Derivation of Some Characteristics of Quantum Theory from an Analogy with the Dreaming Brain

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Abstract
An analogy is made with a dream created by a brain to reproduce many of the aspects of our observed reality as described by quantum physics. Among these are the quantum theoretical method of calculating probabilities by means of complex amplitudes, quantum statistics and the disturbance of systems by observation and consequent non-commutation of some observations. Arguments are made for the subjective nature of probability amplitudes, often called "wave functions". Some paradoxes or conceptual problems are resolved or clarified, such as the Schrödinger’s cat "paradox", the "preferred basis" problem and the anthropic principle.

Key Words: quantum, mind, brain, metabrain, entanglement

Introduction
Quantum physics has many properties, which are intuitively puzzling. Events cannot be predicted in a precise way, even in principle, as they can be in classical physics. Only probabilities can be predicted and these probabilities are calculated in a peculiar way involving complex amplitudes; these are summed and the square of the magnitude of the sum then gives the probability of the event occurring. Various paradoxes and conceptual problems occur in quantum theory. The well-known Schrödinger Cat paradox, the problem of "preferred bases", the strange quantum statistics and the Einstein-Podolsky-Rosen "spooky action at a distance" and the transition to the appearance of classical physics as one goes from observing microscopic entities to observing macroscopic entities have caused difficulties in attempts to understand the philosophic significance of the theory.

It has been more than eighty years since the development of the quantum theory, which has been amazingly successful in predicting physical phenomena, yet a simple and intuitive interpretation which resolves these problems has yet to be discovered. It appears that a drastic revolution in our concept of reality is necessary. In this article, we attempt this with a model of our observed reality that resembles a dream, partially shared by all conscious beings, and a "metabrain" that produces that dream in a manner similar to the manner by which an ordinary brain produces our ordinary garden-variety dreams. This article is an extension of previous discussions of the relationship between quantum theory the dream analogy (Schumann, 2008; 2007; 2000; 1991).
The Metabrain Model

Perhaps the most essential characteristic of a dream is that the objects of which one dreams do not exist independently of their observation within the dream. If you dream of a mountain, you may wonder what is behind that mountain. Is there a desert, a jungle, or an ocean? None of those exist in your dream until you look beyond the mountain and find out. Let us consider the relationship of our brain to our dream. The brain, we assume, produces the dream and determines the nature of the dream. The brain and the "outside world" is not observable within the dream so the events in the brain are "hidden variables" that determine the events of the dream. Suppose that you dream that you are in New York or Paris. There is no location in your brain corresponding to either of those geographical locations. The events in the brain are thus non-local hidden variables, which produce the dream.

Your dream is private. Nobody else shares it. However, we are not solipsists. We assume that there are other conscious beings, which partially share some of our experiences. You have some thoughts and experiences which only you can know, but if we are in the same room we will both experience many aspects of the room in common and we can even communicate some of our thoughts and experiences to each other. Thus if our reality is like a dream, the "metabrain" which produces it will have many connected "sections", each section associated with a different conscious being. The connected nature of these sections or parts reflect our shared or related experiences.

This partial separation of the metabrain into sections each with individual conscious experience is analogous to the ordinary brain, which with the cutting of the corpus callosum, becomes two conscious entities, as studied by Roger Sperry and others. Sperry showed that each entity may have knowledge that the other does not have.

The Reciprocal Nature of the Metabrain and the Dream-Reality

We assume that our brain produces our dreams and that in our dreams we are unaware of our brain and the "outside world". However, our dream can affect our brain, our body and the outside world. If we have a nightmare, for example, our heartbeat will quicken, sweat will appear on our brow and we may thrash about.

If our brain is observed by magnetic resonance imaging, different kinds of thoughts will show distinct patterns of blood flow within our brain; also detectors of electrical patterns of the brain show distinct patterns if we are dreaming, different patterns if we are not. We assume this same reciprocal nature between our "dream reality" and the metabrain.

