

Article**The Nature of Quantum Reality:
Physical Reality as a Creation of Consciousness (Part II)****Steven E. Kaufman*****ABSTRACT**

What quantum theory has revealed about the nature of reality has remained hidden in plain sight for almost one-hundred years because what quantum theory has revealed about the nature of reality cannot be comprehended in the context of the materialist model and conception of reality in which science presently operates, which materialist model places physical reality at the center of reality and Consciousness at the periphery, as a secondary or derivative reality. What this work will demonstrate, by explaining the heretofore inexplicable basis of the phenomena that lie at the heart of quantum theory, is that it is Consciousness rather than physical reality that lies at the center of reality, and that it is physical reality rather than Consciousness that is a secondary or derivative reality. Specifically, wave-particle duality, quantum uncertainty, quantum non-locality, the probabilistic nature of the wavefunction, and the collapse of the wavefunction, will all be shown to be phenomena that have as their basis the way in which the fundamental Reality of Consciousness, through relation to Itself, creates what it apprehends as physical reality.

One of the most important things the phenomena that lie at the heart of quantum theory will be shown to reveal about the nature of reality is that the nature of physical reality is like that of a reflection, and like a reflection, physical reality is able to obscure from view what is actually there, as long as it is mistaken for what is actually there. Thus, in revealing the reflection-like nature of physical reality, the phenomena that lie at the heart of quantum theory indirectly reveal that what is actually there, underlying the reflection that is physical reality, is the non-physical, non-experiential Reality of Consciousness that is, through relation to Itself, both creating and apprehending experiential reality in general and physical reality in particular. Ultimately, understanding the reflection-like nature of physical reality should make it possible for Individuals to understand that what actually Exists directly where they are, where their physical bodies appear to be, is not different in Nature than what actually Exists everywhere else as well, where the rest of physical reality appears to be, thereby disabusing them of the notion that what they are is a physical reality, while at the same time revealing to them their true Nature as Consciousness, which, through relation to that which is also Consciousness, creates what they, as Individual points of Consciousness, apprehend as experiential reality in general and physical reality in particular.

Part II of this series of three articles includes: 2. The nature of quantum reality.

Key Words: Nature, quantum reality, quantum physics, Consciousness, materialist model.

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2. The nature of quantum reality

It is in understanding physical reality to be a created reality, created through a specific type of relation of Existence-Consciousness to Itself, that it will finally be possible to understand the nature of quantum reality, as this way of understanding physical experience will make it possible to describe the relatively simple experiential mechanism and limitation underlying the heretofore inexplicable quantum phenomena of wave-particle duality, quantum uncertainty, and non-locality. Also, understanding the experiential mechanism and limitation responsible for producing those phenomena will make it possible to understand the probabilistic nature of the wavefunction, as well as what the wavefunction actually represents, which understanding will in turn make it possible to understand what actually causes the collapse of the wavefunction, as well as what the collapse of the wavefunction actually represents.

The way in which physical experience is created as the product of a specific relation of Existence to Itself will first be used to explain the experiential mechanism underlying the phenomenon of wave-particle duality, as the explanation of this phenomenon will serve to further clarify and define the nature of physical reality, which further clarification and definition will then make it possible to explain the basis of the other quantum phenomena.

2.1 The nature of physical reality and the experiential basis of wave-particle duality

As described in the first part of this work, all experience is created as the by-product or product of some relation of Existence to Itself. Specifically, when Existence comes to be in relation to Itself a boundary arises that the Existence involved in that relation apprehends as an experience, with the type of experience apprehended, i.e., emotional, mental, or physical, dependent upon the level of Reality at which that relation is taking place. And as also described in the first part of this work, the relations of Existence to Itself that create what we apprehend as physical reality occur as second level Relational Structures become involved in a third type and level of Existential self-relation, referred to as an impactive relation, creating an experiential boundary that the Existence-Consciousness involved in that third level relation apprehends as a physical experience.

Thus, the creation of a physical experience involves an impactive or third level relation occurring between two second level Realities, which Realities are themselves composed of Existence configured in relation to Itself. What is apprehended as the physical experience is the impactive or third level experiential boundary. And what apprehends the impactive experiential boundary as the physical experience is an Individual Existence-Consciousness, or simply an Individual Consciousness, that Exists on one side of the relation that creates the impactive experiential boundary. For this reason, physical experience is not the apprehension of the created impactive experiential boundary as a whole, but rather is the apprehension of the created impactive experiential boundary from a particular perspective, as shown in figure 13. Understanding this perspectual aspect of the creation and apprehension of experience, and the limitation it unavoidably introduces into the creation and apprehension of experience, which limitation will be explained in detail in the upcoming sections, is the key that unlocks the door to the mechanism underlying the production of all the quantum phenomena that will be discussed in

this work, and so is also the key that allows one to peer inside that mechanism in order to understand why quantum reality appears as it does.

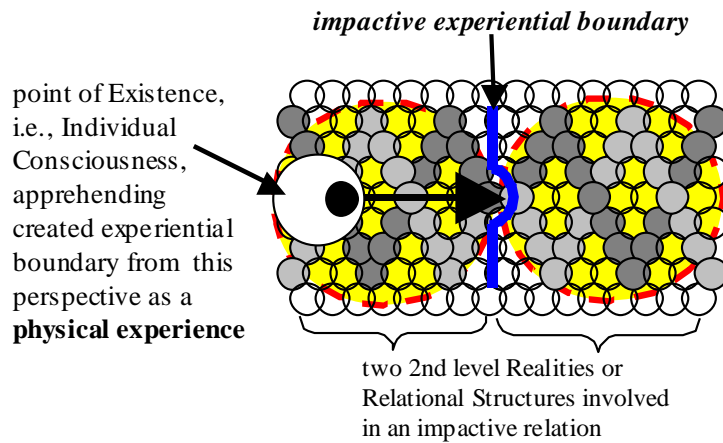


Figure 13 This drawing depicts two second level Realities or Relational Structures involved in a third level or impactful relation. As a result of their involvement in that relation an impactful experiential boundary is produced where those two Realities become defined in relation to each other. Physical experience is that impactful experiential boundary as it is apprehended both by and from the perspective of an Individual point of Existence that composes at least part of the Existence that is involved in that relation. Thus, what this drawing shows is that physical experience is not what is actually there, but rather is the product of an impactful relation occurring between the Existence that is actually there, as that product is apprehended from the perspective of the Existence that composes only one side of the relation that creates it.

In order for a point of Existence, i.e., an Individual Consciousness, to apprehend any physical experience, be it an Individual taking in the sunset or an Individual creating a physical experience through the use of a particle accelerator, that Individual must be involved in a third level relation with a second level Reality, thereby creating an impactful experiential boundary that is apprehended by that Individual, from their perspective within that relation, as a particular physical experience. That is, as shown in figure 13, the Individual that is apprehending the experience occupies only one side of the relation that produces the impactful experiential boundary that is apprehended by that Individual as a physical experience, with the other side of that relation occupied by whatever second level Relational Structure the Individual is being in relation to in order to create the impactful experiential boundary that is apprehended, from that Individual's perspective within that relation, as a physical experience.

And so, what an Individual point of Existence-Consciousness apprehends as a physical experience is the impactful experiential boundary that is created as a result of their involvement in a third level relation with a second level Reality. However, what an Individual apprehends as a physical experience is that impactful boundary *as it appears from only their side of the relation*, i.e., from their perspective within the third level relation that is creating the impactful experiential boundary that they are, from their perspective within that relation, apprehending as a physical experience. Thus, not only is physical experience not what is actually there, as it is the apprehension of something created where What Is Actually There becomes defined in relation to Itself through relation to Itself, physical experience is not even the apprehension of the totality of what is created. Rather, what is apprehended as a particular physical experience-reality is the

apprehension of only one side of the two-sided reality that is created as the result of a particular third level Existential relation. Put another way, as the created impactive experiential boundary is the product of a relation, it always has two sides, only one of which is apprehended as a particular physical experience by the Individual that is involved in the particular relation that creates the particular experiential boundary being apprehended by that Individual as a particular physical experience.

It is this inherent two-sidedness of all created experiential boundaries that is the basis of all experiential duality, and more specifically, it is the inherent two-sidedness of any created impactive experiential boundary that is the basis of all physical experiential duality. That is, the reason all experiences, and specifically all physical experiences, come in pairs of opposites or complements, such as hot/cold, hard/soft, wave/particle, position/momentum, etc., etc., is because any experiential boundary that is apprehended by an Individual as a physical experience always has opposite or complementary sides, only one of which is apprehended as a physical experience by the Individual involved in the relation that creates it. And so, for every impactive experiential boundary that is apprehended as a particular physical experience from the perspective of the Individual Existence-Consciousness that composes at least part of one side of the relation that creates it, there is an opposite perspective upon that same impactive experiential boundary which, if it were to be apprehended from that opposite perspective, would be apprehended as the opposite or complementary physical experience. Put another way, all opposite physical experiences have as their basis the two-sidedness of the impactive experiential boundary that is itself the basis of what it is that any Individual is apprehending as a physical experience.

Ultimately then, all physical experiences come in pairs of opposites or complements because what is apprehended as a particular physical experience is not what is actually there. Rather, what is apprehended as a particular physical experience is just one side of what is always a two-sided boundary. And that boundary is created owing to a third level relation, i.e., an impactive relation, occurring between the second level Relational Structures composed of Existence that are actually there. Thus, for every physical experience that is being apprehended by an Individual, there is an opposite physical experience that it would be possible for that Individual to apprehend if they could instead apprehend the created impactive boundary from the other side of the relation, i.e., from the opposite perspective.

Thus, as shown in figure 14, it is the inherent two-sidedness of what is created as any impactive experiential boundary, along with the fact that all physical experience is such a boundary as it is apprehended from only one side of the relation responsible for its creation, that is the basis of the phenomenon of wave-particle duality, which is the phenomenon whereby quantum level Realities can be observed to behave as either a wave or a particle, but never both at once. What is explained below is why physical reality has the dual form of wave and particle. The reason why a given Reality never appears as both at once, i.e., as both wave and particle simultaneously, will be given in the next section explaining the experiential basis of quantum uncertainty.

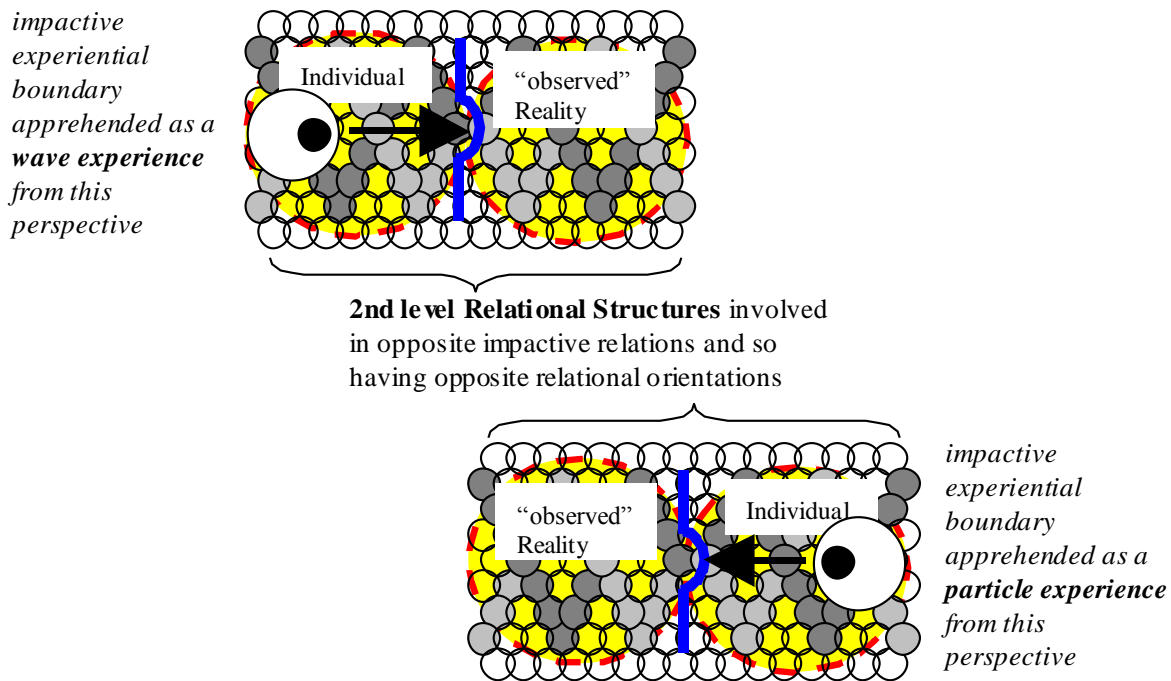


Figure 14 Depicted in these drawings is the creation of both wave (upper drawing) and particle (lower drawing) experiences. Wave and particle represent the most fundamental physical experiential duality, as they are the physical experiences that result from opposite perspectives upon the impactive experiential boundary that is created as a result of the most fundamental third level or impactive Existential relation. Specifically, when the Individual that is apprehending the impactive experiential boundary created as a result of the fundamental impactive relation occurring between two second level Realities is on the *penetrating* side of that relation, as shown in the drawing at the top, then the created impactive experiential boundary is, from that Individual's perspective within that relation, apprehended as the physical experience of a wave. Conversely, when the Individual that is apprehending the impactive experiential boundary created as a result of the fundamental impactive relation occurring between two second level Realities is on the *penetrated* side of that relation, as shown in the drawing at the bottom, then the created impactive experiential boundary is, from that Individual's perspective within that relation, apprehended as the physical experience of a particle.

