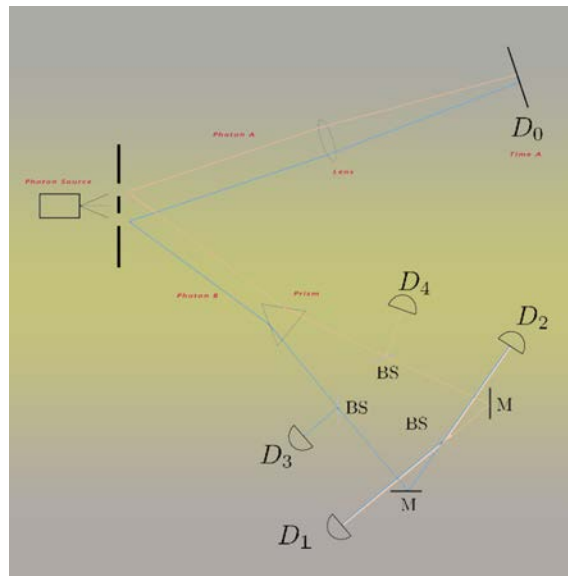
STRUCTURAL FEATURE OF OUR UNIVERSE

The early landing result at Time A provides information about the result of a future process; information in this experiment happens to be about whether a photon will land on a surface in either a two-bar or wave-interference pattern. But what is key is that there is that location at Time A. It does not matter whether this 1999 Experiment is conducted in Paris or London or Delhi, the result is the same: there is information about a future event. Thus this location at Time A is anywhere in the world, it is a structural feature of the world.

What is also central in this location is the word information. In this world, information implies sentience, a conscious creature aware of and able to communicate its awareness or not. Rocks neither have nor ask for information, and while we can certainly attribute consciousness to animals and maybe plants, sentience implies the ability to creatively lie about an experience to others. Thus, we gain an insight into both the Double Slit experiment and the Delayed Choice Quantum Eraser Experiment by better understanding the essential togetherness of information and sentience, as a heads must have a tails. As a rule of thumb, where there is information there is sentience, and where there is sentience there is information.

Thus in this structural feature of our universe, there is a location for which humans must build a "scope" (the Delayed Choice Quantum Eraser Experiment itself) in order to see. The solution to the causal trail infinite regress is to understand that there is information about the future at Time A, thus if there is a sentient creature that is able to gain access to that location without the "scope", then it then possesses information about a future event. We may draw an analogy of color blind versus color sighted people: what is invisible and impossible to

discern for color blind people, is automatic and easy for color sighted people. Gaining access to that location at Time A by the correct type of sentient creature would be as natural as assessing green leaves against a red sunset.



DOUBLE SLIT

The mystery of the Double Slit has entranced and mystified modern physicists since first uncovered in 1802 by Thomas Young. The mystery deepened beginning in the 1920s with the addition of an electron-by-electron process and then detector to assess which of the two slits the electron was going through. To everyone's lasting surprise, gaining information about the path of the electron was sufficient to have the electron switch from a wave-interference pattern into a two-bar pattern. Again we may incorrectly ask questions like: How did the electron know it was being detected? This is again not a question of knowledge. Or we may ask: What caused the electron to collapse a wave-function into a particle? This is not a question of causation.

We would find it strange to ask "what causes one moment in time to be after another". This strangeness comes from attempting to "de-simplify" time, to assert that time needs assistance to be what it is, with the assistance coming from causality. Viewed as laws of physics, laws of nature or more correctly Laws of Physical Nature, time and causality and the other Laws are equiprimordial - equally self-contained and complete, and do not allow of or require the intervention of other Laws in order that they operate as they operate. There is a Law of Physical Nature of the connectedness of all the Laws of Physical Nature and this stable connectedness Law is visible as the sustainable interplay of all the Laws of Physical Nature within the universe that we inhabit.

Thus when an electron with information being gathered about its pathway moves from a wave-function into a particle, we become able to see a structural feature of our universe. The framework of the experiment is divisible into the Laws of Physical Nature required to allow this Double Slit experiment (time, causality, entanglement, consciousness, connectedness) but the repeated consistent results of this experiment show clearly that gaining information collapses wave-functions; not the mere detecting in itself, but gaining information from that detection whether in-person or via equipment manufactured only by sentience creatures. Information, as we recall, is necessarily co-determining to sentience and sentience embodies the Law of Physical Nature of consciousness.

There has been much talk about there not needing to be a sentient creature to at the moment physically witness the information collected in order to have the wave-function collapse into the two bar pattern; that is, the information may just be stored in a computer and not viewed, while the pattern can be later viewed as the two-bar pattern. It is thus claimed that consciousness, sentience, is not needed. However, it is the case that the information is stored onto a device (the computer) manufactured by a sentience creature. Thus we may again incorrectly ask: how did the electron know that a sentient creature manufactured an information storing device and attach it to the detector in this experiment. Again, it is not a question of knowledge.

The connection had been made; therefore, the connection had been made.

In other words, for the world to correctly and sustainably function, it is not necessary for necessary connections to be knowable, only that they be made and be operating. In an artistic imagery, it is as if the Laws of Physical Nature, in their interplay to structure the world, "circle around from behind" in order to complete the necessary functioning.

