

The Possibility of Dimensional Mind-Body Dualism

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We present here a theory that describes, in some detail, a version of mind-body dualism that is compatible with the laws of established scientific theory. This description consequently establishes that such a dualism is not only a logical possibility but also a plausible scientific possibility. The theory presented may appropriately be called a dimensional mind-body dualism, because it postulates the existence of an additional dimension, the μ -dimension (grk. "mu"), that contains a mental medium that interacts with the special wave forms produced by the energy configurations of physical objects, such as brains. (Figure 1 is explained below.)

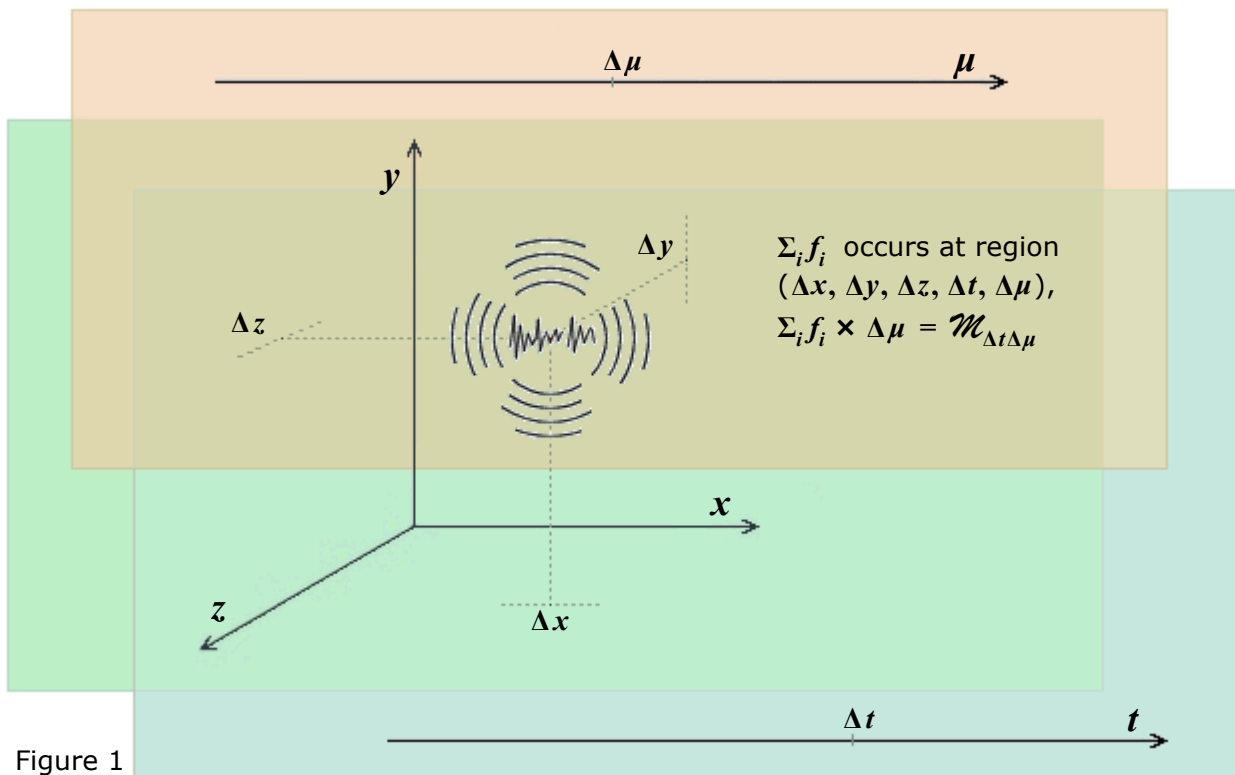


Figure 1

§1. This theory postulates the existence of the μ -dimension, an everywhere-accessible field that contains substantial points of mental-energy, that is co-extensive with all of physical space and time, but one that is a dimension, and is not itself a part of physical space, just as the dimension of time is co-extensive with all of physical space, but is not itself a part of physical space. One consequence of the dimensionality of the mental field is that our brain waves do not have to travel outward to reach the mental field. The mental field is present in its own dimension. All existing things may thus be identified by reference to their spatial, temporal, and mental coordinates: $(\Delta x, \Delta y, \Delta z, \Delta t, \Delta \mu)$, where Δ indicates that the coordinates have a discrete length. We may refer to this theory, as described throughout, as **T- μ** .

§2. The mental field is a medium of mental points that are each active in their own characteristic way. These mental activities consist of some change of mental energy occasioned by local influences affecting the points, and such activities have characteristic wave forms that in turn have their own effects. Over time, some mental points form groups by virtue of the history of the mental activities they have.

The new String Theory of contemporary science postulates the existence of different types of string elements that are the building blocks out of which all physical reality is built. Each such string is a super-ultra-small array of wave-activity that exists in ten or more dimensions. It is possible to consider that String Theory may also come to postulate the existence of special mental strings that make up the medium of the additional μ -dimension.

