

The complete theory of quantum mechanics

Kazmer Ujvarosy

Abstract

Based on a thought experiment the Einstein-Podolsky-Rosen paper's authors concluded that in quantum mechanics the mathematical objects called wave functions fail to describe the physical reality and consequently quantum theory is incomplete. They left open the question of whether or not a complete description of the physical reality exists, but expressed their belief that such a complete theory is possible. In this paper I show that indeed a theory that gives a complete description of the physical reality exists.

Introduction

Quantum mechanics has the reputation of being weird, and indeed it can appear to be mysterious for anyone who has the conviction that our universe is the effect of vacuum fluctuations which emerged out of nothing.¹

Explanations that derive the universe out of nothing, or from a cause lesser in value than the effect derived from it, irrationally disregard perhaps the most fundamental law of physics, namely the unfalsified principle of causality.

The principle of causality stipulates that every effect has a cause, which cause's value cannot be lesser than the effect derived from it. Otherwise the extra effect would be without a cause and could come only from nothing, what is contrary to reason.

The journal *Nature's* "The Principle of Causality" article of 18 June 1932 (129, 897) affirms the validity of causality: "The first principle which philosophy might receive, as established by science, is the principle of causality, which, in spite of recent attacks by some physicists, still reigns supreme."²

Concerning causality the U.S. novelist, Margaret Deland (1857-1945), made the relevant remark: "A pint can't hold a quart – if it holds a pint it is doing all that can be expected of it." We can express the same principle in numbers by showing – similarly as Herbert Dingle did in a letter to Max Born – that we can get 8 apples from 10 apples by leaving 2 behind, but we cannot get 12 apples from 10 apples by leaving minus 2 behind.

As it should be evident by now no experiment is needed to show that the wave function of quantum mechanics fails to give a complete description of the physical reality by reason of the fact that it suffers of what may be called "cause deficiency."

Understandably the wave function of a vacuum fluctuation that emerges out of nothing is not going to give a complete description of the universe. Even if it is argued that the vacuum contains an infinite sea of electrons, as in Dirac's hole theory, it still remains to be explained in what way managed that infinite sea of electrons cause the emergence of the complexities of the universe and human life.

The other principle established by science that also remains unfalsified is the principle of biogenesis, in spite of attacks by some scientists. *The Oxford Dictionary of Biology* stipulates: "**biogenesis** The principle that a living organism can only arise from other living organisms similar to itself (*i.e.* that like gives rise to like) and can never originate from nonliving material."³

In Jennifer Bothamley's *Dictionary of Theories*⁴ we find the following definition of biogenesis:

biogenesis (1870) *Biology* A term coined by the distinguished British biologist Thomas Henry Huxley (1825-95), this refers to the production of living organisms from other living organisms.

Biogenesis refers especially to the fundamental concept of modern biology that life comes only from the reproduction of living things, and that species can produce offspring only of the same species. *Compare with* SPONTANEOUS GENERATION.

So beside the principle of causality we have the also unfalsified principle of biogenesis that makes clear the known facts, namely that life "can never originate from nonliving material," and that "species can produce offspring only of the same species."

Indeed, nonliving matter producing life in the absence of life is not in evidence, nor macroevolution, the production of species above the species level. In the light of these solid facts, and in the light of our existence, the reasonable scientific conclusion is that human life produced us for the reproduction of itself.

Undoubtedly the nonliving never yielded even the simplest form of life, consequently as a pint can't hold a quart, and as we cannot get 12 apples from 10 apples, Charles Darwin's "simple beginning" never existed, and what did not exist could never evolve into higher forms of life in gross violation of the fundamental pillars of science, namely the principles of causality and biogenesis. "Accordingly hereto, ... in his beginning Man was Man," concluded William Fairfield Warren, the first president of Boston University, in his *Paradise Found*.⁵