It is important to note that the term "observed" Reality, used in figure 14, refers only to the second level Relational Structure that the Individual is forming an impactive relation with in order to create the experiential boundary which the Individual then apprehends as a physical experience, and does not refer to what that Individual observes or apprehends as the physical experience-reality, since the "observed" Reality and what is observed as the physical experience are completely different in nature, in as much as the former is composed of Existence configured into a Relational Structure, and so is What Is Actually There, whereas the latter is not composed of Existence and only appears to be what is actually there.

It now becomes possible to begin to understand how the observed or apprehended experiential reality becomes superimposed upon the "observed" Reality, creating the appearance that what is actually there is the experience, i.e., the observed reality, when What Is Actually There where the experience appears to be is the "observed" Reality, i.e., the Existence configured into a

Relational Structure that the Individual is being in relation to in order to create what they apprehend as the physical experience, which in this example is the physical experience of wave or particle. In this context it also becomes possible to understand how physical experience or observed reality is able to function like a reflection on the surface of a body of water, able to present the appearance of being what is actually there, and in being taken for that, i.e., for what is actually there, obscuring from view What Is Actually There.

As shown in figure 14, the wave-particle duality of matter is ultimately an artifact of the process by which physical experience is created and apprehended, owing to the fact that physical experience, rather than being the apprehension of what is actually there, is instead the apprehension of a boundary that is created where Existence, i.e., What Is Actually There, has become defined in relation to Itself through impactive relation to Itself, as that boundary is apprehended from a particular perspective within the relation that creates it by an Individual point of Existence-Consciousness that composes at least part of one side of the Existence that is involved in that impactive relation. Specifically, if the Reality the Individual is involved in an impactive relation with penetrates the Reality that composes the Individual's side of the relation, then the orientation of the created experiential boundary relative to the Individual causes that experiential boundary to be apprehended by the Individual as the experience of a particle, thereby *creating the appearance* that the "observed" Reality is a particle. Conversely, if the Reality the Individual is involved in an impactive relation with is penetrated by the Reality that composes the Individual's side of the relation, then the orientation of the created experiential boundary relative to the Individual causes that experiential boundary to be apprehended by the Individual as the experience of a wave, thereby *creating the appearance* that the "observed" Reality is a wave.

However, the operative phrase in the previous sentences is the phrase "creating the appearance," as the Reality the Individual is involved in an impactive relation with in order to create what they apprehend as the physical experience of either wave or particle is not Itself ever actually either a wave or a particle. Rather, it is the impactive experiential boundary that is apprehended as the experience of either wave or particle, depending upon how that boundary is created and so how it is oriented relative to the Individual that is involved in the impactive relation that creates it and so is also apprehending it as a physical experience. Nonetheless, because experience is taken for what is actually there, the created and apprehended experience of either wave or particle then becomes superimposed upon the Reality that is actually there, as a reflection can be superimposed upon a body of water, creating the appearance or illusion that what is there is actually a wave or a particle, when What Is Actually There is neither wave nor particle, although It can function in the creation of both. Thus, the wave-particle duality of matter is not a property that inheres in What Is Actually There, but is instead a property derived from the experiential process, i.e., the overall process whereby experience is created and apprehended, which process includes both the creation of a two-sided boundary where Existence becomes defined in relation to Itself through relation to Itself, as well as an Individual's apprehension of one side of that created boundary as a particular experience. In this context, the concept of physical realism, i.e., that the results of observations are a consequence of properties carried by physical systems, can be seen as both incorrect as well as unnecessary, a point which will become even more clear once the experiential basis of the other quantum phenomena have been described.

Now here one might well ask, if this is indeed the case and physical experience is not what is actually there, but rather is the one-sided apprehension of a two-sided boundary that is created where What Is Actually There becomes defined in relation to Itself through impactive relation to Itself, then why does the relative nature of experience become manifest in the quantum realm in the form of wave-particle duality, but not generally do so in the realm of macroscopic physical experience? That is, why does macroscopic physical reality not present us with wave-particle duality? Why does a rock always feel hard and a pillow soft? The reason macroscopic physical reality appears in such a consistent way, and in so doing helps create and sustain the illusion that it is what is actually there, is because we always approach the Realities we are involved in impactive relations with in order to create macroscopic physical experience from the same relational orientation and so from the same perspective within those impactive relations, because we form those impactive relations using our physical sensors. That is, our physical sensors are the second level Realities that form third level relations with surrounding second level Realities to create the impactive experiential boundaries that we, from our consistent perspective within those relations, apprehend as consistent physical experiences.

And because our physical sensors, as Relational Structures, maintain the same essential configuration, and because the Realities we are forming impactive relations with in order to create the experiential boundaries we apprehend as macroscopic physical experience are also Relational Structures that maintain the same essential configuration, our impactive relational orientation to those Realities is always the same, so that we always end up apprehending the created experiential boundary in the same way, i.e., from the same perspective, apprehending with each relation to the same Reality in different moments what is essentially the same side of the two-sided experiential boundary that is created as a result of those relations, so that we always end up apprehending what seems to be the same experience and so the same reality as a result of our being involved in an impactive relation with a given Reality or Relational Structure; not because it is actually the same experience, not because it is actually the same reality, but only because it appears the same owing to the consistency of the relational orientation that is occurring between the Individual and the Reality that are involved in the impactive relation that brings into existence the impactive experiential boundary that is being apprehended from a consistent perspective within that relation as what then appears to be the same physical experience-reality. So it is that rocks always feel hard and pillows always feel soft, not because What Is Actually There as the second level Relational Structures where either the rock or the pillow appears to be actually have the physical characteristics of either hardness or softness, but because that is how the created impactive boundary consistently appears from our consistent side of the relation.

Consider the example of feeling with ones fingers the temperature of water in a bowl as either hot or cold. If the water is at body temperature and one warms one's hands to above body temperature and then puts them in the bowl, the water feels cold, whereas if one first cools their hands to below body temperature and then puts them in the bowl, that same bowl of water at the same temperature then feels warm. Where then is the reality of the experience of the water's warmth or coolness? It lies only in the relation between the Realities that are actually there, which relation includes the perspective from which the created experiential boundary is apprehended by an Individual as the physical experience of temperature.

In the example above, cooling and warming one's hands before putting them in the bowl of water represents changing the configuration of the physical sensors, i.e., the second level Relational Structures, that become involved in the relation that creates the physical experience of temperature, and so changes the relational orientation between those second level Relational Structures and the second level Relational Structures that are there where the water appears to be, thereby allowing an Individual to, in different moments, create opposite experiences as a result of being in relation to the same underlying Reality in opposite relational orientations, by allowing an Individual to, in different moments, apprehend the created experiential boundaries from opposite perspectives within that relation as opposite experiences. Put another way, opposite relational orientations occurring in different moments between an Individual and a Reality provide an Individual, in different moments, with opposite perspectives upon the experiential boundaries created by those opposite relations, thereby allowing the Individual to create and apprehend, in different moments, opposite experiences through relation to the same Reality, such as feeling the same bowl of water to be warm and then cold, or observing quantum realities to behave as waves and then as particles, as was depicted in figure 14.

However, this change of configuration of our physical sensors is exactly what does not happen in our everyday creation of physical experience, leaving us always in the same relational orientation with respect to the Realities we are being in relation to in order to create physical experiences, and so leaving us always occupying the same perspective upon the experiential boundaries created by those relations, and so leaving us always apprehending the same sort of experiences when in relation to the same sort of Realities, which again is why rocks always feel hard and pillows always feel soft, and why macroscopic physical reality in general presents itself in such a consistent way, thereby reinforcing the illusion that it is what is actually there, even though it is not.

On the other hand, this change of configuration of the sensors or devices used to create physical experience is exactly what does happen in the creation of quantum experience, which is why in one experimental setup the second level Relational Structures that are actually there where electrons appear to be are apprehended as particles, and in an opposite setup that establishes an opposite relational orientation between the Individual and those Relational Structures, they are apprehended as waves. That is, the phenomenon of wave-particle duality exists because, unlike the creation of physical sensory experience, where our physical sensors always establish the same relational orientation with respect to the Reality we are being in relation to in order to create what we are apprehending as a particular physical experience, the necessity of using intermediary devices to create physical experience at the quantum level allows for a degree of freedom in the creation of quantum physical experience that is not normally present in the creation of sensory physical experience, such that it is possible for the same Individual or Experimenter to, in different moments, establish opposite relational orientations with respect to the Reality they are being in relation to in order to create what they are apprehending as a particular experimental result or observation, i.e., physical experience, and so create, in different moments, through relation to the same Reality or same sort of Reality, opposite or complementary experimental results or observations i.e., opposite physical experiences, such as the opposite experimental results of observing a quantum reality, such as an electron, to behave as a wave and then as a particle which, relative to sensory or macroscopic physical experience,

where things generally always appear the same, e.g., a rock hard and a pillow soft, seems bizarre and inexplicable.

However, the phenomenon of wave-particle duality only remains bizarre and inexplicable as long as one fails to understand the nature of experiential reality in general and physical reality in particular, and so continues to harbor the related materialist illusions that physical reality, be it of the quantum or macro variety, exists as it is apprehended to exist independent of the Individual Consciousness that apprehends it as such, and that it is what is actually there where it appears to be. On the other hand, once the nature of experiential reality is understood, meaning that once it is understood that what we apprehend as physical reality, be it of the quantum or macro variety, is always created as the product of a relation and so specific relational orientation occurring between an Individual and an underlying Reality, as that product is apprehended from the Individual's side of the relation, and so is not what is actually there where it appears to be, it then becomes both understandable and reasonable that the involvement of an Individual in opposite relations with the same underlying Reality would cause that Individual to create and apprehend opposite physical experiences, such as the same bowl of water, in different moments, feeling hot and then cold, or such as electrons, in different moments, appearing as waves and then as particles.

Quantum physical experience is created in the same way as sensory or macroscopic physical experience, which is as the result of third level or impactive relations occurring between second level Relational Structures. Thus, what Individual physicist's are being in relation to in order to create quantum physical experience, i.e., quantum measurement and observation, is not different from what we, as Individuals, are being in relation to in order to create sensory or macroscopic physical experience, in as much as the creation of both quantum and sensory physical experience involves an Individual becoming involved in a third level relation, i.e., an impactive relation, with a second level Relational Structure, and then apprehending the impactive experiential boundary created as a product of that relation as a physical experience from one's perspective within that relation. And it is only as a result of the added degree of freedom present in the creation of quantum physical experience that the relative nature of physical experience, which remains mostly hidden with regard to macroscopic physical experience, becomes evident and unavoidable in the quantum realm.

