

Anomalous Mind-Matter Influence, Free Will, and the Nature of Causality¹

George Williams

Independent Researcher

Abstract: This paper proposes a framework that supports both free will and anomalous mind-matter interaction (psychokinesis). I begin by considering the argument by the physicist Sean Carroll that the laws of physics as we understand them rule out psychokinesis (and other modes of psi), and find his claims problematic, in part due to misunderstandings of arguments borrowed from David Hume. I proceed to consider a more dispositional notion of causality (in contrast to one characterized by universal and necessary laws) which is more hospitable to both psychokinesis and free will. I then incorporate recent work from the philosophy of mind and science to arrive at a framework that supports real volition and psychokinesis, which are intimately linked. This approach is fundamentally dispositional but grounded in an ontologically prior field of awareness and potentiality. I also consider that the regularities (or causal natures) we observe in our physical world are ultimately supported by teleological “intentions” within a nonlocal, mind-like quantum ground.

Keywords: causality, psychokinesis, PK, consciousness, free will, Dispositionalism, quantum mechanics.

Highlights

- Arguments from the physicist Sean Carroll and others that our understanding of the “laws of nature” rule out the possibility of psychokinesis are flawed, in part because of misunderstandings of David Hume’s arguments.
- Characterizing the causal nature of the world through dispositions provides a more favorable view to psychokinesis (and free will) than positions favoring necessary and universal laws.
- I link a version of causal dispositionalism established at the level of quantum mechanics with the notion of a quantum ground that is the base of conscious experience and the potentialities underlying our world.
- This framework is consistent with both the data on psychokinesis and our experience of free will, which are intimately linked.

¹Address correspondence to: George Williams, Ph. D., gwilliams@gmail.com

- Instead of fixed, universal, necessary laws, the regularities and stable relations we observe in our world are supported by teleological “intentions” of a nonlocal, mind-like ground of potentiality.

Can anomalous mind-matter interaction, also known as psychokinesis, be reconciled with our understanding of causality? Many conventional scientists are highly skeptical, as it is the case with most categories of psi. Even some parapsychologists, such as May et al. (1995), have registered strong reservations against such an interpretation. However, in this paper, I wish to consider a framework that supports the possibility of psychokinesis, as well as genuinely free will. I will begin with an examination of our more conventional notions of causality, a crucial lynchpin for our scientific understanding, and spill over into the fundamental question of free will. Deterministic-based views of the world seem difficult to reconcile with free will and psychokinesis. Later I will discuss an alternative framework for causality that will allow both volition and anomalous mind-matter interaction.

Carroll’s Argument Against Psychokinesis

The physicist Sean Carroll has argued that we should dismiss the evidence on psychokinesis (he uses the term telekinesis) as well as other forms of psi, based on our current understanding of the “laws of nature.” These arguments can be found on Carroll’s blog (2008), as well as his recent book, *The Big Picture* (Carroll, 2016). As a physicist who specializes in quantum mechanics and cosmology, Carroll has authored three books intended for a wide audience and therefore has significant influence outside of his field. Recently, the psi skeptics Reber and Alcock (2019) and Pinker (2021) cited Carroll to back up their own arguments against psi. Further, Carroll (2021) deployed a similar argument regarding nature’s “laws” to attack proposals by some philosophers that consciousness may be fundamental in some sense. By fundamental, I mean that consciousness is not emergent from non-conscious physical particles, but rather an aspect or



characterization of the world at the most basic (fundamental) level. In sum, Carroll attacks both the psi data in general and psychokinesis in particular, as well as the idea that consciousness may be fundamental by claiming that these would be inconsistent with our current understanding of the “laws of nature,” about which we should place great confidence. Due to his wide influence, and because I believe his arguments are representative of many contemporary thinkers on science, I wish to focus on Carroll’s arguments.

Carroll (2008) first made the argument on his blog: “...while there are certainly many things that modern science does not understand, there are many things that it does understand, and those things simply do not allow for telekinesis, telepathy, etc.” Although he uses the term “telekinesis,” I use the term “psychokinesis” here to refer to anomalous mind-matter interaction. Carroll then proceeds to present a relatively brief overview of the known forces (such as gravity) and the particles that constitute our world. He explains simply that psychokinesis is virtually impossible because our current knowledge of the particles and forces that comprise our world is sufficiently strong to rule out any anomalous mind-matter interaction.

However, some physicists have argued that a more cautious view is warranted, given the significant gaps that remain in our understanding of the world. Physicist Bernard Carr (2021), in a response to Reber and Alcock’s (2019) claim that the psi data violated known “laws of physics,” noted that we are not close to reaching a “final theory of physics” and thus are not in a position to rule out anomalous findings. Similarly, physicist Brian Josephson (2022), in response to Pinker’s (2021) dismissals of the psi data, has argued that advances in science sometimes requires that we fundamentally revise our models of the world.

Hume’s Argument Against Miracles

In *The Big Picture*, Carroll (2016) repeats the argument that he made on his blog. And like many psi skeptics, he also borrows from David Hume’s argument *On Miracles*. He noted that Hume

considered the question of how we should treat claims of miraculous events, defined as “violation of the laws of nature.” His answer was Bayesian in spirit: we should accept such a claim only if it would be harder to disbelieve it than believe it. That is, evidence should be so overwhelming that it would strain our credulity more to deny it than to accept that the laws we thought governed the world have in fact been violated. The same holds for psychic phenomena: as long as the evidence in favor of them is weaker than our evidence in favor of the laws of physics (as it surely is), our credence in their existence should be extremely low. (p .157)

Using Hume’s argument, Carroll noted that the evidence gathered in physics laboratories that support our current understanding of the laws of physics is overwhelming. Carroll’s notion of the “laws of nature” is central to his dismissal of the psi data, particularly psychokinesis. In *The Big Picture*, he associates the “laws of nature” with the patterns discoverable by methods of science and empirical investigation. And throughout his book, he appears to use the phrases “laws of nature” and “laws of physics” interchangeably (as perhaps is common). Recently, Reber and Alcock (2019) take these “laws” as well-established mathematical relations developed through experiments in physics. And the view that the “laws of nature” are ultimately based on these relations arguably poses a strong challenge regarding our ability to reconcile the psychokinesis data with scientific understanding. Further, the necessary or deterministic nature of these laws supports the view of causal closure, which entails that our minds have no ability to cause action through will.

But I believe that Carroll and other psi skeptics get two things wrong about Hume. First, Hume’s argument *On Miracles* targets religious miracles, such as those found in religious scripture, not experimental findings gathered under controlled conditions. Hume’s main argument targeted the unreliability of religious testimony, which he argued was fatally undermined by the sense of passion and wonder evoked by such accounts as the dead rising from their graves (Williams, 2019). Reliable testimony, according to Hume, should be based on more common and sober accounts. Second, Hume argued against the position that the “laws of nature” are necessary or involve connections that could be mathematically characterized. His argument on the world’s causal nature has been extremely important and influential, and I will take some space to summarize it.

