Hypothesis

The Brain Interpretation of Quantum Mechanics

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Abstract

For a glorious century now there have been interpretations of quantum mechanics to explain how everyday reality emerges from quantum reality. What they didn't have a hundred years ago, which we have today, is detailed information about how the brain works in constructing reality. This paper contends that this information must be taken into account when making quantum interpretations, and does just that by providing a new interpretation of quantum mechanics: The Brain Interpretation. Our everyday reality is the brain's interpretation of quantum reality that appears in everyone's consciousness.

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1. Introduction

What is our universe? Fully understanding reality has been the quest of philosophy and science. Physics does a good job at explaining physical and material reality. The best theory in physics, and the most fundamental, Quantum Field Theory, says reality is truly quantum in nature, and that means special effects: wave/particle duality; superposition; decoherence; entanglement; tunnelling. But how then does the classical material world, the world we've known our whole lives, that we see on a daily basis—in which there's really none of this going on—come out of that? Currently, we don't know. So, we have many best guesses formalized as interpretations and/or theories, examples: Copenhagen, Multiple Worlds, Quantum Bayesianism, Consciousness, and many more. Why is it taking so long to solve this problem? Some, like Leonard Susskind and Sean Carroll, who both think it's an embarrassment, contend that they haven't really focused on it—no, instead they adhered to (N. David Mermin's infamous guidance) "shut up and calculate." But I think it runs deeper than that. That it's an excuse, and that even if they'd been focusing on it this whole time that a solution would more than likely be still nonexistent. Why? Because key, but very obvious, variables would still be hidden or refused to be acknowledged: brain and mind. I believe the problem is tantamount to another problem in science (and philosophy)—one that's been around for many centuries—the mind/body problem, which has gotten much attention in the form of consciousness studies. I have here what I believe is the correct interpretation of quantum mechanics: The Brain Interpretation of Quantum Mechanics (BIQM). It says that our everyday reality is the brain's interpretation of quantum reality, and that the results of this interpretation appear in all of our consciousnesses as the material universe itself.

2. Distinctions

Classical reality is the brain's natural interpretation of quantum reality. Let's lay out some important distinctions 1) I have mind as distinct from brain/matter. Getting meta about the interpretations of quantum mechanics, we can ask what are they—ontologically? They are stuff of the mind, products of the mind 2) The interpretations of quantum mechanics are one thing and the interpretation of quantum reality is another. The interpretations of quantum mechanics explain how the classical world arose from the quantum world. The interpretation of quantum reality is done automatically by our brain, however interpretations of quantum mechanics, i.e., theories, are done

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intentionally with our minds 3) There is a difference between what's physical and what's material, and 4) that between quanta and matter. Physical means space and time and forces and energy and states; material you see and touch, contact with your senses. Quanta is physical and described by quantum sciences (which include atomic physics, chemistry, cell biology); and matter, which of course is material, is described chiefly by classical physics, material physics and other disciplines. Basically, matter you can see; quanta you can't. I will elaborate more on these distinctions throughout the paper.

What is matter and exactly where it begins is debatable. Does it begin with atoms, the building blocks, or the building blocks of the building blocks—quarks and electrons? Are fields matter? Many people think quanta is matter. But quanta can range from a force-carrying particle to maybe even a cell. My definition is if it's not behaving quantumly, then it is matter.[1] One could be more specific and list everything material that there is and say that (the appearance of) classical material reality is the brain's interpretation of force-carrying particles. You could say this with photons. Photons are really the only things that we see directly, and they are ultimately invisible. Photons allow us to see the mind's interpretation of matter—the brain interprets the quanta, the mind interprets the matter. Photons are the windows of physical reality.

Every day, ordinary macroscopic classical stuff is the stuff we see with the naked eye with 20/20 vision. If you can see it with a normal naked eye, it's classical; if you have to whip out a microscope to see it it's quantum. Matter composes the classical material universe, which is matter in my opinion and not the building blocks of matter. Classical universe is the stuff you can see with your own two (healthy) eyes; it includes cosmic objects also, with the assumption that we can move into eyesight range. Matter is the brain's innocuous, automatic, constant interpretation of quantum reality, which I consider to be below 20/20; or aided vision. The brain can interpret what the eyes cannot see. You could say that I'm saying that matter at the surface is matter; the stuff below the surface is quanta. Nature has this cutoff for a reason. If you don't agree with this distinction about matter, then you can just say that the brain's interpretation of microscopic matter is macroscopic matter. All that's "out there," is quantum phenomena—and that also considers your own body and brain.

This theory, BIQM, is that the brain creates material reality, that's matter and the entire material universe. I am not stating the platitude that the brain materially/literally, as with its own hands and tools, or a whole human being, created what we conceive as the material universe, which also includes the brain. What the brain does is create a projective reality, where it seems as though matter is predominant. In fact, materialists contend it's all that there is. Obviously, the whole material universe, according to our standard intuitions, isn't materially/literally in all our brains, it, of course, wouldn't fit. Perhaps the information, which is supposed to be just as good, could. In other words, matter is theoretical and abstract. Quanta are not matter. But quanta are physical. Now off the top of your head you may be wondering why I would have as the most fundamental thing quanta (and fields) when they are like barely physical—little itty-bitty specks and several thin sheets. Theoretically, particle quanta could get smaller, but in physical reality it may be the end of the rope. But all that has to do with the extent of the brain's interpretation. It's a case of our minds exceeding our brains. Among the experts, quanta are ambiguous: For example, many think quanta are just mathematical (Wolchover, 2020) [1]. It's because the brain sees one thing and the mind another. Often, the mind doesn't see what the brain sees and the brain doesn't see what the minds sees. (Total reality is both.) And that's because the mind is different from the brain, and the brain from the mind.