Having described how the phenomenon of wave-particle duality is created by describing the way physical experience is created and apprehended in the context of the iterative Existential self-relation model of Reality and reality, which model assumes Consciousness to be a property that is inherent in the Existence that, through relation to Itself, both creates and apprehends physical reality, we are now in a position to use that same description of how physical experience is created to explain why the phenomenon of quantum uncertainty exists. Using the experiential process derived from the iterative Existential self-relation model of Reality and reality to explain why quantum uncertainty exists will provide further evidence regarding the accuracy of describing reality in terms of both Reality and reality, i.e., in terms of the Existence-Consciousness that is actually there and the physical experiential reality that presents the appearance of being what is actually there, respectively.

2.2 The experiential basis quantum uncertainty

Quantum uncertainty, also referred to as Heisenberg's uncertainty principle, has to do with an unavoidable limitation upon what it is possible to know regarding the state of a quantum reality. In general, what quantum uncertainty refers to is the fact that the degree to which something is known about a quantum reality through observation or measurement regarding some physical property of that reality, such as its position, limits the degree to which something can be known about the opposite or complementary physical property of that same quantum reality, which in this example would be its momentum. Quantum uncertainty is a central component of quantum theory, and like the rest of the phenomena that form the underpinnings of quantum mechanics or quantum theory, the basis of quantum uncertainty, i.e., the reason for this unavoidable limitation that is encountered in the observation and measurement of quantum realities, has remained a mystery.

However, if one is able to understand what the phenomenon of wave-particle duality reveals about the nature of physical reality, then this understanding opens the door to understanding why quantum uncertainty exists. And what wave-particle duality reveals about the nature of physical reality is that physical reality is the one-sided apprehension of a two-sided boundary that is created as the result of a relation in which Existence becomes defined in relation to Itself through impactive relation to Itself, as that created boundary is apprehended by and from the perspective of an Individual point of Existence-Consciousness that composes at least part of one side of the impactive Existential relation that creates it. Thus, what wave-particle duality reveals about the nature of physical reality is that what we apprehend as physical reality is not what is actually there where it appears to be, any more than a reflection is what is actually there where it appears to be. What wave-particle duality also reveals about the nature of physical reality is that opposite experiences are created as the products of an Individual's involvement in opposite relations.

While it is necessary to understand all of what wave-particle duality reveals regarding the nature of physical reality if one is to understand the nature of quantum reality, the key that opens the door to understanding quantum uncertainty is the understanding that opposite experiences are created as the products of an Individual's involvement in opposite relations, combined with the understanding that, for a single Individual in a single moment, those opposite relations are mutually exclusive, meaning that involvement of the Individual in one relation precludes that Individual's simultaneous involvement in the opposite relation. For example, if an Individual is looking north then that Individual cannot, at the same time, look south, and if an Individual is standing to someone's left then that Individual cannot, at the same time, be standing to their right.

In terms of the relations necessary to create what an Individual apprehends as physical experience, what this preclusion regarding an Individual's simultaneous involvement in opposite and so mutually exclusive relations means is that, when an Individual is involved in one impactive relation with a given Reality and so creating and apprehending one physical experience, then that Individual cannot, in that same moment, be involved in the opposite impactive relation with that same Reality and so cannot, in that same moment, create and apprehend the opposite physical experience through relation to that same Reality. That, in a nutshell, is the basis of quantum uncertainty, and is also the reason why quantum level Realities can serve in the creation of either a wave or a particle experience, but never both at once,

because an Individual's involvement in a relation with a Reality that creates what that Individual apprehends as the experience of a particular reality, such as an electron exhibiting wave behavior, is mutually exclusive of the opposite relation with that Reality in which the Individual needs to be involved in order to create the opposite experience, which opposite experience would be that same reality exhibiting particle behavior, and vice versa.

Thus, *quantum uncertainty involves nothing more than the impossibility of an Individual's simultaneous involvement in the opposite relations necessary to create opposite physical experiences.* That is, quantum uncertainty has as its basis an unavoidable limitation inherent in the Individual's creation of experience, which limitation arises naturally from the necessity of the Individual's involvement in a relation in order to create whatever it is they are apprehending as an experiential reality. Specifically, an Individual's involvement in a particular relation with a particular Reality in order to create what they are apprehending as a particular physical experience-reality imposes limits upon other relations in which that same Individual, or a related Individual, can be simultaneously involved with that same Reality, or with other related Realities, and so imposes limits upon other experiences that same Individual, or a related Individual, can simultaneously create and apprehend through relation to that Reality, or to other related Realities. In more general terms, quantum uncertainty exists because what we apprehend as physical experience is not our apprehension of what is already there, but rather is our apprehension of something that is created as the product of our involvement in a relation, and the necessity of our involvement in a relation in order to create whatever it is that we are apprehending as a physical experience imposes limits upon what we can simultaneously create and apprehend as physical experience, as there are simply limits upon the relations in which we can be simultaneously involved.

As previously described, the creation of a physical experience requires that Existence become involved in an impactive relation with Itself. That impactive relation involves a relation between an Individual Existence-Consciousness and another Reality, both of which are second level Relational Structures composed of Existence configured in a specific way in relation to Itself. And all relations require that there be an orientation between the Realities that are involved in the relation. So it is that the creation of any experience requires that there be an orientation between the Individual and the Reality that are involved in the impactive relation, and what is created and apprehended as a specific physical experience by the Individual is a function of that specific relational orientation, because it is that specific relational orientation between the Individual and the Reality that determines the specific form of the created experiential boundary as it is apprehended by the Individual from their side of the relation as a specific and determinate physical experience.

And for every specific relational orientation between an Individual and a Reality that has the potential to create a specific physical experience or set of experiences, there is an opposite relational orientation between that Individual and that Reality that has the potential to create the opposite physical experience or set of experiences. But because an Individual can only be involved in one of those relational orientations in any one moment with respect to a particular Reality, since those opposite relational orientations are mutually exclusive of each other, it is only possible for the Individual to create and apprehend, in any one moment, one or the other of the opposite physical experiences, or set of physical experiences, that it is potentially possible to

create through impactive relation to that Reality. So it is that we are faced with the phenomenon of quantum uncertainty, whereby being involved in a relation with a Reality that creates one experience makes it impossible for us to be simultaneously involved in the opposite and so mutually exclusive relation with that Reality necessary to create the opposite experience.

However, it is possible for an Individual to be in a relation to a Reality in a way that creates partial opposite experiences, i.e., a portion of each opposite experience, such as the partial experience of position and the partial experience of momentum. Nonetheless, the degree to which the Individual creates either of the opposite experiences limits the degree to which they can create the other opposite experience, because the relational orientation of the Individual to a Reality that creates what the Individual apprehends as the partial experience of both, e.g., 80% position and 20% momentum, is still mutually exclusive of the opposite relational orientation necessary to create the complementary partial experience of both, i.e., 20% position and 80% momentum. For the same reason, i.e., owing to the mutual exclusivity and so impossibility of an Individual's simultaneous involvement in opposite relations with a given Reality, if one is looking directly north then they can see nothing that lies south, whereas if one is looking northwest, then they see much of what lies north and a little of what lies south, but they also cannot see a little of what lies north and much of what lies south, as shown in figure 15.

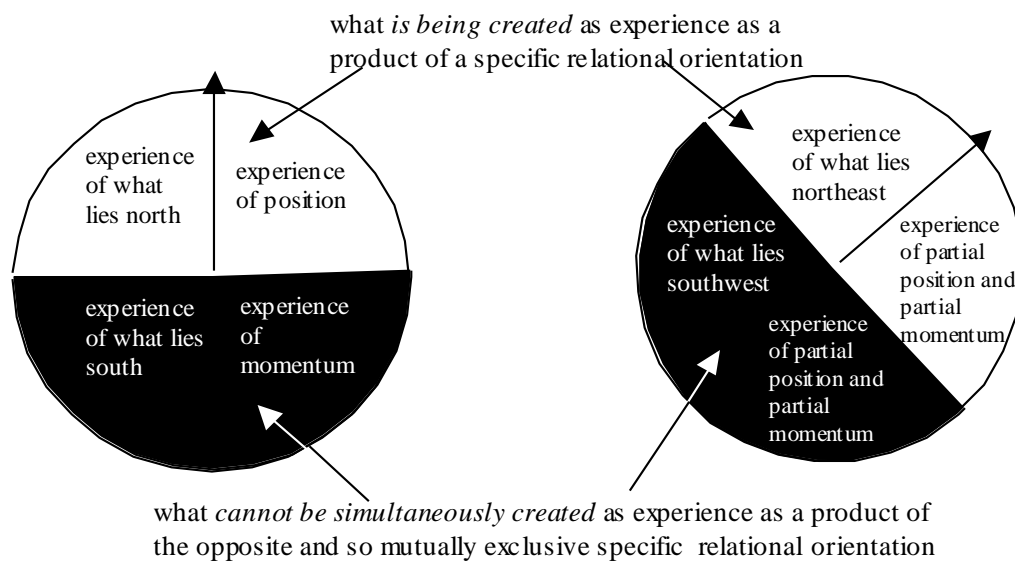


Figure 15 This drawing depicts uncertainty as resulting from the impossibility of an Individual's simultaneous involvement in the opposite and so mutually exclusive relations necessary to create what that Individual would apprehend as opposite or complementary physical experiences. As shown on the left, the relational orientation between an Observer and the Earth necessary to see what lies north, or more accurately, create the visual experience of what lies north, is mutually exclusive of the opposite relational orientation between the same Observer and the Earth necessary to create the visual experience of what lies south. Likewise, also shown on the left, the relational orientation between an Observer and a Reality necessary to create the complete experience of position is mutually exclusive of the opposite relational orientation between the same Observer and Reality necessary to create the opposite experience of momentum. Similarly, shown on the right, the relational orientation between an Observer and the Earth necessary to create the visual experience of what lies northeast is mutually exclusive of the opposite

relational orientation between the same Observer and the Earth necessary to create the visual experience of what lies southwest. Likewise, also shown on the right, the relational orientation between an Observer and a Reality necessary to create the experience of partial position and partial momentum is mutually exclusive of the opposite relational orientation between the same Observer and Reality necessary to create the opposite experience of partial position and partial momentum.

The creation of any experience requires a relation between an Observer and a Reality, and that relation places the Observer and the Reality in a specific orientation relative to each other. And for every specific relational orientation between an Observer and a Reality that creates a specific experience apprehended by that Observer, there is an opposite relational orientation possible between that Observer and that Reality that would create what that Observer would apprehend as the opposite experience. However, for a single Observer and a single Reality, those opposite relational orientations are, in a single moment, mutually exclusive, meaning that the involvement of an Observer and a Reality in one relation and so in one relational orientation, thereby producing what the Observer apprehends as a specific physical experience, makes impossible the simultaneous involvement of that same Observer and that same Reality in the opposite relation and relational orientation, thereby making it impossible for that same Observer to create, in that same moment, through relation to that same Reality, whatever experience is the opposite of the experience that Observer is already creating and apprehending in that moment as a result of the relation and relational orientation that must already exist between that Observer and that Reality.

How hard is it to understand that if you are facing north, and so creating the visual experience of what lies in that direction, that you cannot simultaneously face south, and so cannot simultaneously create the visual experience of what lies in that direction? That is easy to understand. Understanding the phenomenon of quantum uncertainty involves that same understanding, i.e., if an Observer is in one relation and so creating and apprehending one experience then that Observer cannot simultaneously be in the opposite relation necessary to create what they would apprehend as the opposite experience. That is all. The basis of quantum uncertainty is that simple. But this simple explanation can only be understood in the context of understanding the actual nature of physical experience-reality, both as something that is always created as the product of a relation in which the Individual that is apprehending the experience must themselves be involved, and as something that, like a reflection, is not what is actually there where it appears to be. And the context for understanding both of these things regarding the nature of physical reality can be derived from observing a rubber band that has been repeatedly twisted upon itself.