§3. The points of the mental field have a mental character that may be described as follows. When a mental point is active, a certain qualitative appearance occurs at that point, for example, a reddish patch \bullet appears at that point in the mental field. (Your present experience of a red patch is the present activity of points in your portion of the mental field.) There are different kinds of qualitative appearances, including points of color, points of sound, points of touch, points of emotional feeling. In general, qualitative appearances at points \mathbf{p} may be represented as consisting of two components, an awareness component A and a qualitative content component Q , or $\mathbf{p} = A(Q)$. Such points of awareness may also be referred to as points of consciousness. In addition, and in agreement with our ordinary experience, it is also proposed that the qualitative character of mental points is subject to degrees of vividness, ranging from great vivacity to extreme faintness. It is also allowed that some mental points are active without displaying a (noticeable) qualitative appearance.

This qualitative character is the key difference between mental points and physical points: mental points are inherently able to display their qualitative appearances, whereas physical points inherently lack anything that is in any way qualitative. For example, some mental points, or groups of mental points, have a qualitative character that is sensory, such as a feeling of warmth, or of pain, and others mental points have a qualitative character that is emotional or attitudinal, such as feelings of anger, enjoyment, shame, respect, annoyance, approval, and so on, (and, all these characteristics, when active, are able to have their own effects). But, no physical points, nor larger bodies of physical points, can be characterized by consciousness, or by feelings of warmth, or anger, or shame. The physical attributes of physical points cannot constitute anything qualitative. And in this particular regard, there is no fallacy of composition: Since each individual physical point is utterly devoid of anything qualitative, and since there is nothing else then that can introduce an item of quality, all complex and larger collections of physical points, such as our brains, must also be utterly devoid of anything qualitative.

Certain groups of mental points, under unifying forces, are contiguous with each other and develop into individual minds, as described below. The theory postulates that the awareness components of such contiguous points have the same uniform nature, that is, if Φ is a group of contiguous points $\mathbf{p}_1, \mathbf{p}_2, \dots, \mathbf{p}_n$ with the respective activities $A_1(Q_1), A_2(Q_2), \dots, A_n(Q_n)$, then the awareness components A_i all have the same uniform nature: $A_1 = A_2 = \dots = A_n$. The group Φ thus has the activities: $A(Q_1), A(Q_2), \dots, A(Q_n)$. Importantly, such contiguous groups are thus characterized by a single form of awareness.

§4. Mental points have a relational property of reflexion, as follows. There are special mental points that are dedicated solely to reflecting the activity of other mental points. Call these mental points, reflexion points. We may suppose that each non-reflexion mental point \mathbf{p} is associated with a unique reflexion point \mathbf{p}° , such that, if point \mathbf{p} is active with, say, the appearance of a reddish patch, then its reflexion point \mathbf{p}° is active with the appearance of that activity with the appearance of that reddish patch. This may be represented here as the relationship: whenever $\mathbf{p} = A(Q)$, then $\mathbf{p}^\circ = A(A(Q))$.

When $\Phi = A(Q_1), A(Q_2), \dots, A(Q_n)$ is a group of contiguous non-reflexion points, Φ is accompanied by a matching set of reflexion points, $\Phi^\circ = A(A(Q_1)), A(A(Q_2)), \dots, A(A(Q_n))$. This is an important result. It is in virtue of the point-wise-defined reflexion relation that portions of the mental field can be said to be self-conscious. Again, since physical points lack both an awareness factor and a qualitative content factor, physical points, singly or in groups, must lack self-consciousness as well.

§5. The mental field has special mental points that function as memory points, in the sense that they retain a copy of the activity of other mental points. Mental memory always involves groups of mental points. There is, therefore, a bifurcation of memory: a non-qualitative physical memory in the brain, and a qualitative mental memory in the mental field. Suppose some bodily sensory interaction **S** causes some (what must be, non-qualitative) physical activity **P** in the brain. This brief non-qualitative activity **P** in the brain in turn causes both the momentary occurrence of a corresponding qualitative mental activity $A(Q)$ in the mental field as well as the permanent formation of a physical non-qualitative memory $m(P)$ in the brain. The mental activity $A(Q)$ in turn causes the formation of a permanent mental qualitative memory $m(Q)$ in the mental field.

Figure 2 represents the indicated relationships, where '»' is used to contrast the momentary occurrence of the activities in question to the permanent formation of the corresponding memories $m(P)$ and $m(Q)$ that were created, later to be momentarily reactivated.

