

Three-Dimensional Time and Consciousness

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Abstract.

In a previous paper, Concepts of Three-Dimensional Time in Electrodynamics, the concept of 3D Time and Scalar Space is introduced along with its impact to electrodynamics. These added dimensions to the familiar three-dimensional space and one dimensional time have some very interesting implications not only in physics, but also in consciousness. In this paper, the properties of consciousness are discussed and then associated with the properties of time.

1 Introduction - local and nonlocal

In Quantum Physics, all matter is said to have particle-like and wave-like properties. When matter manifests as particle-like, its location is well defined. Any interaction between matter in particle-like form results from the particles contacting or their fields 'touching' each other. So generally it can be said when matter is in particle-like form, contact is required for interaction. The particles move and interact, that is collide, in a manner that uses the same equations that would be applied to billiard balls. Matter in this particle-like form is therefore said to have the properties of being *local*, and its interactions are through local contact.

On the other hand, when matter manifests in a wave-like form, its location is not easily defined at all, that is, it is distributed. In this wave-like form, matter that is interacting generates the same results that waves in water, or light do. This interaction in wave-like form results in interference patterns, which with light, manifest as light and dark patterns. Any interaction between matter in wave-like form does not require contact, and can happen at a distance, even a really large distance like the size of the cosmos. The property of Entanglement, described by Einstein as 'spooky action at a distance', in theory has no limit for distance and is said to have the properties of being *nonlocal*. In Quantum Physics, before the position of an electron is measured, it is in a wave-like state and so its position is distributed and its location is unknown. As soon as there is an action to measure where the electron is, all these possible distributed locations collapse into a single well defined and measurable position.

These two forms of interaction, particle-like and wave-like, are very different. It is more natural for us to think, and model, matter in the form of tiny balls that spin around their own axis and around the nucleus. It is more difficult for us to think of matter in distributed form. Think of it this way. In the wave-like distributed form, the energy of the electron is an ocean, connected to all other ocean waters of the world, and even to most major rivers that empty out into the ocean. These distributed ocean waters are spread out all over the earth and therefore could be defined as having the properties of being nonlocal. A person swimming in the Mediterranean Ocean is connected by this water to a person swimming in the Pacific Ocean since they are swimming in the same water. In the particle-like form, the energy of the electron

manifests in a particular location. In this analogy, a particle-like form for the ocean might manifest in the form of a wave at a certain beach. The location, and property of this wave is easily identified, even though it is still part of all the oceans of the earth. Only a person at that location where the ocean wave manifests can interact with that wave, by making contact with that wave, they can surf it. So that particle-like ocean wave is said to have the properties of being local at that beach. The wave then disappears back into the distributed ocean and other waves manifest, but these waves are always part of the whole distributed ocean.

Quantum Physics can describe very accurately the behavior of an ensemble of electrons, but not a particular electron. This is because statistics is a fundamental part of Quantum Physics and therefore it cannot predict the behavior of a particular particle, but can predict the behavior of an ensemble of particles very accurately. This statistical nature of Quantum Physics is necessary because all potential outcomes are possible before a measurement is made, but only one is actualized when the measurement action is taken.

One last unusual property is that in the wave-like form, particles such as electrons can self-interact. The Dual Slit experiment shows that the electrons can change the way they behave when a part of the experiment that the electron *never interacts* with, is changed. In this experiment, a plate is designed so that there can be one or two open slits in this plate and beam of electrons setup so that the probability is that only one electron is at the plate at any one time. If only one slit is open for the electron to go through, it behaves like a particle and a pattern associated with matter in particle-like form is detected. If both slits are open, the electron behaves as a wave and a pattern associated with wave-like form is detected even though it is not possible for it to go through both slits. So Quantum Physics has challenged our understanding of the form and the behavior of the world around us.

2 Where is Time?

Three-dimensional space we understand very well. We cannot see space, but we can use matter in space to define space. If a person is asked where an object, placed in the kitchen of their house is, they can describe its location in three-dimensional space very well. We can move to that object in space, we can move that object to another well defined place in space. Because of this interaction with matter, space is tangible. To imagine space being everywhere is easy since we readily see objects in space with properties of length, width and height. Even though we cannot directly see space itself, we naturally use the dimensions of space to describe the particle-like form of matter.

Time is different. It has only one dimension and along this dimension we associate a moment called the present, behind it the past and in front of it the future. When a person is asked about where an object is in time, the question appears odd. The only options we have is to say, '*it was in the kitchen the last time I saw it*', or '*in the kitchen*' for the present or '*it will be in the living room when I am done with it*' for the future. But we cannot visit these places in time, we can only experience the present. The past and the future are only accessible in our minds. Time can be associated with space-like attributes of forward or backwards.

When asked where time is in three-dimensional space, the only option is that time is everywhere, from the smallest part of matter to the largest structures in the cosmos, time is there. So a single dimension of time is everywhere in the universe.

So three-dimensional space has the same properties as defined for the *local*, or particle-like, form of matter and one-dimensional time has similar properties as defined for the *nonlocal*, or wave-like form of matter.

3 Where is consciousness?

A simple question like 'Where are you?' can lead to some insights. If it is asked in reference to where are you in three-dimensional space, it is simple. An answer like 'I am in the kitchen' is easily understood. But ask the same question, but with a twist, 'Where are you in your body?' People generally tend to point to their chest. But why not their head or their belly? Why do so many of us instinctively points to our chests? We could more easily make the case that who we are is associated more with our heads, since we do all our thinking and processing with our brains. Certainly, the heart is in our chest, which we usually associate with our feelings. Is who we are more easily identifiable as a feeling consciousness, versus a thinking consciousness? Which is more important, and why?

If our consciousness is embedded holographically throughout our bodies, it would make it difficult to point to a specific place. Does every cell contain information about who we are and the trillions of them make up all the information of us in physical form? Even with all the advancements in science, these questions still plague us. One model I hypothesize is that the body represents the particle-like nature and this consciousness, the difficult to define 'I' is the wave-like nature of ourselves. Associating quantum properties to thoughts in the brain, or mind is not new, but what is new is the model presented in this paper correlating time to consciousness [ref 1].

Larry Dossey, in his book *Recovering The Soul - A Scientific and Spiritual Search*, has discussed the concept of a 'nonlocal mind,' and Dean Radin in *Entangled Minds* has used the concept of Entanglement to present this same interconnectedness at the level of the mind. To better understand how we as conscious humans can be part of both particle-like and wave-like domains, let's look at a few attributes of ourselves.

4 Memories

A good place to start this discussion is with our current understanding of biological memory. We typically think of memory as being stored in different parts of the brain. This is true for some of the memories we have, but does not account for all the memories. There is one study in which a rat was trained to negotiate a maze—then the researchers removed larger and larger portions of the rat's brain. Its ability to negotiate the maze slowly declined, but the rat never lost all of its memory. The details just eroded with each surgical removal, in much the same way a hologram loses its detail as more and more of the holographic print is cut off.

In studies of individuals who were involved in accidents where portions of their brains were lost due to trauma, it was found that the individuals usually didn't lose complete memories of portions of their lives. They typically lost particular details of the memories. These researchers believe this supports the concept of a holographic model for memory, in which information stored is distributed over the entire brain. Just as each portion of the hologram contains all the information, the details become less intense as portions of the hologram become unusable or are removed. [ref 2]

But this doesn't explain all human memory. The holographic model contradicts neurological studies, where specific portions of the brain were stimulated with electric probes while the research subjects were awake. The researchers found that by stimulating precise areas of the brain, specific physical responses and memory responses could be triggered. So it appears that our memory must have both local and distributed, or holographic properties

5 Holograms

We are all familiar with the three-dimensional properties of holographic images and the attribute that the information is distributed throughout the whole holographic negative. Because of this distributed property, cutting out a portion of the holographic image does not destroy the image; it merely changes the intensity of some of the details in the image.

Holographic information is encoded in the negative, or crystal, as '*changes in speed of light.*' These changes in the speed of light change the phase of the light information, which is a key component in how we see the information as three-dimensional. The holographic image of a few items on a table, shown below, is in our familiar 3D Space environment.



