Is the Fundamental Nature of the Universe knowable to Man on Earth at This Time?

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Abstract

This essay will concentrate on the basic nature of space and the structures that exist within space, with emphasis on whether it is currently possible for man to know whether the most basic level of structure of the universe is analog or digital in nature. It will look at how analog structures can generate digital effects, how digital structures can create analog effects, and man's current abilities and limitations in the endeavor to trace all of these observable effects back to discover whether the nature of the most basic level of the universe is analog or digital.

Basic observations

From casual observation the world exhibits what appears to be both analog (continuous) and digital (discrete) effects. When you look at a bucket of water, the water within the bucket looks to be one continuous thing. If, however, you look at a bucket of sand, you see what appear to be many small individual discrete grains. On the other hand, if you look at a single grain of sand, it appears to be one continuous object, while the water in the bucket can be divided into several buckets to form several discrete quantities. You can, of course, also divide the grain of sand into smaller grains, but each smaller grain will still appear to be one continuous object.

Climbing down the observation rabbit hole

As man's ability to divide material items into smaller and smaller pieces has improved over time, the point was reached that it was possible to demonstrate that many of the common objects are actually composed of combinations of still simpler forms (chemicals). The point was later reached that it was possible to break all observable objects down into one or more very basic chemicals that could not be broken down into still more basic chemicals (elements). This meant that any object that was composed of more than one element had a minimum size piece (molecule) that was in essence a digital construct of the more basic elements. These elements could still exhibit both analog and digital effects (you could make a bar of gold that looked like one continuous object, but could still be broken down into smaller and smaller bars), so it was still not possible to determine the true most basic nature of matter. When it was later possible to determine that any element could only be broken down into a minimum size piece (an atom) and that any attempt to break it down further changed it into one or more other elements, the elements were also demonstrated to be digital constructs of more basic objects (particles). At present man has observed that some of the particles that have been discovered demonstrate effects that indicate that they are composed of still smaller entities (quarks), but have not found it possible to break them down into the quarks that they are composed of. Like atoms, particles can be broken down into other particles and, or, energy photons. Since it appears that all known particles can ultimately be broken down into energy photons, it would seem that matter particles are also digital constructs of a still simpler form (energy photons). Energy photons have generally not presently been observed by man to break down into a simpler form, but they can be

absorbed by an atom and appear to cease to exist. When an atom absorbs a photon it generally experiences an increase in one or more of its internal motions such as an increase in an electron's motion causing it to change to a higher orbit (energy level) within the atom. It is obvious that the photon must have been composed of motion; so that when its motion was transferred to the electron in the atom it ceased (or at least appeared to cease) to exist. Man has generally not yet discovered any remnant of it after its absorption (sub-energy). In summary, the photon can be demonstrated to be composed of motion by observation that when one ceases to exist all that remains is the motion that it had contained now stored in a different form. Since all other higher-level digital constructs (particles, atoms, molecules, etc.) can be built up out of photons, it is apparent that they are also ultimately composed of motions. The real question then becomes: Is motion on its most basic level analog or digital in nature?

Motion is behind everything

Since the photon contains its motion in the simplest form, let's look at its structure to see if it appears to be an analog or digital object. First, we can see that all photons possess the same amount of linear motion (C or the speed of light) that appears to be of a continuous, analog, nature. All photons do not, however, pass on the same amount of motion to the receiving object when they are absorbed and cease to exist as photons. All photons demonstrate frequency, wavelength, and variable dynamic mass effects that are not only connected to each other by simple relationships, but are also directly connected in a simple way to the amount of motion that is transferred to the receiving object when they are absorbed. This means that in addition to its linear motion a photon also contains another motion that is stored in it in some other way. This additional motion demonstrates cyclical patterns (the photon's frequency, wavelength, and variable mass effects) that seem to be indicative of a digital structure.

Our analysis so far has led us to travel from the more complex structures back to the simpler structures that they are composed of and we have discovered that the energy photon is the simplest structure that man has so far discovered. We have furthermore found that it is composed of motion and that its motion is divided into two separate motions, one of which seems to be of an analog nature while the other one seems to demonstrate more of a digital nature.

What is behind motion?