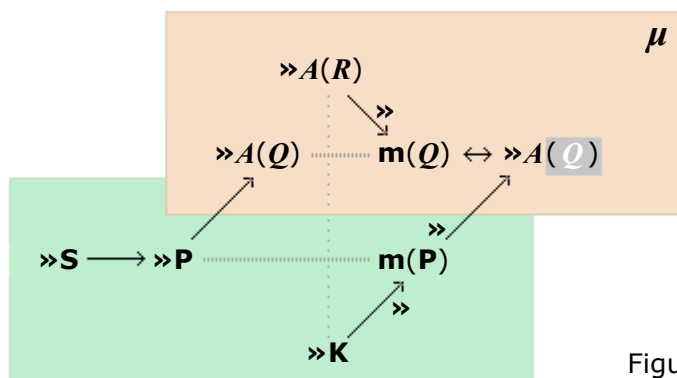


Figure 2

Figure 2 also reveals the ambiguity in what can cause the activity of some mental memory of an earlier activity $A(Q)$ that had been caused by some brain activity **P**. The cause can be the reactivation of the physical memory $m(P)$, caused by some present brain activity **K**, based on some physical similarity. Since such reactivation is an activity in physical space, the corresponding mental effect will then occur in the mental field. But, the cause can also be the reactivation of the mental memory $m(Q)$, caused by some present mental activity $A(R)$, based on some mental similarity. A third possibility is that both these reactivations together cause the remembrance, when **K** causes $A(R)$. Figure 2 illustrates yet one more consideration. The bifurcation of memory is not actually a duplication of two sorts of memory: the difference between them is profound. When a physical memory point is activated, nothing further happens in that physical space beyond that physical activity. In particular, nothing happens within that physical space that is anything like remembering, simply because remembering is a qualitative activity that can only occur in the mental dimension. By contrast, when a mental memory point is activated, something else does happen in the mental field: a new appearance occurs with an awareness of a (diminished) qualitative content.

The qualitative and reflexive character of mental activity may introduce even more differences in the mental field, including other differences in mental memory. But there is one other difference between physical memory and mental memory that is both important and unexpectedly available. When the physical body dies, physical memory and its momentary mental effect must cease, and no trace of any such physical memory remains. By contrast, the postulate of mental memory points implies that certain individual portions of the mental field have their unique embedded mental histories, and since mental points have their existence independently of physical objects, these individual portions of the mental field, along with their individual mental histories, will continue to exist when the associated physical bodies die. The memory postulate thus provides a much sought-after desideratum: a continued existence with a continued identity. What survives after death is not some irrelevant, unfamiliar spirit that takes our place. What survives after death is a mental being identical to what we are now.

§6. Mental points support a structural property of conjunction, whereby a certain group of points p_1, p_2, \dots, p_n , becomes linked together as a unit $p_1 \wedge p_2 \wedge \dots \wedge p_n$, and by means of which they are active in unison. The operation of conjunction has various results in the mental field, including a unifying role in the formation of individual minds within the mental field (as we discuss below), and including also the formation in memory of an apparatus for conceptual thought. Regarding the later, when conjunctions are formed in memory, they transform mental points that have simple conceptual content into units that have complex conceptual content. With further elaboration, conjoined mental points can be shown to support a substantial conceptual repertoire. Again, there is a double formation of conjunctions: the qualitative conjunctions that arise in the mental field and the corresponding non-qualitative conjunctions that arise in the brain.

§7. Mental memory points also support a dynamic, relational property of connection, which is a sequential activation relation $\Phi \rightarrow \Psi$ formed among groups of mental memory points Φ and Ψ , whereby, if the points Φ become active in their characteristic ways, then the points Ψ also become active in their characteristic ways. For example, when certain sound memory points are activated, as a memory of thunder, then certain visual memory points will also be activated, as a memory of lightning.

The activation of connections also involves a relational property of similarity activation, whereby the similarity of the activity of one mental non-memory point to a mental memory point will activate that mental memory point, which in turn will activate the connected mental memory points. (Such similarity activation is not an independent postulate, since it derives as a general effect from the existence of wave forms produced by active mental points.)

Again, there is a duplication of qualitative connections that arise in the mental field with corresponding non-qualitative connections that arise in the physical brain. Many mental connections are learned from experience, and many others arise as the structural result of formed conjunctions.

An important consequence of the postulates of mental conjunction and mental connection is that when a portion of the mental field so arranged, it forms a dynamic organization of points whose activity is self-sustaining within the mental field. (Certainly, the exact same consequence is claimed by materialists for the self-sustaining allegedly mental activity of the brain based on conjunctions and connections among its neurons.) The mental field, therefore, as we have described it, is capable of providing special portions of the mental field that are dynamic organizations of mental points, with self-sustaining mental activity, that have a continued existence after death, with a continued identity of consciousness and memory.

§8. Certain groups of points in the mental field constitute individual minds. These portions have, depending on levels of complexity, characteristics of awareness, self-consciousness, memory, and thought, as was outlined above. Importantly, such portions have a special unity. This unity is initially induced in the mental field by the field's receptivity to the special influence of an external physical body, namely the brain, that acts on that portion of the mental field. Individual minds once formed, continue to develop over time, primarily under the external influence of their associated physical body, and they will achieve a mental development that appropriately corresponds to the biological limitations of the body. Minds that are complex may be capable of further development under the additional internal influence of their own mental capacities, giving rise to advanced mental abilities, such as, making fair decisions, appreciating beauty, and making intentional designs.

