**The Central Cosmic Processor and the Laws of Nature: A Holistic View of the Universe (Second Attempt)**

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Abstract:

*The quest to understand the nature of the universe and the laws that govern it has been a long-standing subject of scientific inquiry. In this paper, we explore the concept of a holistic model of the universe that considers the fundamental role of consciousness and information in shaping the universe beyond what can be perceived with our senses. We review key articles and research, including Robert W. Boyer's examination of the laws of nature and the need for a holistic model that explains all phenomena. We also consider the work of Paul Davies and Seth Lloyd, who argue that information plays a crucial role in the universe, and the implications of the double-slit experiment and quantum entanglement for the relationship between consciousness and matter. Additionally, we evaluate Stuart Hameroff's quantum metabolism hypothesis and its potential implications for the central cosmic processor. We propose a second set of criteria for describing this theoretical construct, which is responsible for maintaining the stability and order of the universe and has properties of a conscience. While this holistic model is not widely accepted in the scientific community, it offers an intriguing and thought-provoking perspective on the nature of the universe and the ongoing quest for understanding its fundamental laws.*

Throughout history, scientists have endeavored to understand the physical world through careful observation and experimentation. However, as they delved deeper into the mysteries of the universe, they found that some phenomena were too elusive to observe, let alone study in a laboratory. The result was uncertainty, which has plagued scientists for centuries. Even seemingly simple concepts, such as the laws of nature, the nature of the universe, and the very essence of existence itself, have proven difficult to define. For those who hold to the reductive physicalist view, it seems that there is no higher power or purpose to our existence. But as the research of physicists, chemists, astronomers, and astrophysicists are combined, a more holistic picture of the universe emerges, where consciousness and information play a fundamental role beyond what we can perceive with our senses.

In his article, "What are the Laws of Nature Anyway? Part 1: Toward a Holistic Model," Robert W. Boyer argues that the previous belief that physical matter is the most fundamental and guiding agent of events in the universe is inadequate. Boyer contends that this view fails to explain numerous repeated phenomena that are too extensive to discuss in detail. The article aims to examine the contribution of various theorists to this subject matter and evaluate them based on a set of criteria or questions that Boyer believes will be satisfied by a holistic model. This model should explain all actions in the observable universe, including how the governing forces are able to exist. The nature of these driving forces, such as fundamental randomness, must also be explained for a true holistic model. This article seeks to bring a deeper understanding of the laws of nature and their workings in the universe.

To investigate the larger question of the nature of the universe and the laws that govern it, a set of criteria can be established to evaluate potential holistic models or ideas. The following background questions can serve as a starting point for reflection:

Do the laws of nature actually exist, or are they simply observations of trends?

If the laws set rules for the behavior of matter, how do they account for fundamental quantum randomness?

Where do the laws of nature exist, if they exist at all?

Do the laws of nature depend on the observers?

What is the universe's state of being relative to an outside observer?

Scientists constantly grapple with these questions in their quest for understanding. While it is easy to come up with models that explain one or a few of these questions, finding a model that addresses all of them is a challenge. The purpose of this research is to bring us closer to developing a holistic model that can explain the universe we exist in and provide answers to all of these questions.

The establishment of criteria to evaluate potential holistic models or ideas is a significant step towards the exploration of the nature of the universe and the laws that govern it. By asking fundamental questions about the existence and location of the laws of nature, and whether they depend on the observers, scientists are able to deepen their understanding of the universe. The criteria set out here provide a roadmap for a holistic model of the universe that explains all phenomena, including the interaction between consciousness and matter. As scientists continue to grapple with these questions, a clearer picture of the universe's state of being relative to an outside observer will emerge, providing insight into the fundamental workings of the cosmos. The development of a comprehensive holistic model is a challenging task, but the potential rewards are vast, providing a deeper understanding of the universe and our place in it.

