

Being and Reality

An Essay by Christopher Bek
christopher.bek@gmail.com

Summary—This essay identifies God, Adam and Eve as light; delineates the quantum, the relativistic, and the electromagnetic as reality; and describes being in the universe.

Quotation—The most incomprehensible thing about the universe is that it is comprehensible.

—*Albert Einstein*

Baruch Spinoza's (1632-1677) concept of "substance" is central to his philosophy, defining substance as that which is self-sustaining and independent. Accordingly, there is only one substance, which he identifies with God or Nature. I would argue that this one substance is light, as the Holy Bible says in 1 John 1:5: "God is light." This substance is infinite, eternal, and represents the underlying reality of everything that exists. Spinoza argued that other aspects may exist that are modes or expressions of substance. This substance has an infinite number of attributes, but humans can only perceive two: thought and extension, which are modifications of substance.

The Quantum Realm describes the strange and counterintuitive world existing at the smallest scales of the universe where the rules of quantum theory take over. Unlike the relativistic realm that we experience in everyday life, the quantum realm represents the scale of atoms and subatomic particles that behave in ways which can seem bizarre and paradoxical. The quantum realm is characterized by wave-particle duality such that particles like electrons and photons exhibit both particle-like and wave-like behavior depending on how they are observed. Particles in the quantum realm may exist probabilistically in multiple states simultaneously

known as superposition, which is famously illustrated by Schrödinger's cat thought problem. Particles in the quantum realm can become entangled such that their states are linked so that the state of one particle instantly affects the state of another, no matter how far apart they are—a phenomenon Einstein referred to as spooky action at a distance. Heisenberg's uncertainty principle applies to the quantum realm whereby there is a fundamental limit to how precisely we can know certain pairs of properties of a particle, such as its position and momentum, simultaneously. Quantum computers use principles from the quantum realm like superposition and entanglement to perform calculations at speeds unattainable with classical computers.

Electromagnetism refers to the phenomenon governed by the electromagnetic force encompassing a range of processes and interactions involving electric and magnetic fields, including the propagation of electromagnetic waves such as light, radio waves, and X-rays. James Clerk Maxwell formulated a set of four equations describing how electric and magnetic fields interact and propagate—thereby unifying electricity and magnetism into the theory of electromagnetism. Visible light occupies only a very thin slice of the entire electromagnetic spectrum. Electromagnetic waves are oscillations of electric and magnetic fields that propagate through space at the speed of light. Electromagnetism is one of the four fundamental forces of nature, with the others being gravity, the strong nuclear force, and the weak nuclear force. It plays a crucial role in the structure and behavior of matter, governing the interactions between charged particles. Electromagnetic waves exhibit probabilistic behavior in the quantum realm,

and are relativistically deterministic.

The Relativistic Realm. Special relativity is a theory in physics put forth by Albert Einstein in 1905 which revolutionized our understanding of space, time, and energy—based on two key postulates: The principle of relativity and the constancy of the speed of light. The principle of relativity says that the laws of physics are the same for all observers in uniform motion relative to each other, so that there is no preferred inertial frame of reference. The constancy of lightspeed says that the speed of light in a vacuum is invariably fixed at 299,792 kilometers per second, regardless of the motion of the light source or the observer. To accommodate this constancy, length contracts and time dilates for bodies as a function of velocity as per the Pythagorean theorem. Specifically, length contracts according to the equation: $L^2 + v^2/c^2 = 1^2$, where L = length, v = velocity, and c = lightspeed. If $v = 0$, $L = 1$, if $v = .87c$, $L = .50$, and if $v = c$, $L = 0$ —meaning that a body traveling at the speed of light shrinks in the direction of motion to zero length. Similarly, if one replaces length with time in the relativistic Pythagorean equation, we can see that time, for a body traveling at the speed of light, stops and is, in effect, eternal. As such, lightspeed represents a fundamental boundary of the spacetime continuum. Einstein's general relativity in 1915 generalizes special relativity and describes gravity not as a force, but as the curvature of spacetime caused by mass. Relativity predicts definite outcomes, while quantum theory provides only probabilities. Relativity is focused on the macroscopic whereas quantum theory is concerned with the atomic and subatomic.