It must be supposed our brains first begin to extend their influence on the mental field at the time that they themselves first come into being, and as they continue to grow in complexity, the associated individual minds grow in complexity as well. Although the mental field is eternal (in the way that physical space is eternal), individual minds have a beginning in time. And certainly, the origin and growth of individual minds in the mental field may be as ordinary as the origin and growth of living bodies in physical space: Through specific physical processes, small pieces of scattered matter are continually appropriated from physical space

and are combined into living, growing bodies. In an analogous manner, activated bits of the mental field are appropriated for union with the developing individual minds.

It is worth mentioning here what this theory does not propose in regard to the existence of individual minds. The present theory does not propose that the mental field is a realm of pre-existing, ready-made, individual mental beings (possibly with thought and memory) that at some later point in time somehow become united with individual physical bodies whose minds they then become. That would be a different theory. Rather, minds are gradually created over time by the intrusion of physical bodies into the mental field, and such continued interaction with the points of the mental field gradually forms for each growing mind the complex mental character that it will achieve.

§9. The mental field constitutes a medium capable of interaction with the objects of physical space by means of resonance effects, in the following manner. Physical objects have physical energy configurations that have characteristic wave forms. In particular, the incessant neural activity of our brains generates wave forms f_i from each part d_i of the brain, whose total effect is the summed wave form $f^+ = \Sigma_i f_i$. Importantly, according to the wave principle of Superposition, summed wave forms always preserve the identity of each of the components wave forms, so that, in this case, the summed wave form f^+ preserves the identity of each of the components wave forms f_i . What this means, then, is that at each moment of time the summed wave form f^+ is an exact record of all the activity of the entire brain, a record from which the activities of the various parts of the brain are passively reconstructed in a resonating medium.

The key part of the present theory is that the mental field of the μ -dimension is a medium that at every moment is able to resonate with the summed wave forms f^+ , with the result that various component wave forms f_i have such resonance, and in this way, at every moment, various activities in the brain create a mental counterpart in the mental field. It is this component of the theory, that there is an inter-mediate mechanism of resonance, that explains how the mental dimension interacts with the physical dimension.

As a corollary to this, the effected resonances in the medium of the μ -dimension themselves generate other configurations in the medium, and with the participation of its own embedded resources, the mental field produces waves forms f_k that resonate back to create neural activity in the physical brain. Resonance is a two-way relation: the brain, through wave forms that find resonance, affects the mind, and the mind, through wave forms that find the same resonance, affects the brain. This theory instantiates a familiar interactionism (and provides a refutation of epiphenomenalism): The individual mind thinks and makes conclusions and decisions, and, through the forms of these operations in the medium of the mental field, causes wave form activity f_k in the brain, that brings about the intended bodily actions.

§10. Figure 1 displays the overlay of the spatial, temporal, and mental dimensions. It also shows how the physical brain interacts with the mental dimension. The spatial dimensions are represented by the x , y , and z axes, with the three dimensional space colored a pale light green. The dimension of time, colored a pale light blue, is represented by the t axis. Together these four dimensions constitute physical space, and the location of all physical objects in this physical space is represented by a specification of their spanned coordinates along the four axes: $(\Delta x, \Delta y, \Delta z, \Delta t)$. The mental dimension, here colored a pale light tan, is represented by the μ -axis. Let us say that an active brain of some physical body is located at a physical coordinate $(\Delta x, \Delta y, \Delta z, \Delta t)$. The summed wave form $\Sigma_i f_i$ of the brain's activity emanates from this location, as is represented by the circular vibrating wave form in the center of the diagram. This wave form intersects and interacts with (as represented by \mathbf{x}) the μ -dimension at the affected portion $\Delta\mu$, inducing at that time a mental activity $\mathcal{M}_{\Delta t \Delta \mu}$ in the mental field.

§11. The theory asserts that the mental dimension is able to produce neurological activity in the brain. On the other hand, the common scientific view is that only neuro-physiological processes can be the cause of brain activity, so that the scientific view seems to contradict the

proposed theory. A closer look, however, shows that there is no inconsistency between the proposed theory and the scientific view in question. The neuro-physiological processes at issue can be enumerated as follows. (1) There are internal, neurological processes originating in the brain itself that cause further neurological activity, such as, for example, the brain processes that can control our moods, or the brain processes that control singing a familiar song. (2) There are external, physiological processes originating in the body that cause neurological activity, such as, for example, the physiological process of burning one's hands, or the physiological process of seeing something in a well-lit room. Categories (1) and (2) are what most people point to as neuro-physiological processes that cause neurological activity in the brain, and if the neuro-physiological processes at issue were limited to categories (1) and (2), then the indicated contradiction would arise. But there is a third, well-recognized category as well. (3) There are special, external processes originating neither in the brain nor in the body that cause neurological activity, such as, for example, the direct stimulation of neurons with electrical prods during brain surgery. The present theory belongs to this third category: There are special neurological processes, that have an external origin in the mental field, and that have a direct effect on the neurological activity of the brain, by generating wave forms f_i that resonate in the brain, as described above. No laws of established scientific theory are violated by this proposal.