And so, another phenomenon that has remained a mystery in terms of its underlying basis for nearly one-hundred years, as it could not be made to fit into a materialist model that both assumes physical reality to exist independent of the Consciousness that apprehends it, and also assumes physical reality to be what is actually there where it appears to be, is easily explained and understood in the context of a model of reality that does not make those same assumptions, but to the contrary, uses what the phenomena themselves say about the nature of physical reality to explain how What Is Actually There creates experiential reality in general and physical reality in particular, thereby revealing an unavoidable mechanical or structural limitation inherent in the Individual's creation of experience, the inviolable functioning of which is the basis of quantum uncertainty.

Thus, the phenomenon of quantum uncertainty has as its basis a limiting mechanic. However, that limiting mechanic is not a physical mechanic, not a physical limitation, as is often taught in undergraduate physics courses, where it is erroneously taught that quantum uncertainty results from a measurement upon something causing some physical disturbance in that something, such that any simultaneous measurement upon that same something is affected by that physical disturbance. This explanation derives from a materialist model that erroneously assumes physical reality to exist prior to its observation, which assumption has no factual basis, and is in fact contradicted by quantum theory. Rather, the limiting mechanic that is the basis of quantum uncertainty is an experiential mechanic, i.e., a mechanic that involves an unavoidable limitation inherent in the Individual's creation of experience in general and physical experience in particular, which limiting mechanic derives from the fact that anything that an Individual apprehends as a particular experience requires their involvement in a particular relation in order to create that particular experience, and their involvement in those particular relations in order to create those particular experiences unavoidably limits their ability to be simultaneously involved in any opposite and so mutually exclusive relations, and so unavoidably limits their ability to simultaneously create and apprehend any experiences that are the opposite of those they are presently creating and apprehending.

For this reason, the limiting mechanic that is the basis of quantum uncertainty does not operate only in the creation of quantum experience, but operates in the creation of all experience, because experience of every sort, i.e., emotional, mental and physical, is the product of some relation of Existence to Itself and so is subject to the same limiting experiential mechanic as that which produces quantum uncertainty. Put another way, quantum uncertainty is a special case expression of a more pervasive and general experiential uncertainty that imposes limits upon an Individual's creation of experience of every sort. That is, the same limiting experiential mechanic that prevents a scientist from simultaneously observing, i.e., creating as a physical experience, the complete experience of position and momentum, or the complete experience of any complementary physical characteristics, through relation to an underlying Reality, is the same limiting experiential mechanic that prevents an Individual from feeling good when they feel bad, i.e., experiencing positive emotion while experiencing negative emotion, because the relation in which that Individual must be involved in order to create and apprehend the experience of position emotion is mutually exclusive of the relation in which they must already be involved in order to create what they are presently apprehending as the experience of negative emotion.¹

Likewise, the same limiting experiential mechanic that is the basis of quantum uncertainty also prevents an Individual from conceiving or knowing something, i.e., creating a mental experience, that is the opposite of the mental experience they are already creating. Put another way, the unavoidable experiential limitation prevents an Individual from conceiving or knowing something that is the opposite of what they already conceive or know. For example, it is not possible to conceive of the earth as being actually round while conceiving of it as being actually flat, and it is not possible to conceive that the earth actually orbits the sun while conceiving that the sun actually orbits the earth. Nor is it possible, for the same reason, i.e., owing to the same limiting experiential mechanic, to conceive that Consciousness actually produces physical reality while conceiving that it is actually physical reality that produces Consciousness. Nor is it possible, again for the same reason, to conceive of the non-experiential Reality of Existence-Consciousness as being what is actually there while actively conceiving of physical experiential

reality as being what is actually there. In all of these cases, owing to the same limiting experiential mechanic that is the basis of quantum uncertainty, which limiting mechanic makes impossible an Individual's simultaneous involvement in the mutually exclusive relations necessary to create opposite experiences, it is not possible for an Individual to conceive or know something that is the opposite of what they already conceive or know, because the relation in which the Individual must be involved in order to create the concept they are already apprehending makes impossible their simultaneous involvement in the opposite relation in which they must be involved if they are to create and apprehend the opposite concept.

It is easy to learn new things when nothing is known. But when much is already known learning new things often involves the letting go of what is already known as much or more than it does the actual learning of the new thing. So it is that much of what cannot be understood is often not a function of the complexity of the issue at hand, but rather is a function of the limiting experiential mechanic, the unavoidable and inviolable functioning of which makes it impossible for an Individual to conceive of something in a way that is the opposite of the way in which they are already conceiving of it. So pervasive, unavoidable, and inviolable is this limiting experiential mechanic that it has kept hidden in plain sight from some of humanities best and brightest for almost one-hundred years the reflection-like nature of physical reality revealed by wave-particle duality, and so has kept hidden from those Individuals the basis of the phenomena that lie at the heart of quantum reality, such that "nobody understands quantum mechanics," because the conceptual framework in which those Individuals have been operating, which is a materialist framework that places physical reality at the center of reality and Consciousness at the periphery, as a secondary or derivative reality, is the opposite of the conceptual framework necessary to understand what wave-particle duality says about the nature of physical reality, and so is also the opposite of the conceptual framework necessary to understand the basis of the phenomena that lie at the heart of quantum reality, which opposite conceptual framework simply places Consciousness, rather than physical reality, at the center of reality. Put more succinctly, the relations in which they either must have been or must be involved in order to create and sustain their materialist conception of reality, with its related ideas of physical realism and the centrality and primacy of physical reality, are mutually exclusive of the relations it either would have been or is necessary for them to be involved in order to create the opposite ideas that make possible an understanding of the nature of physical reality as revealed by the phenomena that lie at the heart of quantum theory.

Having now described the basis of both wave-particle duality and quantum uncertainty in the context of the iterative Existential self-relation model of Reality and reality by using the experiential processes derived from that model to describe both the way physical experience is created and apprehended, as well as the unavoidable limitation inherent in the Individual creation of experience, a foundation has been established that will now allow for an explanation of the mechanism underlying the phenomenon of quantum non-locality. What will be shown is that the same limiting experiential mechanic responsible for producing quantum uncertainty is also responsible for producing the heretofore inexplicable phenomenon of quantum non-locality, thereby providing additional evidence regarding the accuracy of describing reality in terms of both Reality and reality, i.e., in terms of What Is Actually There and in terms of what only appears to be what is actually there, respectively.

2.3 The experiential basis of quantum non-locality I

Quantum non-locality involves the unusual situation, at least for quantum theory, of being able to know what the observed physical state of a quantum reality will be prior to its actually being observed to be in that state. However, this situation only arises with regard to pairs of quantum realities that are *entangled*, such that the quantum state of each quantum reality can only be described relative to the other, and the ability to know what the observed state of one of the pair of the entangled realities will be prior to its actually being observed is predicated upon the actual observation of the state of the other of the pair of the entangled realities.

In normal circumstances, at least for quantum theory, the physical state of a quantum reality cannot be known until some measurement is made upon that reality. Until then, the state of the quantum reality is expressed by the wavefunction, which is a mathematical expression of the state of the quantum reality that expresses the probability of the physical state in which it will be found once it is actually observed. Thus, in normal circumstances, knowing the physical state of a quantum reality prior to its observation is simply not possible.

For example, consider two quantum realities, such as two electrons, that are not entangled. Electrons, when observed, can be observed to have a spin, or a spin state, which for simplicity we will simply say can be a state of clockwise or counterclockwise spin. In the case of two electrons that are not entangled, the spin state of each electron, prior to any observation, is expressed by a separate wavefunction that expresses, at least in part, the probability of finding each electron to be in a clockwise or counterclockwise spin state. Prior to any observation it is not possible to know with certainty what the observed spin state of either electron will be, i.e., clockwise or counterclockwise, and following the observation of the spin state of one of them it is still not possible to know with any greater certainty what the observed spin state of the other will be once it is actually observed. Thus, in the case of two non-entangled electrons, or quantum realities, observing the state of one does not also create knowledge of what the observed state of the other will be, because the observed spin state of one bears no relation to the observed spin state of the other.

However, this lack of relation between observed states is not the case with regard to some entangled quantum realities, since some entangled realities are always observed, once they are observed, to be in opposite or complementary states. For example, when one electron of an entangled pair is observed to have a clockwise spin, the other electron of that entangled pair will always be observed to have a counterclockwise spin. Thus, with these entangled pairs, there is always a relation or correlation between the observed state of one and the observed state of the other. Thus, observing the spin state of one makes it possible to know the spin state of the other, absent its direct observation.

However, quantum theory holds that absent some action being taken upon a quantum reality, what is there as the quantum reality does not exist in a defined physical state, and that it is only through observation or some interaction with the quantum reality, the probabilistic state of which is expressed by the wavefunction, that what is there is somehow converted to a deterministic physical reality, such as an electron with a specific clockwise or counterclockwise spin state. The conversion of the quantum reality from a state of physical probability and potentiality, which

probability and potentiality is expressed by the wavefunction, to a deterministic physical state no longer expressed by that wavefunction, owing to some interaction with the quantum reality, is referred to as *the collapse of the wavefunction*.

However, with regard to entangled quantum realities, once the physical state of one entangled quantum reality is known, the physical state of the other entangled quantum reality is known as well, instantaneously, meaning that it now also must exist in a deterministic physical state, rather than a state of physical probability and potentiality expressed by the wavefunction, meaning that its wavefunction has collapsed, meaning that, according to quantum theory, there must have been some interaction with it to precipitate or cause its conversion from a state of indeterminate physical probability to a state of determinate non-probable physical actuality. This phenomenon is called non-locality because the action that is taken upon the non-observed entangled quantum reality to cause the collapse of its wavefunction is not occurring locally, but is instead occurring at a distance, as a function of the interaction with and observation of the other entangled quantum reality.

According to quantum theory, the collapse of the non-observed quantum realities' wavefunction is simultaneous with the collapse of the observed quantum realities' wavefunction, and so any interaction or action that is taken upon the non-observed quantum reality to cause its wavefunction to collapse, owing to the action taken upon the observed quantum reality, must be an action that is communicated in some way to the non-observed quantum reality faster than the speed of light, which is, according to the theory of relativity, not possible, which is why Einstein referred to the phenomenon of non-locality implied by quantum theory as "spooky action at a distance." Spooky, because the action had to be communicated faster than the speed of light, and therefore in some unknown and so mysterious way.

Einstein felt that if the phenomenon of non-locality, which is predicted by quantum theory, were to be tested that it would not hold up, i.e., that it would be shown that the action upon the non-observed quantum reality did not occur faster than the speed of light, and that a flaw would have been found in quantum theory between what it predicted and what was found to actually occur. Einstein was not satisfied with the implication of quantum theory that physical reality existed in a state of probability, i.e., in a state of maybe this or maybe that, prior to its observation, and so he was always trying to find flaws in the theory in order to prove that it was an incomplete description of physical reality. However, the phenomenon of non-locality has held up to experimental testing, leaving quantum theory intact, but once again leaving quantum physics with a question regarding the hidden mechanism underlying the phenomenon. That is, physicists know that the phenomenon of non-locality, as predicted by quantum theory, actually occurs, but what they do not know is how or why it occurs. That is, physicists know the phenomenon exists, but they do not know the nature of the mechanism underlying the phenomenon. Specifically, they do not know how observing one of a pair of entangled quantum realities causes the collapse of the wavefunction of the other of the pair of entangled quantum realities, absent any direct or local action being taken upon that other entangled reality.

Again, as Feynman said, no one understands quantum mechanics, meaning that, although physicists know how it works, meaning that they know how to use it to get results, they do not know why it works, i.e., they do not know the nature of the mechanism that produces those

results. But that is only because they do not understand the mechanism of experiential creation underlying the production of what they are apprehending as physical reality. However that situation, which has persisted for nearly one-hundred years, is finally in the process of changing. But that situation can only change for Individuals who are willing to let go of certain preconceptions and long held assumptions regarding the nature of reality, owing to the same limitation upon Individual experiential creation that is responsible for producing the phenomenon of quantum uncertainty. In that regard, it might be of some benefit to understand that the idea that physical reality produces Consciousness, and the idea that physical reality is what is actually there where it appears to be, are both ideas that, in the final analysis, have no factual basis whatsoever, but are instead no more than dogmatic assumptions that arise from and rest upon the same sort of common and general perspective that at one time had people convinced that the earth was flat and that the sun orbited the earth. While standing in the middle of Illinois the earth does indeed appear to be flat, and while standing almost anywhere physical reality does indeed appear to be what is actually there. But as history has shown, and as quantum experience is now revealing, appearances can be deceiving.