ORIGINARY COLLAPSE OF THE UNIVERSAL WAVE-FUNCTION

Returning to the idea of there being a certain type of sentient creature which has the cognitive structures to sense this Location at Time A (what can be called an overhang of pre-time), we may suggest that such a creature would be able to see itself in the future without that future being real, without being tangible, without being actual. This is important because as a result of the Double Slit experiment we discovered that once a collapse of a wave-function is made and known by one sentient creature, it is that way for all others (thus providing a stable Field of Experience for all). For any sentient creature that has ability to view a future for which there are: 1) no other sentient creatures having any information, and 2) no sentient creatures having conflicting information, 3) no storage of conflicting information, this sentient creature may effect a successful collapse of a universal wave-function as a possibility or perhaps even a necessity.

Humans have given no evidence of themselves having this power to imagine a universe and then collapsing that wave-function into an actual, tangible universe. Rather, we do see the distinct possibility of having each of our choices, those made and those not made but likely could have been made, as collapsing a parallel universe. While the explanations of modern physics seems both relevant and applicable, we may suggest that such parallel universes also follow the experimentally shown limitation that such collapses of alternate universes remain viable only as long as information about such choices is available. This availability could be as simple as the ability to retell the choice from a living sentient creature, or a diary, or a digital copy of such choices. Nevertheless, there would be untold vast numbers of universes appearing and disappearing every second.

On the matter of the originary collapse of the universe, for which all other parallel universes are re-imaginings, the information available to the sentient creature able to access this Location of Time A (overhang of pre-time) would imagine itself in the temporal middle of its life. That is, the beginning of the experienced universe was somewhere in the middle of the universe as abstractly conceived in time. In the same manner that spins of electrons are entangled, Heidegger pointed out a feature of our world that everything has a history, and thus, for that singular sentient creature who collapsed the first wave-function into our universe, history cascaded backwards in time to present the connections that needed to be made in order that its image of the universe be possible, as that entanglement of everything requiring a history.

Just an artist in the morning wakes up with a painting in mind and then paints that image without the need to either understand or encode the Laws of Physical Nature, this originary collapser of the universal wave-function does not need such micro data to effect a collapse of a wave-function of such an artistic and holistic imagining. The connectedness necessary to instantiate the world as world was made in that originary collapse of the wave-function, and again we assert that:

The connection had been made; therefore, the stable and sustainable world of experience was able to be imagined from that location at Time A.

REMOVAL FROM THE DARKNESS

Thus, from the basis of repeatable modern scientific experimentation, we see that the Laws of Physical Nature are not all subject to modern scientific experimentation: time, causation and consciousness remain outside the scope of such experimentation. We may also here assert that these Laws of Physical Nature do not exist "within" the universe, and thus we cannot say that they exist; rather they are "of" the world as providers of the structure of the world both individually and within the myriad interplay of their various features.

We should draw attention to the limitation of both human languages and human cognitive structures as not the only or essential or complete tools to investigate the nature of our world; and to entertain non-human sentient

creatures with vastly different languages and cognitive structures, one of which is the ability to sense the overhang of pre-time at Location Time A. Nevertheless, we should not entertain any type of naïve materialism which suggests a "thing-in-itself" or a God's-eye-view of the "actual" universe, as the universe is an interplay of the consciousness of a sentient creature(s) with the Laws of Physical Nature and thus there is no possibility of a universe without having a sentient creature. As all sentient creatures have equal access to the universe, all children grow up with independent assessment, all understandings of the universe will be measured not as correct or incorrect according to some postulated abstract criteria, but rather that any such understandings may be judged according to whether or not they allow for sustainability of the respective sentient creatures holding such judgments.

In this paper, I have attempted to clearly and simply detail a metaphysical explanation that accords with the findings of modern scientific experiments, while seeking to overcome the infinite causal regress that has plagued philosophy. While I adhere closely to findings of modern scientific experimentation, including or especially those of quantum mechanics, I reject claims by observational science that seeks to provide the certainty and predictability of modern scientific experiment: any such claims by non-modern sciences to the predictability of modern scientific experimental findings would be a clear definition of a pseudo-science. Observational science and other sciences have their places, but on an epistemological hierarchy, they do not arise to the required level to insist upon inclusion in a metaphysical description.

The removal of magic, the removal of human sentience from the center of the universe while placing it as one among equals, the re-establishment of modern scientific findings as the basis for knowledge of our experience of the world, all of these lead to the postulation of a sentience creature that may make use of strange but demonstrated structural features of our universe to naturally create this universe. Does such a sentient creature exist? Do we have non-modern-scientific evidence of such a sentient creature?

To the first question, the answer from me is: I do not know. Others have made claims, but these claims do not arise to an appropriate level of epistemology certainty to make solid claims. As to the second question, indeed there is a wealth of information and stories stretching from the 2005 Tic Tac Situation, through the Nuremberg Event of 1561, back through to 4000 BCE that conform with Plato's assertion in the Timaeus of a "Demiurge" as artisan of the physical world.

I have attempted to detail how such a "Demiurge" is structurally possible given findings of modern scientific experimentation. In other pursuits, discovered after determining some implications of these experiments, I discover the statement by Plato in the Timaeus, and then found historical philosophic, artistic and esoteric attempts to detail what only in 1999 became understanding in terms of repeatable modern scientific findings. The implications of this paper are either profound or nothing. Should there be open disclosure of a technologically advanced sentient creature, then this paper and the other writings on this subject will take on a wholly different flavor.

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