Commenting on the state of theoretical physics in his *Vital Dust* (Basic Books, 1995) Nobel Laureate Christian de Duve wrote: "Physicists ... have been driven into such weird territories by their explorations that they are now far ahead of the most imaginative science fiction writers in the kind of cosmological scenarios they can invent."⁶

In the 18 December 2014 issue of *Nature*⁷ George Ellis and Joe Silk also expressed concern in their article, "Scientific method: Defend the integrity of physics." They call attention to the fact that in theoretical physics the inability to formulate a falsifiable theory that can be used to describe correctly the observed universe resulted a variety of speculative theories which are not backed up by evidence. They argue that even if a theory is professed to be elegant and explanatory it still must be falsifiable to be scientific, otherwise such speculative constructs undermine science and mislead people.

This brings us to the paper Albert Einstein co-authored with Boris Podolsky and Nathan Rosen, entitled "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?" The "EPR paper" appeared in the 15 May 1935 issue of *Physical Review*⁸ and it remains the subject of an ongoing debate over the interpretation of quantum theory.

The EPR paper

According to the authors of the EPR paper the thought experiment they invented indicates that the quantum mechanical descriptions of some physical systems are incomplete, the proposed theories fail to satisfy the criteria of completeness. Nevertheless Einstein *et al.* predicted that a complete description of the physical systems is possible.

John von Neumann, who left Hungary for Princeton and at age twenty-nine became the youngest member of the University's Institute of Advanced Study, placed quantum mechanics on mathematical foundations, and relying on his mathematical interpretations concluded that the deterministic completion of the incomplete quantum theory is impossible.

Only about twenty years later, in the 1950s, did David Bohm suggest a model which according to him was deterministic. He reasoned that quantum theory can be deterministic if we conceive of the model's hidden variables as the positions of all the particles that constitute the physical system investigated.

To keep matters simple, Bohr's alternative interpretation fails to take into account the fact that the process of system construction – involving the allocation of the positions of all the particles that constitute the system – is not possible in the absence of a factor or “hidden variable” that determines the system's properties. Thus Bohm takes the effects – *i.e.* the positions of all the particles in the system – for the cause, namely for the field manifestation of the “hidden variable.”

What seems to be evident is that in order to make the incomplete quantum theory deterministic, *i.e.* complete, the knowledge of the physical system's cause is needed. In other words if we can determine a physical system's cause we do not have to predict its characteristics statistically.

By accepting the conclusions of the EPR paper's authors that quantum theory is incomplete because the wave functions of a physical system's elementary particles do not describe completely the system's physical reality, and that in spite of that problem the formulation of a complete quantum theory is possible, we are going in search of that complete theory.

The proposed complete quantum theory

In their paper, “How to Make Sense of Quantum Physics,” published in Issue 83 of *Nautilus* (March 12, 2020),⁹ Sabine Hossenfelder at the Frankfurt Institute of Advanced Studies and Tim Palmer at the University of Oxford propose that in order to overcome the crisis in quantum mechanics “it's about time to revisit a long-forgotten solution, Superdeterminism, the idea that no two places in the universe are truly independent of each other.” But what causes that universal quantum effect? I could not find the answer to that question in their paper. Anyway what they wrote I find to be an eye opener.

The central ingredient of quantum mechanics are mathematical objects called wave functions. Wave functions describe elementary particles, and since everything is made of elementary particles, wave functions describe everything. So, there is a wave function for electrons, a wave function for atoms, a wave function for cats, and so on. Strictly speaking, everything has quantum behavior, it's just that in daily life most quantum behavior is not observable.

What I find to be an eye opener is the fact that quantum mechanics is attempting to understand how the universe works based on the mathematical wave functions of elementary particles. In my view efforts to determine what makes the universe tick by assigning values to its elementary particles is analogous to trying to determine the functions of a tree based on the wave functions of its elementary particles.

At this point let's keep in mind that if there are wave function from atoms to cats, then there are wave functions from cats to trees, and wave functions from trees to the universe as well.

