

Platonic Cave and Pythagorean Theorem

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

Summary—This essay tells the story of Plato's allegory of the cave, the Pythagorean theorem, and holography relating to the universal sphere of my The Theory of One.

Quotation—The entire quantum Universe exists inside a single atom.
—*BigThink.com*

There is a Frank & Ernest comic strip that shows a chic breaking out of its shell; looking around and proclaiming: Wow, Paradigm Shift!

Plato's Allegory of the Cave. Another paradigm shifting tale is found with the Greek Plato (428–348 BC) who used his famous allegory of the cave to illustrate the difference between spurious belief and genuine knowledge—a distinction that lies at the heart of his most important work *The Republic*. An allegory is the figurative treatment of one subject under the guise of another. Imagine prisoners chained inside a cave in such a way that they can only see shadows projected onto the wall from a fire and objects behind them. With my Theory of One, I portray the universe as a sphere-shaped phenomenon that houses Being (life, consciousness, and self-awareness) as its primary function. This innate reality is made up of stepwise concentric spheres like the Russian nesting dolls, with a singularity at the centre. The concentric spheres coincide with the different fundamental forces of nature and the domains of reality that make up the universe. With his allegory of the cave, Plato identifies a fire as a source of light; and with objects located such that the two combine to cast shadows on the cave wall. The prisoners in the cave are chained such

that they only see the shadows cast on the cave wall. The prisoners accept as reality the shadows on the wall—and violently oppose those who would expose their ignorance. A prisoner named Socrates breaks free of his chains and climbs out of the cave into daylight. After a time, his eyes adjust to the light and he returns to the cave intending to free the prisoners. But back inside the cave Socrates now has trouble making out the shadows. And his obvious attempt at liberation only serves to anger the prisoners for revealing the illusory nature of their existence. They become so overwrought with anxiety that they proceed to kill him for it. As Voltaire said, "It is difficult to free fools from the chains they revere." This aspect of the cave allegory corresponds to my The Theory of One that recognizes innate reality as a contained singularity; with perceived reality being the inner surface of the outer perimeter—aka the event horizon. Perceived reality is holographically encoded on the inner two-dimensional surface of the event horizon—which relates to the cave allegory as the shadows being cast on the cave wall. This conceptualization of innate reality is that of a movie theater in which we are both spectators and actors in the great drama of existence. The fire equates to the singularity, the objects are represented by monads, and the event horizon is the cave wall where perceived reality is a matrix of movie screens.

The Theory of One provides a God's Eye View of the universe under the aspect of eternity. In 2001 I mailed out drafts of my The Theory of One to thirty people, and received Thank You letters back from Canadian Prime Minister Jean Chrétien, Alberta Premier Ralph Klien, and CBC Chief Correspondent Peter Mansbridge. The Theory of

One is my evolving theory describing the universe as a necessary sphere-shaped phenomenon that houses Being—life (quarks), consciousness (leptons) and self-awareness (photons)—as its primary function. With a contained singularity at the centre, the outward concentric spheres are: nuclear-strong, nuclear-weak, atomic realm, elemental realm, event horizon and electromagnetic realm. The spherical universe has a radius of light speed. The perception from outside the sphere is that of a self-aware source of energy. Now consider the concluding paragraph from the 1988 *A Brief History of Time* by Stephen Hawking: "If we do discover a complete theory of everything, it should be understandable by everyone and not just a few scientists. Then we shall all, philosophers, scientists and ordinary people, be able to take part in discussing questions as to why both we and the universe exist. If we find the answer to that it would be the ultimate triumph of human reason—for then we would at last know the mind of God."

The Pythagorean Theorem. Pythagoras died around 495 BC in Metapontum, Lower Italy, starving himself for 40 days because of his grief over the persecution and murder of many of his followers, the Pythagoreans. It is believed that Pythagoras coined the words "philosophy" (love of wisdom) and "mathematics" (what is learned). The Pythagoreans pursued studies of mathematics and philosophy as the basis of a moral life. The Pythagorean theorem is: $a^2 + b^2 = c^2$ for a right triangle. Relativity, geometry, trigonometry, algebra, differential equations and even imaginary complex numbers are founded on the Pythagorean theorem. There are more than 370 different proofs of the Pythagorean theorem showing its huge scientific