Quanta doesn't change, turn into, or otherwise transform into matter. Quanta stays quanta forever and always. Matter doesn't objectively exist, including brain matter, rather it collectively, subjectively exists, there you could call my position "eliminative idealism." You point to it—it's here, there, everywhere—but you only need to metaphorically point to one spot: Your head. It's all right there. And everyone's is relevantly the same. Which is why the laws of physics are the same for everyone. This constant of consciousness presupposes the laws of physics. And then the laws of

[1] One thing that's certain is matter are not force-carrying particles, such as photons.

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physics may support consciousness. Here, I'm not talking about your material head that exists in external 3-dimensional reality, but your consciousness which exists in, contrary to theorists debating whether it's unidimensional or multidimensional, internal 0-dimensional reality.

3. The Brain's Interpretation of Quantum Reality

Brains make interpretations, and all of them are unconscious. Through sensation and perception, they process, what we would call, information. Here's a leading consciousness neuroscientist, Anil Seth (2019) [2], on reality: "The deeper truth is that perception is never a direct window onto an objective reality. All our perceptions are active constructions, brain-based best guesses at the nature of a world that is forever obscured behind a sensory veil." Instead, perception is a direct window onto the reality the brain has created. The world that is "forever obscured," that he's referring to, is, of course, according to BIQM presented here, the quantum world. The eyes see what the brain presents them.

His main point is that reality is a "controlled hallucination" (Seth, 2021) [3]. We see, and continuously see what our brains are continuously showing us. And they don't show us the real/actual physical world.[2] But our brains don't make it up out of thin air, it isn't imaginary—no, they do so by interpreting what's already there: pre-existing quanta and fields.

Then Seth goes on to say the actual "visual hallucinations are fractures in the 'Matrix,' fleeting glimpses into this deeper truth," (2019). That's where one can see, can catch a glimpse of, quantum reality. They see more than one thing at once at the same place at the same time.

And it is the brain reality, the one of matter, that we seem to live in, that almost all of science—except for quantum sciences—studies. One can just say the brain interprets weird behavior as normal behavior. So that means cells, molecules, atoms and particles—and that means the cell biology, chemistry, atomic physics and, of course, quantum mechanics, are all quantum sciences. There's quantum sciences and classical sciences.

At the outset I asked what is our universe. And already we have our answer. Our universe is the brain's interpretation of quantum reality. To be more specific: The material universe is the material brain's interpretation of physical quantum reality.[3]

Note here I have not said the trivial following: That the material universe is the physical quantum reality. I have not made that reduction. Rather the brain is part of the equation. The material universe is an interpretation, an interpretation made by brains. The interpretation of matter is done by minds.

Brain interprets quanta; we get the material world in our consciousnesses where we, ourselves, try to understand it with our minds.

3.1. Brain Interpretation of Quantum Mechanics

We've always been curious about reality. Things took quite a turn (similar to the irreversibility of object impermanence) when quantum reality was discovered. There was no turning back. We got classical reality and now underneath we got this, quantum reality, how does this become that? How does the material world arise out of the quantum world? That is the subject of the interpretations of quantum mechanics. These interpretations are conscious acts. The theories that account for matter are not themselves matter. And what role does a human observer have? Does the observer bring reality into being? It has nothing to do with the observer, as a person, a self. That is the measurement

[2] Why? I think it has to do with protection/security; so, we can't destroy it.

[3] I would be arguing that the appearance, alone, of the universe is the brain's interpretation of quantum reality (perhaps strictly photons), however, the appearance is the universe. An object to be an object has to have at least three basic criteria: what it looks like; what it does; what it's made of (that's appearance, composition, behavior, respectively). The universe looks a certain way, appears it is made out of certain things, appears to move a certain way. So, appearance is reality.

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problem and the observer effect, respectively. We have been making interpretations of quantum mechanics for a hundred year now: Copenhagen; Multiple Worlds, Minds, QBism, etc., the list goes on. We're not necessarily waiting on experiments to validate theories. It's simply because we don't have the right interpretation. Although the Copenhagen one is the most common, others disagree with it. Here will be a new interpretation of quantum mechanics called The Brain Interpretation of Quantum Mechanics (BIQM), that solves the measurement problem and properly defines the role of the observer. It argues that classical reality is the brain's interpretation of quanta and fields. If all that's out there is quanta and the brain is ultimately quanta, then where does the material universe exist? It exists in our head/consciousness. This has the consequences that the material universe exists in our consciousness. I'd still classify the material universe as real—it just isn't fundamental. Where we've been asking of the material world what is emergent within it; the whole material world itself is emergent. Its emergence within emergence.

The measurement problem, and the ensuing interpretations about it, is the all-important question in theoretical physics and the philosophy of physics of how our everyday classical world of big, definite, concrete, slow-moving, predictable, arise from the quantum reality of tiny, indefinite, top-speed, abstract, random entities. Some have called it the quantum-classical transition. How is it achieved? The new interpretation of quantum mechanics presented here, BIQM, answers this question by stating that the material classical world is the brain's interpretation of the quantum world. Basically, the brain interprets the small weird stuff, that's out there, to get the big normal stuff, that's in here.

The brain is wired to recognize patterns, even when there aren't any. We really see, what would be to us, order in the physical world. Things, we'd say are organized, and thankfully predictable. The water is where the water goes. The land is where the land goes. The sky is where the sky is. And your body: your head is where your head goes, and your toes are where your toes go. All this, this reality, happens without fail, and that's because the brain's interpretation of reality is predictable, but not reality itself. Reality itself, all by itself, independent of brain, which is in a superposition of states described by the wave-function, is unpredictable. Here's Peter Verheyen (2021) [4], about the discovery of quantum reality, in an article for Sci: "For the first time, the world could be explored without the filter of the brain. We could observe wavelengths that we had never been able to see before. We obtained a direct view of reality without interpretation by the brain."

