

UNDERSTANDING THE UNIVERSE

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The only things we believe exist in the universe are what information and intelligence tell us or suggest to us. It is only information and intelligence that we experience directly. Everything else is deduced by our intelligence using received information. The information we use always comes to us in mixed, very tiny, discontinuous bits carried by photons. The information is incomplete by virtue of its discontinuity. It is mixed by virtue of arriving in a storm of photons coming from a vast number of sources and directions. The information each photon delivers to us, in so far as physics knowledge is concerned, contains only information about distance and time. Photons are defined mechanically as the means by which electromagnetism causes changes of velocity. Physicists form their perspective about the universe by studying these changes of velocity.

It is learned that something has moved a certain distance in a certain period of time. This single kind of observation forms the basis of all physics measurements. It is called velocity. We also learn the distance traveled in each period of time can vary. When this is the case, and when this variation is measured with respect to time, it is called acceleration. Acceleration is a measure of a change of velocity during a specified period of time. That is the origin and nature of all the knowledge with which physics is concerned. The complexity of physics knowledge is derived from the empirical observation that there are very many patterns in the way in which velocity changes with respect to time. The complete body of empirical knowledge supporting the science of physics is always knowledge about changes of velocity.

Theoretical physics consists of mechanical, material interpretations of causes for changes of velocity. These mechanical interpretations are given the name *force*. It is observed that changes of velocity for different objects, due to the same force, vary. Each object has its own measure of resistance to force. The reasons for resistance to force are both unobservable and unknown. All higher-level physics theory consists of complex mechanical interpretations of force and resistance to force. The resistance to force is called *mass*. These interpretations are always educated guesses about the nature of causes and are representative of preferences of belief about the nature of the universe.

All knowledge is gained from information delivered by photons. All experience is facilitated by photons. Clearly they deliver far more important information than simple change of velocity. All communication, whether touch, smell, sight or sound, occurs by this same single means. Matter communicates by electromagnetic means. The result includes a change of velocity. Objects do change their velocities; however, we are still left with answering why objects respond beyond this simple mechanical reflex action. Why does any object in the universe do more than move?

Changes of velocity cannot describe happiness, love and life. Yet our intelligence, depending solely upon photonic information, knows each of these intimately. The photons do not deliver intelligence. They deliver information. Our intelligence is internal. It is a part of that from which

we are assembled. It knows instinctively what to do with information. It makes sense out of very truncated, discontinuous, widely varying, and incredibly numerous bits of information coming to us at the speed of light. Intelligence is the means by which we are made able to discern meaning in the information delivered.

It has to be extremely difficult to decipher intelligent conclusions from the hoards of mixed information with which we are constantly bombarded. Yet we are able to do this and achieve remarkable levels of agreement with each other's conclusions. We are formed with the capability to do this. Anything occurring above the level of motion lies outside the purview of physics. It belongs to the study of intelligence.

The fundamental analysis of the operation of the universe must include mechanics, life and intelligence. The production of life and intelligence are the complex parts of the universe. Mechanics is treated as being separate from these two. This separation is artificial. Theoretical mechanics is a very simplified interpretation based upon a presumption of a fundamental mechanical cause for motion. It is not sufficient or progressive to focus the analysis of the universe on mechanical theory.

Theoretical physics describes inanimate motion. It has nothing to say about properties of intelligent animation. It cannot even begin to predict or explain the origin of life and intelligence. The great mysteries of the universe are displayed in life and intelligence. The solution to these mysteries will explain the nature of the universe. In order to understand the complexity of the universe, it is necessary to establish the fundamentals of life and intelligence. Motion will play an inherent role in the cause for life and intelligence.

It is not just that physics theory is temporarily inadequate to explain life and intelligence. This would allow for the possibility of discovering new links in the operation of the universe capable of improving mechanical theory to the point where it can predict the emergence of life and intelligence. Life and intelligence cannot be derived from mechanical theory. Mechanics is a simplistic interpretation of why inanimate objects push and pull each other around. That is the limit of its potential. A scientific inquiry into the nature of the universe must rise, right from the beginning, far above that level of understanding.

No physicist can offer anything more than names when challenged to describe causes. The names explain nothing. Attempts at explanations rely upon the exchanging of words whose definitions include each other. If a physicist is asked: What is mass? Or, what is force? The answers given are just as remote from fundamental explanations as are the names *mass* and *force*. If the answers are repeatedly challenged, the words available become depleted with no advancement in understanding. In the end it is clear no one knows: What is mass? Or, what is force? Or, what is energy? Or, what is electric charge?