Now would be a good time to look at and analyze motion in an attempt to discover how analog and digital motion effects occur and whether they can reveal to us whether at its most basic level motion is analog or digital. Any motion contains three information entities that describe it. The first is its current position in space. In three-dimensional space this could be looked at as the position in three-dimensional space that is the resultant output of the combination of the inputs of its individual dimensional positions in each of the three dimensions. The second item of information that defines a given motion is the amount or quantity of motion that it possesses (its motion amplitude). This also can be understood as the output of the combination (composite) of its individual dimension's motion amplitudes. The third item of information that defines a given motion is its direction. Again this can be considered as the resultant output of its input directions from each of its individual dimensions modified by the amount of motion (motion amplitude) in each of its constituent dimensions. Motions can be linear, instantaneously altered, or cyclical in nature. The most basic type of motion is linear motion. In general unless it is modified by some

interaction with another motion or some other barrier such as the end of a dimension, etc., a motion will continue to travel in a straight line by changing its position to a different position that is determined by its current stored direction at a rate determined by its stored motion amplitude. This is linear motion and is the simplest type of motion because it does not involve any external interactions and, therefore, it operates completely on the basis of its internally stored information according to simple internal rules of operation on its internally stored information. Linear motion contains one variable (position) and two constants (motion amplitude and direction) because in the absence of interactions only the position changes. The ability of motions to interact with each other complicates the situation and allows the other two types of motions to exist. The instantaneously altered type of motion really is just a look at an individual interaction between a motion and another motion or barrier. When two motions interact, their motion amplitude and direction information quantities can be changed. Their positions are generally not changed directly by the interaction, but the changes to their motion amplitude and direction information can cause future changes in their rate of position change and direction traveled as a result of the interaction. Motion amplitude can be passed from one motion to the other in an interaction, but total motion quantity is conserved, so an increase in one of the motion's motion amplitude is offset by an equal decrease in the other motion's motion amplitude. A motion amplitude that is applied to a motion by an interaction can cause a change in the direction of travel of the motion to the opposite direction. Motion interactions are not limited to variation of the motion's composite motion amplitude and direction, but operate on the level of the motion's individual dimensional quantities. The motion amplitude change may all be applied to a single dimension, thus generating a great change in its motion amplitude and a change in its direction that results in a great change in the motion's composite direction of travel. Depending on which dimension's motion amplitudes and directions are changed and their relative degree of change in each dimension, the resultant composite output can basically generate any possible resultant angle change in its composite output direction. After such an interaction the resultant motions (or motion, if all of one motion is transferred to the other) continue on their new paths at their new motion amplitude rates as linear motions. The instantaneously altered motion type is, therefore, just a way to look at the temporary conditions associated with an individual interaction. Cyclical motions are the result of either continual interactions or interactions that occur repeatedly at regular intervals generally in such a way as to cause the motion to retrace its path either in a linear way such as in a linear standing wave or in a curved way such as in a rotation, etc. Of course, not all linear motions that retrace their paths are standing waves. As an example, a sub-energy particle can be made to bounce back and forth between two barriers, but it would lack the variable mass, frequency, and wavelength effects that are generally considered a part of the definition of a wave. This is because it contains only a single motion component (its three-dimensional direction of travel) while a wave generally contains two motion components. In a wave there is not only the three-dimensional direction of travel motion, there is also generally a cyclical back and forth motion that generally either travels in line with the three-dimensional direction of travel motion or at ninety degrees to that direction that rides on or with the three-dimensional direction of travel composite motion. An energy photon is a good example of a wave structure. It contains both its composite three-dimensional direction of travel motion and its fourth dimensional cyclical motion as that motion travels back and forth between the boundaries of the very small fourth dimension, traveling first one way and then the other way through our three dimensional world as it travels first one way then the other way in the fourth dimension. It is when the photon's three-dimensional direction of travel

motion bounces back and forth between two barriers in such a way that its fourth dimensional motion completes exactly one-half or a multiple thereof of its fourth dimensional back and forth cycle that it would generally be called a standing wave. One of the reasons that standing wave structures are important to understand is because they tend to channel sub-energy particles. All cyclical motions tend to channel sub-energy, but in the absence of a cyclical (repetitive closed path) three-dimensional direction of travel motion, the effect cannot build up to allow its effects to be easily seen. A photon traveling through space in a straight line channels sub-energy due to its fourth vector motion, but each cycle of its fourth dimensional motion occurs at a different point in space farther down in its direction of travel than the previous cycle, so it is mostly disconnected from the previous cycle's sub-energy channeling effects by this three-dimensional distance. When the photon travels back and forth between two barriers exactly in sync with a multiple of its fourth vector cycle, however, its sub-energy channeling effects can build up, so that they can be readily seen and used for various purposes. It is possible, for example, to draw motion from the surrounding environment to generate very powerful sub-energy fields that can be used for various purposes such as power generation, propulsion, shielding, and alteration of an item of matter's sub-energy binding fields so that another item can be placed within it without disturbing its structure or for various types of alignment of standing wave and field structures, etc. Energy standing waves can, however, be very destructive to the surrounding environment and should therefore be limited in use to locations that will not damage living creatures and other valuable environmental structures. As an example, if an energy standing wave is used for propulsion of a ship, it can be very destructive to living creatures on the ground if it is used near the ground. It would be best used only far from the ground. Matter generated magnetic and other standing wave field structures that can draw energy from the surrounding environment and are much less harmful to the surrounding environment when properly used would be more appropriate for use near the ground, etc. Matter is after all basically an enclosed standing wave structure. As a matter particle's structural point travels, it acts as a wave due to its fourth vector motion just like an energy photon, but its fifth vector motion causes it to take a curved path that encloses back on itself so that its enclosed path becomes a cyclical motion that also acts as an additional wave function. This compound wave structure channels sub-energy and is only stable when its standing wave components and its resultant sub-energy channeled fields are in sync and properly aligned with each other. When a matter structure has its particles properly positioned and aligned it can produce very powerful macro standing wave field structures. One very interesting aspect of motion is that motion in this world does not appear to have a true opposite. Two motions may travel in opposite directions, but when they meet they do not cancel out and cease to exist or get turned into something else other than motion. They merely interact with each other in specific allowed ways that preserve the total amount of motion. The true basis of motion seems to exist in some other place and motions just use the dimensional structure of our space to play out their interactions, but dimensional structuring is a little too advanced for this paper, so I will refrain from going into that in more detail here.