Suppose we experience an observation of a microscopic entity such as an electron (by means of a Geiger counter or bubble chamber, for example). This "disturbance" of our conscious experience in turn affects the metabrain that in turn affects our perceived "dream" which includes the experienced electron. Thus, merely observing the electron in general is expected to disturb it. This disturbance by observation is one of the basic properties of quantum physics and is consistent with our metabrain-dream model.

The fact that an observation may result in a disturbance or an action explains why two observations may not commute; that is, the order of the observations is important. This is because the order of two actions or disturbances need not commute. If you paint your car red and then paint it blue, you will have a blue car. If you paint your car blue and then paint it red you will have a red car. The order is important.

Quantum Probability and the Metabrain

The metabrain, we assume, has some of the characteristics of an ordinary brain. It has current, paths along which those currents travel and join other currents. It has things which act like capacitors or inductors and which change the phase of the currents. When the currents join, they add like complex numbers, that is, both their magnitude and their phase must be taken into account. Thus, the currents in the metabrain add in a similar manner to the way quantum probability amplitudes add, and we assume these currents are proportional to appropriate quantum amplitudes. The metabrain currents have many "components" in something like a
Hilbert space. Each component may be likened to a basis vector that, we argue, is an eigenvector of some operator corresponding to an observation in the "dream".

In addition, the metabrain has something like synapses. Each synapse has a "filter" which only allows a particular component of the current vector to be incident on the synapse. This filter is something like a polarizing lens, which only allows one component of electromagnetic radiation to pass through. Only there are many "directions" corresponding to the many "components" of the currents.

We shall assume that when a synapse "fires" or a signal transfers across the synapse that this corresponds to a conscious experience or observation. This is similar but not exactly, the same as the connection made from an axon across the synapse of an ordinary brain to the dendrite of a receiver cell.

Assume that the probability of the "connection" or "firing", that is, the probability that an observation of a corresponding "dream" event takes place is proportional to the average amount of "neurotransmitter" released per unit time. It takes energy to release the neurotransmitter; we thus assume that the average amount of neurotransmitter per unit time that is released is proportional to the average energy released per unit time (the average power). Assuming Ohm's law, this average power is proportional to the square of the magnitude of the current (as it is in a resistor of an ordinary electric circuit). Instead of electric energy being transformed to heat as in an ordinary electric circuit, the energy is used to release "neurotransmitter" in the metabrain.

Thus, the probability that the event is observed is proportional to the square of the magnitude of the complex current in the metabrain model. This corresponds by analogy with the probability of the event being proportional to the square of the magnitude of the complex amplitude in quantum theory. Our model is consistent with the quantum theoretical method of calculating probabilities.

**The Multiple Slit Example**

We give the example of a particle going through a barrier with multiple slits. A detector is placed behind slit A but no detectors are placed behind slits B, C or D. This is a very important example in understanding quantum theory. To quote the famous physicist Richard Feynman:

"The basic element of quantum theory is the double-slit experiment. It is a phenomenon which is impossible, absolutely impossible to explain in any classical way and which has in it the heart of quantum mechanics. In reality it contains the only mystery ... the basic peculiarities of all quantum mechanics."
We show the "dream" representation above the "metabrain" situation in Figure 1.

The Preferred Basis Problem
We must remember we are using the dream metaphor. The contents of the "dream reality" affects the metabrain just as the contents of an ordinary dream affects the brain and "outside world" as we have discussed.

Suppose we wish to measure the z-component of spin of an electron with a Stern-Gerlach device with the magnetic field aligned along the z-direction. The "presynaptic filters" of the metabrain currents will be appropriately aligned. If we then rotate the magnetic field to measure the x-component of spin the presynaptic filters will be appropriately "rotated".

We will not get inappropriate components of metabrain currents (unphysical superposition of probability amplitudes) because the "dream" affects the metabrain filters and selects the "orientation of the presynaptic filters" appropriate to the physical situation in the dream. That is, the proper Hilbert space basis is chosen for the filters.

Relativity, Grandma and Schrödinger's Cat
The dream metaphor seems consistent with hints from relativity theory as well as from quantum theory.