With the brain we see matter; without it, there's quanta.[4]

Okay, so what do we mean by the classical world? Basically, everything that is material. Planets, plants, moutians, waters, boats, building, bodies, the complete inventory of material objects: All that stuff is the brain's interpretation of quantum reality. You see a tree; that tree is your brain's interpretation of quantum reality. Doesn't seem mysterious like its "partner," the quantum world where there's a fuzzy smear, a blurry cloud. To us, it seems as if the quantum world, is like an image that needs to be focused. And what they are looking for, scientists, is how, by what process one developed into the other. They can't find one. Well maybe it's hidden. No—it's obvious, and perhaps too obvious. All it is, is the addition of the brain. The brain is the intermediary between the two (just like a force-carrier), between the quantum world and the classical world. It's quanta plus brain equals classical world.

Now the physical world may be brain-independent (but definitely not the material world), but no doubt the brain is intimately connected to and effects and is affected by the physical world. (Again, that's the world of space and time and forces and energy and states, and as I contend, quanta and fields.) The brain is a classical system, but, like anything else, ultimately a quantum system, as the brain's interpretation of a quantum system is a classical system. The brain senses quanta and fields; translates it, and we, in our consciousness, end up seeing the material, classical world that we see on a daily basis—basically, the world we've all known our whole lives. Now, it's really not an illusion, but it is, with respect to quanta, a façade. The material is a covering that is not really there in external

[4] Amazingly, the history of matter is the history of the brain. History doesn't go back before the brain.

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physical reality but in our collective consciousness. Matter is in the mind. All that's there in external reality is quanta and fields and all that other physical stuff (which the brain also interprets, this whole physical package). The brain translates all that quantum physical stuff as classical material stuff. All that classical material stuff is in our heads. The quanta are not in all of our heads. The brain senses the quanta, out of which, it uses to construct a classical picture of reality. It is its interpretation. We, occupying our brains, have no choice but to see the classical. To see what the brain shows us, but it doesn't show us quantum reality, it shows us its interpretation *of* quantum reality. The brain is like an intermedium. It's kind of like a reversal of a painting, say a landscape. Instead of the landscape, we live in the painting. And the painting is, what we would call, that of realism. Nature no doubt an artwork, where the brain is the artist, the true master, and all the physical stuff is the canvass.

That's unless we do something drastic, a retraining of our brains with our minds, that takes consciousness—a lot of conscious effort and years of practice: override the brain by reconceptualizing reality with our minds. This is what renowned theoretical physicist Leonard Susskind (Fridman, 2019) [5] does, who says our brains aren't wired right to see quantum reality.[5] He claims that he (and his friends) "see," i.e., visualize quantum reality in his mind's eye better than he sees classical reality with his material eyes. (But classical reality is in the mind's eye.) He visualizes one reality while seeing another, and then wonders how the two go together. How can the two be reconciled. How one came out of the other. And he searches for a physical explanation, a coupling between the two. But that's not right; there is a third (somehow neglected) player: The brain. The brain is the coupling. And that is the crux of BIQM: To understand this player's role in reality construction and incorporate that into quantum theory. Thus, in a sense, BIQM would fall under a hidden variable interpretation, but the variable is far from hidden. You have quantum and you have classical, but you also, in the full picture, have the brain, the in-between.[6] Like quantum taught us that the experimental situation must be taken into account, well, so does the "theoretical situation."

How does our everyday world, logically, come out of it? That is the question of the interpretations of quantum mechanics. This is what all interpretations now agree on—that the classical came out of the quantum and not the other way around. What I want to say is that it's a fool's errand. There's an intervening mechanism called the brain. Interpretations of quantum mechanics pose the wrong question and make an incorrect assumption: The classical world does not arise/emerge from quantum reality rather classical reality arises/emerges inside of the observer's consciousness—via, and manifest of, the brain's interpretation. Quantum reality stays quantum reality, with no additions. Our brains always make an interpretation, a harmless interpretation. We see the classical world in all of our consciousnesses. (It's more introspective than perceptive.) What quantum theorists have been doing, struggling mightily, is like trying to figure out how a brontosaurus came out of a pair of binoculars, even having to resort to reducing the brontosaurus to information. Of course, the dinosaur didn't come out of the binoculars. For us to "see" the quantum world it must go through our brain, and it doesn't go unnoticed or unaltered—our brains internally translate it as material. Nothing out there altered it.

Quantum reality is indefinite, in flux, and classical reality more fixed, definite. There is no problem with quantum mechanics or classical mechanics: Both frameworks are impeccable. The problem occurs when we try to combine them. Reality doesn't seem to have this problem. Why not? Because (there is like a metaphorical buffer) external reality does not materially—physically, yes—connect to the classical reality that is in all of our heads. Nothing materially happened on the quantum level—all that happened was inside the brain, via the brain's innocuous interpretation—one that neither collapses the wavefunction nor decoheres the quantum state.

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[5] But the brain does see the quantum accurately; it just translates it, reliably, as classical reality.

[6] Think of the picture of a head and one idea is coming out of one side of the head, and another idea is coming out of the other side of the head and the person is somehow, head going back and forth, looking at both of them; in the full 3rd-person omniscient POV picture you have to account for the head—Susskind's lack of consciousness-awareness—Einstein made the same mistake.

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Our entire material classical world and immense universe, and its behavior, is the result of the brain's interpretation of wide-spread quantum reality/phenomena.

So, the question is, how, in our universe, does the classical matter universe emerge from quantum reality?

It doesn't.

That's the answer.