Seeing that physical systems from atoms to the universe are made of elementary particles and corresponding wave functions, it seems evident that what needs to be determined is not the wave function of this or that elementary particle, but rather the identity of the agent that made from the elements of chaos everything from atoms to the universe.

To return to the tree to illustrate my point, the agent that made from the elementary particles that physical system's biomass and structure to reproduce itself is the tree's parent seed. To adopt the terminology from the authors of the paper, "How efficient is transport of quantum cargo through multiple highways?",¹⁰ the tree's parent seed, "initial state" or "input port" by acting on the elementary particles changes from its initial particle state into multiple wave functions to generate the tree's biofield, and by means of that biofield creates the tree's physical biomass and structure to produce seed output, "output port," or end state akin to itself. Stated differently, by acting on the elementary particles the input seed generates "multiple highways" for the distribution and transport of its quantum qualities or "cargo," and by means of the tree system it creates gathers its qualities back into the body of seed output. Simply stated, *the initial parent seed reconstructs itself by means of the tree system it creates into seed output*. Also it may be said that the parent seed "teleports" its qualities via the tree system's multiple quantum channels for their reconstruction into seed output.

This illustration enables us to see that in reality not the mathematical wave function of this or that elementary particle corresponds to a physical system's reality, but rather the system's input and output. The seed of a tree, containing the tree's genotype, enables us to predict with certainty the genotype's phenotype. Knowledge of the genotype also enables us to provide an essentially complete description of the phenotype tree's physical reality.

Just as in the case of a tree, it is also possible to provide an essentially complete description of the universe's physical reality. However at first we have to identify that agent which corresponds to the universe's physical reality. After all according to the EPR paper's authors for quantum theory to be complete "*every element of the physical reality must have a counterpart in the physical theory.*"

In 15 January 2014 the journal *Nature* (507, 90–93) published an article showing that trees – including California's giant redwoods – instead of decreasing accelerate their mass growth rate as they get older and bigger. Nathan Stephenson, the study's lead author, wrote: "... for most species mass growth rate increases continuously with tree size."¹¹

The world's largest tree known to us is the General Sherman Tree in California's Sequoia National Park. So based on the facts that the older the General Sherman Tree gets the faster its mass growth increases; that an estimated 97 percent of the General Sherman Tree's biomass is considered to be nonliving; and that no one living today could have observed its seed origin, are we going to extrapolate its expansion backward in time and conclude that initially the entire tree existed in an extremely compressed and hot state which dimensionless "point" exploded, giving rise to our tree's mass and structure, and eventually to the first biomolecules that managed to evolve into the complexity of leaves, flowers and seeds, as a result of "natural selection" acting on "random mutations"?

This illustration demonstrates that the scientific method of extrapolation is likely to lead to absurdities. Just as a tree's accelerated expansion is not the result of an explosion, the universe's accelerated expansion is not the result of a Big Bang. And based on the fact that just as the agent that can be used to describe correctly a tree's creation is its parent seed, we infer that similarly the agent that can be used to describe correctly the universe's creation is its parent seed.

Even if a tree's parent seed is not observable and tangible that input is indicated by the tree system's output. If a tree yields output in the form of acorns, we know that an acorn constitutes that oak tree's parent seed or input. If a giant sequoia yields output in the form of millions of tiny winged seeds, we know that a seed akin to them constitutes that giant's parent seed or input.

We posit that as in the case of a tree, so in the case of the universe. Systems resemble each other in fundamental ways, consequently if we can identify our universe's output, that output will indicate our universe's input.

Based on the fact that a tree is made manifest by its seed output – which output can be used to describe the tree's creation –, we infer that our universe is made manifest by its human output, which output can be used to describe the universe's creation.