That having been said, what will now be shown is that the experiential limitation that produces quantum uncertainty, i.e., the experiential mechanism that limits an Individual's ability to simultaneously create opposite physical experiences through impactive relation with a single Reality, is the same experiential limitation that produces the phenomenon of quantum non-locality, by limiting the way in which an Individual, or a related Individual, can simultaneously be in relation to entangled Realities. Put another way, what will be shown is that the same experiential limitation that creates uncertainty with regard to the Individual creation of experience through impactive relation to a single Reality instead creates certainty with regard to the Individual creation of experience through impactive relation to entangled Realities.

The experiential limitation responsible for the phenomenon of quantum uncertainty exists because it is not possible for an Individual to be involved simultaneously in the mutually exclusive relations with an underlying Reality necessary to create opposite perspectives upon the created experiential boundaries that are apprehended as opposite physical experiences. This experiential limitation only applies to experiences that an Individual creates through involvement in third level or impactive relations with a single Reality or second level Relational Structure. That is, this experiential limitation does not apply to experiences that an Individual creates through involvement in third level or impactive relations with different Realities or second level Relational Structures. For example, if you are standing on someone's left then you cannot be standing on their right, as those relations are mutually exclusive. However, if you are standing on someone's left then you can still be standing on someone else's left or right, because those relations are not mutually exclusive. However, if there is some already established relation between the two Individuals that you are trying to stand next to, then your ability to be in relation to the second person, once you are already standing to the left or right of the first person, will be constrained in some way by that already established relation, since in such a case the two Individuals that you are trying to stand next to, through their already established relation, function as a single Individual with respect to your relation to them, as a relation to one is also a relation to the other, owing to their already established relation.

The reason the phenomenon of non-locality exists is because the Realities or Relational Structures that underlie what are apprehended as entangled quantum realities, such as two entangled electrons, owing to their already established relation, function as a single Reality with respect to their involvement in the creation of physical experience, thereby limiting the impactive relations in which an Individual can become involved with a second entangled Reality to create additional physical experiences once they have already established an impactive relation with a first entangled Reality and created and apprehended a physical experience as a result. Conversely, the Realities or Relational Structures that underlie what are apprehended as non-entangled quantum realities, such as two non-entangled electrons, function as two different Realities in the creation of physical experience, since an Individual's relation to one of those Realities does not limit the way in which the Individual can be in relation to the other Reality. Put another way, even though entangled Realities can function in the creation of the experience of two different physical realities, e.g., two electrons, the already established relation between entangled Realities makes them subject to the experiential limitation that limits the relations in which an Individual can be involved with a Reality according to the relations in which they are already involved with that Reality, or with a related Reality, and so limits the experiences that can be created through any subsequent relation to that Reality, or to a related Reality.

However, in order to fully understand how the experiential limitation responsible for quantum uncertainty also produces the phenomenon of quantum non-locality, it will first be necessary to understand the source of quantum probability.

2.31 The experiential basis of quantum probability and the wavefunction

As will be described, the source of quantum probability does not lie in What Is Actually There existing in a state of physical probability, i.e., in a state of maybe this or maybe that physical reality, or partly this or partly that physical reality. Rather, quantum probability is an artifact introduced when the second level Realities or Relational Structures that are actually there are translated into terms of physical experience prior to their involvement in a relation that creates a physical experience. Put another way, *the probabilistic nature of the wavefunction is an artifact of translating what is a second level non-physical Reality or Relational Structure into physical terms prior to the involvement of that second level non-physical Reality in a third level relation that creates what is apprehended as a physical experience.*

What Is Actually There as a second level Reality or Relational Structure is not Itself in any way a physical reality. What Is Actually There as a second level Reality or Relational Structure is Existence configured in relation to Itself in a specific and non-probable way. What Is Actually There as a second level Reality or Relational Structure only exists in a state of physical potentiality to the extent that that Relational Structure has the potential to become involved in an impactive relation with an Individual and so function in the creation of what that Individual apprehends as a physical experience. However, What Is Actually There as a second level Reality or Relational Structure seems to exist in a state of physical potentiality and probability because a single second level Reality or Relational Structure can function in the creation of what an Individual apprehends as opposite physical experiences, as demonstrated and revealed by the phenomenon of wave-particle duality, only one of which opposite physical experiences, or some

partial combination of both, can be created by an Individual in any one moment through relation to that Reality, as demonstrated and revealed by the phenomenon of quantum uncertainty, owing to the experiential limitation that makes it impossible for an Individual to be simultaneously involved in the mutually exclusive relations with a Reality necessary to create the opposite experiences it is potentially possible for the Individual to create through impactive relation to that Reality.

Thus, the source of quantum probability, and therefore the basis of the probabilistic nature of the wavefunction, lies in the following four facts:

1. Second level Realities or Relational Structures, which Realities are composed of Existence configured in a specific way in relation to Itself, and not just in a probable way, can each be the source of opposite physical experiences.
2. The specific experience that is created and apprehended by the Individual depends upon the relational orientation of the Individual to the Reality, once the Individual and Reality become involved in an impactive relation.
3. Owing to the uncertainty principle, the experiential basis of which should now be understood as a fundamental and inviolable limitation inherent in the Individual creation of experience, only one of those opposite experiences, or some partial combination of both, can be created and apprehended as a physical experience in any one moment by a single Individual through impactive relation to a single Reality.
4. It is not possible for an Individual to know which of the two opposite experiences, or their partial combination, will be created through their relation to a Reality prior to or absent the establishment of some relation with that Reality, since it is not possible for an Individual to know what their relational orientation to the Reality will be prior to their establishing some relation with that Reality, or with a related Reality.

The reason that it is not possible to know, prior to the establishment of a relation with a Reality, what the relational orientation will be between the Individual and the Reality, and so what specific physical experience will be created, is because all knowledge is itself experiential in nature, and so, like all experience, must be created as the product of some relation of Existence to Itself. That is, knowing the nature of a relation, i.e., knowing what the relational orientation will be once it is established, itself requires a relation in order to create that knowledge; but where there is not yet any relation there is not yet any knowledge, and so no way to know what the relational orientation between the Individual and the Reality will be, and so no way to know which experience will be created and apprehended, since what is created and apprehended as physical experience is, as has been described, a function of the relational orientation between the Individual and the Reality, and not a function of What Is Actually There as the Individual and the Reality.

As explained throughout this work, physical experience is not what is actually there, but is the product of a relation occurring between What Is Actually There, as that product is apprehended from one side of the relation that creates it. For this reason, what is apprehended as a particular

physical reality has more to do with the nature of the relation occurring between What Is Actually There than it does with the nature of What Is Actually There. Take for example the creation of the wave or particle experience. Which is created and apprehended, i.e., wave or particle, is a function of the relational orientation between the Individual that makes up one side of the relation and the Reality that makes up the other side of the relation, and is not a function of What Is Actually There, since the same Individual can be in relation to the same sort of Reality in opposite ways and create opposite experiences. That is, without changing either the Individual or the Nature of the Reality, and so without changing What Is Actually There, the created experience can be changed from wave to particle or particle to wave simply by changing the relation and so relational orientation between the Individual and the Reality, i.e., by changing the relation occurring between What Is Actually There. Where then is the physical reality of wave or particle? It lies only in the relational orientation occurring between the Individual and the "observed" Reality, and not in the Realities that are actually there. And the same is true of every physical experience of every sort, quantum or otherwise, i.e., the character of the experience lies in the nature of the Existential relation that creates it and not in the Nature of What Is Actually There.

Knowledge, like all experience, does not just sit there waiting for us to happen across it, but must be created through some relation of Existence to Itself. In the absence of a relation that creates some knowledge there is no knowledge and so no ability to know what will be the relation between the Individual and the Reality, and so no ability to know which of the two opposite experiences, or combination thereof, that it is potentially possible to create through an Individual's relation to a Reality will actually materialize, i.e., be created and apprehended as a physical reality. Therefore, prior to the involvement of the Reality that is actually there in an impactive relation with an Individual, which relation creates for that Individual some physical experience, and so some knowledge, the Reality that is actually there must be expressed in terms of the opposite physical experiences, or combinations thereof, that it is potentially possible for the Individual to create through impactive relation to that Reality, even though the impactive relation of an Individual to that Reality can ever only, in a given moment, create one of those opposite physical experiences, or some partial combination of both. That is why the Reality or Relational Structure that is actually there, prior to its involvement in an impactive relation with an Individual that creates what that Individual apprehends as a physical experience, such as that of electron spin, must be expressed in terms of probability, in terms of its potential to create either physical experience. That is the basis of quantum probability and so is also the basis of the probabilistic nature of the wavefunction.

The Reality or Relational Structure that is actually there is in a definite orientation relative to Itself. That is, What Is Actually There as the Reality or Relational Structure the Individual is forming an impactive relation with, in order to create what they apprehend as a definite physical experience, is a definite Structure composed of Existence configured in a specific way in relation to Itself; it is just not a physical structure, because it is not a physical reality. The experience of physical structure, the experience of physical characteristics, is derived from our impactive relations with Existentially determinate second level Realities or Relational Structures. And as those Existentially determinate Realities or Relational Structures are translated into terms of physical experience prior to their involvement in an impactive relation that creates a physical experience, as is done in quantum theory, they must be expressed in terms of all the physical

experiences that it is possible for an Individual to create and apprehend through impactive relation to them. And because it is not possible to know, prior to the establishment of some relation with a second level Reality or Relational Structure, what the relational orientation of the Individual to the Reality will be and so which of the possible physical experiences will actually be created through impactive relation to that Reality, the Reality that is actually there must be expressed in terms of physical probabilities, not because the Reality that is actually there is only probable, but because the physical experience that can be created through relation to that Reality is only probable, prior to an Individual's establishment of an impactive relation with that Reality, or with a related Reality.

Einstein was never happy with quantum theory expressing physical reality in terms of probabilities. He felt that the randomness expressed by quantum theory reflected our ignorance of some fundamental property of reality, and that underlying quantum reality there must be non-random or non-probabilistic "elements of reality." As it turns out, Einstein was correct, in that there are elements of Reality that are not random. However, those non-random elements of Reality are not physical realities, but are instead Realities or Relational Structures composed of Existence that has become structured and configured in relation to Itself. And the randomness with which those Relational Structures, or those elements of Reality, must be expressed in physical terms through the wavefunction, derives from an unavoidable ignorance that itself derives from unavoidable limitations inherent in the very creation of physical experience, and so present in the creation of all experimental observation and measurement. Thus, Neils Bohr was also correct when he wrote: "There is no quantum world. There is only an abstract quantum physical description. It is wrong to think that the task of physics is to find out how Nature is. Physics concerns what we can say about Nature."² So too was Heisenberg correct when he wrote: "What we observe is not Nature itself, but Nature exposed to our method of questioning."³

It is important to understand that what the wavefunction actually expresses is not the likelihood or probability of the Reality that is actually there being found to be in this or that determinate physical state. Rather, *what the wavefunction actually expresses is the likelihood or probability of the physical experience that will be created through impactive relation to the Reality that is actually there.* The Reality that is actually there that functions in the creation of physical experience does not become something else once it becomes involved in a relation that creates what an Individual apprehends as a physical experience. The Reality that is actually there that functions in the creation of a physical experience is not converted from a probabilistic state to a deterministic state as a result of its involvement in a relation that creates what an Individual apprehends as a physical experience. The Reality that is actually there that functions in the creation of a physical experience has the same Nature both during and after its involvement in a relation that creates a physical experience as it had before it became involved in a relation that created a physical experience, i.e., it remains a second level Relational Structure composed of Existence configured in relation to Itself.