Hume famously examined the nature of cause and effect based on sense impressions acquired during experience. According to Hume, our true knowledge on “matters of fact” must be based on sense impressions only, not a priori intuitions about the world. Concerning causal relations between various objects, he noted that all we truly see are the regularities between such objects, such as moving billiard balls striking other balls and forcing them to move. We do not observe the causal relations themselves. Thus, we cannot characterize the causal nature of the world beyond regularities. As he put it: “All events seem entirely loose and separate. One event follows another; but we never can observe any tie between them. They seem conjoined, but never connected” (Hume, 2007, p.54).

Thus, Hume viewed the “laws of nature” as only summaries or systemizations of the regularities that occur in the world. He rejected the view that nature’s “laws” are necessary or can be characterized completely through mathematical formulations. He also considered whether the patterns of regularities of our world would continue to hold over time. He noted that no such regularities persisting over time meet our sense

experience. He concluded that we may characterize causal relations, based on repeated observations, only in a probabilistic sense, and we cannot presume that the regularities we observe from data derived from a given set of objects and circumstances can be used to characterize or constrain the regularities for a very different set of objects, environments, or set of circumstances.

Let us turn now to Carroll’s use of Hume’s argument to dismiss the psi data. First, such data, generated over decades across diverse laboratories, have followed modern procedures of controlled conditions and peer review, and this departs considerably from Hume’s characterization of religious miracles. Modern controlled procedures have been designed to rule out the unreliable, subjective factors that concerned Hume. Carroll makes no mention of the meta-analysis recently summarized by Cardeña (2018) on various categories of psi, but his argument seems to imply that the laws of physics revealed by experiments in physics laboratories are sufficiently strong to overwhelm the meta-analyses of decades of such psi research. In a recent interview, he stated that his confidence in this understanding justifies simply ignoring reports of the evidence (Broderick & Goertzel, 2015).

Thus, Carroll appears to believe that psi phenomena (such as psychokinesis) remain outside the boundaries of our current scientific understanding. Of course, it is also the case that anomalies have occurred periodically in scientific history that required an alteration of the scientific theories for that time. Simply dismissing those historical anomalies as impossible miracles that violated nature’s “laws” would undoubtedly have hindered scientific progress. It is therefore crucial to distinguish the anomalous (with respect to our current views) from violations in the “laws of nature.”

With that in mind, we can note that the experimental psi data, unlike the experiments in physics, focus on the existence of anomalous shared information between different individuals and their environments. This in turn touches on the nature of

consciousness, which in many respects remains mysterious. The heart of many skeptical arguments is that the mathematical equations established in fields such as physics and chemistry can be extrapolated and applied to constrain what results should be acceptable in very different domains of inquiry. But as noted above, Hume provides no basis for extrapolating the regularities obtained from a particular domain in physics into very different domains that attempt to investigate shared information through consciousness.

It seems doubtful that Hume's arguments provide the resources to block out or rule out acceptance of the psi data, and his reasoning removes the basis for simply claiming we fully understand the "laws of nature." Exactly what such causal or natural laws are remains an ongoing debate among philosophers of science. Carroll's view, that strict mathematical laws determine how all events in our world unfold, appears to rule out not only psychokinesis but also our ability to exercise free will. A truly deterministic world might be expected to unfold according to mathematical rules going back to the ultimate origin, the Big Bang. But let me consider further the nature of these laws.

Consciousness, Quantum Mechanics, and Context Dependency

We might consider how quantum mechanics, which raises a number of interesting questions, impacts this discussion. First, its inherently probabilistic nature suggests that we might avoid a world where all events simply unfold deterministically. Does this suggest a channel through which free will and/or psychokinesis might operate? Notably, much of the literature on psychokinesis involves quantum processes. However, Carroll rules out this possibility. According to Carroll (2021), the probabilistic nature of quantum mechanics represents merely random outcomes from the appropriate probability distributions (p. 23).

But both quantum mechanics and consciousness remain poorly understood. Currently, there is no consensus around an interpretation for quantum mechanics. Similarly, philosophers of mind are far from arriving at a settled theory of consciousness. Currently, many working in philosophy of mind are exploring explanations of consciousness where some degree of sentience may exist at the subatomic level. At this stage, ruling out any possible connection between the probabilistic nature of quantum mechanics with volition and consciousness appears premature. In particular, I believe that a considerable problem that Carroll ignores is the problem of context dependency in quantum mechanics.

As we discussed, Carroll has argued that our world in all its complexity ultimately rests on well-understood laws that are deterministic (or necessary) and universal. However, Cartwright (1983) has challenged this view and has noted that our knowledge of such laws has usually required very special laboratory conditions that are tightly controlled. Such "ceteris paribus" laws are understood as laws holding under special conditions. This raises the question of how we are to characterize those laws outside of the tightly controlled conditions of the physics lab.

We might assume independence of context regarding laws associated with classical physics. Newton's law of gravity and Maxwell's equations of electromagnetism do not contain parameters that change in different environments. However, context dependency is a well-known property for quantum mechanics, which implies that the experimental outcomes in quantum systems can be expected to hinge critically on the choice of what is measured as well as the details of the experimental setup.

To be clear what context dependency on the quantum level implies, consider a wave function that describes the spin of two electrons we can call Bill and Tom. Expression (1) shows the spin of each electron can be either spin up or spin down. However, the two electrons are entangled, so that if one is observed to be spin up, the

other will be spin down, or vice versa. The parameters α and β represent the Born probabilities concerning which electron spin states will ultimately be observed.

$$|\psi\rangle_{\text{Bill, Tom}} = \alpha (|\uparrow\rangle_{\text{Bill}} + |\downarrow\rangle_{\text{Tom}}) + \beta (|\downarrow\rangle_{\text{Bill}} + |\uparrow\rangle_{\text{Tom}}) \quad (1)$$

The wave function is placed within the Schrödinger equation, which in turn describes the evolution of the quantum system, electrons Bill and Tom, but notice that the parameters α and β are not pinned down to specific values, unlike the parameters within equations from classical physics. These Born probabilities are obtained by averaging the results of many quantum experiments. And these probabilities are not constant across different kinds of experimental environments; the observed experimental outcomes depend critically on all aspects of the experimental setup, as well as the choices made on what to measure.

But does quantum context dependence truly impact the macro world, outside subatomic processes? As it happens, yes. The emerging field of quantum biology has identified quantum happens, yes. The emerging field of quantum biology has identified quantum properties in various biological processes. Marais et al. (2018) have recently presented a current overview of how energy transport processes, such as photosynthesis and enzyme catalysis, exhibit quantum mechanical properties. They also cited preliminary theories and data supporting quantum properties associated with aviary migration, olfaction, and cognition. In time, this growing field will likely add to our understanding on how quantum processes occur in the biological world.

