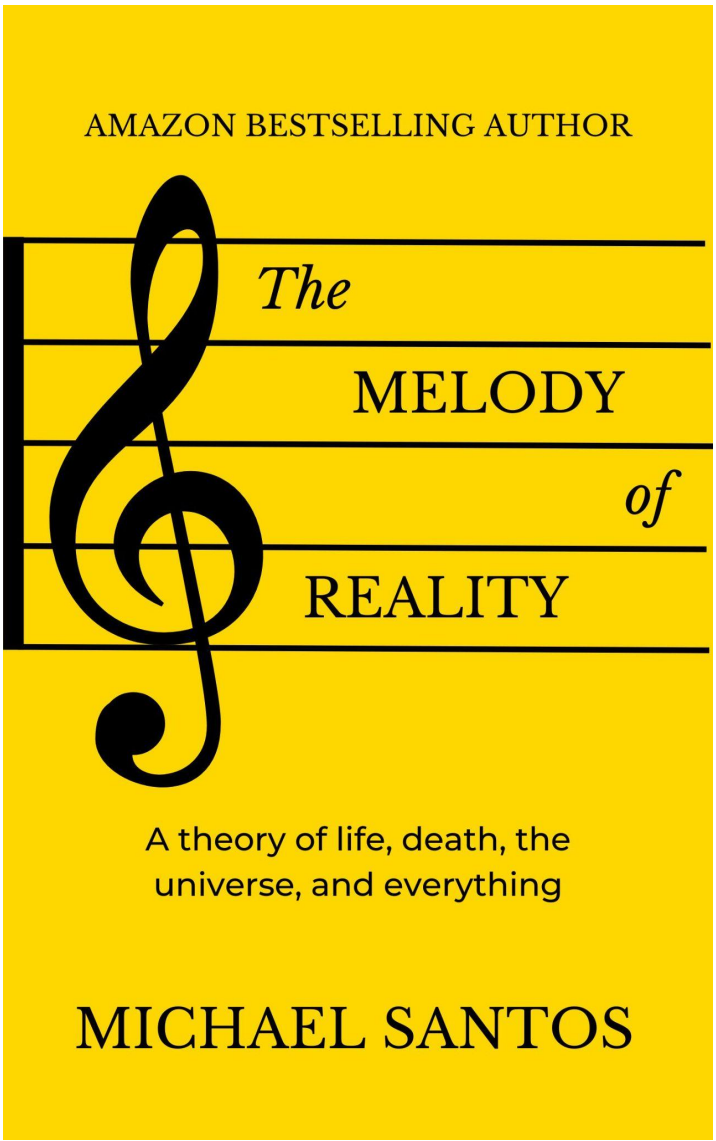
The Melody of Reality: A theory of life, death, the universe, and everything



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1. On the next revolution

Science and philosophy are on the verge of a revolution that will change the paradigms of the next century, and hopefully longer. A **paradigm** in this context is a worldview held by scientists and philosophers, and which influences the interpretation of empirical data. Thomas Kuhn elucidated the structure of scientific revolutions. In his thought, we conduct "normal science" under the reigning paradigm of the day until sufficient phenomena remain unexplained by that paradigm, such that new theories are needed. If, out of this period of crisis, a theory emerges that better explains the data, and if that theory survives the heavy resistance it faces from those maintaining the current paradigm against change, then a scientific revolution takes place, and a new paradigm begins (Kuhn, 1996).

Such paradigm shifts have occurred throughout history, such as when we abandoned the geocentric model for the heliocentric model of the Solar System. The discovery of evolution by natural selection was another such shift in thought, each brought about by revolutions that sought to address anomalies in the previous mainstream paradigm.

The same process applies to philosophy, which, in turn, influences how we do science.

As of this writing, humanity once more has cause to question its current paradigm, this time in **metaphysics**, the field of philosophy that studies what reality is, in and of itself. Since the time of the Enlightenment (for about 200 years), the reigning metaphysical paradigm has been **physicalism**, the theory that reality, down to its most fundamental level, is physical, such that everything else supervenes on the physical. It asserts that an objective, independent reality exists outside of your subjective mind. This reality is composed of complexes of material particles confined in spacetime. Physicalism comes from materialism, and the two are commonly used interchangeably. The chief distinction between the two names is that "physicalism" describes not just matter, but also energy, information, and physical law, all of which it considers to be "physical" (Stoljar, 2009).