It's the product of our brain's interpretation that emerges, and it emerges in our consciousness, but not in the external world. The quantum reality does not change. And we sense (and perceive) what's in our consciousness. Another being who came by our so-called external world would not see what we see and would also not see us. (But we could see them, if we searched—again, trying to mindread God, I'd say it's for security purposes.) They would not see our classical material world. (Unless, of course, they had brains just like ours.) They would just see our quanta, if they could, depending on their visual capabilities, fields, particles, atoms, molecules and cells, i.e., they would just see the microworld; the microworld is the quantum world. Quantum reality goes on—unaffected, unchanged. We can make the following series of statements: Of course, our classical material universe is our brain's harmless interpretation of *fields and particles* as displayed in our consciousness; our classical material universe is our brain's harmless interpretation of *atoms*, as displayed in our consciousness; our classical material universe is our brain's harmless interpretation of *molecules*, as displayed in our consciousness; and our classical universe is our brain's harmless interpretation (where applicable) *cells*, as displayed in our consciousness. We all carry the interpretation around in our heads. There's already research (Sanguinetti et al. 2013: Dwarakanath et al. 2023) [6,7] that shows that, as far as classical objects are concerned, our brain makes a selective interpretation on what will appear in consciousness. I'm putting forth that our brains via the senses, sense the microworld, but never let us consciously perceive it. "Your brain perceives things you don't" (University of Arizona, 2013) [8]. "Perception is highly selective; the brain constantly decides what information is important enough to reach our consciousness. What we see is not what we perceive: a large part of the sensory information that constantly arrives through our senses is never consciously processed" (Max-Planck-Gesellschaft, 2023) [9]. And I'm saying this information includes quanta.

The larger question is not how much effect does an observer have on a specific quantum experiment, rather how much effect does an observer, whereby an observer is a human being with a brain, have on reality. My answer is that on quantum reality the observer has zero effect; but on classical reality the observer has total effect, i.e., it brings it into being, via translation. Why don't we have an effect on quantum reality? Because quantum reality is an external-brain independent reality. So, yes, I'm actually saying that brain cells are independent from the brain. The brain is the brain's interpretation of brain cells. The brain too, is really quanta. Brain-independent means that if all the brain's disappear it's still there. But the brain accesses that reality. How? By receiving information about it; this process is unconscious, automatic, Peter Verhayen (2021) calls it a neural interpretation. "Everything appears to consist of information, of microscopic quantum information, from which a biochemical projector distils a reality in which macroscopic objects and phenomena are experienced as having real existence but are not present on a microscopic scale (p13)." But what I want to argue is that they aren't even present on a macroscopic scale; that they are present, their actual location, is within consciousness. Consciousness itself is not scaled. The brain does two things here: 1) makes a neural interpretation of quanta, and 2) then based on that interpretation, projects a certain reality—the classical material reality inside of all of our heads. It does not physically decohere it; all it does is extract information. It duplicated it (copies are free). The (original) information stays put.

According to Joy Desedevises (2024) [10], "The brain interprets signals that the world sends it and tries to create the most stable and coherent representation of reality. In the case of bistable images, the brain will try to 'reduce ambiguity' to achieve a certain stability and coherence." The brain searches for stability, and energy efficiency, an equilibrium. The search happens at the border between quantum-land and classical. The result of this search: classical material reality; the world of individual objects, with predictable motions, of colors and light. The quantum world is highly

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unstable and it would use a lot of energy to try to keep track of it with our minds. Our coherent reality is the quantum's incoherent reality and vice-versa. If the quantum world is anything, it is ambiguous and unstable and highly incoherent.

There is no decoherence. There is no material transition. There's just translation. Just as in an interpretation, say between an English-speaker and a Russian-speaker, the Russian doesn't suddenly start talking English; instead, the interpreter starts talking English. The Russian continues to speak Russian. Quanta is Russian; matter is English. The (quantum) brain is the interpreter. We must take into account the interpreter—hence, BIQM.

3.1. Reality

Why do we have an effect on classical reality? Because classical reality is entirely brain-dependent. That means when all the brains go, classical reality goes with it too. Yes, Mt Everest just disappears—but of course we'd never see that. We don't see things that break the laws of classical physics. Never mind, the "tree falls in the woods;" there is no tree and no woods, as well as our universe. And so goes the entire story of time. But there is still something there, something physical: quantum phenomena. (Note, this is not truly idealism, where it is posited that even physical things are mental.) You can say that via ownership of our brains, which are the pinnacle of matter, that we are the gods of matter. The brain is the founder of the material universe. Not to mention, it is also matter; it founded itself—but it is the quanta inside that is really doing all the work—quanta interpreting, via interaction, other quanta.

One of the major arguments against Idealism are things just popping in and out of existence whether we are looking at them or not. That doesn't seem right, preposterous, even. Thing's aren't supposed to just pop into or out of existence—but with material objects they do. But not in the way you think. For when we look at them, they pop into material existence and not physical existence. But not physical objects: Space and motion; time; and quanta, will still be there. We, our brains, materially decorate physical objects when we observe them. We decorate them inside our heads. They look the same to everyone because everyone has in terms of the basics, the same brain. While it may be true that no two brains are exactly the same—basically because not two people are exactly the same, they all have in common the relevant structures and function. (Not even everyone's hearts are exactly the same.) Not that we share the same exact brain—rather each of our own brains have in common relevant structures and functions. We all have this organ and illnesses aside they all operate pretty much the same. So, we are going to see the same things. And they'll be at the same places, because a place, too, is a material object (or several). It's not the case that if you have two people looking at the same thing that there's a conflict. They are both looking at the Statue of Liberty and one walks away now the Statue of Liberty both exists and not exists (a superposition of existing and not existing). The Statue of Liberty and all classical objects materially exist in all of our heads. It's not when someone stops looking at her, she ceases to exist; she just exists in a different form (molecules, atoms, particles)—the same goes, naturally, with light. Light doesn't cease to exist when we stop looking at it, rather it takes a different form: A wave. Our brains make light a particle. But when we see light, we don't perceive/think of it as waves or particles; we just see light; or rather classical objects that it exposes; those classical objects that are in all of our heads. (Classical objects expose light; while light reveals classical objects.) Or people are only looking at the front of her, so the back doesn't exist, no, the back of her without brain, would be molecular, atomic, particular, i.e., quantum. Or if you start turning your head material objects start popping into existence. No, they pop into our heads via the brain's instant interpretation, the brain's filter. It's not when we look away the observable entity doesn't exist; it just exists in a different way. The Statue of Liberty pops in our brain. The Statue of Liberty, as is the entire material universe, sustained in all of our consciousnesses, is an artifact of collective consciousness; there to be integrated with other things in our consciousness, things like qualia, thoughts, and feelings. They are in the same place because location is always a material object—the same material object: the material universe. There's nowhere you can go, with your brain, where there's no material object, at some scale or another. And that's because quanta are everywhere.