Consider two astronauts who are brothers and have a grandmother who they have not seen for many years and who lives on a distant planet orbiting a distant star. This family has a peculiar characteristic: they live to be exactly one hundred years of age (in their own reference frame in which they are at rest) and die on their one hundredth birthday. Both astronauts know their relativity theory and can calculate whether grandma is alive or dead in their own reference frame. The astronauts are traveling at very different velocities but happen to pass by very close to each other. Their paths almost intersect. They signal to each other. One of them signals: grandma is still alive! The other signals: grandma has been dead for several years! Both are right, each in his own reference frame. Thus, one may interpret relativity as stressing the reality of each experience, rather than a unique global picture of reality "now". If someone on grandma’s planet had televised the events of her life and broadcast it into outer space, in principle each of the astronauts would eventually agree on the events of their grandmother's life: how she lived and how she died.

Although somewhat different, this brings to mind the quantum "paradox" of Schrödinger's cat.

A cat belonging to Professor Schrödinger is in a sealed room, which has a closed window. A radioactive nucleus will, if it decays, trigger the release of deadly poison, which will kill the cat, or a least make it visibly ill. At any time, there is a probability amplitude, from the point of view of a non-observing, perhaps distant, person that the nucleus has decayed and the cat is ill or dead. Professor Wigner is watching the cat through a window whereas Professor Schrödinger is some distance away and not aware of what is happening to his cat. For Wigner, the cat is in a definite state, either alive and well or ill and perhaps dead (and similarly from the cat's point of view). For Schrödinger his cat is in a superposition of alive and dead, the probability amplitude being described by quantum theory. The probability amplitudes are different for Schrödinger than for Wigner. For Wigner the result is certain, probability one that the cat is alive/dead and zero that it is dead/alive. Each professor has his own experience or dream or stream of consciousness. When Schrödinger eventually comes to see how his cat is doing, then he and Wigner will agree as to the condition of the cat, whether it is alive or dead and if dead, the approximate time of death (in the cat’s reference frame).

Suppose Wigner sees the cat die. This corresponds to a current firing a synapse in Wigner's segment of the metabrain. This firing produces changes in Professor Schrödinger’s segment of the metabrain (the segments are connected) so that the synapse or combination of synapses corresponding to Schrödinger seeing his cat alive are prevented from being activated and when Schrödinger in his dream looks at the cat he will get the same result that Wigner had in his (Wigner's) dream.

EPR and the Subjective Nature of Probability Amplitudes
In the Einstein-Podolsky-Rosen situation as modified by Bohm, a particle X of spin zero decays into two particles, Y and Z, each of spin 1/2 so that if one particle has z-component of spin +1/2 the other has z-component of spin -1/2 and vice versa. By measuring one particle "physically" one indirectly measures the other particle without any physical interaction because the sum of the z-components must add to zero (Figure 2).

The dashed lines represent simultaneity in differently moving reference frames. A is an observer with simultaneity (A-P) and B is an observer with simultaneity (B-P). P represents a location in space-time of the particle on the left and R represents a measurement of the z-component of spin of the particle on the right.

For observer B the particle state at P has not "collapsed" into a definite z-component whereas for observer A the particle state at P has "collapsed" to a definite state. Thus reduction or "collapse" of the "wave function" (we prefer the term "probability amplitude") of the particle at point P is observer dependent and thus not an objective fact.

We may note in passing that if one (incorrectly) assumes that collapse of the wave function "immediately" produced distant observable effects that this would violate the principles of special relativity. Thus, if, in the A-P reference frame, the measurement R produced an observable effect at P, then an observer at P would know that a measurement at R had indeed been carried out. Thus, information would have traveled across a space-like interval contrary to special relativity.

**Spin and the Metabrain**

The existence of spin appears contrary to classical theory. It seems that quantum theory is needed. One strange aspect of a spin 1/2 system is that if it is rotated by 360 degrees, though the system looks the same as before, the probability amplitude is multiplied by a phase factor of 180 degrees; that is, the amplitude for this state is multiplied by minus one. This has consequences when combining this probability amplitude with other amplitudes. How can we make this intuitive? As it looks exactly like before, we assume rotation by 360 degrees does not change the synapses of the metabrain that fire when the system is observed.