The result of such a belief has been an insistence that life in the universe is purely accidental and devoid of any meaning or purpose. Reductionist physicalism has also led

us to interpret **the Second Law of Thermodynamics** in a nihilistic manner, predicting that the universe will run out of usable energy, and that all organization, including life, is doomed to succumb to ever-rising disorder. Life, then, has no cosmological significance. It is a blip in the universe, an accident that, statistically, should never have been possible in the first place.

Such a worldview is consistent with **reductionism**, which asserts that we can understand reality by breaking down the physical into its fundamental constituents and observe them in isolation. Everything in a reductionist physicalist paradigm, including biology, chemistry, and the other natural sciences, reduces to quantum physics. Reductionism has proven successful in understanding the "physical" world of our perception, but it has also given us a distorted view of reality by promoting a metaphysically physicalist interpretation of scientific data.

Physicalism is appealing to atheists precisely because it dispenses with anything remotely religious, spiritual, or paranormal. However, reductionist physicalism once denied the existence of consciousness, the primary datum of our existence and the only thing we know exists. In some cases, physicalism still does deny it. This worldview has successfully purged from mainstream science any sense of progress or purpose, relegating our existence to luck and predicting our destiny to be oblivion, partly as a response to violent atrocities committed against science by the Church in past centuries.

However, this paradigm is changing, as new data have emerged and are emerging. A new academic discipline called **complexity science** seeks to marry the major scientific fields of biology, chemistry, physics, neuroscience, evolutionary theory, and more. The goal of complexity science is to understand how nature's dynamical systems, or any system composed of interacting components with a variety of possible states, form and evolve. Crucially for metaphysics, which studies reality itself, complexity science examines dynamical systems at all levels, including the universe (Azarian, 2022).

In violation of reductionist physicalism, complexity science has given rise to another option: **informational reductionism**. Under this view, it is information that is fundamental, not matter and energy. However, a problem arises here too. Information is meaningless without the matter that carries it, and so we arrive, ironically, back at **Cartesian dualism**, the kind of duality between the physical and a non-physical "something" that atheistic physicalism sought to erase in its battle against religion. The dualism of consciousness and matter would now, under complexity science, be replaced by information and matter. But dualism carries with it the **interaction problem**, the challenge of explaining how two fundamental metaphysical primitives, consciousness and matter, interact (Mastin, 2009). While this problem is not, in principle, impossible to solve, might we find a better metaphysical theory that covers the intuitive ground of the dualism required for informational reductionism, without posing such an issue?

And so we need another framework by which to describe the universe and reality itself. In this book, we will elucidate a new **"theory of everything"** that sets out to resolve the problems and paradoxes encountered by the physicalist paradigm. Among these will be paradoxes at the quantum level, which we will reconcile with general relativity. Additionally, we will address the relationship between consciousness and matter in a way that solves (does not even entail) the hard problem of consciousness, which is the explanatory gap between mind and the physical. Indeed, the hard problem is insoluble and a problem *in principle* (Chalmers 1996, 2003).

In the end, we will have described the universe as an intelligently self-designed and self-organizing dynamical system, combining complexity science with metaphysical idealism, which claims consciousness as fundamental to reality. From that starting point of consciousness, we will explain the physical world, the results of science, and our own existence as localizations of consciousness. In so doing, we will arrive at a paradigm that delivers both immense purpose for life and far superior logical coherence, internal consistency, and explanatory power. We will discard the nihilism of reductionist physicalism and show that the universe is a computational engine—a *mind*—that both generates and processes information. The entire system is undergoing adaptive transformation in a process of building greater complexity, and life plays a crucial role in this activity. Along this journey, we will also finally reconcile science and religion, finding the reality that underlies them both and discarding the dogmatism in both camps that prevents adherents from seeing beyond their fundamentalism.

Science alone is insufficient to answer our deepest questions about reality. It requires a metaphysical explanatory framework. In this book, we will explore such a framework and present evidence that it is the most promising option on the table today.

This theory does not represent any dogmatic belief system on *my* part. Rather, I write everything that follows with open-minded skepticism about every detail, knowing full well that the theory is not wholly true (no one really has everything figured out). Instead, this piece collates the expert theories and ideas that *currently show the greatest probability of being correct*. However, open-minded skepticism is the best approach for any study of science and philosophy.