In another recent paper, Carroll (2021) makes the case that the established “laws of nature” rules out taking consciousness as fundamental. However, he acknowledges that “particle-physics experiments typically examine the interactions of just a few particles at a time...” (p. 28). But biological systems exhibiting quantum behavior likely involve millions of particles, at temperatures and pressures considerably different from

particle-physics laboratories. Can we expect that the quantum behavior found in small particle experiments will extend and apply toward more complex, biological systems? While we can expect that the formalism of quantum mechanics applies across very different systems, the specific values of the Born probabilities, as well as the nature of entanglement between vast numbers of particles, are context dependent and will depend crucially on their environments. Much of our understanding on what Carroll terms the “laws of physics” is based on highly specialized laboratory environments that cannot be extended in a straightforward way where we have reason to expect the relevant system to be context dependent.

I will briefly take up Carroll’s (2021) argument against considering a more fundamental view of consciousness. As with his argument against psi phenomenon, Carroll argued that our impressive success in theory building (quantum field theory, in this case) presents a high bar that should discourage us from considering any radical change in our current understanding of the world, which he assumes would be required if we take consciousness as fundamental. However, while Carroll argues we should be able to explain consciousness through some process of weak emergence, he offers no hints of such a theory. Since there is no widely accepted theory on the table for either strong or weak emergence of consciousness, and because Carroll does not even cite any speculative attempts, his efforts to close off the possibility that a theory of consciousness may require something like new laws, or a more fundamental view of consciousness, fall short.

In addition, Goff (2021) replies to Carroll’s argument by noting that recent panpsychist approaches take consciousness as intrinsic to the physical world, and this move does nothing to alter the theoretical structure within physics, which in turn is based on experiments concerned with the extrinsic (outer) aspect of our world. I will take up the notion that consciousness may represent the intrinsic aspect of matter below.



To boil things down a bit, I highlight here two problems in Carroll's arguments, apart from the difficulties noted earlier regarding his interpretation of Hume. First, Carroll argues that the success of modern physics, especially quantum field theory, should discourage us from considering some alternative to our physicalist view of the world. However, the problem of consciousness, as well as the measurement problem in quantum mechanics, are at least two areas that suggest important gaps in our understanding of the world's ontology. Secondly, Carroll's arguments do not recognize the context dependency of quantum mechanics, and thus likely miss how quantum behavior in biology and other areas may be poorly characterized from experiments involving very few particles. In the next section, I will move forward from Carroll's arguments and consider how we might characterize causality in ways that might support genuine free will and psychokinesis.

The Dispositional View of Causality

So far, I have argued that our current scientific framework does not obligate us to accept necessary and universal laws, as Carroll argues (and as Hume himself rejected). The context dependency of quantum behavior strongly suggests we cannot characterize quantum behavior generally based on small particle experiments. I believe this opens the door for the possibility of free will and the sort of anomalous mind-matter interaction that the psi literature supports. To support free will and psychokinesis we must find a way to integrate consciousness with some notion of causality that in likelihood is different from both Hume's relatively meager view, based on regularity, and Carroll's more necessary and universalistic characterization.

Recently, some philosophers considering the metaphysics of causality have turned toward ways of characterizing the behavior of the physical world in ways that depart from both Hume and Carroll's more fixed version of laws. These characterizations have generally included such terms as dispositions, potentialities, powers, tendencies,

and capacities, often interchangeably. Going forward, I will (mostly) use the term "disposition," with the understanding that this might be synonymous with other terms. Disposition can be used to describe the behavior of an object that is under some condition or stimulus. For example, a vase has the disposition (tendency, capacity, etc.) to break when dropped onto a hard floor. A match has a disposition to burst into flame when struck on a rough surface. An interesting thing about dispositions is that they involve possibilities that we cannot pin down. Thus, we cannot be completely sure that the match will light or whether the vase will fracture. (And if the vase breaks, we cannot predict how many pieces, nor their size and shape.) The dispositional view of causality has become an important and influential position among philosophers of science (Bird 2007; Chakravartty 2007; Choi & Fara, 2018; Mumford & Anjum, 2011).

In their text on causality, Illari and Russo (2014) introduce the importance of dispositions or capacities in describing causal behavior within biological systems. They note that with respect to biological systems, there are few if any universal, exceptionless laws, but instead descriptions and models of particular systems (e.g., cells, organs, species) and properties such as dispositions, powers, or capacities is the appropriate way to characterize causal behavior for such biological systems.

A frequent example dispositionalists take from the medical literature is the established causal link between smoking cigarettes and lung cancer. The evidence leaves little doubt that smoking and lung cancer are causally linked. That said, it is not possible to determine whether one will develop cancer, no matter how many years of smoking or how much additional information we have about the person in question. Although a causal link between smoking and cancer is not in question, we cannot remove the uncertainty involved. All we can say is that various tendencies or dispositional features about people and their smoking habit are at play, and we cannot determine with certainty whether any given smoker will develop cancer.



Some may consider that describing the world in dispositional terms moves us away from a more mathematical and therefore elegant way to view the world. But even cases involving physical particles can be described in dispositional terms. For example, we can understand a negatively charged electron to have a disposition to repel other electrons. And a dispositionalist view should not discourage us from continuing to characterize causal relationships using mathematical formalism in physics and other areas, where it has proved so useful. A dispositionalist view may suggest, however, that some causal behavior cannot be completely captured in mathematical formalism. Later, I will suggest an example of this with respect to the quantum measurement problem.

Arguably, the dispositional approach is more general than a view characterized by universal, necessary laws. As Cartwright notes, the view that laws are rigid, necessary, or deterministic hold only under special circumstances. In addition to biology, dispositions are more useful for describing causal links in the areas of psychology and the social sciences. During busy traffic, I often experience a greater tendency to feel anxious, even angry. Such a description captures my emotional states in traffic in a way that would elude a more formal, mathematical framework. We also might note that human personalities are better characterized by tendencies and dispositions, rather than mathematical rules.

I further submit that the metaphysics of causality based on dispositions is much more hospitable to the notions of free will and psychokinesis than is the case with deterministic, universal laws. Advocates of dispositional frameworks have noted that such views are considerably more friendly to genuinely free will (Lowe 2013; Mumford & Anjum, 2018). But to genuinely make progress, I believe we need to bring in some notion of consciousness. However, first let me consider the dispositional nature of the world at the most fundamental level.

Dispositions and the Quantum View

The domain of quantum mechanics likely provides the best view of fundamental reality. Mumford and Anjum (2018) have recently examined the nature of causality within quantum mechanics and make the case for causal dispositionalism. The inherently probabilistic and contextualistic nature of quantum mechanics is arguably very attractive to a view that the world is fundamentally dispositional. They follow Heisenberg's (1958) recommendation for incorporating Aristotle's notion of real potencies into their metaphysics of causality. With this more Aristotelian approach, they argue that causation within our world is best understood in terms of irreducible tendencies (potencies) contributed from large numbers of influences, rather than more classical frameworks that entail necessity and predictability. Thus, the wave function, expressed in terms of the potential states of quantum entities that are in turn entangled with the potential states of other entities, appears to reveal a world fundamentally supported by tendencies and contingencies, jointly and holistically connected.