Suppose that the synapses have a symmetry (they do not need to have exactly the same properties as the synapses of an ordinary observable brain) that they fire the same whether a current goes in one direction or the opposite direction through the filter of the synapse or through the synapse. The opposite direction for the metabrain current just corresponds to a phase shift of 180 degrees for the spin probability amplitude. Thus, it appears that our model can handle the concept of spin.

**The Transition from Quantum Characteristics for Microscopic Entities to the Appearance of Classical Behavior for Macroscopic Objects**

In quantum physics if one measures a characteristic of a microscopic object, one disturbs the object so that if one measures it again one gets a different result. (We do not assume the observable commutes with the Hamiltonian.) However there is a consequence of quantum theory, called the "Quantum Zeno Effect" that if one measures the property many times in a short period of time before the wave function has a chance
to change very much, one will tend to get the same result over and over again. We relate this to the "Hebb Learning Principle" which states that if a brain is subjected to the same experience repeatedly so the currents travel along the same pathways repeatedly, the currents will tend to travel over the same pathways again if a similar situation arises and the results become part of the brain's memory.

As we have said, when observing microscopic entities one observation will usually differ from the next. An example might be the observation of a slowly moving electron by scattering a photon off the electron and then observing the photon as in Compton scattering. From observation of the scattered photon, the electron appears to be in a particular location. But the electron has been disturbed by the photon so that the next photon that scatters off the electron soon after the first scatter will scatter differently from the first and the electron will appear to be in a very different location.

Now consider the observation of a macroscopic object. The scattering of photons off the object do not disturb the object in a manner that can be observed, due to the large mass of the object. Repeated observations do not change the perception of the object. This is important.

If one observes a large object for, perhaps, half a second, this will involve many observations, that is, many scatterings by photons that then enter the eye of the observer. This will not change the perception of the macroscopic object; the object will appear stable.

Let us look at one aspect of classical (non-quantum) behavior. If we look at an initially stationary object, then look away, and then look back to where the object was, we expect to find it unchanged. This is not true for quantum behavior because the observation disturbs the microscopic object. The many observations of the macroscopic object in say half a second produce a lasting effect on the metabrain because the many observations (experiences) are the same and will cause the currents of the metabrain to follow the same or similar paths according to the Hebb's learning principle (which is related to the Quantum Zeno Effect). Thus, the metabrain develops a "memory" of the object and when one looks again, one gets the same experience as before, that is, the object appears to still be there. Thus, it appears to behave classically.

For a mundane analogy, consider a student learning a list of verbs in a foreign language. She looks at the list many times, over and over and finally develops a memory of the list, consistent with Hebb's principle. In our model, the memory of the metabrain just corresponds to the stability of the macroscopic object.

We can thus see a connection between macroscopic objects and classical behavior. This may seem obvious but other attempts to interpret quantum theory have difficulty explaining the transition to classical behavior when going from microscopic to macroscopic. Part of the problem in my view is that the other interpretations tend to treat the probability amplitudes or "wave functions" as objective entities. I have argued against this interpretation.

Quantum Statistics and the Dream Metaphor
In the dream model our observable reality consists of our experiences or stream of consciousness; we do not accept the idea of independently existing objects or particles. We shall find that this approach makes it easier to understand the quantum statistics of indistinguishable particles.

Consider particles A and B with two possible sets of characteristics each characteristic represented by a "box"; box 1 and box 2. For example, box 1 might represent x-component of momentum p1 and box 2 might represent x-component of momentum p2.