When the space probes were in their infancy we failed to realize that a striking parallel exists between the manned spaceflights and the seed-dispersal mechanisms of plants. The fact that we have the potential to fly into space indicates that we constitute the universe's output, just as the winged seeds constitute a tree's output. From the inference that we constitute the universe's output follows that evidently human input generated the universe for our production. Both causality and biogenesis affirm the scientific validity of this complete theory of our quantum universe. Until these principles remain unfalsified, and until life superior to human life demonstrates its existence, or until what is nonliving demonstrates in the absence of life that the production of life is the basic quality of nonlife, the theory remains valid, namely that our universe has human input and output; that the human input reconstructs itself into human output by means of the universe it created; that the universe serves to produce human output akin to the initial human input; and that instead of the mathematical wave functions of the elementary particles human life constitutes the measure of the universe.

Superdeterminism explained

Superdeterminism makes sense – namely universal relatedness – in view of the theory that the universe exists in the biofield or “quantum field” of its human input, similarly as a tree exists in the biofield of its parent seed. As every particle constituting a tree's biomass is related to the tree's parent seed, similarly all things that exist in the universe are related to the universe's parent seed. Understandably the universe's parameters or determining qualities make possible the production of human output – similarly as a tree's parameters make possible the production of seed output – because the universe is the human input's way of producing human output in its own image.

The human input's biofield in which our universe exists – the so-called “cosmic background radiation” – is evidently the quantum network or “quantum internet” that serves to secure instantaneous connection or universal relatedness. Thus not even the universe is isolated: it is open to its human input, and its functions are governed by the laws of that initial input. That explains the origin of the so-called “laws of nature.”

From the inference that our universe has human input and output follows the possibility of communication between the universe's human input and output. I propose that prayer is in fact a form of information feedback to the cosmic system's human input on the part of the universe's human output. Prayer, in other words, indicates the existence of instantaneous quantum communication between the universe's human input and output.

By providing information feedback to the cosmic system's human input theoretically we transform the universe from an open-loop cosmic system into a closed-loop or self-correcting system. Thus from the point of view of systems science stabilizing feedback in the form of prayer contributes to the well-being of our universe and should not be discouraged. This does not mean, however, that prayer should be institutionalized. It should remain private communication between the universe's human output and its human input or Creator.

The Creator's quantum nature

The formula that Jesus Christ is both God and man, *i.e.* in his person exist two natures, was agreed on by the bishops of the Ecumenical Council of the Catholic Church assembled in Chalcedon on the 8th of October 451. What remained a question is how the two natures are related to each other. That question needs to be answered.

The Council's decree is significant particularly for quantum theory because of the early recognition that in Jesus Christ's person the Creator of the universe is both a man – *i.e.* a tangible physical reality or “particle” – and God – *i.e.* an intangible “field” manifestation of the man Jesus. As already indicated, we see this particle-field manifestation of duality in nature. For example a pine seed is a tangible particle, but when it acts on the elements of matter it displays intangible field properties, forming the biofield of the pine tree's biomass to produce seeds in its own image. In other words we see that a tree is the input's or parent seed's instrument or “manufacturing plant” for the production of output seeds in its own image. This analogy explains the statement in Genesis 1:27 that God created the universe for the production of man in his own image.

As a tree is the input seed's way of producing seed output in its own image, so is the universe Jesus Christ's way of producing human output in his own image.

Also we see that a tree exists in the biofield of its parent seed. The tree's parent seed constitutes antimatter in the sense that its existence of the tree is independent. Similarly to a tree, our universe exists in the biofield of its parent seed, namely in Jesus Christ's biofield. Thus Christ constitutes the antimatter of the universe in the sense that being the universe's seed or input and output he exists independently of the universe. The existence of the universe depends on Christ, but Christ's existence does not depend on the universe. Simply stated, the universe is life-dependent, but life is not universe-dependent. Christ's independence of matter explains his antimatter nature, *i.e.* his eternity.

I find questionable the claim that in 1996 physicists at CERN's costly particle accelerator in Geneva, Switzerland, created the first atoms of antimatter. What is eternal cannot be created. Indications are that instead of particle physics developmental biology and engineering will help us utilize the seed power that animates the universe.