Mumford and Anjum (2018) characterize Heisenberg's notion of real *potentia* as "unformed energy," which they view as similar to Aristotle's *materia prima*. They quote Heisenberg (1958, p. 160):

All the elementary particles are made of the same substance, which we may call energy or universal matter; they are just different forms in which matter can appear. If we compare this situation with the Aristotelian concepts of matter and form, we can say that the matter of Aristotle, which is mere 'potentia', should be compared to our concept of energy, which gets into 'actuality' by means of the form, when the elementary particle is created.

Heisenberg here suggests that some fundamental substance underlies all elementary particles, which he calls "universal matter" or Aristotle's "potentia."

Heisenberg's proposal that something like Aristotle's notion of "potentia" should be incorporated into the ontology underlying quantum mechanics has gotten little traction among physicists, perhaps because this potentia is by definition not instantiated and hence unobservable. However, recently Stapp (2017) and Kastner et al. (2018) have followed Heisenberg's proposal that this real potentia characterizes the superposition of the quantum states as described by the orthodox (Copenhagen) quantum interpretation, which is the case with Mumford and Anjum (2018) as well. According to this view, the quantum system remains in superposition of possible states until a measurement occurs and the wave function "collapses" into the experimental outcomes. Kauffman and Radin (2023) have also recently explored Heisenberg's notion of "potentia" within the orthodox quantum interpretation to account for the psi data.

However, I recommend a different direction for understanding this notion of potentia within quantum mechanics. Rather than characterizing the superposition of the quantum states as ontologically real, I suggest using potentia as a way of describing an ontologically prior (deeper) ground for our world. Arguably, we can associate such ideas as a fundamental substance underlying all particles, or Aristotle's universal matter, with the concept of the physical world's intrinsic aspect. As Kant and other philosophers have argued, we have good reason to believe that matter has a deeper or intrinsic aspect beyond what our observations and scientific methods can reveal. If we link this notion of quantum potentia with matter's intrinsic aspect, we are arguably led to consider something that serves as the ontological ground or basis of the particles that constitute our world. And we avoid the ontologically problematic notion of quantum superposition.

A Quantum Ground

Recall the simple quantum wave function (1) discussed above. I noted that the Born probabilities associated with electrons Bill and Tom, which tell us the likelihood of which

spin states will be observed, are not pinned down. In the example, these state outcomes are correlated (entangled) in spacetime in a way we currently do not understand.

Ismael and Schaffer (2020) make the case that an ontologically prior quantum ground is the best way to account for the nonlocal correlations between entangled states of entities. They prefer the term "nonseparable" rather than "nonlocal" to characterize the entangled correlations found in quantum mechanics. They and others note that the notion "nonlocal" is in greater tension with relativity (I prefer to retain nonlocal because that term is frequently used in the literature on psychokinesis and other modes of psi). On entanglement between entities, they noted that such correlations cannot be explained by causal connections between such entities because relativity rules out instantaneous causality in spacetime. Instead, such correlated behavior between entities suggests the presence of a common ground--beyond our spatiotemporal order--that coordinates the probabilities that characterize possible states. This coordination or influence between possible states is not described by quantum mathematical formalism. For them, this common ground establishes a metaphysical relation between relatively derivative entities, the particles that constitute our world, with an ontologically prior ground of the quantum system, which inhabits a high-dimensional space and is thus not confined to our familiar spatiotemporal order. The notion of a high-dimensional space is the basis for wave function realism, the position advocated by Ney (2020), Albert (2013), and others, that the extraordinary number of dimensions required by the wave function (due to entanglement) reflects an ontologically real, fundamental "space," ontologically prior to our familiar spatiotemporal order (see Carr, 2015, for another approach that considers additional or higher dimensions, using a framework comparable to string theory, that explores the connection between the mental and physical domains of reality in order to account for the psi data).

It seems reasonable that we link Heisenberg's notion of potentia, with Ismael and Schaffer's notion of a quantum ground, residing in a high-dimensional space of the wave

function. We might go further and characterize this ground as the intrinsic or ontologically deeper aspect of the material world, but perhaps this ground of potentialities, which coordinates the probabilities of quantum systems, also possesses the resources to guide the behavior of their subatomic particles. That is, this quantum ground may be something like a hidden variable that guides or influences which experimental outcome is observed. I will say more about this below.

This proposal has a number of attractive features. As noted earlier, dispositions are properties that lead to an outcome, depending on a particular action and the given circumstances, but our world arguably requires something more fundamental than just dispositions or tendencies. My proposed field of potentiality provides a suitable grounding entity. In addition, we arguably place Heisenberg's notion of potentialia on a stronger theoretical footing, as the quantum ground underlying and guiding the particles of our world, in a way where we avoid questionable ontologies such as quantum superposition and wavefunction collapse. There is a substantial philosophical literature that argues we have good reason to consider an ontologically deeper or intrinsic aspect of the physical world. Given the persistent measurement problems in quantum mechanics, attempting to find an interpretation that links with this philosophical reasoning of matter's intrinsic nature appears to hold promise.

Consciousness and a Ground of Potentialities

Going forward, I wish to consider how we might bring consciousness into the picture and thus have a framework for understanding anomalous mind-matter interactions, as well as free will. How do we bring consciousness into this notion of high-dimensional field of potentialities underlying our physical world? I will discuss two arguments that lead us in this direction.

Russellian Monism

Recently an important literature has resurfaced among philosophers of mind that suggests a link between the intrinsic, or most ontologically basic, nature of matter and consciousness itself. The position, often associated with Bertrand Russell, notes that our scientific understanding of the world is based on identifying structural and dispositional properties. Thus, scientific theories generally characterize the world in terms of structural or mathematical equations. However, Russell (and others) argued that such structural descriptions cannot fully describe all aspects of our world, such as the deeper or intrinsic aspect. But Russell also argued that the only real knowledge we have of an intrinsic element in our world is based within our own conscious experience. This has led the way for Russell and others to argue that the (ontologically deeper) intrinsic aspect of our world is the basis or ground of our conscious experiences (Russell, 1927; Alter & Nagasawa, 2015).

If we are sympathetic to the view that consciousness is fundamental in some sense and hope to fit it into the physical world, we might consider the quantum ground of potentialities (that I have been discussing) as Russell's notion of an intrinsic aspect, which therefore provides the basis for conscious experience. And linking matter's intrinsic aspect with the probabilistic tendencies that provide the foundation of our reality is a promising direction.

Under this view, conscious experience is rooted in a nonlocal field of potentialia underlying physical reality. Consciousness rooted in this inherently nonlocal, and therefore universal, field leads to a version of cosmopsychism, the position that the universe as a whole is conscious and all various conscious organisms are aspects of this cosmic mind. (This can be contrasted with constitutive panpsychism, the view that our conscious experience is somehow the product of combinations of micro-sentient particles.) Space does not allow me to consider in more detail how biological systems

interact with this deeper ground in a way that produces various kinds of conscious experience, but this appears to be a promising framework for exploring anomalous mind-matter interaction. The notion that our consciousness is ultimately rooted in a nonlocal, fundamental ground comprised of unified potential states, suggests that our minds can indeed influence quantum processes, as the psychokinesis literature suggests, assuming the mind has true volition. I turn to the question of free will next.