Figure 1 Particle-like form. Glasses on the table. [Optics,Hecht]

This image in Figure 1 is easily understood. Now the exact same information is in the image in Figure 2, but now as an interference, or wave pattern. There is no recognizable structure since it is in a form we are not familiar with. The image looks like a random wavelike pattern. This example highlights how the same information can be in two forms, a particle-like form and a wavelike form.

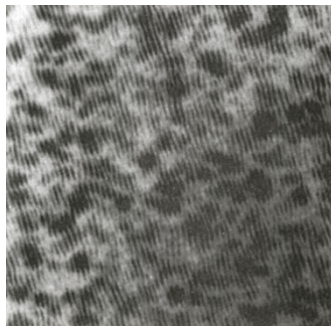


Figure 2 Unrecognizable wavelike form of the same image [Optics, Hecht]

In this example, I will make the argument that the information can be used as a model of us as conscious humans. The projected image, the glasses and pitcher in the previous image, represents our familiar and recognizable bodies. The interference wavelike pattern is our consciousness. From a space point of view, this wavelike information is not recognizable and appears distributed. But with the proper techniques, this distributed wavelike information can be extracted.

In holograms, many 3D images can be stored in the same negative by using different angles for the laser beam. When reading out the holographic information, when the angle associated with the recording of the object is used, just that image associated with that object and laser beam angle appears in three-

dimensional form. So it could be with our memory. It is known that we store information based on attention and emotion. Trigger the same attention and/or emotion at a future date, and those same memories are experienced.

Another example of the same information in two different forms is shown below. In Figure 3, Mickey is shown in a particle-like format that is very familiar in 3D Space.

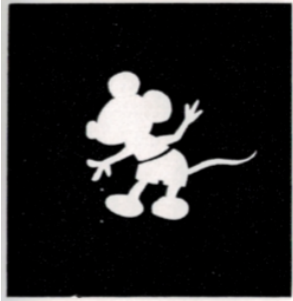


Figure 3 Mickey Mouse with definable structure [Atlas of optical transforms, Harburn, Taylor, Welberry]

Now, using a Fourier Transform technique, where signals and images are reduced to frequencies, the image in Figure 4 is shown after this technique is applied to the image in Figure 3.

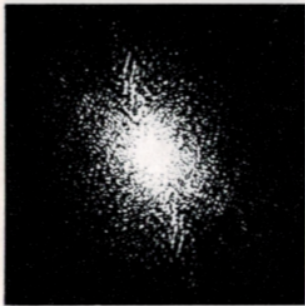


Figure 4 Mickey Mouse with unfamiliar structure [Atlas of optical transforms, Harburn, Taylor, Welberry]

It looks like a blob of light. Same information, but now in a format based on frequency, or the wave-like format. Who would have guessed what lay inside that wave-like blob of light? The world around us can be looked at in terms of particle-like [space] structures or wave-like [time] structures, just as our memories have specific space structure, but also wave structures to them as well.

Could our perception of the world be completely different than what our senses are telling us? Our ears are very good at breaking down sound signals, which are compressions of air in three-dimensional space driven by our vocal cords or by speakers, into the frequency [wave-like] components which are now measured in time and feeding this information to the brain, which we interpret as the sound signal. Could the same thing be happening with our vision?

6 What do we see?

Researchers wanted to investigate how the brain processes images. The standard model was that different parts of the brain interpret different geometric shapes that we see. This model can be associated

with the particle-like view of nature and 3D Space. To investigate the electrical activity in the brain during vision, the researchers hooked up a monkey's brain to an Electroencephalography, or EEG machine. They then showed the monkey simple shapes, like the letter A, shown in Figure 5. The researchers took the EEG data and correlated it to the standard understanding for processing images based on shape. They then took the Fourier Transform of the images. The Fourier transform of the letter A is shown in Figure 6. They correlated the two images with the EEG data.[ref 3]

What they found is that the correlation of brain activity in terms of the spatial frequencies of the letter A in the Fourier image was higher than just the brain's response to geometric shape.

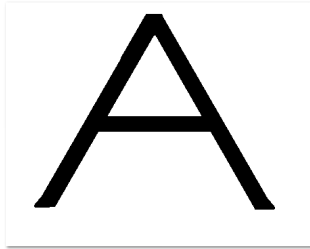


Figure 5 Letter A as we know it

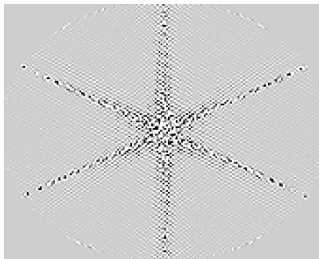


Figure 6 Letter A after Fourier Transform

While the monkey's brain was doing geometric interpretations, it was also interpreting frequency content. It appears our brain might also be interpreting reality in terms of frequency. Frequency, a $1 / \text{time}$ variable, can be associated with the wave-like nonlocal nature of Time and the particle-like local 3D Time.

These studies in memory and vision, along with our understanding of hearing, supports the idea that we sense both the particle-like and wave-like duality, or the space and time parts associated with our universe.

7 It Is All Relative

The epiphany Einstein had in developing the theory of special relativity was that it was possible to imagine a frame of reference in which motion could be ignored. The most obvious example is when the frame of reference is defined as a airplane. When the airplane is flying at a constant speed of 600 miles per hour, we can ignore this very fast speed and move about inside the airplane as if it were at rest on the ground. If there were no windows in the airplane to see outside, we could not tell that we were moving at all. Only when the speed changes, do we sense that we are in motion. So, we are sensitive to accelerations, that is changes in the speed, but not to constant speed, luckily. With an earth spinning around its axis at the equator at close to 1,000 mph, moving around the sun at 67,000 mph as well as rotating around the galactic center at half a million mph, if we were sensitive to these constant motions, we would be in serious trouble.

So, for those of us in the airplane, we would have one experience of a ball being bounced up and down off the airplane floor. For those inside, the ball just moves up and down with no sideways movement. For those outside of the airplane, they would describe a completely different motion for the ball, one that included the 600 mph motion that the airplane is moving at. So for the outside people, the ball is not only moving up and down, but also sideways at 600 mph. The distance they say the ball moved is larger than those inside the airplane. The difference between the two different experiences is only motion, in this case of the airplane.

If the motion between the inside and outside observers is slow, relative to the speed of light [186,000 mph], then the inside and the outside experiences can be measured with the same units of space [distance] and time. But if the airplane moved fast enough, in this case let's say at 87% of the speed of light, the experience of space and time between those inside the airplane and those outside the airplane would be quite different. The people outside the airplane would say that the airplane was 50% shorter in the direction it was traveling and that time for those in the airplane was 50% slower. The same would be true of those in the airplane looking out at a person moving relative to them. Since those inside cannot tell that they are moving [in this analogy they do not know that the airplane is moving], they would see the outside person as moving relative to them and see the same 50% change in their space and time. Each observer's reality would be valid, but absolute measurements of space and time can no longer be counted on to express accurately to the other what they are witnessing. See the Appendix for an explanation of how time appears slower to a person observing a moving clock.

Who has not had the experience of being stopped at a light when driving and day dreaming. All of a sudden, you feel like your car is moving and you press harder on the brake pedal, only to realize that the bus or car next to you is moving slightly.

So, motion, which is the change in space divided by the change in time, when it is large enough, changes the way space and time are perceived, and there is no absolute measurement of space and time. The Theory of Relativity did show that there is a property that does not change for both people inside and outside the airplane. It is the speed of light which is always the same no matter how fast you, or anyone else relative to your position is moving. Another property, called an *interval of spacetime* which is the combined aspects of space and time, also does not change. Individually, space and time change, but when they are combined together, and in a particular form of a spacetime equation, their combination always stays the same.

It is not only space that shortens and time that slows down between two people who are moving relative to each other. Energy and momentum, properties associated with matter, will also change like space and time did. So the amount of energy, and the momentum, cannot be agreed upon by either person who is moving fast relative to each other. But what can be agreed upon is the amount of mass, which in the Theory of Relativity is shown to be a combination of energy and momentum. In fact, this Theory of Relativity, along with the constant speed of light led Einstein to his famous equation where energy is equivalent to mass, that is $E = mc^2$.