A problem of scales

Now that we have covered some basic aspects of motion lets turn to the real question at hand, which is, can we determine that motion at its most fundamental lowest level is either analog or digital? We have seen that cyclical motions tend to generate digital effects because they isolate motion to a specific localized area that makes it appear to be a discrete digital object when viewed at a great enough distance even though the motion taking place within the cyclical path

could be continuous. At the same time linear motion creates analog effects that appear to be continuous when observed from a great enough distance even if they are actually digital objects when looked at very close up. A good example of the latter is a CD recording, which actually records sounds in a digital form where the amplitude of an analog sound wave is sampled at a very fast rate so that when it is played back the music sounds the same as the original analog sound wave to us even though it actually is composed of small digital amplitude steps. The faster the sampling rate, the smaller are the digital steps and the closer each step is to the actual analog levels in the analog sound wave during the time of the step. Of course, if you increase the sampling rate to infinity, you essentially end up with an exact analog copy of the analog wave. From this it is obvious that our main problem is one of scale limitations. We are limited in our observations by specific range limitations in scales of size and motion amplitude (speed). As man has advanced over the years, these ranges of observation have increased as man has gone from being limited to observations made with only his internal sensor systems, to the development and use of external sensor structures that have allowed observations of molecules, then atoms and now sub-atomic particles, etc. As man has advanced in this manner, it has been discovered that at each level of construction there is a smallest size that an object can be and still remain to be the same type of object (if you divide a molecule it is no longer the same, if you divide an atom it is no longer the same, and if you divide a particle it is also no longer the same). This creates an appearance of digital levels of construction. It is now to the point, though, that it is clear that all of these levels of construction are basically composed of motions. The problem is that even with all the extensions in observational range, man still is limited to just a greater range in his observations of motion sizes and amplitudes and not to the absolute. There is much talk of the Planck constant, Planck distance and Planck time as being the minimum possible units of action or energy, distance, and time (time is an indirect measure of motion amplitude). These constants are derived from man's current level of knowledge gained within current size and motion amplitude scale limitations. They primarily are digital effects related to sub-energy standing wave field structures. They are the result of the limited interaction possibilities that are available within atoms, matter particles, energy photons, and the associated channeled sub-energy fields that they generate that will allow for the matter particles and atoms composed of such particles to be stable with all binding standing wave structures properly frequency matched and in sync, etc. They can to a great degree be traced back to the fourth vector motion transfer threshold point and the fifth vector minimum motion transfer motion level and its minimum angular motion component level and sync balance, etc. Although a detailed description of these things and how they work would be well beyond the scope of this paper, the way that the fourth and fifth dimensions are structured and interfaced with the lower three dimensions and each other determines when motion can be transferred between these dimensions and in what manner or by what rules and limitations such transfers can take place. Because of this and other factors, only certain output motions can be stable in generated matter particles. This then means that only certain compatible binding motions can be used to bind these stable particles to each other to form atoms. The same thing also applies to the binding motions that bind atoms together into molecules, etc. Motion itself is not the limited digital quantity that it may appear to be. A continuous motion spectrum at least appears to be available at least up to transfer levels, etc., but energy photons cannot be generated from sub-energy particles until the fourth vector transfer threshold motion level is reached and matter particles require a motion level at least to the fifth vector minimum motion transfer motion level along with the proper angular motion component to allow their generation, etc. Of course, energy photons can exist that have fourth vector motion