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(Note, as far as space goes, the brain doesn't interpret quantum space as matter—neither does it interpret consciousness as matter. That, I believe, is the brain's natural standard interpretation. Mind is one thing, matter is another. Now the mind's interpretations may differ—they may override the brain; yes, freewill exists, we have a freewill space—with materialistic theories, particularly the eliminative variety or the idealist kinds.

There is the wave/particle duality in quantum reality, but in overall reality, there is the classical/quantum duality. With material brain it's classical, without it it's quantum. Outside our brains reality is quantum. Inside our brains reality is material.

3.3. This Is What Happens

Here is the total unabridged statement of BIQM:

> *The classical macroscopic material reality, that is, our visible universe, is the brain's natural automatic innocuous constant interpretation of the physical microscopic quantum realm which appears in consciousness, which can be interpreted by mind.*[7]

That's all it is, is an interpretation. The correct interpretation of quantum mechanics is of an interpretation itself, an interpretation made by our brains.

That is BIQM.

Basically, as the brain is on the inside, it interprets the stuff on the inside as outside stuff; it interprets the microscopic as the macroscopic. One may say well that's trivial of course the macroscopic stuff is microscopic stuff—yes, but this interpretation is saying that the macroscopic stuff does not *externally* exist; it isn't actually out there in (that) reality—it's in all of our heads, i.e., consciousness. All that's out there in external reality is quanta and fields, and other physical entities.

So, it's classical brain and, most directly, quantum neurons. The brain interprets those quantum neurons and gets classical reality.

Einstein called everything, like gravity, an object. I'm sure today he'd be calling consciousness an object. In order to be matter it must have appearance, composition, and behavior—all three. Elementary particles (have a limited ontology) don't look like anything, aren't made of anything (else), but they do behave. Going up, others have more ontology: a neutron and a proton, don't look like anything, but are made of something and behave (quantumly). An atom is the same. The molecule is the same. And we, mind as well say, that the cell is the same (hello, quantum biology). If we can't see it, then it's acting weird. And it's not because we aren't seeing it that it is acting weird.

Classical reality starts at the building and not the building blocks—fields, particles, atoms, molecules, and cells; there actually is no material building in the external world. For example, the Empire State Building doesn't exist—in the external world (in NYC—which also doesn't externally materially exist, on the North American continent, which also doesn't externally materially exist on the Earth, the same), instead they both exist internally in all (well for those who have heard of them) of our consciousness. We think they exist in an external reality, but actually they don't. The building blocks don't turn into the building, externally. The building is in our heads. NYC, continents, the planet are in our heads. The universe, too, is in our heads. People may think, wait a minute I'm in a building right now how is it holding me up if it's in my head and how am I and other objects and other people even in it! Isn't this like impossible. You are being held up by, things you cannot see, molecules, atoms, and most fundamentally, particles, and are inside of fields of quanta. Not to mention that you are inside your material bodies, including the brain—that is also in your head. The

[7] Note, I have three separate, nonmaterial, components of the psyche: self, mind, consciousness. They are interrelated and operate as a system. Simply described: The self uses mind in consciousness. The self is the operator/actor/agent, the mind is the tool/action, and consciousness is the setting/stage. Consciousness is like an active warehouse, it contains everything.

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brain is in the mind and not the mind in the brain. That's why they will never find it in the brain, instead they must search the mind (and my mind has told me that this is how it goes). The mind is inside of quanta.

This redefines the debate in the philosophy of mind: It's not the mind/body problem or the mind/matter problem, rather it is the mind/quanta problem. And this isn't as big of a problem. There have been some intriguing speculative parallels (Shepis, 2024) [11]. I don't think the two are the same, mind and quanta, more like non-fraternal twins. Without brain there'd still be mind, but just not in the external world where the brain supports the mind; it would be in another dimension; our dimension is the material dimension. The brain created this dimension, while it supports the inner dimension.

When the brain interprets quantum reality, we always see classical reality. The brain is a phenomenal detection machine; it can detect and interpret what we can't see. There's the ubiquitous physical world of wave/particle duality, superposition, entanglement—the brain interprets this as land and sea and houses and trees and stars and moons, galaxies, and the universe, along with football games, birthday parties, weddings, and funerals. And it all exists in consciousness.

Either way quanta become matter, so some think. It seems like things get bigger, grow. But that's not the case with quanta. Quanta don't grow; they don't turn into matter, like into an atom, and atoms into molecules and molecules into cells. Quanta are still quanta wherever they go or what they become a part of. If one destroyed a classical object, it doesn't destroy the fundamental quanta—the fundamental quanta would come pouring out—fundamental quanta are irreducible and cannot be destroyed. For instance, the brain; the quanta in the brain are still quanta. Just as you are the same person no matter where you go or what you are a part of—although your behavior may differ. They don't transition into anything, evolve. Not without something else: observation by brain.