First let us suppose that the two particles are distinguishable; they may have different electric charge, for example. There are four possibilities, generally assumed to have equal probabilities. Particle A in box 1 with particle B in box 2; both particles in box 1 with no particles in box 2; no particles in box 1 with both particles in box 2 and particle B in box 1 with particle A in box 2. This corresponds to Maxwell-Boltzmann statistics, which works for classical physics whether or not the two particles are distinguishable. It does not work for actual particles, which are indistinguishable; for those particles one must use different
statistics. The Maxwell-Boltzmann statistics are shown in Figure 3a.

\[
\begin{array}{ccccccc}
    B_1 & B_2 & B_1 & B_2 & B_1 & B_2 & B_2 \\
    A   & B   & AB  & 0   & 0   & AB  & B   & A \\
\end{array}
\]

**Figure 3a.** Maxwell-Boltzmann Statistics. B=Box

Next consider the case in which the particles are indistinguishable. Each particle is labeled A.

According to classical thinking it should not matter, that one cannot distinguish one particle from the other. One can still talk about the first particle "really" being in box 1 and the second particle "really" being in box 2 and the reverse situation as being distinct. However, in our model, it is the experience or "dream" which is the fundamental reality. Thus, there is only one experiential situation with one particle in each box. Thus, quantum statistics becomes more intuitive. Shown below are the situations for Bose-Einstein (integer angular momentum particles) statistics and for Fermi-Dirac statistics (half-integer angular momentum particles). In the case of Fermi-Dirac statistics more than one particle in each box is prohibited by the Pauli principle. The situation for indistinguishable particles is shown in Figure 3b and Figure 3c.

\[
\begin{array}{cccc}
    Box_1 & Box_2 & Box_1 & Box_2 \\
    A     & A     & AA   & 0     \\
\end{array}
\]

**Figure 3b.** Bose-Einstein Statistics

\[
\begin{array}{cc}
    Box_1 & Box_2 \\
    A     & A     \\
\end{array}
\]

**Figure 3c.** Fermi-Dirac Statistics

We see with our model, based on experience rather than independent existence, that it is quite reasonable that if two particles are distinguishable they should obey different statistics than if they are indistinguishable.

If the characteristics of one particle could continuously approach the characteristics of the other particle there would be a discontinuity in statistical behavior when the particles become indistinguishable. They would suddenly switch from Maxwell-Boltzmann statistics to either Bose-Einstein or Fermi-Dirac statistics. That presents a paradox. Perhaps that is a reason why particle characteristics are quantized, so that cannot happen. Initially distinguishable particles, with different masses, charges or spins cannot continuously change their properties to approach indistinguishability.

**Decoherence, Density Matrix and Wave Function**

The reader may have noticed that the term probability amplitude is usually used in this article instead of the term "wave function". Probability amplitude suggests subjectivity. Probability is dependent on information and hence may vary with the individual as different individuals may have different information. If you play cards you know with certainty if your hand contains the ace of diamonds. If your opponent is clever she can still only calculate, based on the cards in her hand and the cards, which have been played, the probability that you have it in your hand. The term "wave function" suggests something that exists independently and this article argues strongly against that interpretation. Still, for the purposes of this section we will use the "wave function" terms as it is usually used by those who discuss decoherence.

According to the theory of decoherence, the wave function of an originally isolated particle gets entangled with the many particles in its environment. If the original wave function was a superposition of possible measurement results, after the complex entanglement if one calculates the density matrix (which determines the probabilities for the various measurement outcomes) one finds that the cross terms between the various measurements possibilities cancel almost completely. Thus the density matrix is essentially the same as for a mixed state; that is, it mimics the mixed state.

According to the orthodox interpretation, the situation still is entirely different from the mixed state. After the interaction with the environment, one still has a superposition of states. This is entirely different from a mixed state. A mixed state has a definite set of characteristics but the observer does not know which
characteristics “really” exist. With an entangled superposition, even though the density matrix looks like that of a mixed state, no definite set of characteristics “really” exists until a measurement takes place. Thus the entangled density matrix only imitates a mixed state.

There is no such problem with our view because similar density matrices make similar predictions as to what will be observed, not what “is”. The physical state does not “really exist” outside of the observer’s experience or “dream”. Thus the two situations, with essentially the same density matrices, are essentially the same. Where the orthodox interpretation has two (or more) situations for one density matrix, our paradigm has one situation for one density matrix. The interpretation fits the mathematics better in our model.