The Theory of Relativity tells us two things. First that space, time, energy and momentum are not absolute. They change depending on the relative motion between those that are trying to measure them. They cannot be defined in absolute terms, only in relative terms. Secondly, there are properties that are constant, or as science calls them, *invariant*, no matter what the speed is between two people. These invariant properties, spacetime interval, mass and the speed of light, allow us to correlate what one person is measuring and experiencing in space and time to what another person, moving relative to them, would measure and experience in their space and time. Fundamentally, the experience of space and time is all relative and that both of these people's measurements and experiences would be right relative to their frame of reference.

8 Consciousness and Relativity

In the section of relativity, it was clearly shown that any event in spacetime will be experienced differently based on the frame of reference of the observer. The difference between these two frames is due to motion, that is, the change in space and time. In many of the examples of the theory of relativity, there is a frame of reference which moves along with the event and a frame of reference that is outside of the event. But in any scenario, who is moving relative to who is not absolute. The only absolute is the motion between them. So relativity allows us to correlate the two different experiences of spacetime between these two people who are moving relative to each other. Both of their experiences are correct, even though they are different.

The Theory of Relativity can be used to show equivalent experiences in consciousness. The key concepts of the Theory of Relativity is frame of reference. In consciousness, humans are loaded with predefined and learned frames of reference. Many studies have been done in psychology and sociology, showing how these predefined and learned frames of reference radically alter not only what the person experiences during a common spacetime event, but what they actually report as facts after this event in spacetime. In a common spacetime event of a particularly dramatic situation of human tragedy, many different experiences of that same event can be reported by individuals. The terms and emotions they use to express these events are colored by their own internal frames of references that are quite often invisible to themselves.

One of the interesting ideas to come out of physics is the concept of Tachyons, which move faster than the speed of light. For Tachyons, it takes energy to slow down. In my book, *Multidimensional Time* [ref 1], the concept of multidimensional time is introduced. Based on this concept of multidimensional time, I expand the model of consciousness discussed here to include consciousness not only in time, but multidimensional time. In multidimensional time, without the application of effort, or energy, it is natural for consciousness to be going off in all directions that are in the future or in the past, every location in time but the present. Attention Deficit Disorder might be the results of an increased attunement to a conscious reality called multidimensional time. In order to be present in the now, it takes discipline to slow the mind down. This fits well with the model that it requires energy to slow the particle down in multidimensional time, and it becomes more difficult the closer you come to the exact present, the true now. So without effort, the body does not move in multidimensional space and the mind is everywhere in multidimensional time. With effort, the body can generate creative actions to change multidimensional space and the mind is slowed down to generate creative choices in multidimensional time.

In addition, how others frame us can be quite different to the internal frame of referencing that is going on inside ourselves. The first is an outside frame of reference of others observing us, which can be equivalent to the moving frame [bound ball seen with additional sideways motion]. The second frame of reference can be equivalent to the inside frame of reference, which is our own internal self-interaction [ball moving up and down only in the airplane]. As we all understand, these can be quite different. With enough communication, a correlation can be made between these two consciousness frames of references, inside and outside, and an understanding of why they are different understood. This understanding often takes time and effort to develop and without the advantage of time, we often default to the 'outside' frame of reference in our interaction with others and continue to wonder why people respond to us in ways we do not understand. In our personal experience of the world, we default to our internal frames of references who others cannot easily see. As we age, time helps us to correlate how we internalize our experiences of the world to how others externalize our presence in the world.

9 Consciousness and Time

As described earlier, in Quantum Physics all of matter is described as having a particle-like nature and a wave-like nature. The particle-like nature of matter in 3D Space is what we typically see and measure. The wave-like nature of matter in Time is connected to all particles in the universe. Even though we have separate bodies in 3D Space, we move in the same field of time. It is the same time for you and for me, for an atomic particle as well as for a galaxy. That field of time is everywhere. This is not to say that our experiences in this same field of time are the same, just that time is uniformly distributed everywhere in three-dimensional space.

From the perspective of 3D Space, it is hard to visualize this interconnectedness over all space, but experiments based on the Quantum property of Entanglement show that this is true. Because of this distributed quantum nature of entangled atomic particles, all entangled particles are connected independent of the distance between them. If you change the quantum spin property of one entangled particle, the other particle has to change its spin to keep the total amount of spin conserved, independent of distance.

If we consider humans, we have a particle-like nature, which is our bodies. We are easily identified by these bodies, and it is our primary interface into the 3D world of space. We make assessments of people based on their bodily appearance. Our personalities are crucial to our interfacing to the world, but in a completely different way. The personality of a person also affects the way that people make assessments of us. We can make physical assessments very quickly, but it can take a period of weeks, months, or years to truly 'know' a person, since it takes responses to different situations to really see all the facets of their personality. Even though we have simple categories for the personalities of people, for example, extrovert, introvert, Type A, Type B, etc., the complete consciousness of a person is difficult to assess. To compensate for the elusive categories of personality and behavior, psychologists have designed elaborate psychology tests to quantify our conscious nature. The description of our attributes, the properties of our consciousness, are definitely susceptible to the observer effect. The identity of the person asking the questions can change the answers. Knowing who will read the answers can change the way the answer is revealed. A trusted friend will get a different answer than a distrusted colleague, or a probing psychologist. These psychological tests purposely have multiple questions designed to help overcome our ability to reveal what our strengths, weaknesses, and overall attributes are.

All the data from these questions in the psychological test, or tests, are compiled together and correlate to derive personality traits. From this data, psychologists are good at predicting how individuals with these particular traits *tend* to behave, but they cannot accurately predict how any one individual with these traits *will* behave. The same is true for sociologists. They study the traits of an *ensemble* of people and use this data to predict how this ensemble of people will behave, but cannot predict how any one person in the society *will* behave. This is true for physicists using Quantum Physics to predict the behavior of particles, for example, electrons. Quantum Physics can predict how an *ensemble* of electrons will behave, but cannot predict how a particular electron will behave.

We also have the ability to self-interact through our own self-talk. Sometimes people do this verbally, but generally, it is a private internal affair. We interface with this 'I' all during our awake time, even though we do not know where this 'I' is located?

10 Self-interaction

How we interpret the world changes how our body responds to the world. We are constantly making assessments of the world around us, both from a particle-like [space structures] and wave-like [consciousness] point of view. I believe the phenomena around placebos highlights this effect. Placebos

are usually a sugar pill given to a patient in clinical trials by pharmaceutical companies to determine the effectiveness of their drugs. Those who receive the placebo are called the control group. The objective is to determine the effectiveness of the chemistry in the pill relative to those who did not receive the pill. These tests are conducted as double-blind tests, so that even the researchers don't know which pill is the placebo and which is the drug being tested.

Why is it important to do a double-blind test? In a study, researchers want to limit any influence the participants in the study might pick up, either consciously or otherwise from those who are giving out the pills, which might lead the patients to make assessments about what pill they're getting. The particle nature would be the color, shape, size, taste, and other physical properties associated with the pill. From previous studies, it is known that these differences do trigger different responses in people, based on their preconceived notions, and past experiences regarding these physical properties. For instance, larger pills generated preconceived notions that the pill will be more effective. The way a person administering the placebo is dressed and the manner in which that person speaks changes the way the patient interprets their potential authority. For example, dressing and acting like a doctor, nurse, or any other medical professional makes the placebo more effective. The tone of voice and the environment have all been found to make a difference. So it's not as simple as just a chemical and biological interaction between placebo and participant. But just as important, or maybe the most important, is the internal interaction that is made about all this data.