Just like cells turning into tissue (the skin, an organ itself) and tissue into an organ, many people think that quanta—fields to cells—end up being matter, that they directly turn into matter, like a seed that becomes a tree. You get a bunch of them together, they become more complex, and something emerges. Well not without an observer, quantum mechanics contends. The observer, and its brain is part of the matter-formation process. The fact is not that they haven't included the observer, they have, just like any other object (that can cause entanglement), because the results were the same, but this object is special, this object, the brain, interprets, rather they haven't included the brain, it's interpretations. And when they did the results were amazing: Quantum mechanics accurately predicts the classical world. How? Did it just pop out of mathematical equations? Why is it so accurate? (Kind of fishy—right?). It's because the brain works so reliably; rather it is due to the accuracy of the brain that predicts the classical world. Thus, it is the biology that is so accurate, more specifically, quantum biology. Gravity, too, which is also a construction of the brain, also grants its accuracy to the brain (see the Correspondence Principle.) In other words, diagnosis, it was a *misinterpretation* on the part of scientists. It's not so much the theory that is accurate, as the brain is accurate and reliable and consistent. The brain, as an organ, continually does its job, just as the lungs and the heart do. It's probably the most reliable feature of biology. It's a constant. The observer changes things. So that takes the observer into account.

The standard interpretation is that the wavefunction collapses and then decoherence occurs, classicality emerges and now there is matter. But that is not the case. The observation does not collapse the wavefunction. Decoherence doesn't (gradually) occur. It, the quanta, don't know that you are going to measure them and they time is just right: Woops, company coming; we are naked, better get together and put on our classical clothing. No, we didn't catch nature with her pants down. Rather the brain just automatically interprets quantum as matter (i.e., to continue our wonderful analogy, the brain puts the clothes on them). Nothing happens to the quantum. But it really isn't matter; it's still quantum. The matter that we see and feel, hear, smell and taste, etc., and experience qualia along with it, is all in the same place, stuck together, in our heads. The brain only allows us to see matter. The brain translates quanta to matter—that translates, not transforms. The brain makes this interpretation and we see what the brain has interpreted, its translation. We don't see what it

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translated—we always see the translation. And we see it in our consciousnesses. And the translation is, what we perceive to be, the classical universe.

The brain is consistent—as consistent as heartbeat and breath. It makes the same translation every time. Not just during an experiment, but the brain makes the interpretation 24/7/365, all the hours, all the minutes, and all the seconds, (at all times, even when we are theorizing about it) continuously, all the time. "At its core sensory processing is the brain's way of making sense of the constant barrage of information bombarding our bodies. It's like having a team of highly skilled translators working round the clock, converting physical stimuli into a language our brain can understand and interpret. This process is so seamless we often take it for granted, but it's nothing short of miraculous" (NeuroLaunch, 2024) [12]. And no doubt that physical stimuli include quanta and fundamental quanta. "Not only are we made of fundamental particles, we also produce them and are constantly bombarded by them throughout the day" (Sudermier, 2015) [13].

Everywhere there's quanta—you just don't see it, not because it is too small, or not really there, but because your brain interprets it all as matter, and you get cars and grass and houses and constellations, and human bodies walking by, basically you get consciousness. It works kind of like spellcheck, but much faster. Matter is just an interpretation. Quanta doesn't care about us, but we care about quanta. It's like reality food for our brains; a quantum code our brain unconsciously unravels. It's like plastic pellets you feed into a hopper on an injection-molding machine and out comes a classical object, say a toy (but it stays in the machine). Call it our universe. The brain is such a machine. Matter is real, but it's really quanta, physical quanta, and not material matter. Just as our toy object is still the pellets, they've just been heated and rearranged. It's been "brained." You could say that it is quantum in disguise. And its disguise is pretty thin, but effective, virtually impervious. The elementary quanta remain quanta—they don't become anything else, in themselves, in reality. That makes it so someone else, perhaps another race, with another brain, can come along and interpret quanta as something else. They can create their own story, in their own consciousness. This would be true if (somehow) an outside observer could witness this. The brain does this automatically—we really don't have much control over it, aside from physically rewiring the brain. Except for a conscious brain override by mind, with is the ultimate "substance" in reality.

Now in the injection-molding machine metaphor, obviously the plastic pellets, quanta, are much smaller, and so aren't the first classical things that it (seems to) produce, perhaps tissue and surfaces. So, the brain produces that which it is, and is made out of—tissue and surfaces. Note, how one study performed by Vazza & Feletti reported in 2020, found that the universe looks like a collection of neural networks [14]. Now, again, the brain doesn't literally go in there and build things and itself.

The open research question is how the brain does it and where exactly in the brain it does it; how does it scale-up, make dimensions, create space and time, which is the field for spacetime, and create itself. It's how does the brain create physics rather than how does physics create the brain. The (quantum system in the) brain creates material reality and includes itself in it.

4. Objections

4.1. Time

Sure, there were wars and events, and a zillion other things that happened in the history of our civilization and before, but fundamentally, our history is the history of the brain interpreting quantum reality. Our brains have been interpreting quantum reality for a long time. But not nearly as long as they say matter is old. If it's classical, it means it is actually quantum. And if it's quantum it's actually quantum.

What about objects older and much older than the brain—doesn't that refute this argument. No, because age, too, is still the brain's interpretation of quantum reality, which is as a whole, actually timeless. Because the brain ages, it ages things. All the classical properties of an object are the brain's interpretation of quantum reality. The only thing that really matters is how old the brain's interpretation of quantum reality is. That's really how old matter, including our classical *material*

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universe, is. Note, our *physical* universe's evolution, described by cosmology still could be right. Also: Time didn't make the brain, rather the brain makes time.

4.2. Self-Referencing

In order for it to be a classical object, the brain has to make an interpretation of quantum reality. But in order to make that interpretation it has to already be a classical object. The brain creates itself by interpreting itself. The two seem to have co-occurred. But it didn't; the first "brain" was actually quantum mind; the mind's interpretation of quanta made the brain. This was a self-less mind. Thus, its' original singular mind and its journey to material multiplicity with the emergence of the nonmaterial mind—the mind is not a material classical object. What I mean by interpretation here is not a conscious mental act, what I mean is it's an unconscious physical act.