The only difference between the Reality that is actually there before and then during its involvement in a relation with an Individual that creates a physical experience is that, before its involvement in a relation with an Individual that creates a physical experience, it is possible for that Reality to be in relation to that Individual in mutually exclusive relational orientations, and so in ways that can potentially create opposite physical experiences, whereas during its

involvement in a specific relation with an Individual that creates a specific physical experience, i.e., once the Reality and the Individual have established a relational orientation, it is no longer possible for that Reality to be in relation to that Individual in mutually exclusive relational orientations, since it is no longer possible for that Reality to be involved in a relation with that Individual that is mutually exclusive of the relation in which it must already be involved with that Individual in order to help create what that Individual is already apprehending as a physical experience. Therefore, as long as a Reality is involved in an impactive relation with an Individual that creates a physical experience for that Individual, it is no longer possible for that Reality to be in relation to that Individual, or a related Individual, in a way that can create, for that Individual, or a related Individual, the physical experience that is the opposite of the physical experience already being created. Put more succinctly, the only difference between a Reality before and then during its involvement in a relation with an Individual that creates what that Individual apprehends as a physical experience is that, before the involvement of the Reality in such a relation, mutually exclusive relations with an Individual are potentially possible, whereas during the involvement of the Reality in such a relation, *one of those mutually exclusive relations with that Individual is no longer possible*, owing to the inviolable functioning of the unavoidable experiential limitation.

2.32 The experiential basis of the collapse of the wavefunction

What has just been described is the basis of what is referred to as the *collapse of the wavefunction*, or the seeming transition of what seems to be there from a state of physical probability, expressed by the wavefunction, to a state of physical determinability, no longer expressed by that wavefunction. As previously stated, the wavefunction expresses the probability or likelihood of the state in which a quantum reality will be found once it is observed. More accurately, the wavefunction expresses the probability or likelihood of creating and apprehending a particular physical experience through relation to a particular Reality. And the source of quantum probability, and so the source of the wavefunction, is that any Reality can function in the creation of opposite physical experiences, or some combination thereof, only one of which, or one combination of which, can be created by an Individual through relation to a Reality in any one moment, and it is not possible to know prior to the establishment of some relation with a Reality what the relational orientation between the Individual and the Reality will be, and so it is not possible to know, prior to the establishment of the relation that creates the experience, what experience will be created and apprehended through relation to a given Reality.

Thus, one source of quantum probability, and so one of the pillars upon which the wavefunction rests, is that second level Realities or Relational Structures can each be the source of opposite physical experiences, or some combination thereof, prior to the involvement of those Realities in a relation that creates a physical experience. However, once a particular Reality or Relational Structure has become involved in an impactive relation that creates what an Individual apprehends as a physical experience, that particular Reality can no longer, with respect to that Individual, in that same moment, be the source of opposite physical experiences, or some combination thereof, owing to the experiential limitation, thereby eliminating, in that moment, one of the pillars upon which quantum probability rests with respect to that particular Reality, thereby causing the collapse of that Realities' wavefunction. Put another way, if one takes away

the source of quantum probability, takes away one of the pillars upon which quantum probability rests, then the wavefunction, as an expression of that probability, as an expression of the potential of a given Reality to function in the creation of opposite physical experiences, must itself go away or collapse.

However, as mentioned in the previous section, it is important to understand that the collapse of the wavefunction of a particular reality does not signal or indicate any sort of transition or change in the Nature of the Reality or Relational Structure that is the basis of the physical experience. That is, the collapse of the wavefunction of a particular Reality does not mean that that Reality has transitioned from a probable to a deterministic state. Rather, the collapse of the wavefunction *only indicates a transition with regard to the potential and ability of that particular Reality to be involved in the mutually exclusive relations with an Individual necessary to create opposite physical experiences*. That is, the collapse of the wavefunction indicates a transition in a particular Reality from something that has the potential to be involved in either mutually exclusive relation with an Individual to something that no longer has that potential, because its involvement with the Individual in one of those relations simply makes impossible its simultaneous involvement in the opposite and so mutually exclusive relation with that Individual.

What Is Actually There where we apprehend an electron, or any physical-material reality, is Existence that has, through iterative relation to Itself, become configured into a second level Relational Structure. Those second level Relational Structures do not change in their essential Nature simply because they become involved in a third level or impactive relation with another second level Relational Structure that creates an experiential boundary that is apprehended by an Individual as a physical experience. However, while the involvement of a second level Reality in any such impactive relation does not change its essential Nature, its involvement in an impactive relation does constrain the way in which that Reality can become involved in other impactive relations, and so does constrain the way that Reality can be used as the basis for the creation of other physical experiences, thereby creating the appearance or illusion that what is there has undergone some sort of transition from a state of probability to determinability, when one takes or mistakes the created experience, be it the wavefunction or the physical experience, for what is actually there. However, this illusion can be seen through if one is able to realize that What Is Actually There is neither the wavefunction nor the physical experience, and that these different experiences are like different reflections that lie on the surface of a body of water, the former created when the surface is in flux, and so containing all possible reflections, and the latter created once the surface has been stilled, and so containing but a single reflection. But regardless of what is reflected, i.e., all the potential reflections or but a single reflection, the Reality upon which those reflections rest remains identical in its Nature.

Nonetheless, the collapse of the wavefunction does involve some change in What Is Actually There, does involve some change in the Reality or Relational Structure that is functioning as the basis of the created physical experience. However, the change in the Reality that is actually there, to the extent that there is any change in that Reality, once it is involved in a relation that creates a physical experience, involves nothing more than an unavoidable and inviolable mechanical or structural limitation being imposed upon that Reality that precludes it from simultaneously becoming involved in any relation with an Individual that is mutually exclusive

of the relation in which it is already involved with that Individual, or with a related Individual, and so precludes that Reality from simultaneously functioning in the creation of a physical experience for that Individual, or a related Individual, that is the opposite of whatever physical experience it is already functioning to help create. In essence, the collapse of the wavefunction involves Existence forming this relation with Itself, and so creating this experience, leaving it then unable, in that same moment, to form that relation with Itself, and so unable, in that same moment, to create that experience. That is all.

Having explained the source of quantum probability, and therefore the basis of the probabilistic nature of the wavefunction, as well as the basis of the collapse of the wavefunction, it will now be possible to complete the description of the experiential mechanism underlying the phenomenon of quantum non-locality.

2.4 The experiential basis of quantum non-locality II

In order to understand the mechanism underlying the phenomenon of quantum non-locality, it will be necessary to understand what happens when an Individual forms an impactive relation with a pair of entangled Realities that always produce the experience of opposite spin states, in the context of what we have learned so far regarding the creation of physical experience, including the limitations inherent in the Individual creation of physical experience.

Prior to any measurement, interaction with, or observation of either entangled Reality, each Reality has the potential to produce the physical experience of either spin state, clockwise or counterclockwise, depending upon the relational orientation of the Individual to the Reality. And which spin state will be created through relation to either Reality cannot be predicted prior to the establishment of an impactive relation with one of the Realities, which is why each Reality, prior to the involvement of either in a relation that creates the experience of spin state, is represented by a wavefunction that expresses that potential.

That having been said, let us now consider an impactive relation occurring between an Individual and one of the entangled Realities. Once an impactive relation occurs between the Individual and one of the entangled Realities, a relational orientation has been established between the Individual and that Reality, and a spin state is then measured or observed for that Reality, or more precisely, the experience of a spin state is created through relation to that Reality. That Realities' wavefunction has now collapsed, as the basis of its quantum probability, i.e., its potential to be in either relational orientation and so produce the experience either of spin state, has been eliminated as a result of its involvement in the impactive relation that creates the experience of what seems to be its spin state.

To reiterate, the basis of quantum probability, and so the basis of the wavefunction as the expression of that probability, is the potential for a Reality, prior to its involvement in a relation with an Individual that produces a physical experience, to produce opposite physical experiences, only one of which can actually be produced in any one moment through relation to an Individual, along with the inability to know, prior to the involvement of that Reality in a relation with an Individual that produces a particular physical experience, what the relational orientation will be

between the Individual and the Reality, which relational orientation determines what the Individual apprehends as the particular physical experience. Eliminate any one of those factors with respect to a given Reality, i.e., take one of those factors out of the equation, and you have eliminated the basis of quantum probability for that Reality, and its wavefunction collapses.

What happens to the entangled Reality that is observed first, i.e., the creation of the experience of a definite spin state through impactive relation to that Reality and the collapse of its wavefunction as the source of its quantum probability is eliminated, is all fairly straightforward, at least in the context of the model of Reality and reality being presented here, and is what occurs in general in the creation of physical experience through relation to any quantum Reality. However, here we are discussing non-locality, and the issue with regard to non-locality concerns what happens to the non-observed entangled Reality owing to the observation of spin-state that is created through impactive relation to the first entangled Reality.

What we know is that impactive relation to the first entangled Reality and the creation of the experience of a definite spin state as a result of that relation, according to quantum theory, simultaneously collapses the wavefunction of the second entangled Reality, so that as soon as the spin state created through impactive relation to the first entangled Reality is known, it is also known what spin state will be created through impactive relation to the second entangled Reality. The question that needs to be answered here is, what is the mechanism that causes the spin state of the second entangled Reality to be known prior to a direct relation to that Reality that creates the experience of a definite spin state? Put another way, how does the impactive relation to the first entangled Reality that eliminates the source of its quantum probability and so causes the collapse of its wavefunction also simultaneously eliminate the source of quantum probability with regard to the second quantum Reality and so cause the collapse of its wavefunction as well, in the absence of any direct or local action being taken upon that second entangled Reality?

The answer to this question regarding the mechanism underlying the phenomenon of quantum non-locality lies in the unavoidable limitation inherent in the Individual creation of experience, as that limitation applies to entangled Realities, owing to their already established relation, i.e., owing to their entanglement. The experiential limitation that is the basis of quantum uncertainty derives from the impossibility of an Individual's simultaneous involvement in mutually exclusive relations with a single Reality, or in the case of non-locality, with related Realities. That is, because entangled Realities are in some way related, they function in some ways as a single unit of Reality with respect to an Individual's ability to form impactive relations with them. And so, even though a pair of entangled Realities are two Relational Structures, and so can become involved in different relations that create different physical experiences, such as the experience of two different spin states, because those entangled Realities are in some way related, the relations that can be formed with one are constrained by any relation already formed with the other, and so the experiences that can be created through relation to one are constrained according to the experiences already created through relation to the other.

The constraint being referred to here is not a physical constraint, nor is the relation between the entangled Realities a physical relation. All relations are ultimately relations of Existence to Itself, because that is what actually Exists underlying the etching or reflection that is physical experience-reality, which etching or reflection is created as the result of a particular type of

Existential relation. Thus, it is not any physical reality that is involved in the relations that create physical reality, rather it is Existence, configured into second level Relational Structures, that is involved in the relations that create physical experience and so create physical reality. For this reason it is futile to look for some physical mechanism as the source of the phenomenon of non-locality. Rather, we need only look to the mechanism through which physical experience is created, including the limitations inherent in that mechanism, in order to understand the source of the phenomenon of non-locality.

The experiential mechanism responsible for the phenomenon of quantum non-locality has to do with the limitations or constraints placed upon an Individual's ability to become involved in an impactive relation with the second entangled Reality as a function of a related Individuals prior involvement in an impactive relation with the first entangled Reality. The reason the wavefunction of the second or non-observed or non-measured entangled Reality collapses along with the collapse of the wavefunction of the first or observed entangled Reality is the same reason that all Realities' wavefunctions collapse, which reason is the elimination of the source of quantum probability with respect to that Reality. So, the question then becomes, why is the source of quantum probability for the non-observed entangled Reality eliminated, or taken out of the equation, at the same time the source of quantum probability for the observed Reality is eliminated, or taken out of the equation?