§12. Appropriately, the dimensional-intersection of the physical world with the μ -dimension produces gradations among things much along the lines that we expect, including that rocks and trees have no minds, and that animals and people do have minds. The brains of more advanced sentient beings (animals and human beings) have special complexities with corresponding special energy configurations that other physical structures do not have. These special energy configurations have corresponding resonances in the μ -dimension, and in this way, these sentient beings create mental correlates of themselves in the μ -dimension. Things such as rocks are incapable of producing wave forms that find a resonance in the mental-dimension, and the wave forms produced by the brains of slugs endow them with precisely the kind of minds that we all take slugs to have. From this perspective, it seems plausible that all artificially intelligent machines, such as the most advanced super-computers, are incapable of having minds. The wave forms produced by such artificially intelligent devices probably resonate in the μ -dimension very much in the way that the falling rain resonates there. In this theory, the presence of an expert computer program is severely irrelevant. On the other hand, this theory may be able to accommodate the existence of strange and unusual, extra-terrestrial minds, if the mental and physical requirements of such postulates are consistent with the theory, as well as with the laws of established scientific theory.

§13. What is brain activity like? Most people would say that brain activity is the immediate cause of the visual, auditory, tactual, and all experiences that people have, to the extent that without the occurrence of such appropriate brain activity, people cannot have any experiences of any kind. And, such brain activity is the sum of the individual activities of each of the many billions of individual neurons, where each such activity consists of a repeated discharge of minuscule amounts of builtup energy. Such discharged energy is thereby passed on to other connected neurons, where such energy collects to build up such charges in those neurons for subsequent discharge. But, again, what is that activity like? The answer must be disturbing: That activity is like nothing that we have ever experienced. It is utterly alien to us. The varied colors and sounds and feelings that necessarily characterize our experience are nowhere to be found among the colorless, soundless, unfeeling, charging and discharging neurons. This has always been the verdict of established scientific theory. Anti-dualism holds that all reality is physical reality, and consequently, that everything that is mental is ultimately completely physical. It follows then that anti-dualism is accompanied by a skeptical predicament: it must either deny the reality of the character of our experience (that is, deny that we really experience color, sound, warmth, and so on) and thus deny the very foundation of our rationality, or else it must accept an accusatory, far-reaching ignorance regarding it. The dualism

of the present theory avoids this predicament.

§14. We present a detailed example from language. What, according to the theory, happens when one person hears another person say something? Consider this situation: Mind μ -A is thinking the concept (dog). He wants to inform mind μ -B of that fact and therefore says the word "dog". Thereupon, mind μ -B hears the word "dog" and because of that, thinks the concept (dog). All this can happen only in the mental dimension. Something also happens in the physical dimensions, but those things are mostly unknown, except in so far as we understand them by a presumed and misleading analogy with what occurs in the mental dimension.

What are the pieces that belong to this situation? There is an individual mind μ -A in the mental field that is the dualistic counterpart to brain A in the physical world. There is also a mind μ -B that is the counterpart to brain B. With respect to the activities mentioned, these two minds have certain permanent mental structures and undergo certain momentary events. Mind μ -A mainly contains:

1. the concept (dog), with its characteristic wave form μ - f
2. the word unit ["dog"], with its characteristic wave form μ - w
3. the structural connection between the word unit ["dog"] and the concept (dog)
4. the speaking structure [speak], with its characteristic wave form μ - s
5. the particular speaking structure [speak "dog"], with its characteristic wave form μ - $(s + w)$
6. the momentary activations of these structures, so indicated by "+":
 - +(dog), $+\mu$ - f
 - +["dog"], $+\mu$ - w
 - +[speak], $+\mu$ - s
 - +[speak "dog"], $+\mu$ - $(s + w)$

Mind μ -B has much the same kinds of items, except that mind μ -B is engaged in hearing and not speaking. In Figure 3 below, the items in mind μ -B are distinguished from the items in mind μ -A by the added prime mark '. This method of prime marking emphasizes both the numerical difference and the required similarity between the contents of the two minds.

Characteristic wave forms are the unique wave forms generated by the activity of permanent (i.e., once they are made) mental structures, very much in the way that structures such as tuning forks generate their unique sound waves when they are struck. With respect to the activities that are considered here, such structures are concepts and the structures for speaking and hearing words that are associated with concepts.

Concepts are complex mental structures consisting of (i) a central definitional component that generates the characteristic wave form of the concept, (ii) a connected set of learned concept relations, (iii) a connected set of memories, (iv) a connected word unit, if any. When concepts are activated they generate and broadcast their unique wave forms. Concepts also themselves become activated when they are subjected to a wave form that is characteristic for them. For example, the activated concept (dog), due to its definitional component, generates the special wave form μ - f that is characteristic of the concept (dog), and conversely, the occurrence of the wave form μ - f causes the activation of the concept (dog).