Dispositionalism as a Foundation for Experience and Will

I have noted above some of the attractive features of a dispositional view of causality, relative to necessary laws or Humean regularity, but such a dispositional view, which presents a world where some sort of stimulus leads to manifestation (dependent on context or circumstances), may leave us questioning the source of the stimulus or cause in a fundamental sense. Is every stimulus the result of a previous manifestation? Such a world might be consistent with a sort of determinism where free will has no place. Is there some fundamental source of causality? Perhaps the quantum ground, as an aware, nonlocal and unified field of potentialities, also provides a base for fundamental cause in some sense.

For William James (1911), attending to our direct experience of the world seemed to be a reasonable way to probe the fundamental nature of causality. As he put it,

the concrete perceptual flux, taken just as it comes, offers in our own activity-situations perfectly comprehensible instances of causal agency....If we took these experiences as the type of what actual causation is, we should have to ascribe to cases of causation outside of our own life, to physical cases also, an inwardly experiential nature. In other words we should have to espouse a so-called 'pan-psychic' philosophy. (p. 218)

James argued that if direct experience of our own volition is our only window into the nature of true causation, then we may have grounds for attributing such agency more broadly throughout our physical world. Importing this reasoning into the framework we explore here suggests that the quantum ground may be a source of agency as well as phenomenal properties.

Mørch (2020) has recently surveyed similar arguments from the history of philosophy that support the view that the only fundamentally dispositional properties we have acquaintance with are phenomenal properties, which in our experience we associate with agency and intention. She maintains that these arguments lead us toward considering fundamental causality in the world as mental and ultimately based on the expression of the world's underlying volition. Among the examples she presents in her survey (which includes the above James quote) is one from Schopenhauer (1966):

Only from a comparison with what goes on within me when my body performs an action from a motive that moves me, with what is the inner nature of my own changes determined by external grounds or reasons, can I obtain an insight into the way in which those inanimate bodies change under the influence of causes, and thus understand what is their inner nature. (p. 125)

By "inner nature" Schopenhauer was referring to the intrinsic aspect of the world. Thus, Schopenhauer argued something close to Russellian monism, but while also attributing will or agency to the intrinsic aspect of matter.

Ismael and Schaffer do not suggest that their proposed quantum ground possesses phenomenal resources (or volition). However, Mørch's survey of introspective arguments appears to lead us not only in the direction of a mind-like quantum ground, but also toward this ground as the source of causality. If we take first-person acquaintance with volition as our only direct evidence of fundamental causality,



attributing agency as the foundation of causality to this quantum ground appears to be a plausible step.

Quantum Interpretations

Assuming I am on the right track, what does this suggest concerning an interpretation for quantum mechanics? The various interpretations of quantum mechanics try to explain the measurement problem: the apparent transition from the wave function (a superposition of possible states) to the observed experimental outcomes. Ismael and Schaffer maintain that their proposal is neutral and that their quantum ground likely applies to some degree across all interpretations. However, I have noted earlier that their quantum ground has the flavor of a hidden variables approach. That is, something not referenced within the quantum formalism that nevertheless coordinates the tendencies and thus orchestrates the relations among all possible quantum states. If we accept an argument for a quantum ground outside our spatiotemporal order that coordinates the system's underlying probabilities, it is arguably a short step to propose that this same holistic influence of the quantum field also guides particles toward the experimental outcomes we observe as well. This result appears to be similar with Bohm's later work (Bohm, 1980; Bohm & Hiley, 1993), which also described an ontologically deeper ground existing in a high-dimensional space as hidden factor.

The direction I have been proposing also shares elements with Henry Stapp's interpretation of quantum mechanics. Stapp (2017), working primarily within the orthodox interpretation, attributed mind-like properties to the workings of the world that ultimately "chooses" the experimental outcomes from the more probabilistic wave function. Thus, Stapp argues that nature "chooses," within the constraints of the Born probabilities, a result that responds to the probing inquiries of the experimental observers (who also must choose). Stapp's work appears to explicitly invoke the notion of real volition in the

process leading to quantum outcomes. Also, as I discussed previously, Stapp (2017) accepted that the deep level of matter could be characterized as real potentialities.

What human consciousness does, according to ontologically construed orthodox QM, is to initiate, by its choice of a probing action, a response on the part of nature that actualizes some aspect of reality that was, until then, merely a potentiality. Thus our conscious efforts become causal players in the game of converting potentialities to actualities, and thereby influencing reality. (p. 72)

However, while Stapp's framework retains the dualistic structure of Copenhagen interpretation, I instead propose an ontologically prior field of potentiality or potencies as the quantum ground and intrinsic aspect of matter. This metaphysical and high-dimensional ground, outside of our spatiotemporal order of the physical world, directs (or chooses), in conjunction with our own choices, the behavior of the subatomic particles that constitute our world, without the notion of wave function collapse. Thus, while I borrow Stapp's notion of a mind-like domain of potentialities that "chooses" quantum outcomes, I follow Ismael and Schaffer's reasoning in favor of an ontologically prior quantum ground, rather than quantum superposition (with wave function collapse). Interpretations influenced by von Neumann hold that the quantum superposition represents a stage or process of the world where different possible states coexist until measurement triggers a quantum collapse that leads to experimental observations, but according to Russellian monism, our only acquaintance with any sort of intrinsic nature that might underpin our world comes from our direct experience. Given that no one experiences a quantum superposition, it appears that this is not something that characterizes the world's intrinsic aspect (in a Russellian spirit). I believe that the formalism of the wave function, depicting a probability weighted collection of possible states, is best interpreted as pointing us toward an underlying field of potentiality, outside our spatiotemporal order, which coordinates and guides the behavior of the subatomic world. While we do experience an aspect of this field of potentiality through our ability to



make choices, I submit that, despite the formalism of the wave function, the physical world we inhabit is simply not characterized by quantum superposition.

Teleological Intentions Within the Quantum Ground

However, arguably this framework has difficulty accounting for the regularity in the world's behavior that leads so many to characterize our reality as underpinned by fixed laws. That is, we might consider how nature simply "choosing" quantum outcomes (as Stapp argues) accounts for the stable and precise mathematical relations revealed by science. Perhaps something else is required beyond characterizing the activity of the world as expressions of nature's will or choice to account for such stability and regularity.

Recall that we began by considering the causal nature of the world, described by Carroll and others, as characterized by necessary, universal laws, typically expressed in mathematical form, but we noted that Hume's arguments, based on a more phenomenological approach to causality, deflated our ability to characterize the world's causal nature this way. Such doubts were confirmed when we considered the context dependency of quantum mechanics and the dispositional nature found in many domains outside of physics. We also considered phenomenological inquiries by James, Schopenhauer, and other philosophers that suggested our own experiences of will gave us insight on the world's fundamental causal nature. Such introspection arguably leads toward the possibility that fundamental causality is an expression of will or agency from world's deeper or inner nature, which is consistent with Stapp's interpretation.

