

Quantum Evocation: Reimagining Causality

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Human history is punctuated by periods during which our perception of reality is irrevocably transformed. It happened when we realized the Earth was a sphere floating in space, and when we came to know that Earth was not at the center but was a speck in an endless universe, and when we grasped that every living thing on Earth had a common lineage, and once again when we understood that every particle in the universe came out of a tiny fireball billions of years ago. But never has the shift in our idea of reality been as radical as the one that came out of the quantum revolution. Quantum theory has transformed our very idea of existence and causality.

A Brief History of Motion

One of the most fundamental questions regarding nature has always been, what causes things to move. The changing answer to this question makes for some compelling history. But more importantly, it has had a strong influence on the evolution of our cultures.

The earliest known explanation of motion came from Aristotle. He noticed that heavenly bodies move in circles around Earth while earthly objects move up or down. He attributed an object's motion to what it was made of. Sun, Moon, and stars move in perfect circles because they were made out of a sublime element called quintessence. Things made from earth and water tended to move towards the center of Earth, their natural resting place. Air and fire, on the other hand, moved upwards because they yearned for the highest reaches of the sky. These explanations may seem simplistic to us now, but they foreshadowed what was to come more than two millennia later in the form of quantum theory.

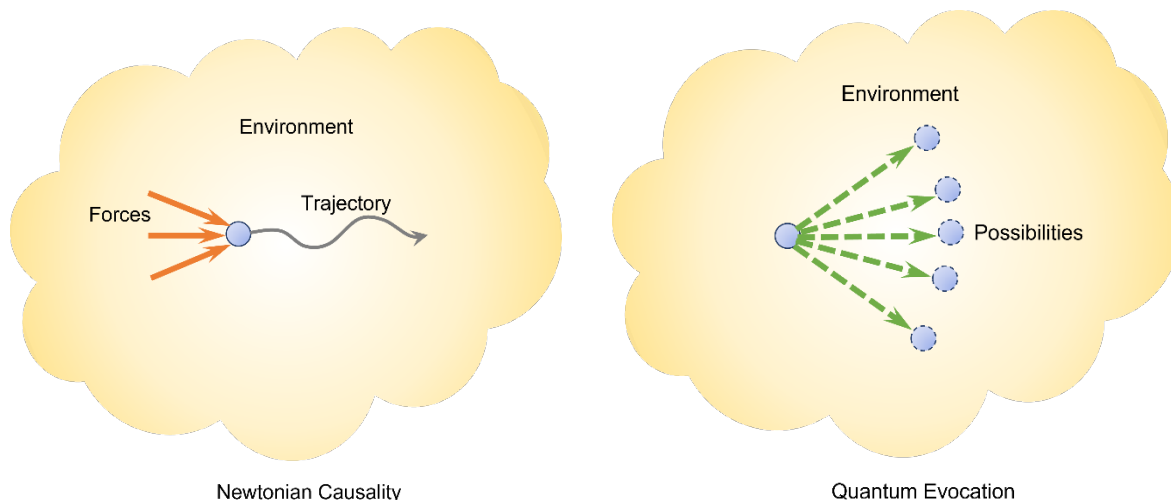
Other ancient cultures went deeper in attributing a cause to motion. Living things stop moving when they die, but their bodies remain unchanged. It made sense to assume that their motion was caused by a non-material spirit, which leaves the body at death. But non-living things move too! Rocks tumble down hills, streams surge over stones, rivers meander through valleys, winds sweep over plains, ocean waves rise and fall and even mountains rumble and explode. It seemed natural for ancient people to attribute all motion to an animating spirit within the

object. This idea still persists among indigenous peoples, and it helps them relate to their environments in eco-centric ways, that have become lost to the rest of us.

It was Galileo and Newton who advanced the study of motion from inspired speculation to empirical science. Motion could now be predicted, measured, and verified. What made this possible was the attribution of motion to measurable external forces acting on the body. It is this idea, more than anything else, that predisposes our minds to the modern-day belief that objects lack autonomy, and have been placed in our service by nature. Such assumptions demonstrate how a metaphor arising from science can become part of our culture and influence our actions.

Quantum Evocation

The new science of quantum physics has once again changed our understanding of motion. Newtonian motion is an emergent phenomenon that shows up at the level of everyday reality. Deep down, an object's motion is not driven by external forces pushing on it but by a set of possible new positions beckoning the object to step in. The object's environment does not apply a force on it; it changes the likelihood of which open position it is apt to move into next. There is no way to predict where the particle will go; it can end up in any of the possible positions. There is no continuous trajectory; the particle magically jumps to its next position. Indeed, the motion can't even be ascribed to a cause; it happens spontaneously. This is a revolutionary discovery. *Motion happens not as a helpless response to an external stimulus but as an unpredictable choice from a set of future possibilities. The future is not caused, it is evoked. This is quantum evocation.*



The idea of quantum evocation is not limited to motion. It applies to all change at the quantum level. The future does not happen because it is pushed by causes in the past, it unfolds because it is evoked by possibilities in the future. An electron is not attracted by a proton to form an atom. An atom is induced into existence by a special pattern of possibilities to which the electron is allured. This is not unlike Aristotle's stone yearning to be at earth center or fire reaching for the sky, each driven by its affinity to a place. A quantum particle is not really dead! *In Deeptime language it has interiority (something inside) which gives rise to its subjectivity.*

The existence of multiple realizable possibilities lends richness to evolution that simply wouldn't be there with Newtonian motion. If, as Newton imagined, motion is propelled by a linear chain of cause and effect, then at best the cosmos would be filled with a single galaxy made up of one kind of stars that have one kind of planets going around them. There could be no life in such a universe. It is quantum evocation that gives the universe its diversity. In Deeptime terminology we call this aspect of evolution, *differentiation*.