The speaking and hearing structures for words are dualistic structures with one half existing in the mental dimension and the other half existing in the physical world. On the mental side, words have an experienced appearance, and in that manner they pervade our mental life. But more importantly, words have meanings, and they are the tokens that represent our understanding of everything. This meaning relationship consists of individual mental word units being structurally connected to individual concepts, such as the connection of the mental word unit ["dog"] to the concept (dog). On the physical side, word units are complex physical structures of hearing and speaking, for the implementation of physical word tokens by the human body, to produce and receive sound waves in the external physical environment, by speaking and by hearing. Such physical tokens and structures are completely

unknown to people, except in so far as scientists are able to study them indirectly as silent and invisible physical sound waves in the form of mathematical wave equations and graphical line representations for waves, and except in so far as we understand them by a presumed and misleading analogy with words as we experience them in the mental dimension.

On both the mental side and the physical side there are characteristic wave forms generated by the speaking and hearing structures when they are active. For example, on the mental side is the structure [speak], for speaking particular words, together with the particular word unit ["dog"], both with their characteristic wave forms $\mu-s$ and $\mu-w$. Together these structures form the specific speaking structure [speak "dog"], with its characteristic wave form $\mu-(s+w)$. On the physical side are some exactly corresponding structures [uvw], ["hjk"], and [wbh], with their corresponding characteristic wave forms s , w , and $(s+w)$. An important part of the present theory is that the mental dimension and the physical dimensions interact with each other through the characteristic wave forms that they share. Corresponding characteristic wave forms are such that the occurrence of the one on the one side causally parallels the occurrence of the other on the other side. In this sense such corresponding characteristic wave forms are inter-dimensionally equivalent.

We are now in a position to describe the complex process of how mind $\mu-B$ came to think the idea (dog), when mind $\mu-A$ had such a thought and proceeded to express it. The entire process is represented in Figure 3. An outline follows.

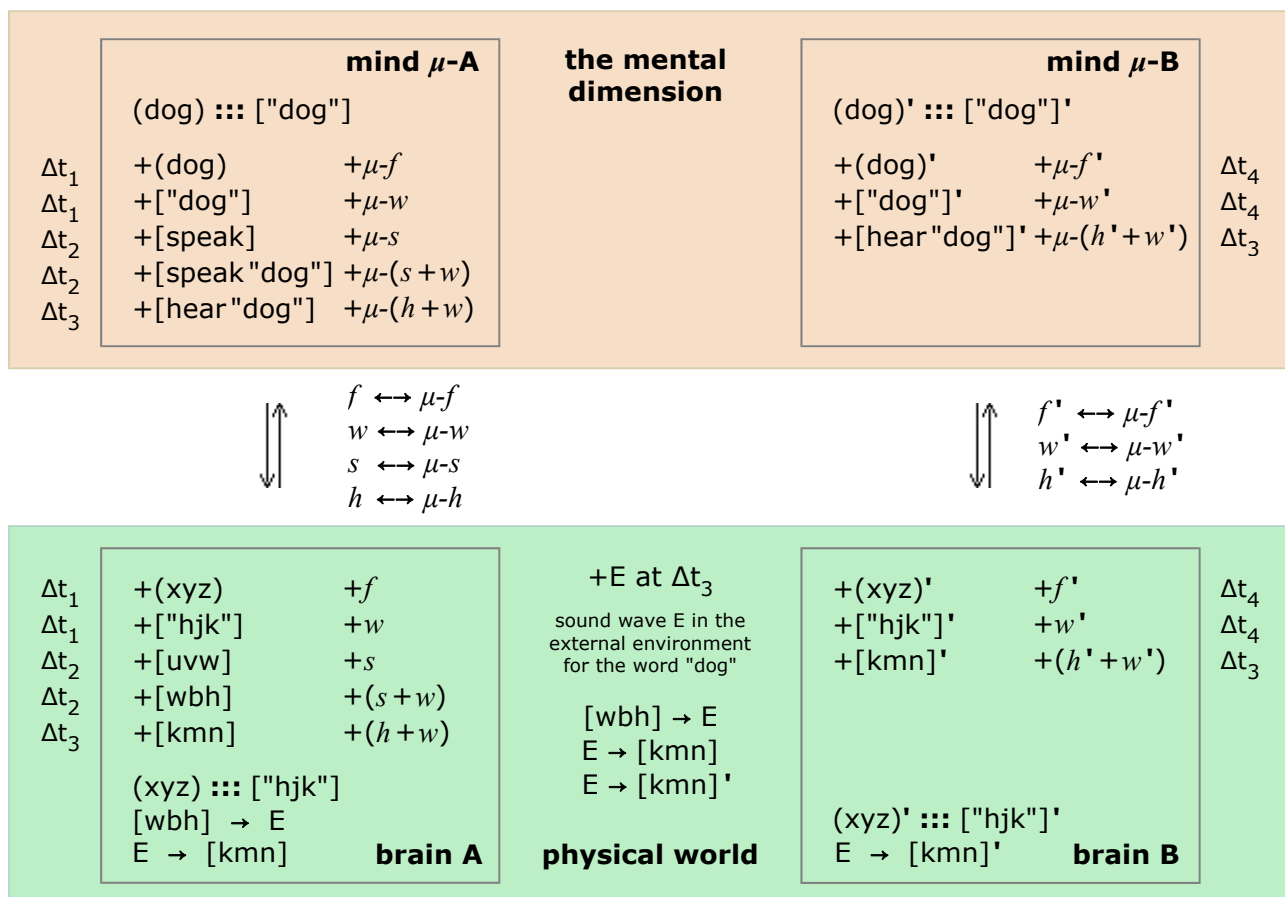


Figure 3

An important idea here is that while the mental and physical dimensions causally interact with each other, so that the activity of the one has a causal effect on the other, each domain is also self-sufficient in so far as their own activities are sufficient to produce their own effects in their respective domains. Normally there is a uniform parallelism between the two domains, with