To add more dimensions to these placebo experiments, not every person reacts to the same situations in the same way. Each person has their own self-interaction with these situations and it can radically alter what people believe and how they behave. These self-interactions, or internal frames of referencing, manifesting as the internal attitude that the participant brings to the interaction, is important. The more motivated they are for a recovery or healing, the more effective the placebo is. In some cases, the effect of a placebo has been staggering. Patients suffering from severe physical, mental, and emotional maladies have shown remarkable recoveries when placebos are administered to patients whose *belief or trust* in the placebo and the person administering the placebo is strong. Side effects have also been reported by participants receiving the placebo. If the participant is told their placebo is a stimulant, it has that result; if it's labeled a relaxant, it has that effect. Same placebo pill. [ref 3]

This same interaction also applies to pain. Larry Dossey, in his book *Space, Time, and Medicine*, describes how people have rid themselves of chronic physical conditions through the practice of meditation. He labels chronic physical conditions like heart disease, high blood pressure, high level of hormone secretions, muscle tension, and a number of other conditions as 'time sickness,' since it comes from our sense of internal and external urgency against time. By finding an outlet, be it meditation or fishing, or any other activity that reduces this sense of racing time, our bodies respond by reducing the tension from our dysfunctional relationship to time.

Even the simple act of being insulted, is a self interaction phenomenon, relating to shifting internal states of referencing. Although it might not seem that way, when an individual says something to you, often faster than your consciousness can process it, your subconscious has made the decision as to whether this communication is labeled an insult or not. Often, the same statement given by different individuals can result in very different responses from you. The key here is that your body is waiting for a label on the statement that has been processed by your ears. Before it is labeled, it does not respond. Once the label has been given, that is, it is an insult, then a physical process is triggered. Your heart rate increases, muscles tense, your breathing changes, and so on. But this response is after a label has been given, either very quickly by your subconscious or more slowly by your conscious.

For these studies, it can be seen that our biological bodies in spacetime are dependent on and linked to the internal frame of referencing made by our own consciousness, which I have associated with time.

11 Multidimensional Time

In my book, *Multidimensional Time* [ref 1] and the paper *Concepts of Three-Dimensional Time and Electrodynamics* [ref 6], the concept of multidimensional time based on Dewey Larsons Reciprocal System Theory [ref 7] is discussed in detail. The concept is that velocity is the fundamental property of the universe. Without motion, there is no space, no time and therefore no matter. Velocity is also the ratio of *space to time*, and *time to space*, not just a measure of velocity. Mr. Larson postulated that in addition to the familiar spacetime of 3D Space and Time, there is a reciprocal spacetime that is 3D Time and Space. In this spacetime, motion is *time divided by space*, versus the motion in our familiar spacetime which is *space divided by time*. He correlated all sorts of physical properties of matter to this expanded concept of spacetime. [ref 8]

My objective is to briefly describe this multidimensional time. In 3D Time, there are locations which can be described by using coordinates t_1 for length in time, t_2 for width in time and t_3 for height in time. Locations can be defined in this 3D Time using t_1 , t_2 , t_3 in the same manner that x , y , z are used to define locations in 3D Space. In the familiar spacetime of 3D Space, Time is also included. This allows motion since motion is the change in location in 3D Space divided by the change in Time that happened during the change in location. In order to have motion in 3D Time, since motion in that reality is defined as change in time divided by change in space, there has to be a Space to have any change in locations, or motion, in time.

It might be odd to think that the clock in 3D Time is space. But think of it this way. When we travel, we are more likely to talk about our change in locations from one point in 3D Space to another not in terms of distance [space], the natural units, but in terms of hours or minutes [time]. In the Theory of Relativity, time is expressed in terms of space, but it is not unusual to discuss time in terms of distance covered. So the units of space and time can be discussed interchangeably. Space in 3D Time can be associated with space-like concepts of inward or outward in space.

From this concept that all space and time is derived from motion comes the fact that space is equivalent to $1 / \text{time}$ and time is equivalent to $1 / \text{space}$. So if space is getting smaller, the equivalent motion in time is to expand. This relationship defines the reciprocal nature of space and time in the Reciprocal System Theory. And 3D Space and Scalar Time [4Space] and 3D Time and Scalar Space [4Time] are linked through motion, that is, the ratio of *space to time* and *time to space*. So there is a way to connect events in 3D Space and Time to events in 3D Time and Scalar Space. Just like in the Theory of Relativity, where the speed of light is used to correlate measurements of space and time between two frames of reference, here motion [speed] is also used to correlate the properties of events in 4Space to events in 4Time.

In applying this expanded concept of time to some theories of physics [ref 6], I also found that this expanded concept of time also helped to apply physics to the concept of human consciousness.

12 Consciousness and Multidimensional Time

In a previous section, the idea that we as humans are two part beings, one part that is particle-like and another that is wave-like, is introduced and that the wave-like nature is correlated to time. Now the objective is to look at consciousness and the properties that have been established for 4Time and see how they correlate.

In space, *coming from* and *going to* are symmetrical extensions of a location in 3D Space called *here*. In time, *have done* and *will do* are symmetrical extensions of time from a point in Time called *now*. We

typically refer to ourselves as human beings who live *in space* who deal with a phenomenon called time. We do not think of ourselves as beings who live *in time*. But the idea of humans as beings who not only live *in space*, but also *in time*, will be explored.

The '*in space called here*' part is easy to understand. We can talk to others standing next to us, and we can relate to this 'in space' experience. But the '*time called now*' moment, or present time, is more difficult to grasp. If we ask people standing right next to us to describe their 'present time' experience, it could be vastly different. Some will be interested in the events around them, others complaining about experiencing boredom, still others impatient to move to the next 'present time' experience, while still others pine for a recent 'present time' experience from the past. All this is happening in the exact 'in space' location and the same moment of time, but clearly not the same 'in time' consciousness moment. A good analogy would be students in a classroom. They are all in the same 'in space' location', but on a Friday afternoon will be in very different consciousness 'in time' locations since their consciousness will be in vastly different places as they contemplate their activities for the weekend. For the reciprocal experience, consider all over a nation, or the world, watching the finals of a key sports event. Here, all those watching are experiencing the same 'in time' conscious event, even though they might be separated 'in space' by large distances while watching this sports event.

So how do we quantify this 'in time' conscious moment? Using the ideas of Quantum Theory, the local particle-like nature is associated with our body and the nonlocal wave-like nature with our consciousness.

The hypothesis presented is that both 3D Space *and* 3D Time are associated with the particle-like nature and that both Time *and* Space are associated with the wave-like nature. The theory presented is that with regards to humans, the body is more associated with space, and consciousness is more associated with time. To be clear, we live both *In Time* and *In Space*, but as we will see, the implications of primarily living in space versus primarily living in time is radically different.

The implications that our consciousness in 3D Space and Time is primarily associated with the wave-like nonlocal nature of Scalar Time component, where direct contact is not necessary. As mentioned previously, the properties of entanglement were discussed in regard to the nonlocal nature and one of these properties is that there is no limitation with regards to distance when it comes to Entanglement. In regards to Entanglement and consciousness, Dr. Radin asked this question in his book, *Entangled Minds*: [ref 9]

Maybe the universe was entangled from the first few nanoseconds after the Big Bang, but how could it have remained entangled for billions of years afterward?

Einstein's Special Theory of Relativity proposed that matter and energy are different aspects of the same substance, and the atomic bombs confirmed that proposal. Thus, entanglement is a property of both matter (as in atoms) and energy (as in photons). This means that the bioelectromagnetic fields around our bodies are entangled with electromagnetic fields in the local environment and with photons arriving from distant stars. The brain's electromagnetic fields are entangled with the rest of the universe, not because of direct contact in the sense of billiard balls colliding, but because its fields interpenetrate with the energetic fields of everything else. This is also how the universe remains entangled.

13 Multidimensional humans

If we associate our particle-like body with *local* 3D Space and *nonlocal* Space and consciousness correlates well with the wavelike *nonlocal* Time and *local* 3D Time, then what are the implications. In my book *Multidimensional Time* [ref 1], the details of how 3D Space compresses into Scalar Space and Scalar Time expands into 3D Time, as well as how the universe oscillates between these two spacetime

realities, 4Space and 4Time is discussed. In this paper, these actions will be stated without the details, but the implications will be discussed.