Prior to the involvement of either entangled Reality in a relation that creates the experience of a spin state, both entangled Realities had the potential to be in two different relations with an Individual and so each had the potential to create the experience of either spin state, clockwise or counterclockwise. But after the involvement of only one of the entangled Realities in a relation with an Individual that creates the experience of only one spin state, the other non-observed entangled Reality, owing to the relation already established between the entangled Realities, also no longer has the potential to be in two different relations with that Individual, or a related Individual, because the non-observed entangled Reality cannot be involved in a relation with that Individual, or a related Individual, that is mutually exclusive of the relation in which the observed entangled Reality is already involved with that Individual, or a related Individual. And once one of those two possible relations is taken off the table, the source of quantum probability for even the non-observed Reality is eliminated or taken out of the equation, and so its wavefunction collapses, absent any direct action or interaction with that Reality, but rather only as the result of an action taken upon an entangled and so related Reality.

How then does the wavefunction of a Reality collapse that is not yet Itself directly involved in a relation that creates a specific physical experience? Because even though that Reality is not Itself directly involved in a relation that creates a physical experience, the involvement of an entangled and so related Reality in such a relation that does create a specific physical experience, such as that of a defined and determinate spin state, nonetheless eliminates the source of the non-observed Realities' quantum probability, by taking off the table, or removing from the equation, one of the two relations it was, until that moment, possible for that Reality to become involved in functioning to help create the experience of a determinate physical spin state.

And the reason the involvement of the observed Reality in a relation with an Individual that creates the experience of spin state for that Individual constrains the ability of the non-observed

Reality to become involved in a relation that creates the experience of spin state for the same Individual, or a related Individual, and so causes the collapse of the non-observed Realities' wavefunction absent any direct relation of that Individual, or a related Individual, to that Reality, is owing to the mechanical or structural limitation that makes it impossible for an Individual, or a related Individual, to be simultaneously involved in mutually exclusive relations with a single Reality, or in this case, with two Realities that are entangled and so are related and so are nonetheless constrained by the experiential limitation as if they were a single Reality.

In short, the non-observed Realities' wavefunction collapses absent its direct involvement in a relation that creates an experience owing to the experiential limitation that precludes an Individual from being involved simultaneously in mutually exclusive relations with a Reality. Thus, the phenomenon of non-locality represents a special circumstance regarding the operation and functioning of that limitation, as it applies to entangled and so to related Realities and related Individuals, i.e., Individuals that are related through their involvement in the same experiment. That is, the same limitation that creates quantum uncertainty with respect to a single Individual and non-entangled Realities, i.e., the impossibility of simultaneous involvement in opposite and so mutually exclusive relations between an Individual and a Reality, also applies to related Realities and related Individuals. And so the same experiential limitation that eliminates quantum probability with respect to a single Reality, once that Reality is involved in a relation that creates an experience, also eliminates quantum probability with respect to a single entangled Reality, once the other entangled Reality is involved in a relation that creates an experience.

So it is that the experiential limitation that is the basis of quantum uncertainty is both a source of quantum probability, and is also that which eliminates quantum probability. Prior to the involvement of a Reality in an impactive relation, the experiential limitation functions as a source of quantum probability, by making physical reality present itself in terms of the potential to create opposite experiences, whereas after the involvement of a Reality in an impactive relation, the experiential limitation functions to eliminate quantum probability, by making one of the relations that creates one of the opposite experiences impossible. Thus, the phenomenon of non-locality is a strange twist upon the experiential limitation that is responsible for quantum uncertainty, now acting or functioning instead in a way that creates quantum certainty, at least with regard to a single observation, rather than uncertainty, as a result of the same unavoidable experiential limitation and mechanism that makes it impossible for an Individual to be simultaneously involved in what are mutually exclusive relations, when that limitation is applied to entangled Realities.

Thus, the mechanical or structural limitation that precludes an Individual, or a related Individual, from being involved simultaneously in mutually exclusive relations with a Reality, or a related Reality, explains the simultaneous collapse of the wavefunction of entangled Realities that occurs with observation made through relation to just one of those entangled Realities, and so explains the basis of quantum non-locality, as long as one understands the basis of quantum probability, which includes understanding that physical experience is not what is actually there, but rather is always created as the product of a relation occurring between the Relational Structures composed of Existence configured in relation to Itself that are actually there, as that product is apprehended from the perspective of the Existence-Consciousness that composes at least part of one side of the relation that creates it.

What has been explained so far with regard to the phenomenon of quantum non-locality is why the non-observed Realities' wavefunction collapses, creating knowledge of the observed state that will be created through relation to that Reality, prior to the actual relation to that Reality that creates the observation of its spin state. However, what has not yet been explained is why those entangled Realities, in the case of the entangled Realities apprehended as entangled electrons, always create the experience of opposite spin states. Understanding why this occurs will help to clarify the non-probabilistic Nature of any Reality that is expressed through the wavefunction and will also shed some light upon the nature of entanglement.

2.5 The experiential and Structural basis of quantum non-locality

In order to understand in greater detail the experiential basis of quantum non-locality, it will be helpful to understand, at least in part, the nature of quantum entanglement, with respect to the entangled Realities that are apprehended as entangled electrons, which entangled electrons are always observed to have opposite spin states. Entangled Realities that are apprehended as entangled electrons are second level Relational Structures whose Structures have in some way become defined in relation to each other through relation to each other. In order to understand how this might occur, consider two simple or complex objects that can only be fit into a box together if each structure is configured in a particular way relative to the other, as shown in figure 16.

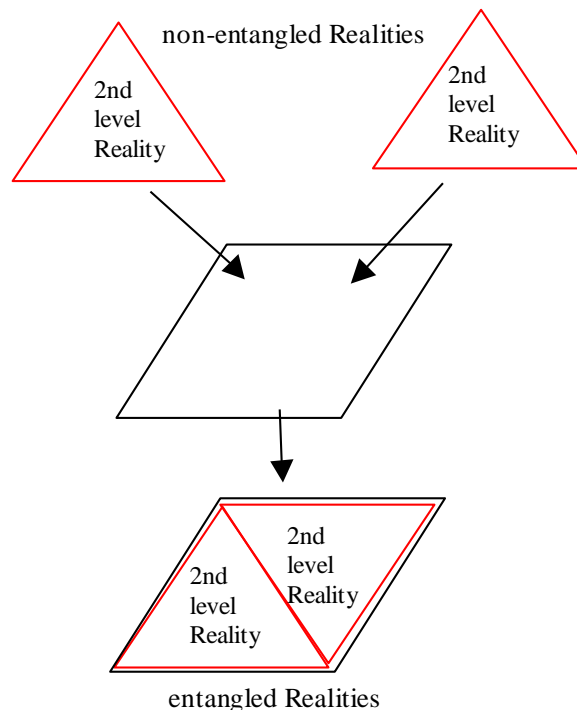


Figure 16 The entangled Realities that are apprehended as entangled electrons are Relational Structures that have, at least in part, become structured in relation to each other, depicted here as two Realities being forced into a confined space such that each must adopt a configuration of Relational Structure that is the opposite or mirror image of the other in order to fit into that space.

Throughout this work it has been stated that underlying what we apprehended as physical reality is Existence that is being in relation to Itself and so structured in relation to Itself. So in some way all of Reality is to one degree or another related. However, there are different degrees of relation, depending on the proximity and so interdependence of Relational Structuring. That is, all Reality, all Relational Structuring, is at some level related, because it is all composed of a singular Existence being iteratively and progressively in relation to Itself. Nonetheless, Realities or Relational Structures can be more closely related to some Realities or Relational Structures than they are to others. Put another way, all Realities may be related, but not all Realities have the same degree of interrelation, in as much as a particular Realities' Relational Structure can be more or less dependent upon the Relational Structure of other Realities, as shown in figure 17.

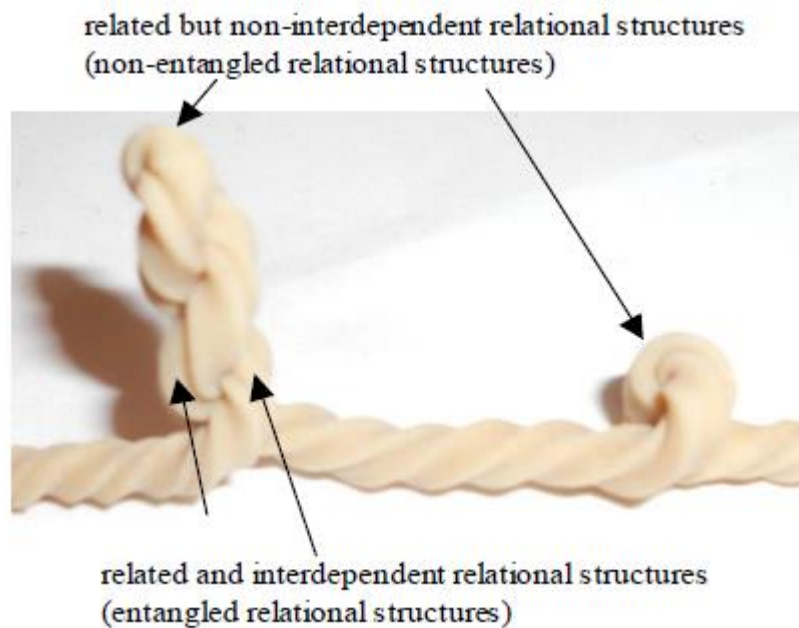


Figure 17 Depicted in this photo is a rubber band twisted upon itself, i.e., having undergone the process of iterative self-relation, to the point where two different areas of second level rubber band relational structure have been created. These two different second level rubber band relational structures are related, because they arise from the same rubber band, but they are not interdependent, because the structure of one is not dependent upon the structure of the other. Conversely, the rubber band relational structure on the left is composed of two relational structures that are both related and interdependent, since the structure of each is dependent upon the structure of the other.

It is this interdependence of Relational Structure that constitutes entanglement, at least with regard to the Realities that are apprehended as entangled electrons, as the configuration of two Relational Structures become inseparable from, and so entangled with, each other. This also explains why the quantum state of each entangled Reality can only be described relative to the quantum state other entangled Reality, since the Relational Structures that are the basis of the those quantum state descriptions are themselves not just related, but are interrelated and so interdependent. Thus, what figure 17 shows is that entangled Realities are entangled because the Relational Structure of each is dependent upon the Relational Structure of the other, as each Reality adopts a particular Structural configuration owing to its relation to the other Reality. And each entangled Reality somehow maintains that Structural configuration through ongoing

relation to that Reality, regardless of spatial separation, because in some physically indescribable way, part of the Structure of each is composed of part of the Structure of the other. In this way, entangled Realities are analogous to the yin and yang of Taoist philosophy, each only existing as such in relation to the other, and each containing within itself a part of the other, as shown in figure 18.

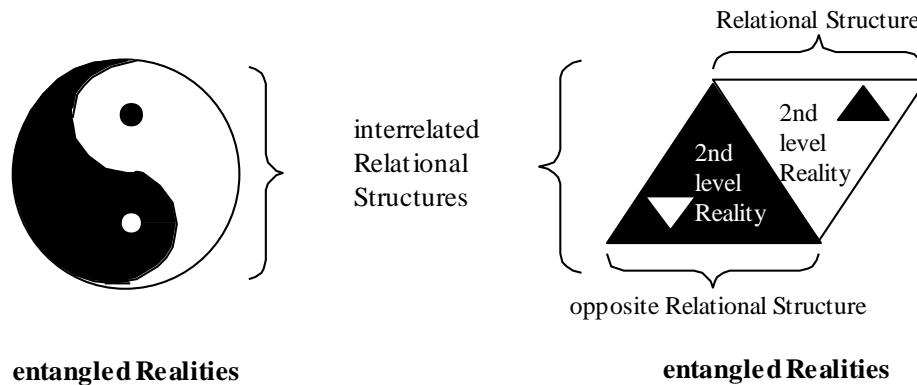


Figure 18 Shown above is the relation between Existence structured in relation to Itself, as expressed on the left by the T'ai-chi T'u, or yin/yang symbol, and on the right by Existence structured in relation to Itself in the form of entangled Realities or entangled second level Relational Structures. The yin/yang symbol represents Existence being in relation to Itself and entangled Realities are Existence that is being in relation to Itself in a way that is analogous to or represented by the way Existence is depicted as being in relation to Itself in the yin/yang symbol. That is, in the yin-yang symbol, each component is structured relative to the other, and each component is composed, at least in part, of the other component. Likewise, with regard to entangled Realities, at least in the case of the entangled Realities apprehended as entangled electrons, each Relational Structure is structured or configured relative to the other, and each Relational Structure is composed, at least in part, of the other Relational Structure.