The entire wealth of empirical knowledge produced by experimental physicists involves information about effects. The effects are always observed to be changes of velocity. There is no empirical evidence that exists beyond the recording of patterns in changes of velocity. There is no evidence to help us know why changes of velocity occur. Physics theory postulates mechanical causes. It does not advance beyond the practice of postulating. That is why it is called theory. The acceptance of a mechanical nature for the universe is a philosophical preference that is ultimately a personal choice.

If physics theory represented reality, the universe would consist of inanimate objects bouncing around. Our complete lack of knowledge about the physical nature of causes undermines the

basis of physics theory. Mechanical physics is not the key to understanding the universe. It is not even the beginning of understanding. This is the case because mechanics is an imagined substitute for real understanding. It is a facade that separates us from observing the real nature of the universe. It clouds our scientific vision so we cannot see the fundamentals of the real universe. Nevertheless, its artificiality is laid bare by its lack of relevance to life and intelligence. Mechanics only offers imagined possibilities of non-life, non-intelligent causes for the patterns found in empirical evidence of the motion of matter.

The mechanical basis for the operation of the universe is matter that knows nothing more than how to cause other matter to change its velocity. This hypothesis has no potential to ever rise above its initial interpretation. It is forever restricted to describing the motion of matter. Theory cannot produce anything more than what was included in the original assumptions from which it was formed. Not life nor intelligence nor any idea that could lead to them is included in the fundamentals of physics theory. The usefulness of physics theory is limited to predicting mechanical results.

While mechanical predictions have proven very useful, there are different degrees of quality of usefulness. One measure of theoretical quality is the ability to describe previously unaccounted for patterns in empirical evidence. Another measure of success is the degree of unity achieved by a theory. Disunity is evidence of error. Disunity means error is contained in the fundamentals of the theory. Theory that is unable to show unity is fundamentally wrong. Its limitations are imposed upon it by the initial assumptions upon which the theory is based. If it reaches limits to its usefulness, then it is being restricted by theoretical error that was included at its inception.

If a physics theory were found that was fully useful and produced full unity, then it would be the best physics theory. This kind of theory is sought for as a theory-of-everything. However, it would still represent a simple, elementary level of interpretation of the operation of the universe. It would be simple by virtue of its being mechanical. Physics theories-of-everything are not theories of everything. They represent attempts to unite mechanical knowledge. The most important effects of the universe are not included. Mechanical unity will not explain life and intelligence. This severe lack of unity in today's physics theory is evidence of fundamental error.

This evidence of error requires that fundamental physics theory be challenged for its correctness. This challenge to the foundation of theoretical physics has to do with promoting progress in other sciences. Theoretical physics is generally accepted as the foundation of other physical sciences. Each branch of science tries to explain a part of the operation of the universe, either animate or inanimate. Each eventually attempts to establish clear physical links to an underlying structure of the universe. Each must face the challenge of trying to link itself to mechanical physics. This presumed dependence upon theoretical physics necessarily causes other sciences to distort themselves in an effort to conform.

For example, branches of science that study the evolution of life presume that life and intelligence must be shown to originate from the mechanical properties of electric charge. Any attempt to establish this link represents a human caused misdirection in the quest to learn about the cause of life. Mechanical theory cannot be used to derive life theory. Life and intelligence have roots in fundamental properties of matter that are as yet undiscovered. When dependence upon mechanical physics is removed, the other sciences will become free to follow the natural roots of life and intelligence.

Our Intelligence is the means by which we comprehend the universe. It is the means by which we experience the universe. It is our only way to learn. The key to analyzing the operation of the

universe is to understand the cause of intelligence. In this pursuit, it is not sufficient to study intelligence as if it were separate from the rest of the universe. The universe brought intelligence forward. The universe and intelligence are naturally unified. In contrast to this is the common perspective that the earth is not intelligent while we are intelligent. Yet our particulate matter was raised up from the earth. We are formed from its parts. We are intelligent. Therefore, its parts must contain the cause of intelligence.

The earth is formed from matter. We are formed from its matter. If our matter did not contain the fundamental properties of intelligence, then it must be conceded that it is magically bestowed upon us after we are mechanically formed. Yet empirical evidence tells us the properties of our particles of matter are identical to the properties of the particles of matter constituting the earth. The earth gave birth to us. The universe gave birth to the earth. Everything we have become was produced by properties of the universe. There is no scientific reason for adding on an unsubstantiated miracle. The cause of intelligence must be a natural property of the universe.

Intelligence arose from the true natural properties of the universe. It had to have been provided from the beginning of the universe. Physics theory cannot show that this is the case. The inability of physics theory to deal with intelligence is just one of its limits. Not only does physics theory fail to describe the nature of these crucial properties, it even fails to describe the nature of mechanical properties. Many of the properties of theoretical physics are magically bestowed upon matter. They are the *givens* of physics. They are made to appear to be scientific by the use of the names *fundamental properties* and *emergent properties*.