4.3. Dualism

Yes, there's brain and mind.[8] Now philosophers of physics and knowledgeable theoretical physicists and especially philosophically-inclined experimental physicists may, right away, object to it. There is no mind there's just matter, they may yet insist. No—there is no, as traditionally conceived, matter just the brain's interpretation, which is revealed in consciousness. The brain is really an intelligent quantum apparatus, in disguise.

But here's the thing you don't have to accept a dualistic philosophy, and still adopt this theory. You can just say one part of the brain automatically interprets quantum reality and another part of the brain consciously performs interpretations of quantum mechanics. Prove it.

4.4. Skepticism

How do we know it is the brain doing it versus when it is the mind doing it? Are you just stating this at your own convenience? Like I said, when the brain does it, it is automatic, non-conscious. You're not going to see it happening. When your mind does it, it takes conscious effort. It's writing versus editing. You could say that there is a difference in energy consumption: It takes virtually little energy for the brain to interpret quantum reality as classical reality, but it takes the mind a lot of energy to formulate interpretation of quantum mechanics (believe me). Basically, if you can "do it in your sleep," it's brain. The mind/humanity, early in its classical history, learned how to make quantum interpretations, just as an individual human does early in development (Wolchover, 2012) [15].

Why isn't the quantum world, too, it's appearance just manufactured by the brain? It could be if there was non-quantum reality content discovered beneath the quantum world, such as space, then consciousness. Something coming out of nothing—as some theories of physical reality-formation have it—doesn't make sense on any level—actually an infinity makes more sense.

5. Studies

5.1. Brain

Although this theory states that material reality is all in our heads, it is fruitful and important to perform material studies, for it can tell us a lot about the brain. Find the quantum-classical translator (QCT) in the brain. Is it in the occipital lobe? The IT Cortex? Thalamus? All 3 working together as a system? Then scientists can suppress or disable it (making sure of course they can turn it back on) and see what happens. My prediction is once disabled the participants will only see and experience

[8] In more detail (for those interested), it's dualism (I call Eclectic Property Dualism, EPD), but with a psychophysical twist, within a panpsychism framework. Property dualism to be specific, but not mental and physical being two different properties of the substance physical, rather it's mental and material being two different properties of the physical—thus it's mind and matter via physics.

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quantum reality, which is the external reality that is really there. Then when turned back on they will once again see classical reality.

5.2. Eyes

The method in the goggles upside-down studies (Sachse et al., 2017) [15] (or with virtual reality) can be employed. If someone could *accurately* portray the quantum world on some goggles, with some translucency, as the accuracy of the portrayal will positively correlate with the accuracy of the classical reality appearance. It is my prediction that the brain will (bypass—or see beyond it) naturally adjust back and the participants will see the classical world, all the while there was no physical changes to the lenses. It'll be a slower process, a gradually and then suddenly arc, whereas the transition from quantum reality to classical reality is instantaneous. Which is done early in our brain's evolution and early in an individual human's development, before age 3 (Wolchover, 2012) [16]. It's your brain sees quantum objects, while your mind (because of the brain) sees classical objects.

Discover them both at the same time: Perhaps the participants can do a brain scan with the goggles on, or within a quantum virtual reality.

6. Ramifications and Recommendations

6.1. Ramifications

The full extent of the realization of the consequences of this theory—if proven true, ultimately by experiment, of course—are not to be understated: They are enormous. It completely changes the way we consciously think of reality. When one sees objects in their daily lives, when one ponders the cosmos, they must remember that at the end of the day, they don't exist out there. In a sense, classical material reality is "extended brain." The same applies to scientists of those objects—they study a brain-manufactured reality.

6.2. Recommendations

Certain scientists—those who study classical objects—should just know that at the end of the day, philosophically, you are studying the brain's interpretation of something else. If you are studying the brain directly, then you are studying the brain's self-contained interpretation of itself. Philosophers: have at it. Biologists should continue to decipher the brain. Psychologists can continue to trace out the mind.

7. With Respect to Other Theories (And Itself)

As the Oxford Handbook of the History of Quantum Interpretations (2022) [17] states it's impossible to list and describe all of the interpretations of quantum mechanics (p.16). So, I will only go through several and, in the spirit of this centennial celebration, I will briefly highlight ones that span the century and show how BIQM stacks up on a few notable variables, such as determinism, realism, locality, which will also serve as a nice recap of the current theory under consideration, BIQM, which, one more time, states that quantum interpretations are made by the brain.

The Copenhagen Interpretation (1927).

Classic. BIQM agrees fundamentally with the Copenhagen interpretation, for example that quantum reality is naturally indeterministic—it's the brain that makes reality deterministic. Also, Copenhagen interpretation doesn't hold that there are hidden variables when there apparently is, as we've discussed, the brain. The variable is "hidden" in the skull. It's just that it isn't thought of much by theoretical physicists when doing theoretical physics, mainly because theoretical physics is damn hard and they don't need to be bothered with something else (not to mention the old cliché out of sight out of mind). But I argue that if we really want to know the true and overall nature of reality, we have no choice; it's unavoidable: Brain-functioning is part of the system. As well for this old theory there is no role for the observer, wherein BIQM it's all about the observer, the observer and that

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observer's brain, and that observer's consciousness. As far as counterfactual definiteness is concerned, that's can we speak meaningfully about measurements that have not been performed—yes, for quantum measurements and all measurements (we already a massive sample) are the brain's interpretation. In. other words BIQM can be paraphrased, though slightly less precise, as: "The classical world is the brain's (innocuous, automatic) measurement of the quantum world." Classical things depend on the brain, the measurement device, for their classical reality. As far as locality goes—the brain creates it; it's a fact of the interpretation by the brain and not in quantum reality. A universal wave-function doesn't exist for the classical universe, but for the quantum universe. BIQM states that *physical* objects do exist independent of measurement. And it agrees that quantum mechanics is objective and that the outcomes are legit.