This interrelation, interpenetration, and interdependence of the Relational Structure of entangled Realities is why entangled Realities function in some respects as two different Realities, able to take part in different relations that create different experiences, such as that of clockwise and counterclockwise spin, but in other respects function as two non- separate Realities, and as a result are subject to the mechanical and so experiential limitation that precludes their simultaneous involvement in mutually exclusive relations with an Individual or related Individuals. For example, in terms of the entangled yin/yang realities, one can be in relation to the yin or the yang, and so experience either aspect, but owing to their interrelation, relation to one is also relation to the other, and so relation to one constrains and limits the way one can simultaneously be in relation to the other. Likewise, in terms of the entangled Realities that are apprehended as a pair of entangled electrons, one can be in relation to one or the other Reality, and so create the experience of spin state through relation to either, but owing to their interrelation, relation to one is also relation to the other, and so relation to one constrains and limits the way one can simultaneously be in relation to the other. Thus, no matter how far apart spatially the two Realities are separated, interaction with one constrains simultaneous interaction with the other, owing to their Structural interrelation and interdependence, such that it is not possible for an Individual to be simultaneously involved in a relation with one entangled Reality

in a way that is mutually exclusive of the way they are already being in relation to the other entangled Reality.

The Structure of these entangled second level Realities or Relational Structures is not probable. These Structures represent Existence being in relation to Itself in a specific way and so configured in relation to Itself in a specific way. That is, while the Structural configuration of each is indeterminate, each nonetheless has a definite non-physical Structural configuration. And although we cannot say exactly what that Structure is, we can say what each Structure is relative to the other Structure, at least with regard to the entangled Realities that are apprehended as a pair of entangled electrons. And what we can say about those Structures relative to each other is that they have opposite or mirror image Structural configurations. And once that Interrelational Structure becomes established, i.e., once the Relational Structure of each relative to the other becomes established, their interrelation and interdependence of Relational Structure is maintained, regardless of any spatial separation occurring between them, because although they may become spatially separate, their Structures remain interdependent and so linked at the second level of Reality, which is the level of Reality from which physical experience is most directly derived.

Having now explained the nature of entanglement in the context of the iterative Existential self-relation model of Reality and reality, and so having described the entangled Realities that underlie entangled electron pairs to be Relational Structures that have opposite structural configurations, and also to be Relational Structures that are interrelated in a way such that relation to one constrains simultaneous relation to the other, it will now be possible to explain, in terms of Relational Structure and the creation of physical experience through Individual relation to Relational Structure, why entangled electrons are always observed to have opposite spin states.

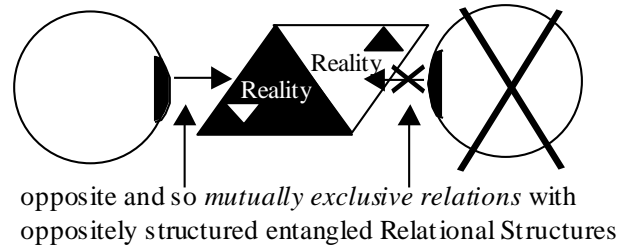
What we know, owing to the iterative Existential self-relation model of Reality and reality, which has provided a way of understanding how experience is created, is that opposite relational orientations of an Individual to the same Reality or Relational Structure, occurring in the context of an impactive relation between that Individual and that Reality, produce opposite physical experiences, such as wave and particle, or clockwise and counterclockwise spin state, or the experience of a bowl of water being hot and cold. Therefore, if opposite relational orientations of an Individual to the same Reality or Relational Structure produce opposite physical experiences, it then follows that opposite relational orientations of an Individual to the opposite Reality or Relational Structure would produce the same physical experience, such as wave and wave, or clockwise and clockwise spin states.

As just stated, with regard to entangled Realities that produce the experience of opposite spin states, we are dealing with oppositely configured Relational Structures. Therefore, if relation to the first entangled Relational Structure produces the experience of clockwise spin state, then the opposite relation to the other, oppositely configured, entangled Relational Structure would produce the same experience, i.e., the experience of clockwise spin state. However, once an Individual is in relation to one of those entangled Relational Structures, the experiential limitation makes impossible that Individuals', or a related Individuals', simultaneous involvement in the opposite or mutually exclusive relation with the other entangled Relational Structure,

thereby making it impossible for the Individual, or a related Individual, to simultaneously be involved in the relation with the other entangled Reality necessary to produce the experience of the same spin state as that produced through relation to the first entangled Reality, as shown in figure 19.

If the experience of **clock wise** spin is first created and apprehended through relation to this Relational Structure...

...then the opposite and so mutually exclusive relation to the oppositely configured Relational Structure that would create the same experience of **clock wise** spin becomes impossible.



Likewise, if the experience of **counterclock wise** spin is first created and apprehended through relation to this Relational Structure...

...then the opposite and so mutually exclusive relation to the oppositely configured Relational Structure that would create the same experience of **counterclock wise** spin becomes impossible.

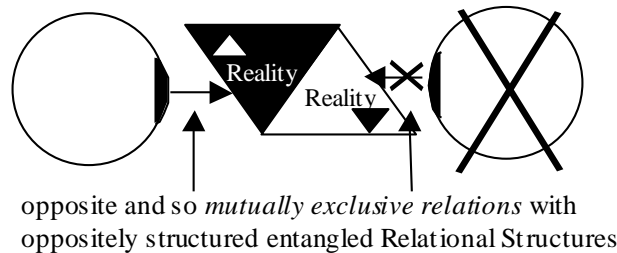
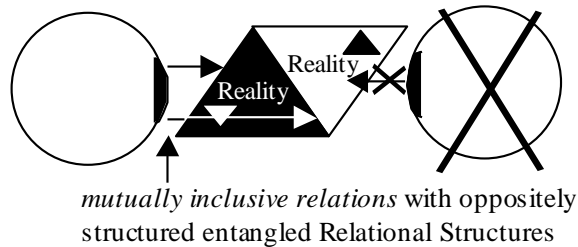


Figure 19 These drawings depict the mutually exclusive relations that are not possible, and so the experiences that it is not possible to simultaneously create through relation to entangled Realities. Since opposite relations to the same Reality create opposite experiences, then opposite relations to oppositely structured Realities would create the same experience, but those opposite relations, in the case of entangled Realities, owing to the experiential limitation, are not possible.

Therefore, if the opposite relation with the other, oppositely configured Relational Structure that would create the same experience is not possible, owing to the unavoidable experiential limitation that precludes an Individual's simultaneous involvement in mutually exclusive relations with a Reality, or with an interrelated Reality, then the only relation that it remains possible for that Individual, or a related Individual, to become simultaneously involved in with the other, oppositely configured, Relational Structure is a relation that is mutually inclusive of the relation in which that Individual is already involved with the first entangled Reality or Relational Structure, which mutually inclusive relation with the other, oppositely configured, Relational Structure would always produce an experience that is the opposite of the experience produced as a result of the relation to the first entangled Reality, as shown in figure 20.

If the experience of **clock wise** spin is first created and apprehended through relation to this Relational Structure...

...then only the experience of **counterclock wise** spin can be created and apprehended through mutually inclusive relation to the oppositely configured Relational Structure



Likewise, if the experience of **counterclock wise** spin is first created and apprehended through relation to this Relational Structure...

...then only the experience of **clock wise** spin can be created and apprehended through mutually inclusive relation to the oppositely configured Relational Structure

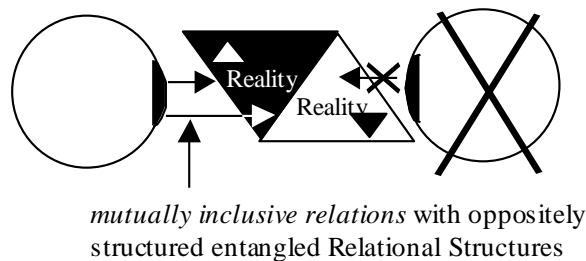


Figure 20 These drawing depict the mutually inclusive relations that are possible, and so the experiences that it is only possible to simultaneously create through relation to entangled Realities. Since opposite relations to the same Reality create opposite experiences, then mutually inclusive relations to oppositely structured Realities would create opposite experiences. In this way, the same experiential limitation that creates quantum uncertainty and contributes to quantum probability, with respect to interaction with a single Reality, eliminates quantum probability and so creates certainty, with respect to entangled Realities, once an impactful relation has been formed with one of the entangled Realities.

Understanding the phenomenon of non-locality in this way provides a glimpse into a level of Reality that is otherwise, by its very Nature, hidden from view. We cannot say exactly how Existence is structured at the second level of Reality, because experience is of a different nature than the Existence that is structured in relation to Itself into the Relational Structures that underlie and are the basis of what we apprehend as physical experiential reality. But what we can say is how Existence is structured relative to Itself at the second level of Reality, at least in the case of the entangled Realities that appear as entangled electrons, since those Structures, in order to produce opposite experiences through what must be mutually inclusive relations, must be structured in opposite ways, and most importantly, must be structured in ways that are not probable, but are instead actual. Thus, implicit in this explanation of the phenomenon of non-locality is that the Reality underlying physical reality, which Reality is the basis of physical

reality, does not Itself Exist in a state of probability, but Exists in a state of definite Existential self-relation and Structure.

Again, it is not the Relational Structure of Existence that is probable, i.e., it is not the particular way Existence is structured in relation to Itself through relation to Itself into a particular Relational Structure that is probable; rather, it is only the way that a particular second level Relational Structure can function in the creation of physical experience that is probable, since any second level Relational Structure has the potential to create opposite physical experiences, depending upon the relational orientation established between the Individual and the Reality, only one of which can be created and apprehended by an Individual, or a related Individual, in any one moment, and which of the opposite experiences will be created as a result of the relation occurring between the Individual and the Relational Structure cannot be known prior to the establishment of some direct or indirect relation between the Individual and the Relational Structure that is functioning in the creation of a physical experience. Put another way, the potential for the creation of different physical experiences rests in the second level of Reality, but the second level of Reality does not Itself Exist in a state of physical potentiality, but rather Exists in a state of Existential Actuality, which state of Existential Actuality functions as the basis of all physical potentiality, because it functions as the basis of all that is apprehended as physical experience and so of all that is referred to as physical reality.

What has been demonstrated so far is that the phenomena that lie at the heart of quantum theory, i.e., wave-particle duality, quantum uncertainty, quantum non-locality, the probabilistic nature of the wavefunction, and the collapse of the wavefunction, can all be understood to have as their basis the experiential process, i.e., the way that physical experience is created as the product of some relation of Existence to Itself, which process includes the inviolable limitation that naturally and unavoidably arises in the Individual creation and apprehension of physical experience, owing to the necessity of the Individual's involvement in some relation in order to create whatever it is the Individual is apprehending as physical experience, which necessary involvement then makes impossible that Individual's simultaneous involvement in any relation that is mutually exclusive of any relation in which they must already be involved in order to create what they are already apprehending as physical experience. What will be addressed next is what all this means with regard to answering, as directly as possible, the question regarding the nature of quantum reality.

¹ Kaufman, S.E., [Existential Mechanics Part III: The Creation of Experience by the Individual](#), Journal of Consciousness Exploration & Research | November 2011 | Vol. 2 | Issue 9 | pp. 1366-1384

² Petersen, A., [The Philosophy of Niels Bohr](#), Bulletin of the Atomic Scientists Vol. 19, No. 7 (September 1963) pg. 12

³ Heisenberg, W., [Physics and Philosophy: The Revolution in Modern Science](#) (1958)