We can make a similar argument for the wave function that we did for the density matrix. Different interpretations of quantum theory differ as to whether the wave function is “real” or is “merely” a mathematical means (though a strange one) to calculate probabilities. In our approach, it is the same because everything we are aware of is an experience. Thus, we lump together the experience of seeing a table, the experience of feeling pain, the experience of thinking about mathematics or even the experience of calculating probabilities. In the case of experiencing the table, another connected segment of the metabrain and thus another consciousness may share some aspect of the experience.

Connectivity and the Metabrain
Imagine the events leading up to two Siamese twins who are joined at the brain. The nerves of one brain have joined up with the nerves of the other. Depending on the degree of connection, one has a continuous spectrum of possibilities from two entirely separate conscious beings with separate brains and separate feelings to one brain and one individual with one set of feelings. Suppose that this joining of nerves occurs somehow after the individuals are adults with separate personalities and memories.

How strange it must be to be one of those individuals with acquired feelings and memories that are recently obtained but feel like they were obtained at a much earlier age!

How do we treat that weird situation in our model? As the brains of the individuals are joined, the corresponding segments of the metabrain must also be joined and eventually the two segments must share some of their currents and synapses. The shared synapses then result in their shared experiences, feelings and memories. There must be a partially parallel action in the metabrain to action in the ordinary observable brain.

In everyday life our brain has a more indirect communication with other brains. We may simply talk with other individuals, write to them, or communicate by means of a third party. However information travels from one person or conscious being to another, it must be reflected by changes in the connections of the corresponding segments of the metabrain. The metabrain must be actively changing just as are our observable brains and our observed universe, which affects our brains.

Anthropic Principle
The values of many physical constants are especially fortuitous for the existence of life and hence of conscious beings. If the electric charge and the nuclear forces were only slightly different, if the electric charge was slightly greater or the nuclear force slightly weaker, nuclei more complex than hydrogen would not exist. If the gravitational constant were slightly less, after the big bang stars and galaxies would not coalesce; if the gravitational constant were slightly greater the universe would collapse too soon for stars to form, especially second generation stars, and too soon for planets to form and complex life to evolve. There are many constants of nature which, if they differed from their actual value by one or two per cent would make life impossible.

Because of this, scientists, using traditional paradigms, have postulated the existence of huge numbers of universes with many possible values for the physical constants. This multiplicity of universes they call the multiverse. Then only a tiny fraction of the universes would have the possibility of evolving complex creatures who would become conscious. Those conscious beings would only be aware of the universe in which they lived, thus explaining
the very special fortuitous values of those constants. This necessity for such a huge number of universes appears to me to be a very cumbersome hypothesis.

This problem does not appear with our dream metaphor paradigm. The metabrain develops sub-brains, which produce their streams of consciousness. Being a partial reflection of the meta-brain world these streams of consciousness must have brains (and creatures which have these brains) to produce the “dreams”. These observable brains can affect the corresponding segment of the metabrain and vice versa. Thus, there may be a feedback situation and "resonance" which may be essential for the brain to be the center of consciousness if it resembles the corresponding segment of the metabrain. A possible rough analogy for this "feedback" might be the gluon field. The gluon field has associated with it gluon particles which have associated with them gluon fields that have associated with them the gluon particles which... The universe, being a "dream" universe, cannot exist without consciousness, and brains which have evolved within evolved creatures made with complex molecules. To produce this situation requires constrained laws of nature and a set of constrained constants of nature. There is no need for a huge number, perhaps infinity, of dead universes.

Mathematics and the Laws of Nature
Some scientists have thought that there is an unreasonable effectiveness of mathematics in describing the physical world. They consider it strange that so much of mathematics invented for strictly mathematical reasons should find such ubiquitous applications to the physical universe. This "coincidence" is not surprising in the dream model. The metabrain produces both our sensations which we interpret as being due to an external physical world and also our thoughts some of which are mathematical in nature. Thus, it is not surprising that they should be related.