each side both producing its own development and also reinforcing such a development in the other. Here is an outline of the steps involved in this process.

1. At time Δt_1 mind μ -A thinks the concept (dog), the wave form μ - f occurs, and by its connection to the concept (dog), the word unit ["dog"] is activated, as is its wave form μ - w .
2. At the same time Δt_1 , causally parallel, the physical wave form f occurs, and the physical concept (xyz) is active in brain A, and by its connection with this physical concept, the physical word unit ["hjk"] is activated, along with its wave form w .
3. At time Δt_2 the structure [speak] is activated in mind μ -A, with its wave form μ - s , which together with the activated word unit ["dog"] cause the complex mental structure [speak "dog"] to be active with the compound wave form μ - $(s + w)$.
4. At the same time Δt_2 , causally parallel, the physical speaking structure [uvw] is active in brain A, with its physical wave form s , which together with the active structure ["hjk"] with its wave form w cause the physical speaking structure [wbh] to be active with compound wave form $(s + w)$.
5. At time Δt_3 the activation of the physical speaking structure [wbh] causes the body of brain A to generate a sound wave +E in the external environment for the word "dog".
6. At the same time Δt_3 in a reverse reaction, the sound wave +E causes the body of brain A to activate the physical hearing structure [kmn] for the word "dog", causing the compound wave form $(h + w)$ to occur in brain A, and thus causing the hearing structure [hear "dog"] to be active in mind μ -A, along with its wave form μ - $(h + w)$.
7. At the same time Δt_3 the sound wave +E causes the body of brain B to activate the physical hearing unit [kmn]' for the word "dog", causing the compound wave form $(h' + w')$ to occur in brain B, and thereby causing the hearing structure [hear "dog"] to be active in mind μ -B, along with its wave form μ - $(h' + w')$.
8. At time Δt_4 the activation of the physical hearing unit [kmn]' causes the physical word unit ["hjk"] to be active with wave form w' in brain B, which by its connection to the physical concept (xyz)', causes the concept (xyz)' to be active along with its wave form f' .
9. At the same time Δt_4 , causally parallel, the activation of the hearing structure [hear "dog"] causes the word unit ["dog"]' to be active with its wave form μ - w in mind μ -B, which by its connection to the concept (dog)', causes mind μ -B to think the concept (dog)' with the occurrence of its wave form μ - f' .

§15. The theory has an important implication for the issue of the freedom of our decisions. When people engage in decision-making, their brains are active in a specific neuro-physiological manner that forms mental processes in the mental field. The postulates of the theory require that those mental processes will in turn engage the mental resources of the person's mind that are available in the mental field. Some of these resources are mental factors that are missing from the physical dimensions, including (i) awareness of qualitative features, (ii) self-consciousness, and (iii) whatever is generated by these in the mental field in the presence of the mind's intensional items. Included here are such qualitative items as feelings of shame, respect, and fairness, all of which can only exist in the mental field. And these physically absent qualitative items in turn deliver their effects in the brain, in the form of physical directives for action, as described above. The decisions that individual minds make, therefore, need not be, and mostly are not, something that the originating brain activity caused to happen. Many decisions that people make are not causally determined by events in physical space, and they are also not random occurrences (since they are caused by a mental determination). They are decisions, therefore, that can only be called free.

§16. This theory implies that minds once formed continue to exist when their associated bodies die. Such minds are disembodied minds. Of course, disembodied minds have no hands

to create or perform, no eyes to see, no ears to hear, no mouths to talk, and so on. So, it would seem that disembodied minds have very little that they are able to do. Can disembodied minds communicate with other minds? Perhaps, they can. This theory implies that communication in the ordinary case (with embodied minds) is done through the use of physical motions that cause resonance effects in the minds of others that in turn lead to conceptual understanding. The question thus becomes whether disembodied minds can cause those same resonance effects to occur in other minds, but without the use of the intermediate physical motions. It certainly seems plausible that the medium of the μ -dimension can itself provide a means whereby resonance effects can be transmitted in that medium amongst those of its portions that are able to generate and receive such resonances. And, if such portions of the field have a common conceptual repertoire linked to such mental resonances, then such proceedings would be genuine communication among those portions.