spectrum that is contained within a simple right triangle. The Lorentz transformation represents the kernel of relativity that is essentially the Pythagorean theorem: $x^2 + y^2 = r^2$. For relativistic length contraction: $(v/c)^2 + L^2 = 1^2$, v = velocity, c = light speed, L = length. If $v = 0$, $L = 1$; if $v = .87c$, $L = .50$; if $v = c$, $L = 0$. Going from zero to light speed is like the hour-hand on a clock going from 12 to 3, where the hour-hand represents the hypotenuse of a right triangle. Upon reaching light speed, objects land gently on the surface of the event horizon at the edge of spacetime—meaning light speed is a boundary of the universe. The Pythagorean theorem was known long before Pythagoras but he may have been the first to prove it. In any event the proof attributed to him is a simple proof by rearrangement. Imagine a square 2D box of dimensions: $x + y$ containing four identical right triangles of sides: x , y , r . The triangles are first arranged in the corners of the box with the space in the middle representing r^2 . It is then a simple matter of rearranging the triangles to show the equivalence of the spaces proving that $x^2 + y^2 = r^2$ thus yielding the Pythagorean theorem. The reader may try it for triangles of sides: 3, 4, 5; $3^2 + 4^2 = 5^2$; $9 + 16 = 25$. QED.

Waves and Holograms. In physics, mathematics and engineering, a wave is a propagating dynamic disturbance of one or more random variables. Periodic waves oscillate about an equilibrium value with some frequency. A wavefront is an imaginary surface representing corresponding points of a wave that vibrate in unison. It is the set of all locations in a medium where the wave is at the same phase. The term wavefront has meaning only for fields that vary sinusoidally in time with

a single temporal frequency. Holography is a technique of recording wavefronts moving in time so that they can later be reconstructed. It is the practice of generating real three-dimensional images encoded on two-dimensional surfaces. Holography has a wide range of other applications. A hologram may be a two-dimensional picture of a whole object like the universe that appears to be three-dimensional. The reader may recall seeing holograms on credit and ID cards that employs the technology to prevent copying.

The Wave Function. In 1923, Louis de Broglie made the bold assertion that if light waves could be particles, then particles like electrons could also be waves, thereby establishing a direct relationship between an electron's wave-like property (frequency) and its particle-like property (momentum). The wave function generates essential, probabilistic information about the electron state, such as energy, angular momentum and orbital orientation. It is a complex-valued probability amplitude where the real-valued probability distribution can be derived from the wave function through the act of complex-squaring—effectively being the Pythagorean theorem: $(a+bi) \times (a-bi) = a^2 + b^2 = c^2$.

Monads are elementary discrete substances that reflect the order of the universe, from which all material properties are derived. The metaphysical and physical are integrated. Monads are likewise metaphysical things that, when taken together with material compounds, makes things what they are. The term monad or unit was first used by the Pythagoreans in acknowledging the beginning number of a series, from which all other numbers follow. There are cones of being that are individual spherical cones containing

monads which are quarks, leptons and photons. A spherical cone is part of a sphere defined by a conical boundary with apex at the center. Monads originate from the singularity and represents Being contained within the contents of their spherical cone. The regions around the singularity are made up of concentric spheres, and each cone transverses the concentric spheres. Monads travel in cones at velocities between zero and light speed, and are projected onto the event horizon by the singularity. The event horizon is the aggregation of cone caps for everybeing. It is a matrix of holographic movie screens—where everybeing gets their own channel—and where string theorists might even call it the multiverse thesis.

Creation in Nature. The Theory of One predicts Nature going all the way back to before the big bang where God pulled the oldest trick in the book by using reverse psychology and commanded Adam and Eve not to eat an apple from the tree of knowledge. Adam and Eve were beings of light or photons living in Eden who disobeyed God and ate the apple—making the big bang an orgasm with Adam exploding inside of Eve. As Edgar Allan Poe wrote in his 1848 landmark classic *Eureka*: “The Law we have been in the habit of calling Gravity exists on account of Matter’s having been irradiated, at its origin, atomically, into a limited sphere of Space.” It is clear that this contained singularity develops naturally like sex and the gestation that follows from it. It is natural to conceive of the universe and view it whole—and to try and see it for the holy metaphysical machine that it is. The Theory of One Creation unites Nature with The Holy Bible through the erudition of fundamental physical-metaphysical truths.