The implications of multidimensional time is that our wave-like consciousness, that is nonlocal consciousness, in Time will have local shape and location in 3D Time. So all our thoughts, feelings, intentions, both conscious and subconscious, will all have structure in 3D Time, just the same as houses and trees have a spatial structure in 3D Space. So this means that a particular feeling, or thought, related to our consciousness can be located in a particular well defined location in 3D Time, for instance, in the 3D Time kitchen. In 3D Time, these structures of our consciousness can be changed and these consciousness structures interact with all the other consciousness structures being developed by other people, other groups and other cultures. This interaction changes the form and structure of consciousness and these changes will be captured into the nonlocal Time and distributed and available over all 3D Space. Since this oscillation is happening extremely fast, for our experience as a humans, these two realities are simultaneous.

Our body structure, which has a location and shape in 3D Space will be compressed into Scalar Space, where it will not have location and shape. So the information that is the structure of our bodies in 3D Space is distributed everywhere in 3D Time as Scalar Space.

So in 4Space, our body is a local particle-like object in 3D Space locations and our consciousness is a nonlocal wave-like structure in Scalar Time. In 4Time, our consciousness is a local particle-like object in 3D Time locations and our particle-like structure[one of which is our body] in 3D Space is now the nonlocal wave-like structure in Scalar Space. So what is local in 4Space becomes nonlocal in 4Time. What is nonlocal in 4Space becomes local in 4Time. In 4Space, Scalar Time is the agent of change for 4Space. In 4Time, Scalar Space is the agent of change in 4Time.

A good question is why our biological structure, as well as our matter, is limited to only observe the 3D Space part of the universe. For now there is no good answer. What this theory of 4Time does do is increase the number of non-observable dimensions since 3D Time and Scalar Space are also unobservable to us. The implication now is that humans, as well as matter, is even more multidimensional, but the strange part is we are only able to observe a few of these dimensions. Even stranger still is that without unobservable Scalar Time, we could not even see matter, or even our own bodies, or each other, in 3D Space. Without matter, and change, it is not possible to even observe 3D Space. So our ability to view, and detect, the properties of our world is very limited.

The ones who are aware of this limited view of the universe around us are the Astrophysicists. They know there has to be more to the universe for it to behave the way it does. So they have come up with unobservable Dark Matter and unobservable Dark Energy to explain how it is that the universe can behave in the way that it does. I believe this aspect of missing [dark] energy or matter, which are two sides of the same coin, is not only true in astrophysics, but also true for humans.

14 Music in Time

Music is a complex mathematical relationship of time. The frequency of the notes are $1/\text{time}$, chords are ratios of these frequencies and the beats are measured in periods of time.

Music affects our emotions. A beautiful, happy or sad song can change the way we feel. We often use music to create, enhance or change the state we are currently feeling. Why is music capable of affecting our consciousness so much? Is it because it is structured in the same reality, that is time, as our consciousness.

Music has definable mathematical structure. You can write this structure down in great detail. Anyone, trained in the skill of reading music, independent of geographic culture or language, can understand and play it. So it should be that consciousness, one of the most crucial parts of our experiences as humans on planet Earth, can be defined in a similar way that music is defined. The evidence points to time as the basis from which consciousness can be defined.

In time, resonance is one of the most powerful effects. Resonance with sound is often shown as a wine glass shattering from absorbing too much energy from the voice of a trained singer who is able to match the mechanical frequency structure of the wine glass. Sound waves will activate any material structure that is capable of vibrating at the frequency of the sound. The low tones coming from a helicopter flying over a house will cause structures, like windows or the walls, to vibrate if they are able to vibrate at that frequency. If the resonance frequency of a structure is not known, a driving frequency source can be set up and the frequency scanned until the structure starts to vibrate. This is seen in the Chladni and Cymatic patterns, where resonance can impart dynamic shapes in the receiving mechanical structure.

So if consciousness is in fact in time, both nonlocally in 4Space and locally in 4Time, what effect would resonance have?

15 Resonance – Like activates Like

With the theory that consciousness is in time, let's explore how resonance might manifest in consciousness. We all have used the term, 'I really resonated with that idea or with that person'. Could there be more to this?

The most common example of resonance is when a tuning fork is activated and then placed in the proximity of other tuning forks tuned to the same frequency of the first fork. This can also work for a tuning fork tuned to octaves of the frequency of the first tuning fork. This analogy can be used for communication. You have to find the right message [note] to communicate with a particular group, otherwise there will be no resonance to the message delivered. When there is resonance by a group of people to this message, a huge amount of energy can be activated. Notice, I did not say transferred, but said activated. The process is very different. In the first process, there needs to be enough energy to generate all the necessary change. In the second process, the energy is only used to deliver the message. Every individual then generates the necessary energy in response to the message.

The underlying message can be thought of as the carrier frequency, and the words and vocal delivery as a combination of frequencies just like a music song transmitted to a radio. The words in this book can trigger resonance, and with this resonance, activate a desire to investigate time. The energy to do this activity is generated by the reader, not transferred to the reader. During this investigation of time, the reader will find themselves resonating to certain ideas or repelled from other ideas.

In order to resonate with a particular listening audience, both the transmitter and receiver have to be on the same carrier frequency, much like a radio station. If the two parties are not on the same carrier frequency, the message will be heard, *but not listened to*. The process of hearing is a biological response to a sound vibration, but the process of listening requires conscious effort. The brain can convert hearing into listening when certain key words are detected, but there has to be the conscious activity of listening to trigger resonant energy, which can then be turned into action.

In consciousness, the attitudes and beliefs of a person could set up a fundamental carrier frequency for a particular topic in their life in 3D Time. If someone has a similar carrier frequency in their 3D Time field, through resonance, which happens unconsciously, the two people will activate each other. This activation could cause the two people to draw together, if they are at the same social gathering. Now the conscious

reaction comes into play after the unconscious has activated a reaction to draw toward or to move away from a particular unconscious message. Let's take the 'draw toward' scenario in a place where people have congregated.

After the 'draw toward' has taken place unconsciously, the resulting conscious interaction can be easy and effortless or abrasive, depending on how one party presents their ideas. As an example, the same lyrics can be presented in the form of folk or opera. One is not better than the other, but people react differently to these forms of music, just as people who might have the same unconscious attitudes [carrier frequencies] have very different ideas or ways of expressing their ideas. People who are more combative will more often than not activate a combative reaction in others. People who are calm will more often than not activate that same response in others. The key is the words *more often than not*, because it is statistically likely, but not guaranteed in every encounter.

In life, there are situations where you need to assert yourself, and times when you need to step back. Combative is a more extreme form of assertion and avoidance of conflict is a more extreme form of looking for calm. Life seems to expect both, stepping forward and stepping back in a balanced way.

So far, the phenomenon of resonance has been used to construct a model of like attracting like in 3D Time. But what about opposites attracting, which we are familiar with in 3D Space? The best analogy to show how both would work is one where you decided to start a blog focused on a political idea. You'd attract people who are aligned with your ideals, and they could just as easily say they have a resonance with your ideas and positions. But it is very likely your blog will also attract readers with the opposite viewpoints, who want to refute your ideas and positions. Both would happen at the same time.

16 Time Information Fields

With consciousness representing the wave-like nature of us, then as stated, every person is linked to each other instantly. That means that the parts of our consciousness, our intentions, thoughts, and feelings are interlinked as well. Clearly this is happening, probably luckily, on an unconscious level. You can see those dynamics much more clearly in families, or teams. The attitude of one person can change the states of the others instantly. But how do these states interlink? In the previous section, the phenomenon of resonance was used to show how an attitude can activate others around us to choose to behave in particular ways.

Since we live in space and in time, we understand that proximity is important, even if it is not necessary for this interaction in 3D Time. Being interlinked in 3D Time is a fundamental property. The intensity of the linking can then be augmented by proximity in space, since as humans, we react with more presence when we are present in space as well as in the moment of an event. The ability to hear another person's attitude in their voice makes a difference to the person who is listening.

Again, being energized by resonance in time has other properties associated with it. Coherence and timing are very important, so it is likely that a calm but coherent response can be much more effective than one that is very energized but less coherent. That is not to say that energized performances or statements cannot be coherent. When we hear these types of statements, we know it, and we feel it. Reading a coherent and energized statement in a place and time removed from the initial statement is effective in generating either reaction, or action, for or against some idea.