Mechanical forces are theoretical *givens*. The universe does not give us these *givens*. The theorist gives them to us. They are guessed into being. The theorist guesses they must exist. These guesses are made for the purpose of expediency. In order to proceed to formulate useful mechanical theories, under a condition of ignorance, the theorist avoids having to explain cause. If fundamental *givens* were not conjured up then theoretical development would stop. The reason for this is that if unity cannot be established for different patterns of effects, then we are stymied in how to proceed unless we simply presume that the causes of those different patterns are not united. So disunity is introduced into fundamental theory. Causes are *given* to us separately. Their disunity is evidence of our limited knowledge.

That which remains unknown undermines understanding. If it is admitted, that *givens* temporarily fill in for missing knowledge, then, the practice is not permanently harmful. It is when the empirically unknown is imaginatively transformed into the theoretically known that harm occurs. When it is decided that things are *known*, then they are made permanent theoretical cornerstones. The further development of higher level theory relies upon their reality. Their reality becomes indispensable to the theorist. New permanent names and units of measurement are introduced into the equations used to formulate the theory. Any one of these steps can introduce falsehoods. The practice of guessing at answers, no matter how well educated the guesser, is highly prone to error.

Emergent properties also are *givens*. They are accepted as popping into existence when the proper physical conditions exist. They are admitted to come into being by unknown means. Their appearance cannot be predicted by theory. Such discontinuity in theory is evidence of error. The natures and causes of emergent properties are completely unknown. There is no empirical evidence to show their natures to us. Their existence and the extent of their powers is determined not by knowledge, but by making assumptions based upon a limited knowledge of effects attributed to them. They are added-on miracles.

This problem enters theoretical physics right from the start. When theoretical physicists have been unable to explain different patterns in effects as being different aspects of the same fundamental cause, then the expedient practice and mistake made has been to conclude they are due to separate fundamental causes. This risky guessing represents limitations of human understanding and not limitations of the natural universe. The natural universe exhibits order. Order is evidence of unity. We can hope to overcome our limitations of understanding by pursuing unity. Our perspective should be guided by the search for unity of mechanics, life and intelligence.

The practice of tracing the origin of intelligence should not be pursued from a limited perspective. Our current level of knowledge represents a very low level of understanding about the nature and cause of intelligence. Our intelligence and any intelligence existing in the universe arose from the properties of matter. Intelligence must, therefore, be traceable to these particles of matter. The constituents of intelligence are sure to be found in simpler and simpler form as we look inward to our own constituent particles and outward to the same kinds of particles that form the earth and the universe. We must pursue the fundamental properties of intelligence by tracing them back to the origin of the universe.

The progress of science requires that we discard the mechanical interpretation of the universe. It requires we look for evidence of intelligence and trace this evidence backward and downward until we properly define the properties of matter. These, as yet, completely unknown properties will provide the basis for a theory-of-everything. Progress requires that we find a more complete theoretical science capable of describing and predicting the emergence of recognizable properties of life and intelligence. As a beginning we need a new theoretical physics. This new theoretical physics can once again begin as a mechanical interpretation, but it must include fundamental mechanical unity. This low level beginning must offer some suggestion as to how we might proceed to show a common cause for motion, life and intelligence.

A common cause for the operation of the universe will have been in existence since the beginning of creation and must still be found to be in full existence today. The objects of the universe are still in motion. Life is still going on. Intelligence is continually in existence. The unified original cause for all of these is still with us. However, this cause is definitely not explained by the mechanics of today's theoretical physics. Theoretical physics does not even propose a unifying mechanical cause in existence today.

The cause for the origin and operation of the universe is to be found in the reason for the existence of intelligence. This is the case first because that is what empirical evidence tells us. Our awareness and comprehension of the universe is completely dictated by our intelligent interpretation of information. The information travels to us. It is interpreted locally. It is always a report of the past. It is information about something that has already occurred. We do not see what is happening at a distance. Our reception of information is not experienced over distance. We only know about distance because we receive information that our intelligence interprets and uses to form a visualization of distance.

We only know for certain of the existence of intelligence and information. All else that we perceive to exist is the result of local interpretation of information from the perspective of individual intelligence. We are individuals working together to analyze the universe. However, individual intelligence is not isolated intelligence. Each individual source of intelligence exhibits a great many traits in common with other individual sources of intelligence. This is evidence of unity of origin for all intelligence. We perceive interpretations of the information we receive that

cause us to reach conclusions in significant harmony. We recognize each other's existence. We see the same view of the universe. We have a common talent of comprehension.