I suggest we carry phenomenological inquiry one step further and add the notion of cosmic "intention(s)," which provide the foundation for the stable tendencies within the quantum ground. Here I use the word "intention" to mean directing attention to move toward some goal, rather than the notion of "aboutness" of mental activity. Introspection gives us some familiarity with our own intentions of various kinds. Forming intentions such as following a healthy diet, giving to charities, studying hard in school, influences the

dispositions that characterize our behavior, provided they have some importance or meaning so that we continue to maintain them. How might this apply with respect to an inherently nonlocal and mind-like quantum field? This introspection, if allowable, suggests that the stable regularities that characterize our reality might be conceivably based on intentions of a cosmic sort. Thus, the evolution of the universe may involve teleological processes that are purpose directed, as Nagel (2012) suggested.

Recently Goff (2018) has explored a view of cosmopsychism that I believe is consistent with this notion of cosmic intention. Cosmologists have noted that the universe appears to be fine-tuned, or implausibly calibrated, to support life. Current explanations on the table for this fine-tuning mystery include versions of theism as well as the multiverse, which Goff finds unsatisfactory. As an alternative, Goff suggests that a conscious universe possessing agency may have chosen to develop in ways hospitable to supporting life, in accordance with its own values. Goff is not suggesting an all-powerful God that simply creates life populated on worlds, but rather a conscious universe with agency, capable of choosing conditions over vast spans of time that are hospitable to life. This perhaps provides an interesting example for how an intention within cosmic mind might support the set of tendencies that govern our reality.

This reasoning suggests that cosmic intention(s), residing in an ontologically prior ground of mind-like potentiality, provides the basis for the regularities and behaviors that characterize our world. And given the vast scales of time and space regarding the universe, such cosmic intentions would by necessity be very stable, perhaps lawlike from our perspective. Cosmic and individual will continue to operate, but within the constraints of the ontologically deeper intentions of nature. Also, perhaps the success we have managing our own individual intentions hinges to a large degree on the congruency between our own intentions and the deeper teleological intentions of the universe, in some sense like someone swimming with the current will likely perform better than someone swimming against it.

Discussion

A key aim in this paper has been to provide some critical evaluation of arguments that dismiss the possibility of anomalous mind-matter interaction based on our understanding of nature's "laws." Alternatively, I have argued that recent developments that emphasize the dispositional nature of causality are considerably more hospitable to the psi data, as well as our notion of free will. Further, I attempt here to link a fundamental view of dispositionalism with consciousness through borrowing ideas currently on the table, such as Russellian monism and quantum holism. According to this framework, the properties and behavior of physical particles that constitute our world are ultimately characterized by dispositions or tendencies, and these in turn are anchored by a mind-like ontologically prior field of potentiality, which is capable of choice and forming intentions. And I submit that this framework is consistent with a genuinely free notion of will and the psychokinesis data.

However, I recognize invoking such notions as cosmic will or cosmic intention likely invites the incredulous stare. That said, we must remember some context concerning the persistent challenges and problems that remain for more conventional approaches. The persistent measurement problem in quantum mechanics implies that we remain ignorant of the world's deeper nature. Currently we are not remotely close to achieving a consensus view of consciousness, and many argue that materialistic explanations have no hope for succeeding here. In addition, it remains difficult to reconcile notions of genuinely free will with common views that the universe is deterministic or governed solely by mathematical laws. Of course, conventional theories heavily invested in physicalist assumptions are generally not hospitable to the psi data. The incredulous stare notwithstanding, I submit that my proposed framework has resources to address such challenges. Here, I attempt to flesh out what I believe this framework brings to the table, especially with regard to the psychokinesis data.

Accepting the world as fundamentally dispositional helpfully reframes the debate around psi. A frequent complaint from skeptics against the psi data is that the effects cannot be demonstrated on demand. Of course, the small effect sizes and wide range of sources for variability associated with most psychological (and parapsychological) studies make such demands questionable (Rosenthal, 1990). But if the behavior of the physical world is fundamentally dispositional, and not characterized by fixed laws, the basis for this argument falls apart completely. As I have discussed, there is no controversy or debate around the causal link between smoking and lung cancer, yet we cannot determine whether cancer will manifest for a given smoker, no matter how much we know about the smoker and other poor lifestyle choices she has made. In a world where causation is fundamentally dispositional, it is more reasonable in many cases to accept evidence of causal links in terms of tendencies, dispositions, or potentialities.

My framework also responds to a common criticism that physicalists make against non-physicalist proposals, such as panpsychism and neutral monism. Physicalists often argue that such approaches, devised with the goal of explaining inherently subjective qualia, fail to provide ways of making testable predictions. However, my framework of a quantum ground as an aware base of potentialities suggests a way to link conscious experience with action at distance. Recall our earlier discussion of Mørch's argument linking fundamental dispositionalism with mental causality. If this implies that our own agency is ultimately rooted in a nonlocal field of potentiality, we have a framework that is at least consistent with the anomalous mind-matter data on the table.

I now turn to this data. With his survey of meta-analyses on psi experiments, Cardeña (2018) presents a bird's eye view of the evidence on anomalous phenomena that includes telepathy, remote viewing, precognition, presentiment, and anomalous mind-matter interaction. While my paper focusses on the latter, I note that my proposed framework is consistent with all of these. A quantum ground that is the source of



phenomenal properties arguably permits the anomalous sharing of information consistent with the data for telepathy experiments. Remote viewing can be understood in a similar way, through our access with a nonlocal field of holistically linked potentialities at the base of our world. Precognition and presentiment can be understood in terms of our ability to access the world's underlying field of tendencies or potencies.

With respect to influencing physical processes, these include micro-psychokinesis (Bosch et al. ,2006), and the Global Consciousness Project (Nelson, 2015). These two mind-matter interaction methodologies use quantum processes to produce random streams of 1s and 0s. Micro-psychokinesis tests the ability of participants to influence the output through mental intention. However, Nelson's Global Consciousness Project investigates the influence of important global events (presumably via shared emotions of the population reacting to such events) on networks of random number generators.

A quantum ground characterized as an aware field of potentialities underlying our world is consistent with mental intention influencing the outcomes of random quantum processes. That is, mental intention presumably influences the field of potentialities fundamental to quantum processes. And this story requires agency. All this said, however, any sort of mind-matter interaction of this sort likely involves a larger number of factors, especially given the inherently entangled nature of this fundamental field. The relevant factors likely include characteristics of the sender, target, and environment. Given this, influencing physical processes at the quantum level in a substantial (and detectable) way may face higher hurdles than other modes of psi that involve only accessing information. This may reflect the generally smaller statistical significance associated with psychokinesis relative to other modes of psi, such as precognition and telepathy.