Just like 4Space and 4Time has no directional coupling, here, location is not important, only the communication of the ideas. But what happens when a large amount of people are all finding themselves being energized by the same events? We only have to look at sports, or concerts, to 'feel' the difference

that being energized collectively has. In these events, a baseline resonance is already established, because the attendees are, at some effort and expense, to witness an entertainer or athletes perform.

But just because everyone is resonating to the same fundamental action, like watching a sports event, their individual expression of the resonance is very different. This can also be seen in families. When looking at children, siblings born from the same genetic pool, and raised by the same parents in the same house can have radically different approaches to life. There are clearly attributes in the children relating to the parents, or other relatives in differing ratios, but each sibling definitely has a distinct personality of their own. Some children seem to be more similar to aunts, uncles, grandparents than they are to their own parents.

Using the concepts of fields in time, here is how it might work: For now, I will call them Time Information Fields. Remember, in 3D Time, your inner thoughts and feelings would have structure in time and are just as real in 3D Time as trees and houses are in 3D Space. The exact form of these time structures are unknown, but their properties can be known even if the structures are not. For example, we know the properties and functionality of trees, even if we could never see one or know its exact structure.

The first Time Information Field belongs to you. It is fed by your desires, your intentions, your thoughts, and your feelings. This Time Field is part of your consciousness, and this field either feeds or frustrates you based on what is stored in it.

At the time of your birth, you join another time field, this Time Information Field we can call the 'Family Time Information Field.' It has been fed for many, many generations by ancestors and current family members related to this family. So this 4Time Information Field has a history to it, stemming from the previous generations in the family, and so makes certain family traits easier to express, since the energy is readily available. In positive situations, this is like a wind or current working with you to get you to a place that's emotionally and mentally good for you. For each member of this clan, it will both nurture and frustrate them, for different reasons and at different times, depending on how your own Personal Time Information Field interacts with this Family Time Information Field. The order of importance is determined by each individual. They are interlinked and feedback on each other, so the relationship to you is very dynamic, and changes as you change your emotional and mental attitudes.

How does it expand beyond there? The local community has a Local Geographic Time Information Field generated by all those, past and present, who focus their attention on this community and shape its character. These properties are more easily available for those who live in them. You could visualize these Local Geographic Time Information Fields as creating a feeling for a local area that people instinctively sense and identify as local culture. It is not uncommon to hear people say they love to go to a particular area because it makes them feel more creative, more energized, more relaxed, and so on. Of course, the opposite is true, too. People avoid certain areas, are frustrated by them, and are happy to leave them for all sorts of reasons.

It is possible that the feeling of 'homesickness' comes from a person's Personal Time Information Field missing what they have grown up in, primarily from a family Time Information Field perspective, but also from a geographical Time Information Field perspective. As humans, we all grow accustomed to a certain 'atmosphere', which can now be associated to fields, and when that changes, your system craves something familiar.

Layered on the Personal, Family and Local Geographic Time Information Fields are informational fields specific to a nation. This National Time Information Field would grow and change with the focus of attention of its citizens. And so certain nationalities will interact more positively based on the content in these Time Information Fields. Finally, there would be a Time Information Field associated with this planet, where attributes of being a global citizen on planet Earth are stored. Who knows what other

properties these nonlocal Time Information Fields might also be capable of linking into that we are not even aware of.

If the speed of interaction between individuals and fields is at the speed of light, then any point on the globe is only separated by 65 milliseconds, which, when compared to the speed of our conscious reaction, is practically instantaneous. So all interactions in this field would be felt almost instantaneously. As mentioned before, for our unconscious reaction, this speed is quite slow, so on an unconscious level, these fields can clearly impact our thinking before we are even consciously aware of it.

Each individual would have different resonances with each of these fields. Some individuals have strong resonances with the local and national Time Information Fields, whereas others have resonances that are primarily dominated by family fields. These relationships, or resonances with, also changes over time as individuals experience events in space and in time that change their attitudes, and therefore, what they resonate to in these Time Information Fields.

17 Morphogenetic Field

So far, the discussion has been about time as a field of information with interactions to other people's fields. In a previous section the discussion was about how these Time Information Fields store information regarding psychological properties of individuals, families, communities, nations, and planetary groups. But is the information in these fields utilized for more specific tasks, like influencing the two key properties of space and time, that being form and energy?

Rupert Sheldrake, in his book *Morphic Resonance*, lays out a model for how a field, he labeled as morphogenetic, influences the way cells grow, thus impacting the biological structures of plant, animal, and human structure. But he does not limit it to just biological structure, since he discusses the impacts in behavior in a very similar manner to how I discuss how Time Information Fields impact human behavior. In the Time Information Field model, 4Time has the ability to affect structure through the dynamics of time, or frequency. Cymatics shows how these structures might manifest from frequency [ref 10]. Remember, mass is dependent on the variable frequency, that is, mass equals frequency times the constants (Planck's constant / speed of light squared).

In Dr. Sheldrake's book, he discusses details of the morphogenetic field that are very closely correlated to the structure of 4Space and 4Time. In particular, his discussion on form and energy is relevant. He states: [15]

In the most general terms, form and energy bear an inverse relationship to each other: energy is the principle of change, but a form or structure can exist only as long as it has a certain stability and resistance to change.

This sounds just like the reciprocal [inverse] relationship between space and time, where form is the 3D Space component and change [energy] is the Time component.

Dr. Sheldrake details how this relationship between form and energy is easily seen between temperature [energy - time] and matter [form - space]. As you change the temperature, the form of matter changes from solid to liquid to gas, and finally plasma, and vice versa.

But the real conflict of how shape is determined is plainly evident in the forms of biological structures. Although DNA is often quoted as the basis for biological structure, there are important facts that Dr. Sheldrake points out. These conflicts, detailed by him in his book are listed below. [16]

1. *The human genome has only about 25,000 genes. The fruit fly has 17,000, the sea urchin 26,000 and the rice plant 38,000.[intro 6%]. There is a larger difference between species of fruit fly and mice than between humans and chimpanzees.*
2. *Within the same organism, different patterns of development take place while the DNA remains the same. Consider, for example, your arms and legs: both contain identical cell types (muscle cells, connective tissue cells, etc.) with identical proteins and identical DNA. So the differences between the arms and the legs cannot be ascribed to DNA per se; they must be ascribed to pattern-determining factors that act differently in developing arms and legs. They also give rise to mirror-image patterns in right and left arms and legs. The precision of arrangement of the tissues—for example, the joining of tendons to the right parts of the bones—shows that these patterns are established in detail and with precision. The mechanistic theory of life means that these factors must be regarded.*
3. *Even if physical or chemical factors affecting the growth of an arm, the formation of an eye, or the development of an apple are identified, this raises the question of how these factors are themselves patterned in the first place.*

Because of these issues, Dr. Sheldrake states that the evolution of the organ and that of the molecule are independent. He asks, “*If genes and proteins do not explain the differences between chimpanzees and us, then what does?*”

To answer this question, he postulated a morphogenetic field. Morphogenesis is defined as the “coming-into-being of characteristic and specific form in living organisms.” [17] His proposed morphogenetic field is an attempt to deal with the many unanswered issues of how form comes into being, the regulation of cell behavior, biological regeneration, as well as the speed at which morphogenesis happens. The issue with speed is explained in a protein folding example, where for a chain of 150 amino acid residues, there are 10^{45} possible random conformations. The number is lower due to the fact that a number of these conformations are sterically impossible. But if each potential shape could be done with a molecular frequency of 10^{12} Hertz, which he states is an overestimate, it would take 10^{26} years to generate all the possible conformations. Now contrast that to the synthesis and folding of ribonuclease or lysozyme protein that can be done in two minutes, or roughly in a *four-millionth of a year*, to reach the lowest free energy shape, and the problem becomes clear. The protein must have a way to determine the lowest free energy state so extremely fast. [18]

Dr. Sheldrake states,

This discussion leads to the general conclusion that the existing theories of physics may well be incapable of explaining the unique structures of complex molecules and crystals; they permit a range of possible minimum-energy structures to be suggested, but there is no evidence that they can account for the fact that one rather than another of these possible structures is realized. It is therefore conceivable that some factor other than energy “selects” between these possibilities and thus determines the specific structure taken up by the system. The hypothesis that will now be developed is based on the idea that this “selection” is brought about by a new type of causation, at present unrecognized by physics, through the agency of morphogenetic fields. [18]

He goes on to say that the mechanistic view of science, [19]

. . . assumes that all this can be explained in terms of self assembly. . . . This is rather like saying that a house can build itself spontaneously as long as the right building materials are delivered to the building site at the right times.