From the seed origin of the universe follows that all subatomic events are under the parent seed's control, and that the parent seed is the source of the vibratory patterns in quantum mechanics. Thus the biofield of the universe's human input is seen as vibratory patterns in quantum mechanics. For our ancestors it was the Holy Spirit or Holy Ghost.

Regarding the strings of quantum mechanics they may be related to the paired strands that constitute the genetic codes of all organisms. Knowing that the universe itself is an organism with human input and output, I propose that the human genome's paired strands constitute the codes for the creation and functioning of the universe. Also I propose that the alleged uncertainties in quantum theory are derivable from the consciousness of the universe's human input, *i.e.* derivable from Jesus Christ's universal consciousness.

The final result of this examination is that quantum theory's two basic models – the particle model and the field model – can be satisfactorily unified in the formula that the seed of the universe in the person of Jesus Christ is both man (particle) and God (field). The source for both manifestations is the same person.

John A. Wheeler stated: “No phenomenon is a physical phenomenon until it is an observed phenomenon.”¹² This means that according to the Copenhagen interpretation of quantum mechanics the physical universe is the product of an observer, which observer had to exist prior to the physical universe. Evidently Jesus Christ is that “observer.”

Conclusion

From what has been said so far I think it is evident that Einstein, Podolsky and Rosen were correct: the “description of reality given by the wave function is not complete ...” Also they correctly predicted that a complete description of the physical reality is possible. Indeed, it is possible: the universe is the human input's way of reconstructing itself into human output, which output in turn can constitute the input of the next universe, *ad infinitum*.

While the existence of a singularity that contained the entire mass of the universe in a superconcentrated and superhot dimensionless state is not in evidence, in this complete quantum theory human life – constituting the universe's input and output – is indubitably in evidence, and is testable.

References and notes

¹ Tryon, E. P. *Nature* **246**, 396–397 (1973). The first physicist to propose that our universe originated as a quantum fluctuation was Edward P. Tryon, a professor emeritus of physics at Hunter College of the City University of New York. See his paper online, “Is the Universe a Vacuum Fluctuation?” Accessed online: 12/28/2020. URL: <https://www.nature.com/articles/246396a0>

² “The Principle of Causality.” *Nature* **129**, 897 (18 June 1932). Accessed online: 12/28/2020. URL: <https://www.nature.com/articles/129897b0>

³ Martin, E., & Hine, R., eds. *The Oxford Dictionary of Biology*. (Oxford University Press, Oxford, 2015).

⁴ Bothamley J, ed. *Dictionary of Theories* 56-57, 500 (Visible Ink Press, Detroit, 1993, 2002).

⁵ Warren, FW. *Paradise Found* 418 Houghton (Mifflin, Boston, 1885).

⁶ Duve, de Christian. *Vital dust: Life as a cosmic imperative*. (BasicBooks, New York, 1995).

⁷ Ellis, G., & Silk, J. *Nature* **516**, 321-323 (2014).

⁸ Einstein, A., Podolsky, B., & Rosen, N., 1935, “Can quantum-mechanical description of physical reality be considered complete?” *Physical Review*, **47**: 777-780.

⁹ Hossenfelder, S. & Palmer, T. N. “How to Make Sense of Quantum Physics.” *Nautilus*, Issue 83.

Accessed online: 12/28/2020. URL: <https://www.nautil.us/issue/83/intelligence/how-to-make-sense-of>

¹⁰ Roy, S., *et al.* “How efficient is transport of quantum cargo through multiple highways?”

arXiv:1802.10398v1 [quant-ph] 28 Feb 2018.

¹¹ Stephenson, N., Das, A., Condit, R. *et al.* “Rate of tree carbon accumulation increases continuously with tree size.” *Nature* **507**, 90–93 (2014). URL: <https://doi.org/10.1038/nature12914>

¹² Scully, Robert J. *The Demon and the Quantum* (Wiley, 2007). Accessed online: 10/15/2020. URL: https://todayinsci.com/W/Wheeler_John/WheelerJohnQuotations.htm