Nelson's (2015) Global Consciousness Project (GCP) explored the effects of significant world events on the output of a network of random number devices positioned

around the world. Specifically, the GCP investigates whether the output from these devices is influenced during times of important (perhaps global) events, such as the terrorist attack on September 11, 2001. Nelson's hypothesis is that the random output of these devices is influenced by a kind of resonance as large numbers of individuals respond emotionally to a given event. Of course, unlike the version of micro-psychokinesis experiments briefly described above, the populations presumably affecting these RNG devices have no knowledge of their existence. Nelson's GCP arguably deserves to be distinguished from the other modes of mind-matter interaction, possibly representing its own unique category. Cardeña's (2018) summary findings (presented in Table 2 from his paper) suggest that the effect size for the GCP is substantially larger than other modes of psychokinesis. Of course, the GCP does indeed seem to be something very different: relatively large groups of people sharing a common emotional reaction in contrast to single individuals attempting to influence an RNG device through mental intention. However, while the GCP may arguably be characterized as a different mode of psi than other psychokinesis experiments, it nevertheless appears to fit reasonably well into this proposed framework.

Cardeña (2018) also reports meta-analyses findings for anomalous influences on living systems. These included pooled experimental results for remote staring, mental facilitation on meditators, remotely influencing biological activity (such as electrodermal activity), and healing studies with respect to both human and non-human organisms (animals, plants, and in-vitro cultures). Statistically significant results are found for all of these. While my proposal involves a quantum ground, which I suggest works well with respect to micro-psychokinesis data, there is reason to think it is useful for explaining anomalous influence in biological contexts, given the emerging links between biology and quantum mechanics briefly discussed above. That said, much work remains for establishing the links between the sort of quantum ground I propose and biological structure for various organisms. We can also note that considerable contribution on the

dispositional nature of causality has come from the biological literature (Illari & Russo, 2014).

In addition to accounting for the laboratory data, my proposed framework suggests some intriguing possibilities for our lived experience outside the lab. I submit that viewing the world's causal nature in terms of fixed, necessary laws discourages a sense of deeper connection with others and our environment. Many aspects of our modern understanding, with its mechanistic views of causality, have most likely resulted in a greater feeling of separation and isolation. On the other hand, the framework I propose suggests a much deeper relation between ourselves and the world, where our expressions of will and intentions are perhaps interwoven within the deeper fabric of cosmic will and teleological nature. As I noted above, our ability to maintain or choose successful intentions in our lives is likely dependent on choosing intentions that are in some sort of agreement with the more foundational intentions at the root of our reality. Perhaps clairvoyant or precognitive faculties help enhance our sense of these underlying cosmic intentions. And perhaps our levels of engagement with the world are considerably more profound and meaningful than conventional thinking would lead us to believe. Although the data do not support X-Men level psychokinesis or telepathy, it does suggest we have some capability through intuition to better navigate the cosmic intentions operating at the deeper levels of our reality.

References

- Albert, D. Z. (2013). Wave function realism. In A. Ney & D. Z. Albert (Eds.), *The wave function: Essays on the metaphysics of quantum mechanics* (pp. 52–57). Oxford University Press.
- Alter, T. A., & Nagasawa, Y. (Eds.). (2015). *Consciousness in the physical world: Perspectives on Russellian monism*. Oxford University Press.

- Anjum, R. L., & Mumford, S. (2018). *What tends to be: The philosophy of dispositional modality*. Routledge.
- Bird, A. (2007). *Nature's metaphysics: Laws and properties*. Oxford University Press.
- Bohm, D. (1980). *Wholeness and the implicate order*. Routledge.
- Bohm, D., & Hiley, B. J. (1993). *The undivided universe: An ontological interpretation of quantum theory*. Routledge.
- Bosch, H., Steinkamp, F., & Boller, E. (2006). Examining psychokinesis: The interaction of human intention with random number generators—a meta-analysis. *Psychological Bulletin, 132*(4), 497–523. Doi: 10.1037/0033-2909.132.4.497
- Broderick, D., & Goertzel, B. (Eds.). (2015). *Evidence for psi: Thirteen empirical research reports*. McFarland.
- Cardena, E. (2018). The experimental evidence for parapsychological phenomena: A review. *American Psychologist, 73*(5), 663–677. [https://doi: 10.1037/amp0000236](https://doi.org/10.1037/amp0000236)
- Carr, B. (2015). Hyperspatial models of matter and mind. In E. Kelly, A. Crabtree, & P. Marshall (Eds.), *Beyond physicalism: Toward reconciliation of science and spirituality* (pp.227–273). Rowman & Littlefield.
- Carr, B. (2019). Blind watchers of psi: A rebuttal of Reber and Alcock. *Journal of Scientific Exploration, 33*(4), 643–660. Doi: 10.31275/2019/1693
- Carroll, S. (February 18, 2008). Telekinesis and quantum field theory. *In truth, on the atoms and the void*. <https://www.preposterousuniverse.com/blog/2008/02/18/telekinesis-and-quantum-field-theory/>
- Carroll, S. (2017). *The big picture: on the origins of life, meaning, and the universe itself*. Penguin.
- Carroll, S. (2021). Consciousness and the laws of physics. *Journal of Consciousness Studies, 28*(9–10), 16–31. [https://doi: 10.53765/20512201.28.9.016](https://doi.org/10.53765/20512201.28.9.016)
- Cartwright, N. (1983). *How the laws of physics lie*. Oxford University Press.

Chakravartty, A. (2007). *A metaphysics for scientific realism: Knowing the unobservable*. Cambridge University Press.

Choi, S., & Fara, M. (2018). Dispositions, In E. N. Zalta (ed.) *Stanford encyclopedia of philosophy* (Spring 2021 ed.), Stanford University. <https://plato.stanford.edu/archives/spr2021/entries/dispositions/>

Goff, P. (2018). Is the universe a conscious mind? *Aeon*. N. Retrieved from <https://aeon.co/essays/cosmopsychism-explains-why-the-universe-is-fine-tuned-for-life>

Goff, P. (2021). Putting consciousness first: Replies to critics. *Journal of Consciousness Studies*, 28(9-10), 289-328. <https://doi:10.53765/20512201.28.9.289>

Heisenberg, W. (1958). *Physics and philosophy: The revolution in modern science*. Harper & Brothers.

Hume, D. (2007) *An enquiry concerning human understanding and other writings*. (P. Millican, Ed.). Oxford University Press.

Illari, P., & Russo, F. (2014). *Causality: Philosophical theory meets scientific practice*. Oxford University Press.

Ismael, J., & Schaffer, J. (2020). Quantum holism: Nonseparability as common ground. *Synthese*. 197 (10), 4131-4160. <https://doi:10.1007/s11229-016-1201-2>

James, W. (1911). *Some problems of philosophy: A beginning of an introduction to philosophy*. Longmans, Green & Co.

Josephson, B. (July 9, 2022). Comments on Pinker's view of the paranormal. *Galileo Commission*. <https://galileocommission.org/comments-on-pinkers-view-of-the-paranormal-prof-brian-josephson/>

Kastner, R., Kauffman, S., & Epperson, M. (2018). Taking Heisenberg's potentia seriously. *arXiv preprint arXiv:1709.03595*. <https://doi:10.48550/arXiv.1709.03595>.