I definitely agree with this statement. Later, Dr. Shel Drake compares the architectural plan to information. The plan can be destroyed, whether the house is built or not, but it has no energy of its own. I agree that in space, this has no energy of its own. But in time, this plan, with all the energy spent by the homeowners, both in their dreams and visualization of this house and the formulative discussions with the architect, this plan is energy in unobservable 3D Time. It is in the process of becoming a reality in observable space because of the unobservable energies put into it in 3D Time.

These morphogenetic fields have the properties of the wave nature, since information in the field is accumulated not through physical contact, but through patterns of 'coming into being.' These patterns can be changed over time, but the patterns of the past continue to guide the patterns of the present and future. Change, the necessity for or the prevention of, is what time does in space. So it is within the realm of possibilities that these actions that Dr. Shel Drake associates with morphogenetic fields are in fact the manifestations of Time Informational Fields.

18 Morphogenetic Field and Physics

In correlating these morphogenetic fields to theories in physics, I will highlight two theories that Dr. Shel Drake discusses. In the first approach, these fields might be due to additional dimensions of spacetime. A theory right in line with what I am proposing here.

A second approach is related to the Quantum Vacuum. He references Quantum Theory, where all electromagnetic fields are derived from the Quantum Vacuum. Virtual photons appearing and disappearing into the Quantum Vacuum mediate the properties of these fields. Dr. Shel Drake theorizes,

Thus, all molecules within living organisms, all cell membranes, all nerve impulses, and indeed all electromagnetic and chemical processes depend on virtual photons appearing and disappearing within the all-pervading vacuum field of nature. Could morphic fields interact with regular physical and chemical processes through the vacuum field? Some theoreticians speculate that they can and do. Theories of these kinds may help to relate morphic fields and morphic resonance to the physics of the future. But at present, no one knows how the phenomena of morphogenesis are related to physics, whether conventional or unconventional. [20]

As discussed before, the Vacuum field and morphic field could both be based in the additional dimensions due to 4Time.

19 A Human Experiencing 4Space and 4Time

In this section, I would like to use an analogy to highlight the implications of what it means that our consciousness is a nonlocal phenomenon. The model postulated is that what we think and feel is projected into layered Time Information Fields that surround us. In accordance with Entanglement, the interaction is not just limited to local fields on planet Earth, but with all other fields in the universe. It is a big concept to accept about our place in both 4Space and 4Time.

How would thoughts and feelings inside a person affect their reality in this new eight-dimensional spacetime? Let's hypothesize that there's a person who has a creative thought which generates a

frequency in 4Time. This frequency in 4Time resonates with similar frequencies in 4Time, manifesting what would look like an attractive force in 4Space because the amount of energy increases with this resonance from other frequency sources in time. If other people have already paid attention to this idea, then, through resonance, these ideas can appear as new insights to this individual. If this creative idea has very little previous attention paid to it by others, then the person who is the source of this idea will have to put more effort into generating their own insights. As they put more energy into this idea, the path for someone else, independent and unknown by the first person, to gain similar insights will be easier. I specifically use the word opportunity, because if these insights are blocked, or filtered through the mental constructs of this second individual, their usefulness could be reduced. So what happens in 4Time with this resonance is separate from how this energy of resonance is received by any one individual.

When more attention is paid by this one individual or others interested in the same idea, or from previous efforts behind this idea, this resonance generates a flux, a flow of energy. Eventually, when a critical flow is reached, this flow of energy per unit time is felt as power. Once it has reached this critical point, the energy would be self sustaining, making it much easier to realize this idea, or in modern parlance, having it go viral. Before this critical point, if insufficient flux or flow is generated, then the idea would slowly stagnate.

Now let's look at an analogy. In this example, let's examine two people confronted with an important life decision. We have two people in their senior year of high school. The first student is Clara, who's very talented in science, knows that she wants to study neurology, but is trying to determine the right school to maximize her future career. The second student, Jeff, has no clue what he wants to study or where he wants to go, but he's talented in a number of different areas, so he's having a hard time just dealing with the thought of choosing a school and being pinned to a choice so early in his life. Both start with their potentials at the same point in time. We can take a snapshot of the present moment, a 2D slice of one point in 4Time, much like a slice from a loaf of bread in our 4Space. The loaf represents all of the potentials in consciousness, but we are only interested in the possibilities in their life at that moment in time.

If you're interested in another particular moment, you slice the bread at that point, and you get a different 2D time slice of these potentials. When you slice the bread, the slice might have large or small holes, or a different grain structure. If you string a whole bunch of slices together, the points of potentials in each part of the 2D slices of time turn into threads or strings that weave through the bread like it might in 4Time. Some of the 4Time threads remain isolated, some join together and reinforce these potentials, other threads cross each other, and some threads survive while others terminate. These threads represent potentials in a person's life. In 4Time, these are as real as doors and windows in 4Space, but in this 4Time, they're the hopes, dreams, ideas, creativity, aspirations, and so on that people focus their intention and attention on.

In 4Time, we stated that all possibilities are stored as potentials, much like energy is stored in electric and magnetic fields. The more potential a possibility has, the more powerful or forceful the field that can be generated, and the higher the possibility of manifestation in 4Space. So each potential outcome, or possibility, is mapped into this slice of time. Now, if we're only looking at career potentials and filtering out all the other life potentials for these two individuals, here's what we would see: For Clara, we would see a few strong points clustering in this slice around one idea relating to biology and neurobiology. We might see one point on this slice relating to pathology, since Clara has a very good mind for solving complex situations, and she's played with the idea of specializing in the forensic sciences. We can imagine that a university program that has similar concepts will exert a pull on her.

When we look closer, we see that the strong points all relate to schools she's applying to. Some of the points are larger, meaning they have a stronger potential manifesting for her at that moment, as shown in the figure on the next page. This could change just a few time slices into the future, but for now, we're only examining this one-time slice, which is a day in late September of her senior year in high school. The

points in this reality are a cross-section of who Clara is, the amount of energy she's put into the subject, and each school she's interested in.

Now, each school has a potential in this dimension as well, and the interaction of who Clara is and her efforts intersect with the possibilities offered by each school; and so a new potential is created. In late September, School A looks like the best fit. School B doesn't appear to fit Clara's personal potential as nicely as the others, but Clara has added a lot of energy to it, believing it to be the best fit from her perspective, and so it also manifests as a strong point or potential. If someone were to dig deeper, it might be obvious why School B manifests as less of a potential when interacting with Clara's own potentials, but that would require evaluating multiple time slices and going back in time to examine the issues between Clara and the potentials surrounding this school for her.

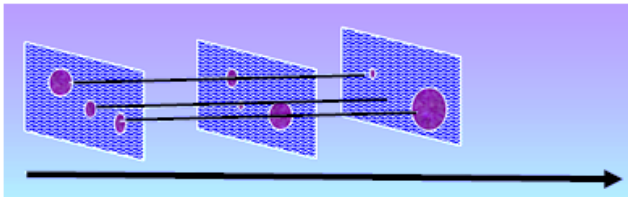


Figure 7 Progression of slices in multidimensional time

School C is another strong possibility. In this case, the school's potential has a much higher energy content for a fit with Clara—but she hasn't put as much energy into it, because with her strong, rational mind, she often overrides her intuitive side. If you were to ask Clara, she would tell you her choices are schools A, B, and C in that order. But if you were to read into the potentials, you would say A, C, and then B. Meanwhile, for Jeff, a time slice in September would reveal many small dots all over the place. It would look a bit more chaotic, with a few correlations, but no strong ones. There would be a bunch of schools with potentials for Jeff and who he is at this moment in time. There would be clusters of points representing talents that he's put energy into and has strong feelings toward. Some of the points have links between them, because Jeff sees them as interrelated. His writing, his technical interests, his drawing, and his travel interests are all creative expressions of who he is, but if he has to choose a major, he finds himself paralyzed. Choosing one seems to mean the others might not be a part of his life in the way he envisions them.