Original Arguments for Dream Metaphor
Here we wish to review our original arguments for the dream metaphor. Our arguments hinged on the mutual "causality" or association of the physical and mental "worlds". It is obvious that the physical world affects the mental. If I put my hand on a hot stove, I feel pain.

It is also true that the mental world affects the physical. Some people have argued this using biofeedback or merely that fact that if you first desire to raise you arm you can then do so. I believe these arguments have some weaknesses and therefore I prefer to use other means.

If one considers the situation of a stream of microscopic particles, perhaps electrons, incident on a barrier with two slits and a screen behind the barrier one can detect where each electron lands on the screen. With both slits open one does not know through which slit the electron passes and consequently there is an interference pattern and locations on the screen where the electron can never land (these are called "minima"). Consider one of these locations.

Next, place a detector behind one of the slits and look at the pattern on the screen for those events for which the detector did not detect any particle. Thus, the detector did not physically interact with any particle but one now knows that the particle went through the other slit. Yet now the particle can land on the location on the screen where it previously, before placement of the detector, could not land. Mere knowledge of which slit the particle passed has changed the physical behavior of the particle. Thus, the mental has affected the physical.

This situation is relevant to the Hardy "paradox" (Aharonov, 2002) Instead of a non-interacting detector which gives us information that an interaction did not take place and that allows a particle to land on a portion of the screen on which it otherwise would not land, we have the knowledge that an electron and positron did not interact and annihilate thus giving us the knowledge that they did not occupy overlapping paths and this non-physical measurement affected the physical situation so that two detectors could register which otherwise could not. Knowledge is part of the "dream" which affects the metabrain which, in turn, affects the dream, changing the behavior of the objects in the dream.

We have also used the evolution of emotions and feelings, such as fear, love, pain, hunger, etc. as an argument that the
conscious mental world affects the physical. The evolution of fear and pain helped creatures to avoid danger and to survive. Love of offspring helped parents to protect their offspring and love of one parent for the other helped protect the other parent who in turn helped protect the offspring and thus helped survival of the species. Survival is a physical result. Thus, evolution of each of these conscious feelings is an argument that conscious feelings affect physical survival. We have as many arguments as we have feelings that we can relate to survival. This is much stronger than merely saying that consciousness generally affects survival. That is only one argument.

We have used quantum interference and the evolution of feelings to argue that the mental world affects the physical. We have also stated that obviously the physical affects the mental. Each affects the other. What do we conclude from this?

Professor Flatland Abbot is only aware of two dimensions. Due to some mysterious genetic abnormality, he does not detect a third dimension. He sees a frontal view of a person’s face and by means of some unseen mirrors, he also sees the profile face. He thinks at first that they are totally unrelated, as they look very different from each other.

The person who Professor Abbot looks at has a habit of sneezing often. Professor Abbot notices that every time the frontal nose is observed to sneeze, the profile nose also sneezes, if observed. There is no time when there is observation of the frontal nose sneezing that the profile nose does not, if observed. Similarly, whenever the observed profile nose sneezes the observed frontal nose also sneezes. There is no time that the observed profile nose sneezes that the observed frontal nose does not. There seems to be mutual causality. Neither nose is ever observed to sneeze with the other being observed not sneezing. After considering this situation carefully, Dr. Abbot concludes that the frontal nose and the profile nose must be two aspects of the same thing even though they look very different.

The mental world and the physical world seem very, very different to us, but due to the apparent mutual causality, we conclude that they are two aspects of the same thing. However, how can mental experience be just a different aspect of the physical world? The dream paradigm comes to mind. The physical world is just an experience we have and does not have an independent existence. Interestingly enough, this seems to resonate well with quantum theory.

Conclusion

Using the analogy of a dream to describe our experienced reality, we have hypothesized the existence of a metabrain with connected segments each corresponding to an individual conscious being. The metabrain has "currents" with pathways and these currents with magnitude and phase are added as complex numbers when these pathways join. The metabrain also has "synapses" and the firing of these synapses corresponds to conscious experiences. With these hypotheses, various aspects of quantum physics result.

References