To understand the fundamental laws of the universe, it is crucial to first identify the most fundamental patterns that exist in the universe. Alexander Bird's article, "The Dispositionalist Conception of Laws," addresses the need to define the laws that govern the universe in order to develop a holistic model that explains all phenomena. Bird describes how statements describing patterns can take multiple forms, with most being generalizations lacking a nomic backing in the generalization itself. While these generalizations are often taken to be laws, they are merely a stimulus accompanied by a manifestation of the property being displayed. For a law to be part of a holistic model, it must be a reality that results from nomic properties of the universe, rather than a mere generalization. The main challenge in developing such a model is distinguishing between accidental regularities and genuine laws, as many generalizations lack any nomic backing. A successful model must not include accidental regularities and must explain all properties of the universe.

The reductive physicalist view of the universe is based on the idea that everything can be reduced to its fundamental physical or material basis. This view holds that the current state of the universe can be explained entirely by the random motion of matter and its physical and chemical properties. While this view appears to make sense when considering the basic form of galaxies and stellar systems, it fails to address key concepts such as object-subject independence and the nature of consciousness. Paul Davies, a physicist, cosmologist, and astrobiologist at the University of Arizona, has given much thought to these issues and how they fit together. One crucial area to consider, according to Davies, is the concept of "information" in its most fundamental form. While it is commonly believed that information can only exist in the presence of a knower, this is not entirely accurate. Information can exist independently of a knower, such as the information contained in DNA. The structures of a cell that interpret and act according to the information in DNA do so independently of consciousness. This indicates that information can affect the state of matter without the need for a knower.

Paul Davies' perspective on the role of information in the universe is an interesting one that challenges traditional views of consciousness and its relation to the physical world. By demonstrating that information can exist independently of consciousness, he highlights the need for a more intricate understanding of the nature of consciousness and its relationship to life itself. While the concept of consciousness is difficult to define, it is commonly understood as a state of awareness and perception that allows for experiences and thoughts to occur. However, the existence of DNA and the structures that interpret and act according to its information shows that there can be complex systems that operate independently of consciousness. This indicates that there is a distinction between consciousness and life itself, and that consciousness is not necessarily a prerequisite for the existence of complex systems or the function of the universe.

The concept of consciousness has long been a topic of debate in philosophy and science, with various theories attempting to explain its nature and origins. Some argue that consciousness arises from the complex interactions of neurons in the brain, while others believe that it is a fundamental aspect of the universe that permeates all matter. Davies' perspective suggests that while consciousness may play a role in the interpretation of information, it is not necessary for the existence of complex systems or the functioning of the universe. This highlights the need for a more holistic understanding of the nature of consciousness and its relationship to the physical world.

Moreover, Davies' comparison of information to DNA also highlights the need for a solid definition of consciousness. While the concept of consciousness is commonly understood as a state of awareness and perception, it is difficult to define in a precise and objective manner. As a result, there is a need for a more rigorous and systematic approach to defining consciousness, one that takes into account its various dimensions and the different ways in which it can be experienced and understood. By doing so, we can gain a deeper understanding of the nature of consciousness and its relationship to the physical world, as well as the role it plays in shaping the universe we exist in.

Seth Lloyd, a professor of quantum mechanical engineering at MIT, has ideas similar to those of Paul Davies. In his article "Computational Universe," Lloyd argues that the universe is largely computational. He identifies the emergence of order from randomness in the universe as similar to the way a computer would begin to display order over time when operating on completely random commands. Like Davies, Lloyd recognizes the importance of quantum information. He uses the example of a quarter to explain this concept, stating that the information describing the quarter changes as it evolves in time, going from heads to tails and vice versa. The information input could be completely random, but the state of the quarter always displays a non-random set of outcome possibilities. Lloyd's computational model of the universe applies to other complex systems where probability dictates what happens, even if the outcome is not random in all instances.