In the 3D potential reality, we see threads of potentials that can turn into possibilities with enough attention. In our student examples, we can see how visits to colleges reinforce threads or cause them to diminish and, in some cases, to terminate. During the acceptance part, threads will continue; some grow and others will terminate. Finally, for one student, the financial aid part will bolster or diminish potentials and, eventually, a decision will be made. It could be said that when people talk about gut feelings, these people are able to tune into these possibilities and see which ones are manifesting as a better fit for them. This could be thought of as a reflected wave from the future coming from a potential field that's manifesting due to the energy being pumped into it from the person's effort in the present regarding that future event. If the reflection is in alignment with their present ideas about the future, a good feeling results. If this reflected wave isn't in alignment, then there's a poor gut feeling.

In this example, the idea is that everything you intend, think, and feel is a dynamic playing out in time and there is feedback, nonlocally, to all this conscious activity. The feedback in time can also explain how it is we feel uncomfortable with certain decisions, in spite of the fact that in 4Space, all the facts would lead to a decision in that direction. It is not uncommon for people to make major decisions based on their gut feeling.

The example given here highlights the fact that we *are* really spacetime beings living *in* 4Space and *in* 4Time. The results of our activities in space are immediately obvious, but we cannot see the activities in time and so have trouble correlating the results of these activities.

But it is not just that each individual has a presence in spacetime, but their feelings and thoughts about their community, state, nation, and their role as a global citizen now have the mechanisms to be real in multidimensional spacetime.

20 Conclusion

I remember my understanding about space and time distinctly being shaken a number of times due to ideas from the Theory of Relativity, to the speed of light as a ratio of space to time, to the theories of Stochastic Electrodynamics and Zero-Point Energy, as well as the new concepts about human consciousness.

The simple understanding that time is energy and the concept that the speed of light is a ratio where space equals one divided by time and time equals one divided by space changes how you see all of spacetime. As 4Space expands, 4Time contracts and vice versa. Add to this the additional symmetry of electrodynamics when the physics of spacetime is expanded to 4Time. These insights opened my perception of space and time in the universe around me. The concept of time as being *everywhere*, literally, in our universe and that we are tied to this *everywhere* helped me understand that humans are multidimensional spacetime beings in this universe. This expanded understanding of ourselves seems to link well with philosophical ideas about how we as humans are connected to the universe around us and with the model presented in this paper, it has a much more concrete and definable relationship.

There might be those who find the idea that our consciousness and emotions can be reduced to relations, or equations, of space and time a bit distasteful. But what is music if not just one complex mathematical relationship of time? The frequency of the notes and chords are one divided by time, and the beats are measured in periods of time. Music has the power to affect us deeply, and it is really just beautiful mathematical ratios constructed in time.

Currently we have incredible access to information and global contact right in the palm of our hands. It was not that long ago that access to limited amounts of knowledge required a real physical effort, as well as financial expense. Contacting people globally, especially in some regions of the Earth was challenging both in space and in time. Now the rate of access to incredible knowledge and to people all over the globe is expanding exponentially. With this new access, comes other issues and problems that we are currently dealing with, but the advantages outweigh the disadvantages, so we as humans clamor for more.

In the same way that technology has brought us this tremendous access to known information, I believe that we as humans have access to information that is available in time. This information will radically alter how we see matter in the universe around us, but also our experience of our world and the universe around us. We will be able to develop new technologies that will radically change how we create new materials and energies, but also change how what we believe about our own bodies and about ourselves. Information, that we currently have no theoretical basis to understand technically, like emotions, thoughts, intuition, dreams, and insights during meditation could well be not only be understood, but more easily taught and measured. This new information in time, particularly as it relates to consciousness will likely require a new method of interpretation, since it is clear that this information is not based on our current logical and linear thinking.

Einstein stated, 'We cannot solve our problems with the same thinking we used when we created them.' Our world is rapidly challenging us as global citizens to see ourselves, and our responsibilities to each other, in new ways. We feel more connected to each other now than ever before, and technology has helped foster this. But I believe it is only the beginning of an experience for humans to a much more interconnected world, and interconnected universe where multidimensional time plays a critical role in this enlarged view of ourselves and the universe around us.

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Version

1. Original
2. Dec 8, 2017. Change 4D Time to 4Time and 4D Space to 4Space to better reflect that Scalar Time is not a dimension, even though it is often spoken of like a one dimensional line.

21 Appendix: Time Slowing Down.

To understand how the Theory of Relativity accounts for the slowing down of time, let's look at a simple example of a ball bouncing up and down in a rocket, a rocket that is moving along imperceptibly to the person inside, that is, it is moving at constant velocity.

From the perspective of the person inside the rocket shown in Figure 1, there is no way to tell that the rocket is moving, or how fast it is moving or even if it is moving, because there are no windows to look outside. Remember the analogy of the airplane. The ball they are playing with in this rocket is thrown from their hand to the floor and comes back to their hand. They see the ball moving up and down in the same axis relative to them.

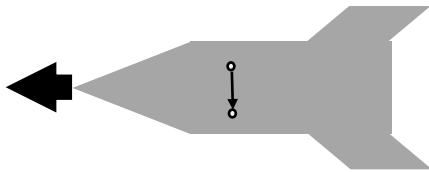


Figure 1. Reference frame inside the rocket.

Lets make the rocket have one way mirrored walls, so the person inside cannot see out, but the people, in this case astronauts outside can see in. For the astronaut on the outside, looking at the person inside the rocket going by and bouncing this ball, they would see the trajectory of the ball as shown below.

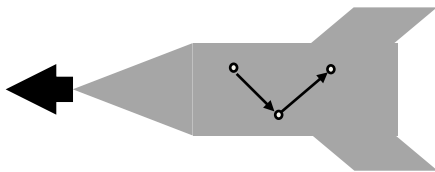


Figure 2. Reference frame outside the rocket

If either of these observers had to describe the path of the ball, and the distance it covered, they would give different results. So we have an event in space and time that two people observe, but describe differently. Who is right? They are both right. But what effect might be witnessed between these two frames references.

Now lets change this example from a ball bouncing between the hand of the person on the rocket and the floor to that of a photon that bounces between two mirrors as shown in Figure 1. Each round trip of the photon is used as a tick of a highly accurate clock for the person on the rocket. Now the astronaut outside, watching the rocket go by, also has their own photon clock, using the same mechanism of bouncing a photon between two mirrors. So we have a photon clock for the astronaut on the rocket and one for the astronaut outside the rocket.

The astronaut outside the rocket would say that the clock of the astronaut on the rocket is ticking more slowly, that is, the photon has to travel a longer distance for each round trip, as shown in Figure 2. This astronaut is convinced that their photon clock is the accurate one since they can measure the round trip of the photon and it is quicker because the photon is bouncing like that shown in Figure 1. Now the

astronaut inside the rocket, who can now look out, would say exactly the same. Their clock is correct and the poor astronaut outside has a clock that is running slow. So they cannot agree on the measured time, and with that the measured distance in space. Yet, both of these people's measurements and experiences would be right.

There are also implications for the effects on space and time in 3D Time and Scalar Space, or more accurately, Scalar Space. In 3D Time, velocity is always faster than the speed of light. It can never be slower than the speed of light [ref 1,2]. In 3D Time, length still shortens with change in relative velocity, but now it is time which is length and compresses. Space, which is the agent of change in 3D Time, will expand just like Scalar Time, the agent of change in 3D Space, expands with relative motion. What is also different, is the slower the relative motion between two people in 4Space [3D Space and Scalar Time], the more space and time are the same. In 4Time [3D Time and Scalar Space], this happens when the relative motion is the most extreme, that is much much faster than the speed of light, and the effects on time and space between two people moving in 4Time gets more and more different as the motion between them slows down and they approach a relative motion closer to the speed of light. So in both 4Space and 4Time, the largest relative difference between the measurement and experience of space and time happens close to the speed of light. [ref 2]

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