Quantum Wisdom

Emergent behavior is very different from the underlying elements that produce it. The properties of water are nothing like the properties of the two gases from which it is made. Quantum evocation gets washed out in how we experience the motion of everyday objects. Each atom in an object is still evoked into its future possibilities, but the whole object seems to move in a linear Newtonian fashion. *Quantum evocation cannot be witnessed with our naked eyes.*

The wisdom of quantum evocation lies in the metaphor it brings out. It offers us a new way in which to interpret the dynamics of how we live our lives and solve our problems. Let there be no doubt that we make use of metaphors every time we tackle life. Our current metaphors stem from Newtonian ideas. Our approach to addressing a problem is to look for its cause and focus on getting rid of it. Newton would say, remove the force if you want to stop the motion. This keeps us fixated on the past. What if we directed our attention instead to what might be possible in future and let the possibilities evoke us to a place where our problems lose relevance. Could that be a more powerful approach to our lives and for a world that seems more mired each day with unsolvable problems? *The quantum evocation metaphor offers us a new context from which to reimagine our lives!*

In quantum evocation it is affinity that drives change towards one possibility more than others. When applied to human behavior these affinities are sometimes called allurements. To make ourselves amenable to being evoked into the future through these allurements, we need to be tuned into them. The wisdom we are culling from quantum physics suggests that our time and energy may be better spent in feeling into our allurements rather than searching for root causes. Once we become present to these internal affinities, we can ease up on the force and effort we often apply to solving problems. We can simply let ourselves be evoked into the future through the power of our allurements.

Our institutions too can benefit from aligning with the metaphor of quantum evocation. The collectives that we create when we bring our individual minds together for greater good are best served by the new set of possibilities they generate. As long as we focus on realizing those possibilities our institutions grow and expand in healthy ways. When we get obsessed with eliminating the causes of what we perceive as problems, we lose sight of the inspirational context that furnishes true power to our organizations.

Why do we think quantum metaphors work in our current world? Cosmic evolution is a spiral process. Themes that drive evolution forward show up regularly at different stages of evolution. Atoms were evoked into being by possibilities that emerged in a cooling universe; stars were evoked out of possibilities created by gravity in a fragmenting gas cloud; new species are evoked out of possibilities created by empty niches in an evolving ecosystem. Creating a flourishing community on Earth in future may require bringing into our consciousness a radically new set of possibilities and letting our allurements evoke them into being. *That's the metaphor the quantum world offers to us.*

Those who have studied and reflected upon consciousness tell us that human thought is more aligned with quantum evocation than Newtonian causality. We can hold multiple possibilities in our head and use our gut to tell us the one that is best to act on. The human mind seeks and cultivates possibilities so that our allurements can give them expression. Living from the openness of a future filled with possibilities lends a whole new power to life. It is the power that comes from feeling aligned with billions of years of cosmic evolution.

Evoking the Universe

The most far-reaching revelation that comes out of quantum evocation is that classical causality is an emergent idea. This has profound consequences on how to conceive of the origin of our universe. “What caused our universe into existence” is a perennial question to which humans have sought answers. This seeking has led most religions to posit the existence of a “first cause” often equated with God. If the universe started out as a fireball smaller than an atom, then its origin must be regarded as a quantum evocation event. That implies the universe was not caused; it was evoked into being by its affinity towards the set of possibilities of what it could become!

Quantum theory shows that a state of nothingness can erupt spontaneously into a tiny universe, which starts to expand right away. No first cause, other than the existence of the quantum principle itself, is needed. This does not imply that science has solved the mystery of existence. Far from it. Science, however, has enabled us to reframe the original mystery. The question is not who created the universe, but where did the quantum principle come from? Once we grant existence to this principle, the universe has no choice but to be evoked into being. It does so by latching on to one of the numerous possibilities that “nothing” is allowed to transform into while staying consistent with the quantum principle.

And this gives us yet another way to frame the origin mystery. The principle that gave rise to the universe is made up of four fundamental forces. The affinity that evoked the universe into being is a manifestation of these forces. There are a trillion ways in which the forces could have manifested an affinity for future possibility. Only a handful of these can create a universe capable of intelligent life. Most possibilities end up with a universe that either collapses too soon or rips apart too quickly before life can get a foothold. The origin mystery then becomes: *What was the unrelenting affinity that prompted the realization of the one out of a trillion universes that can accommodate butterflies, zebras, poetry, and music?* We humans are an ongoing expression of that original affinity that enabled the first quantum leap towards a life-bearing planet that would get called Earth.

What have we been seeking? First Cause? First Principle? No, it is the First Allurement! Could our seeking then be more of a yearning? *A yearning to experience and know the allurements that evoked us into being!!*