levels that exceed the fifth vector minimum transfer level if the proper angular motion components are not present and sub-energy particles can travel faster than the fourth vector transfer motion level (the speed of light, C) while some of their motion is being transferred to the fourth vector under certain circumstances, etc., so there are exceptions to the general rules. To look at the Planck constant in a different way, it would seem that if it truly was the minimum amount of energy or action (motion) that could exist and if the formula E = hv is accurate where E = energy, h = the Planck constant, and v = frequency in cycles per second, then it would seem that it would not be possible to generate any energy photon with a frequency of less than 1 cycle per second because it would contain less than one Planck constant of energy. On the other hand, if an energy photon can be generated with a frequency of less than one cycle per second, the spectrum of possible photon frequencies and their associated energy levels may extend all the way down to zero cycles per second at which point it would have a fourth vector velocity of zero and it would become a sub-energy particle that would still possess a small amount of energy in its three dimensional composite motion that would be at some level below the speed of light. This composite three dimensional motion could presumably be reduced linearly down to zero at which point the sub-energy particle would possess zero energy or motion and would cease to exist.

What about space?

The above scenario is based on two assumptions, however. The first is that motion is truly continuous in nature (is not digital at some extremely small motion amplitude). The second is that space is truly continuous and not composed of some minimum size digital units at some very small distance. Although energy photons appear to come in a continuous spectrum of frequencies all of which appear to travel in a continuous motion at the speed of light thus making continuous motion appear to be the more likely possibility as the basic structure of the universe, it is possible that we are just seeing an extremely high frequency digital motion composed of very small discrete motions and, or, motion levels that when joined together appear at the much larger scale that we can observe to be analog motions. It could also be that the motions themselves are continuous in nature, but space is divided into very small discrete minimum distances, thus requiring the motions to only appear in the universe when they are on one of these discrete spaces. In either case the result would appear as the digital construction of motions when observed at the scale close to the digital structures, but would appear to be analog when viewed at a much larger scale. The problem then is one of man's limited ability to observe the complete range of motion sizes and amplitudes and the complete range of spatial sizes. At any given time in history, man's then present limits in these two areas have tended to frame the argument either in favor of a continuous analog or a discrete digital universe. As time has progressed man has increased his range of observation in these areas, but it is still a limited local perspective and not the true unlimited absolute perspective of ability to observe the complete range of motion amplitudes and sizes and dimensional sizes that exist in the universe. Without this global perspective to observe all motions at all sizes it is not possible to come to a conclusion that is sure to be true because it cannot be known if a still smaller size motion or one with a lower motion amplitude exists beyond one's current ability to observe. As an example, even if the Planck size were the smallest size that we could possibly interact with; we would not know that something else did not exist at a still smaller size that we just could not access. There could be a whole universe in existence just below that smallest size that we could interact with and we would never know it because we would be effectively disconnected from it by our

inability to observe anything that small. It could also be possible at some time in the future that man will attain high enough fifth vector velocities to be reduced in size enough to be able to interact with such a new level of the universe. A whole new higher motion level universe could then be opened up to man. At that time today's attempts to determine the basic structure of the universe would indeed appear to be useless speculation based on lack of knowledge.

Summary

In summary, it is definitely true that the universe is digital at many levels such as at the level of the smallest size that something that is composed of molecules can be (one molecule) or the smallest size that an element can be (one atom) and still remain the same thing. Even matter particles can be broken down into photons so that they are no longer matter particles. At man's current level of observation it appears that photons come in a continuous spectrum of frequencies and travel in a continuous analog straight-line motion. They also, however, can be broken down into motions, such as a motion increase in an electron's motion in an atom to a higher orbit or energy level. This path of breakdown or change from matter particle to photon to motion demonstrates that motion is the basic substance of all things that exist in the universe. The question of whether the universe is analog or digital in nature, therefore, becomes the question of whether motion at its most basic level is analog or digital. There is also the possibility that space itself can be either analog or digital in nature. Because man cannot observe things that are below a certain size level and cannot detect motions below a certain motion amplitude level, it is not possible for man to determine absolutely if the universe is analog or digital because if motion were digital, it would only be at or at least near the lowest motion size and amplitude level that one would be able to observe it to be so and if space were digital, it would only be at or near the smallest size that one could determine for sure that it was indeed digital. In the absolute sense, it is not very likely that man can ever discover the absolute analog or digital nature of the universe because if a smallest size and motion amplitude are eventually discovered with no way to interact with anything smaller, man would still not know if something smaller exists that is completely disconnected from his ability to ever interact with, thus preventing man from becoming aware of its existence. Only someone with a truly global perspective with the ability to observe the universe completely at all size and motion amplitude levels could truly determine for sure whether at its most basic level the universe is analog or digital. Only God can give you the absolute answer.