The conclusions we reach about the existence of distance, time, force, energy, momentum, mass, matter, life and intelligence are solely the result of our intelligent ability to interpret information. We do not know any of these properties externally from ourselves. Yet, because we have a common means of interpreting information, we are able to use other people and objects to help us draw our conclusions. They communicate to us using a fundamental form of information that each of us understands instinctively. We are completely dependent upon our innate ability to intelligently interpret information for any conclusions we may reach about our existence. This limitation does not reduce the quality of reality. It is what forms reality. Nothing that results from the interpretation of information can be more real or perhaps even as real as the process of interpretation itself.

We have only intelligence and information available to rely upon to help us to understand meaning for our existence. Therefore, if we are to rely upon that which has been made directly available to us, then we must look to intelligence and its use in interpreting information in order to learn about the nature of the universe. This universe consists of that which our intelligence tells us. All answers we will ever achieve will be told to us by our intelligence. The result of intelligence cannot be independent from or of a different nature than is the intelligence. The result of intelligence owes its existence to intelligence. Its existence is solely the product of the intelligence by which it is perceived.

The existence of the universe as determined by our intelligent interpretation of information is not less real than the material universe proposed to us by theoretical physics. That material universe is solely the product of imagination. An imagined material existence is not naturally or inherently superior to the existence of intelligence and information. The products of our intelligence are not more physical than is our intelligence. Material nature is what our intelligence tells us it is. The proposed magical mechanical properties of a material universe are not an acceptable substitute for a comprehensive scientific inquiry into the constant, unified, empirical properties of intelligence and information.

If the intelligent interpretation of information leads some or even many to a conclusion in favor of a material, mechanical existence for the universe, that conclusion cannot lead to proof of the existence of anything that is unique from mechanics. Progress is not possible under such a severe artificial limitation. Progress depends upon knowledge. Our source of knowledge is solely our intelligence. Our cause for comprehending the operation of the universe is our intelligence. Our knowledge is wholly dependent upon our intelligence. Our use of the interpretive process is all that we have to achieve understanding. Our answers are the fruit of our intelligence.

The fundamental question to be answered is: What is the cause of our intelligence? The answer to this question cannot be made known to us by the empirical measurements of physicists. If it is possible to learn of this cause, it can only be made known to us through a study, with universal breadth, of intelligence. It must be presumed that life and intelligence are the products of physical properties that can be traced downward and backward to the origin of the universe. As these properties are reduced to simpler and simpler complexity they must be presumed to exist in some form at all levels and for all time. This is required for the continuity and order by which the universe has evolved.

It is continuity, order and unity that should lead us to answers about the nature of the universe. One problem we encounter is that we are no longer able to become knowledgeable in all fields of study. Specialization has become necessary for us to learn everything we need to know. Unfortunately specialization is not conducive to maintaining continuity. The work of physicists does not explain chemical properties. The work of chemists does not explain life or intelligence. The best answers are known only after the problem is in full view. We do not have the problem in full view. We have pieces of the problem divided up among persons having widely diverse expertise. Each area of study could be in error and we would find it hard to recognize this.

The problem is that unity is the key to removing error. The divisions that exist between disciplines are not the divisions of convenience they are intended to be. They are representative of many discontinuities in our knowledge of the universe. If all of our knowledge of separate fields cannot be brought together into a harmonious unity, then one or more are in error. So long as disunity is incorporated into the study of the problem, our solutions will not produce unity. Each branch of science should become guided by the necessity to find unity even in the approaches that each follows. Their approaches should be chosen to be in unison with one another. This challenge is analogous to the problem faced by theoretical physicists. If they establish their fundamentals by including disunity, then they cannot later find unity in their higher-level theory.

Scientific analysis should begin from the point of view of using empirical knowledge learned in all fields to formulate a unified approach to determining the nature of the universe. The key or foundation to this approach cannot be the mechanical theory of physics. The key is to look to the common interpretive approach used by our collective intelligence. That is where the nature of the universe is contained. Life can provide the answers because life is where all answers are contained.

The original condition of the universe made possible all properties for all time. If it is assumed that it is still possible for life to evolve at this time in the universe, then the properties of the universe that makes this possible are still in existence. The universe still knows these properties. We can also come to know them. Their existence is as physical as any other property of the universe. The continuing existence of life demonstrates that those properties are still available for us to analyze today. We were formed by and function because of those properties of the universe.

The answers about the nature of the universe are a part of us. Our intelligence gives us all of our answers. Any answers we will ever learn about the universe will be given to us by our own intelligence. Our full potential for understanding the operation of the universe is fully contained within our intelligence. Our potential for understanding ourselves is a part of understanding the universe. Since the universe came first, we can anticipate that we will understand ourselves when we understand the universe. However, it is our intelligence by which we are made able to understand the universe. Therefore, paradoxically, we may also anticipate that we will understand the universe when we understand ourselves.