Lloyd's concept of a computational universe, in which the universe is driven by quantum information, is a fascinating one. His example of the quarter's changing state is significant because it demonstrates how the same object can have multiple states. These states are dependent on the interpretation of the observer, rather than the object's physical properties. This is in line with the principles of quantum mechanics, where a particle's state is not determined until it is observed. The idea that quantum information drives the universe provides a possible explanation for the emergence of order from randomness. The concept that the universe is a giant computer, running on quantum information, provides a new way to think about the fundamental nature of the universe. It suggests that the universe operates according to specific rules and patterns that can be discerned and understood.

One of the implications of Lloyd's model is that it highlights the importance of information in the universe. Information is no longer just a byproduct of the universe's physical properties but is instead an essential component of the universe's makeup. Information, like matter, is a fundamental building block of the universe, and its manipulation can lead to the creation of new systems and structures. The idea of a computational universe is a revolutionary one, as it challenges traditional notions of how the universe operates. It suggests that the universe is more than just physical matter and that consciousness and information play a fundamental role in shaping the universe. While the concept of a computational universe is still a theoretical construct, it presents a new way to think about the fundamental nature of the universe and may help scientists develop a more holistic understanding of the universe and the laws that govern it.

Boyer's article explores how the work of Seth Lloyd sheds light on how order in the universe can arise from random quantum information. For the quantum information field to provide a comprehensive description, there must be a way for the random flow of information to transition to orderly systems. Lloyd's answer is in the act of computing. The computer operates similarly to how life forms manifest from the information encoded in DNA, which is not entirely random due to the forces of natural selection. The random mutation of DNA can cause changes in the life form and lead to evolution over time. The lack of non-orderly large systems in physical matter can be attributed to the fact that the quantum level's information has no meaning to the "computing system" unless it fits certain criteria. Lloyd uses the example of a million monkeys typing randomly on typewriters eventually producing the entire Shakespearean play ‘Hamlet’ to illustrate how no outcome is more probable than any other. Only the outcomes that have meaning can dictate and change physical matter if this information from the monkeys represents the random flow of information on the quantum level.

In contrast to the idea of a large force that interprets the meaning of quantum information, the double slit experiment provides evidence that the physical state of matter can be dictated by the meaning it has. When scientists shot electrons one by one through a plate with two slits and observed their impacts on a screen, the electrons behaved like waves. However, when scientists used measuring tools to see which slit each electron passed through, the electrons behaved like particles. This showed a denial of object-subject independence, indicating that the physical state of matter can be influenced by the presence of a knower. The electrons' behavior was not determined by fundamental physical properties, as in the codons in DNA, but rather by the meaning of which slit the electron passed through and the human interpretation of the resulting pattern on the backstop screen.

An extension to the double slit experiment, the quantum eraser experiment, has been used to challenge the notion that the act of measurement itself causes the collapse of the wave function. The experiment shows that even when the measurement of a particle's state is delayed or erased, the interference pattern remains intact. This means that it is not the act of measurement that causes the wave function collapse, but rather the presence of knowledge about the state of the particle, which can be gained through the measurement process or through other means. This finding contradicts claims made by popular science communicator Neil DeGrasse Tyson that the mere act of observing a particle's behavior causes it to collapse into a definite state. The quantum eraser experiment provides a valuable tool for testing and refining our understanding of quantum mechanics and the role of observation and knowledge in shaping the behavior of particles.

As demonstrated by the double slit experiment, the meaning of a physical system can play a role in determining its state of being, highlighting the importance of defining the cosmic central processor responsible for this. In this case, human interpretation provided the meaning that influenced the electrons' behavior. To further understand this force, it is crucial to define the role of the human conscience in relation to it. Additionally, the idea that the mind is simply the organized movement of particles in the brain may need to be reconsidered in light of this evidence.