But there is one important factor in embodied communication: The physical interaction of the two bodies of the respective minds provides the special access to the minds that is necessary for communication. It is a simple fact for embodied communication that without a special embodied procedure for getting access to someone else's mind, communication with that mind cannot occur (with the one benefit that we can keep our thoughts a secret). This seems to indicate that the matter is the same for disembodied communication: a special procedure is required for getting access to someone else's mind, but in this case, a special mental procedure. Such a procedure need not be extraordinary, and perhaps as simple as some kind of a modulation of the transmission frequencies involved in communication to match the unique receptive capacity of the target mind. If that were so, then perhaps such modulations would also have to be learned, much like learning how to speak, again.

§17. A typical view about disembodied minds is that they "float" around and occasionally appear to other people. But, can disembodied minds move around at all? All minds, with or without bodies, do not belong to physical space, and all minds, therefore, cannot move, or be moved, from place to place. Minds with bodies do always possess a virtual movement, in the sense that when their bodies move, they have the moving experience that accompanies the physical movement. But such virtual movement is not the issue. The issue is whether disembodied minds are apparitions that sometimes appear to other people in different physical places, and the context for this problem is that generally, when people make an appearance to others, they do so by showing their body (by moving it into those other people's line of vision). The answer here lies in properly understanding what people see when they see anything at all, including an apparition. For people to see something means that their minds are visually active in a certain way, regardless of the physical circumstance that occasions such seeing. So, for a disembodied mind to make an appearance to another person, it would have to, in some manner, cause that other person's mind to be active with visual images of some bodily form. The issue, then, is the manner by which one mind is able to cause some visual appearance in another mind. The previously mentioned possible mechanism for disembodied communication may also be applicable here: a modulation of the visual transmission frequencies to match the unique visual receptive capacity of the target mind may provide a special visual access to that mind. (Given the absence of the strong physical visual contact, it would be plausible to suppose that all such visual projections would take the form of translucent, ephemeral, ghostly appearances.)

§18. From an evolutionary point of view, one can see the great evolutionary advantage that accrues to physical species that adapt to the potential of μ -dimensional interaction. It may be a worth-while project to consider how an adaptation to the potential of μ -dimension interaction has contributed to the course of biological evolution.

§19. We consider here an important modification of the theory, namely, that the mental field is not a part of an extra μ -dimension, but that instead, the mental field is a part of ordinary physical space. Here, the mental field continues to be a medium of substantial mental points, and under concrete implementation, the modified theory thus holds that individual minds are

collections of substantial mental points that occupy the physical space in the vicinity of the neurons of our brains. We may refer to the theory so modified as **T-3D**. What can be said, then, about the nature of these mental points within theory **T-3D**? Additional hypotheses will be needed to specify further results. But one must also consider the basis for rejecting the hypothesis of the μ -dimension.

Two desiderata are relevant here: conceptual simplicity and experimental constraint. The desideratum of conceptual simplicity requires that complex hypotheses are to be avoided where simpler hypotheses are sufficient. It may be observed that it is not always easy to determine, in specific cases, whether simplicity is achieved when all considerations are taken into account. The desideratum of experimental constraint requires that hypotheses are to be investigated by explicit experimentation, and only conclusions that are supported by such experimental results may be accepted. It should be noted that this method is limited in its scope of application to such matters as permit of experimentation, so that mathematics, for example, is excluded. This method, therefore, has the potential of begging the question with respect to hypotheses that entail the inapplicability of the experimental method.

The modified theory based on the desideratum of conceptual simplicity, **T-3Ds**, would claim that it is a simpler theory to both (a) reject the existence of a separate mental dimension, and (b) assert instead that individual minds (with their substantial mental points) have their location in physical space, than it is to (c) assert that these substantial mental points exist in a separate mental dimension. But the conceptual simplicity that is gained for a theory that deals with items that are in ordinary physical space, instead of in a special mental dimension, becomes a corresponding conceptual complexity for the theory in understanding how something that is mental, with non-physical properties of awareness and quality, can have a location in physical space. Moreover, there is a greater conceptual complexity in understanding how something that is located in physical space can nevertheless avoid being discovered by experimentation. When all considerations are taken into account, it may be a conceptually simpler matter to postulate a special mental dimension. The theory **T-3Ds** is accompanied by a significant degree of mystery.

The modified theory based on the desideratum of experimental constraint, **T-3De**, has significant consequences. The more basic theory **T-3D** holds that individual minds are collections of substantial mental points that occupy the physical space in the vicinity of the neurons of our brains. To date, the only relevant substantial items that have been experimentally discovered to be in the vicinity of the neurons of the brain are the neurons themselves. So, the theory **T-3De** augmented with its strong experimental constraint, together with the experimental results acquired to date, draws the conclusion that the substantial mental points that form individual minds are identical to the neurons that make up the brain. So, it is clear that the theory **T-3De** is a form of anti-dualism, more specifically, a form of the majority position known as non-eliminative materialism. The skeptical predicament that accompanies all anti-dualism, as mentioned above, applies with its second alternative to the theory **T-3De**, namely, that the theory must posit a far-reaching and permanent ignorance regarding the conscious and the qualitative aspects of our experience—which is serious accusation against a theory that is based on experimental constraint.