Remember the question isn't strictly about the nature of quantum reality, but about how classical reality arises from it, to explain the cognitive dissonance between our experience and our mathematics.

The Many-Worlds Interpretation (1957).

Imaginative. This interpretation contends that quantum measurement induces multiple universes; all outcomes actually happen in split-off universes. BIQM is just as austere, but without the multiverse (not to mention all those cats!). The brain makes one interpretation which gives us one universe. But not to worry, because the universe is as big as our imaginations are big, as it resides in our consciousness and is made out of our consciousness.

Information and QBism (2010).

Radical. QBism is John Wheeler's famous "it from bit," that information is everything and the most fundamental thing. I give it credit it does include us in the picture, however quanta are not dependent on us, to use that high-powered microscope or that massive collider to make their existence possible. We are dependent on quanta. James Hartle (1968) [18]: "The 'reduction of the wave-packet' does take place in the consciousness of the observer, not because of any unique physical process which takes place there, but only because the state is a construct of the observer and not an objective property of the system." BIQM disagrees that the quantum state is a construct, rather the classical state is a construct—a construct of the brain. The results of the i*nterpretation* of the wave-packet appear, are displayed in a nonmaterial consciousness. Quantum mind, not classical brain, is the most fundamental operative structure, within consciousness. Information is derivative. Consciousness is what makes information, information. Consciousness is what makes something mean something. Informational theories contend that quantum mechanics describes an observer's knowledge of the world, rather than the world itself. Knowledge is in consciousness: Information plus consciousness equals knowledge. Here we have objective ontology wrapped up in subjective epistemology.

Consciousness Theories (1961-present).

Comprehensive. They state that consciousness plays a major role, in that consciousness either collapses the wavefunction or the wavefunction is collapsed by consciousness. BIQM, however, doesn't believe in directionality of collapse—there simply is no collapse. The wavefunction is real in terms of the fact that mathematical objects and equations are real, as they are not only a tool/device invented by mind but an ontological category onto itself discovered, not as Plato had it in an outside reality, but within consciousness—it was an archeological dig in the mind. It's as if numbers were implanted into our minds, as things are inserted into our genes, which are understood mathematically, as well. Numbers exist in the mind as matter exists in the mind. They have the same ontological status, just their properties differ, matter is imagery and math is abstract. The brain interprets mathematically-guided quantum phenomena.

Consciousness is vital because that's where it all ends up. That's where it all flows into. Matter is emergent—our universe is emergent. If consciousness is emergent, which many in the scientific community now believe, it is emergent right along with matter. Since matter is a projection in our heads just like consciousness is, it explains the mind/body problem seamlessly: They both match, are one and the same.

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The main distinguishment, the one that sticks out the most, with BIQM is that, like Orch OR, it takes brain-functioning into account. One difference, however, being that consciousness doesn't so much exist in or throughout the universe, rather the universe exists in our collective consciousnesses. So contrary to what panpsychism contends that consciousness is ubiquitous in the universe, it's the universe is ubiquitous in consciousness. But there's more to consciousnesses than just the material universe. There are bills to be paid, kids to take care of, dishes to do, appointments, interpretations of quantum mechanics. We live in our heads. Much of the time the material universe is a backdrop. For example, qualia. There is no problem with qualia; the problem was with our concept of matter. Erased is, the hard problem of consciousness. And that again is the classical material universe and not the universe of quanta and fields and other physical aspects.

So, in sum there's, a theoretical quadrant, 1) a multiplicity of quanta and fields; 2) many relevantly identical brains; but 3) one universe in 4) one collective consciousness.

The Brain Interpretation of Quantum Mechanics (2025).

Obvious. Classical objects are the brain's interpretation of quantum objects. Of course, the brain is involved—in any measurement, (not every quantum interaction, but every classical interaction and quanta-classical interactions, that's if you call a harmless interpretation an interaction) whether quantum or classical.

BIQM could really be called BICM, the Brain Interpretation of Classical Mechanics. But quanta and fields play a fundamental role as they provide the "material" for the interpretation, like code that the brain reads.

The good thing about BIQM is we don't have to give up our common sense or disbelieve what our observations are telling us, the only thing we have to give up on is our notion of realism with respect to the universe. The universe is completely real; its reality status is different from what we've intuitively thought it was.

Furthermore, as was noted earlier—they, the "other theories," attempt to answer the wrong question: How does the classical world come from the quantum world, and my answer was, (and still is) it does not. The classical world comes from the brain. And it appears in our consciousness for consideration by our nearby selves, minds, imaginations, and hearts.

8. Conclusion

Using the Brain Interpretation of Quantum mechanics, or BIQM, I have tried to demonstrate not that the everyday world we see around us is actually quanta and fields, rather the everyday world we see around is the brain's interpretation of quanta and fields. Classical reality is the brain's presentation to the self and mind. This has monumental ramifications. Time needs to be revised: It's brain-time. The history of the material (not physical) universe began not 13.8 billion years ago but when the first "brain" interpreted quantum reality, which was according to Detlev Ardent some 540 million years ago (Domanegg, 2024) [19]. (Furthermore, we can get even more precise when we find out what specific brain components are involved, say the cortex which came later). Debates need to be reframed. The mind/matter problem needs to be recast as the quantum mind opportunity. Because matter comes out of consciousness, and consciousness doesn't come out of matter, the mind/body problem should now be the quantum mind problem. Both consciousness, and matter exist in the same ontological domain: They are fundamentally physical.

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Abbreviations

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The following abbreviations are used in this manuscript:

BIQM	The Brain Interpretation of Quantum Mechanics
BICM	The Brain Interpretation of Classical Mechanics
QCT	Quantum-Classical Translator
EPD	Eclectic Property Dualism
IT	Inferior Temporal

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