The Story of Adam and Eve originated from Christian, Jewish, and

Muslim religions. Contrast the literal versus allegorical interpretations of Adam and Eve. The literal means that they are actual people whose essence is created by God. The allegorical means that they are eternal beings of light responsible for creating their essence. Existentialism says existence precedes essence, so that we arrive on the scene and then are responsible for creating our essence. Essentialism says that our essence is created by God, and that our only responsibility is to behave ourselves. I choose the allegorical as I choose responsibility for creating essence. Thus, consider the allegorical interpretation of Adam and Eve as entangled beings of light or photons. The Big Bang was first proposed in 1931 by a Catholic priest named Georges Lemaitre who argued that the universe emerged from a primeval atom. Adam is a photon that materializes into an electron and a positron through the process of pair production that converts energy into matter—which becomes the primeval atom as the universal starting point that forms the quantum realm—from which the relativistic realm emanates—and Eve in turn becomes electromagnetism. The quantum realm holds a collection of building blocks including: space, time, quarks and electrons. The elements localized within the relativistic realm are embedded realizations of the quantum realm. This singular quantum realm suggests that particles appear to be entangled over great distances, but is in fact indicative of a deeper level of reality. The quantum realm essentially contains an alphabet from which beings in the relativistic realm create great works of literature. Adam or the quantum realm and Eve or electromagnetism are two poles between which the everyday relativistic realm occurs as a house for being.

Levels of Being. EF Schumacher (1911-1977) describes the different levels of being in the universe hierarchically as follows: From a base of inanimate matter, man has the power of life like the plants, the power of consciousness like the animals, and something more—the power of consciousness recoiling upon itself—which is the power of self-awareness. Man is not merely a conscious being, but a being capable of consciousness of his own consciousness—not merely a thinker, but a thinker able to watch and study his own thinking. This power of self-awareness opens up unlimited possibilities for purposeful learning, investigating, exploring and formulating knowledge.

Brownian Motion. According to Schumacher, inanimate matter occupies the lowest level of being, representing inanimate objects like rocks, minerals, and all non-living matter, where there is no life, consciousness, or purpose. Robert Brown (1773-1858) was a Scottish botanist who made important contributions to botany, including his pioneering use of the microscope where he first observed Brownian motion—the random movements of particles suspended in a medium of liquid or gas. In studying wildflower pollen grains suspended in liquid, he discovered that the particles were irritable and would not stay still. He seized upon the fact that they move about endlessly jiggling in a strange, erratic fashion in travelling across the microscopes field of view. He then discovered that this seeming fact of vitality extends to all inorganic matter. Most scientists ignore this paradigm shifting fact that matter is animated, but it was confirmed by some including Bywater, Leeuwenhoek, Wiener, and a succession of French and Belgian Jesuit priests. In 1880 Father Delsaulx noted that small pockets of

liquid trapped in quartz indicate that Brownian motion had been persisting for millions of years. Ten years later a French scientist named Louis-George Gouy performed a series of experiments involving Brownian motion proving that this phenomenon is not caused by some external agitation. According to the mathematician and physicist, Freeman Dyson (1923-2020), electrons are active agents making conscious choices. He also said that the mind is already inherent in every electron, and the processes of human consciousness differs only in degree but not in kind from the processes of choice between quantum states which we call “chance” when they are made by electrons.

Housing Being. While Dyson argued that consciousness evolves in a continuous fashion as being, Schumacher represents being as progressing in discrete, discontinuous steps. Now consider reconciling these two world views as represented by a four-story house signifying the four levels of being. The existentialist and Nobel Laureate, Albert Camus wrote: I want to be the perfect actor. Consider that conscious electrons act perfectly in facilitating the creation of matter on the first floor, life on the second floor, animals consciousness on the third floor, and the realization of self-awareness or souls or points of light on the top floor.

Closing Arguments. Thales of Miletus is credited with ending a war by predicting a solar eclipse that occurred on May 28, 585 BC. Accordingly, Thales predicted an eclipse taking place during a battle between the Lydians and the Medes—where the sudden darkening of the sky caused both sides to stop fighting and seek peace. By realizing the facts that God is light and electrons are conscious, wars might end and we all could find cause to seek peace.