Kauffman, S., & Radin, D. (2021). Quantum aspects of the brain-mind relationship: A hypothesis with supporting evidence. *Biosystems*. <https://doi.org/10.1016/j.biosystems.2022.104820>

Lowe, E. J., (2013). The will as a rational free power. In R. Groff & J. Greco (Ed.), *Powers and capacities in philosophy: The new Aristotelianism*. Routledge.

Marais, A., Adams, B., Ringsmuth, A.K., Ferretti, M., Gruber, J.M., Hendrikx, R., Schuld, M., Smith, S., Sinayskiy, I., Kruger, J., Petruccione, F. & Grondelle, R. (2018) The future of quantum biology. *Journal of the Royal Society Interface*, 15 (148), 20180640. <https://doi:10.1098/rsif.2018.0640>

May, E., Utts, J. M., Spottiswoode, S. J. P., (1995). Decision augmentation theory: Toward a model of anomalous mental phenomena. *Journal of Parapsychology*, 59, 195-220.

Mørch, H. (2020). The argument for panpsychism from experience of causation. In W. Seager (Ed.), *The Routledge handbook of panpsychism* (pp.264-289). Routledge.

Nagel, T. (2012). *Mind and cosmos*. Oxford University Press.

Nelson, R. D. (2015). Implicit physical psi: The global consciousness project. In E. Cardeña, J. Palmer, & D. Marcusson-Clavertz (Eds.), *Parapsychology: A handbook for the 21st century* (pp. 282-292). McFarland.

Ney, A. (2020). Separability, locality, and higher dimensions in quantum mechanics. In S. Dasgupta, R. Dotan, & B. Weslake (Eds.), *Current controversies in philosophy of science* (pp. 75-89). Routledge.

Pinker, S. (2021). *Rationality: What it is, why it seems scarce, why it matters*. Penguin.

Reber, A. S., & Alcock, J. E. (2019). Searching for the impossible: Parapsychology's elusive quest. *American Psychologist*. <https://doi.org/10.1037/amp0000486>

Rosenthal, R. (1990). Replication in behavioral research. *Journal of Social Behavior and Personality*, 5,(4), 1-30.

Russell, B. (1927). *The analysis of matter*. Kegan Paul.

Schopenhauer, A. (1966). *The world as will and representation, Vol 1* (E. F. J. Payne, Trans.). Dover.

Stapp, H. P. (2017). Quantum theory and free will. Springer. <https://doi:10.1007/978-3-319-58301-3>

Williams, G. (2019). Should we accept arguments from skeptics to ignore the psi data? A comment on Reber and Alcock's "Searching for the impossible." *Journal of Scientific Exploration*, 33(4), 623-642. [https://doi: 10.31275/2019/1681](https://doi.org/10.31275/2019/1681)

Anomale Geist-Materie-Beeinflussung, Willensfreiheit und die Natur der Kausalität

George Williams

Zusammenfassung: In diesem Beitrag wird ein Rahmen vorgeschlagen, der sowohl den freien Willen als auch anomale Geist-Materie-Interaktionen (Psychokinese) unterstützt. Ich beginne mit einer Darlegung des Arguments des Physikers Sean Carroll, dass die Gesetze der Physik, so wie wir sie verstehen, Psychokinese (und andere Formen von Psi) ausschließen, und halte seine Behauptungen für problematisch, zum Teil aufgrund von Missverständnissen der von David Hume entlehnten Argumente. Ich fahre fort mit der Betrachtung eines eher dispositionellen Kausalitätsbegriffs (im Gegensatz zu einem, der durch universelle und notwendige Gesetze gekennzeichnet ist), der sowohl für Psychokinese als auch für die Willensfreiheit besser geeignet wäre. Anschließend berücksichtige ich neuere Arbeiten aus der Philosophie des Geistes und der Wissenschaft, um einen Rahmen zu entwickeln, der echten Willen und Psychokinese, die eng miteinander zusammenhängen, zulässt. Dieser Ansatz ist grundsätzlich dispositionell, basiert aber auf einem Bereich von Aufmerksamkeit und Potenzialität, der ontologisch vorgelagert ist. Ich vertrete auch die Meinung, dass die Regelmäßigkeiten (oder kausalen Eigenschaften), die wir in unserer physischen Welt beobachten, letztlich durch teleologische "Absichten" innerhalb eines nichtlokalen, geistähnlichen Quantengrundes unterstützt werden.

German translation: Eberhard Bauer

Influência Anômala Mente-Matéria, Livre Arbítrio, e a Natureza da Causalidade

George Williams

Resumo: Este artigo propõe um enquadramento que sustenta tanto o livre arbítrio quanto a interação anômala mente-matéria (psicocinese). Começo considerando o argumento do físico Sean Carroll de que as leis da física como as entendemos excluem a psicocinese (e outros modos de psi), e identifico suas alegações problemáticas, em parte devido a argumentos mal-compreendidos emprestados de David Hume. Passo a considerar uma noção mais disposicional de causalidade (em contraste com aquela caracterizada por leis universais e necessárias) a qual é mais receptiva tanto à psicocinese quanto ao livre-arbítrio. Em seguida, incorporo trabalhos recentes da filosofia da mente e da ciência para chegar a uma estrutura que apoie a volição real e a psicocinese, que estão intimamente ligadas. Essa abordagem é fundamentalmente disposicional, mas fundamentada em um campo ontologicamente prévio de consciência e potencialidade. Também considero que as regularidades (ou naturezas causais) que observamos em nosso mundo físico são, em última análise, sustentadas por "intenções" teleológicas dentro de um fundamento quântico não local, semelhante à mente.

Portuguese translation: Antônio Lima

Influencia Anómala Mente-Materia, Libre Albedrío, y la Naturaleza de la Causalidad

George Williams

Resumen: Este artículo propone un marco teórico que apoya tanto al libre albedrío como a la interacción anómala mente-materia (psicoquinesis). Comienzo considerando el argumento del físico Sean Carroll de que las leyes de la física tal como las entendemos descartan a la psicoquinesis (y otros modos de psi), y encuentro que sus afirmaciones son problemáticas, en parte debido a malentendidos de argumentos tomados de David Hume. Procedo a considerar una noción más disposicional de la causalidad (en contraste con una caracterizada por leyes universales y necesarias) que es más hospitalaria a la psicoquinesis y al libre albedrío. A continuación, incorporo trabajos recientes de la filosofía de la mente y de la ciencia para llegar a un marco que apoya la volición real y la psicoquinesis, que están íntimamente ligadas. Este enfoque es fundamentalmente disposicional, pero se basa en un campo ontológicamente previo de consciencia y potencialidad. También considero que las regularidades (o naturalezas causales) que observamos en nuestro mundo físico se sustentan en última instancia en "intenciones" teleológicas dentro de un terreno cuántico no local similar a la mente.

Spanish translation: Etzel Cardeña