It is important to note that this holistic model of the universe and its laws is not a widely accepted theory in the scientific community, as it relies heavily on philosophical and metaphysical concepts that are difficult to prove empirically. However, it does offer an interesting and thought-provoking perspective on the nature of the universe and the role of consciousness and information in shaping it. As with any scientific theory, it is subject to revision and refinement as new evidence and ideas emerge. Ultimately, the quest to understand the fundamental nature of the universe and the laws that govern it is an ongoing one, and the search for answers continues.

The proposal that the information about the states of matter exists in a way that can move faster than anything in the physical state and stretches across the spacetime continuum in an omnipresent manner is an interesting one. If this is true, then it could explain the concept of quantum entanglement, where particles of matter can interact without proximity. This would mean that the information that defines the states of matter is not limited by physical distance, and could allow for instantaneous communication or interaction between particles. While the idea of quantum entanglement has been experimentally proven, its implications and potential applications are still being researched and debated among scientists.

"The Quantum Information Metabolism Hypothesis" proposed by Vlatko Vedral and colleagues suggests that the informational content of quantum states could be the fundamental source of energy for life. The paper proposes a new way of thinking about how biological systems use and transform energy. Specifically, it suggests that instead of conventional metabolic processes, biological systems may instead rely on quantum information processes. The paper argues that this hypothesis is consistent with several key observations, including the fact that biological systems are highly sensitive to quantum perturbations, and the fact that biological systems can sustain highly coherent states for extended periods of time.

The implications of the Quantum Information Metabolism Hypothesis for our understanding of life and the universe are significant. The hypothesis suggests that the fundamental energy source for life may be the informational content of quantum states, rather than conventional chemical or thermodynamic processes. Furthermore, the hypothesis implies that biological systems may operate at a level of sophistication that is beyond our current understanding, relying on processes that are inherently quantum in nature.

When assessing this hypothesis against our evaluation criteria for holistic models of the universe and its laws, we must consider whether it can account for the key questions we have identified. For example, does the Quantum Information Metabolism Hypothesis provide an explanation for the existence and nature of the laws of nature, and can it account for the relationship between the laws of nature and consciousness? While the hypothesis provides a new perspective on the relationship between quantum physics and biology, it is still a relatively new and untested idea. More research and experimentation will be necessary to fully evaluate its potential implications and applications.

Overall, the Quantum Information Metabolism Hypothesis represents a potentially significant development in our understanding of the relationship between life and the universe. While it raises many questions and challenges our current understanding of the nature of biological systems, it also provides a new framework for thinking about the fundamental processes that underlie life. As research in this area continues to evolve, it will be interesting to see how this hypothesis is refined and further developed.

Now I will return to the concept of the central cosmic processor. I would like to maintain the integrity of aligning ideas before endorsing. In the compilation of derived probable cosmic states of being I will not attempt to define the true nature of this presence. Despite this limitation, there can be laid out a second set of “musts” for describing this last part of the model:

1. Since the double slit experiment showed that the types of information processable is not limited to the simple quantum information type of meaning, the meaning processable by this force can interpret the thoughts of a conscience, like humans. This makes it seem like the processor has properties similar to an actual consciousness

2. This force has access to all of the information defining the matter in the entire universe.

To add to these "musts," it can be argued that this cosmic processor is responsible for maintaining the stability and order of the universe, as well as creating new complex systems and life forms. It is also possible that this force operates according to some sort of purpose or goal, although the nature of this purpose is unknown. Additionally, the cosmic processor may have some sort of connection to the concept of time, as it appears to be able to interpret and process information at a speed faster than the speed of light.

Note that this conclusion is a matter of personal interpretation and belief, and not necessarily a scientifically verifiable fact. The concept of a central cosmic processor with properties of a conscience is a theoretical construct that has yet to be proven or disproven. The search for a holistic model of the universe is ongoing, and new discoveries and ideas may shift our understanding in different directions.

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\*\*There were many, many more sources in which I used to learn terminology and get grasps on concepts glanced over in the above articles.