Before we get started, we have to ask what role our perceptions play in our ability to understand reality. Namely, do they provide high-fidelity information about what reality is, in and of itself, like a clear window on the world? Or do they lie to us for a very important reason, which we'll then need to fully explain in our theory?

2. On logic, intelligibility, and perception

Do we perceive reality as it really is? The data and even a recent mathematical theorem suggest that we do not. Instead, we evolved to perceive reality in a manner that improved our chances of survival, favoring fitness over truth.

First, let's look at **intelligibility**, **logic**, and **language**, all of which are in a reciprocally dependent relationship with our perceptual and cognitive apparati and frameworks.

Intelligibility

At the outset, we must assume that reality, whatever it might be, is intelligible. It does not need to be comprehensible, and indeed it likely isn't. Why should an evolved ape on a rock in an unremarkable solar system, in an unremarkable galaxy, in a vast universe be able to comprehend, with its logical, linguistic, and perceptual capacities, all of reality? To suggest that we have a literal, naive realist access to reality, in and of itself, feels like too great an assumption.

However, if we do not assume that reality is intelligible, then there is no point doing science and philosophy at all. Our capacities for engaging with reality must provide us with true information, if not comprehensive information, about reality. In other words, reality must be intelligible to us, or else we could not survive in it, much less ponder the larger questions about the fundamental nature of existence.

Furthermore, reality must have a structure that is to some non-trivial degree isomorphic to our languages (including perception, mathematics, logic, etc.) and vice versa. Again, reality need not be comprehensible, only intelligible. Therefore, I'll call the kind of isomorphism that must exist between language and the structure of reality a **weak isomorphism**, as opposed to a **strong isomorphism** that would grant our language the capacity to fully capture reality. We have no reason to expect a strong isomorphism in this case, but we must presume at least a weak isomorphism.

In other words, reality itself must be linguistic in its structure, with a syntactical nature (Langan 2002). We'll cover more about this in the section on cosmology.

Such an isomorphism provides an ontology for theories and models themselves, including our perceptual models. Without this ontological grounding for theories, there would be no point in trying to theorize about or model anything in nature – we could never trust that our theories had any intelligibility at all.

Either reality is linguistic and syntactical, thereby displaying at least a weak isomorphism to our languages, or we must abandon intelligibility, which then necessitates abandoning science and philosophy altogether. Moreover, it then becomes unclear how we even survive within reality if reality is not isomorphic to our languages (again, of which perception itself is one).

But even in assuming intelligibility, we must also recognize the limitations of our logical, linguistic, and perceptual apparati.

Logic and language

Note: this section, along with the section titled "Reason," largely follow an argument laid out by philosopher Bernardo Kastrup in his book, Meaning in Absurdity. *Throughout, my position is entirely in alignment with his, though I make a few additions and departures.*

We tend to view logic as sacred. While our knowledge in any discipline of science or philosophy constantly changes, we take comfort in the idea that logic will always be true. The **axioms** on which we rely seem to be self-evident. However, this faith (and it *is* faith) in the omnipotence and omnipresence of logic is problematic for several reasons.

The skeptic Greek philosopher Agrippa argued in his "Trilemma" that we cannot use logic to justify the validity of logic itself. A more modern version of that argument persists today, concluding that logic is itself grounded in illogical foundations. We cannot rule out the possibility that existence is governed by absurdity (Albert 1985).

In spite of our inability to rationally justify logic, we have a powerful intuition that the axioms on which we rely are self-evident and do not require justification. In other words, we treat logic as sacred.

Douglas Hofstadter said on the subject, "At some point, you reach rock bottom, and there is no defense except loudly shouting, 'I know I'm right!' … you come to a point where faith takes over" (Hofstadter 1979). Sir Roger Penrose once even proposed that logical truths, as elucidated by mathematics, are part of the "Platonic world of absolutes", and that the physical world is "emerging out of" that Platonic world of absolutes (Penrose et al 2000). Penrose's view elevates logic to a transcendental status, one traditionally compared to religious entities. Our culture, especially in the halls of science and philosophy, has performed this sacralization of logic since the Enlightenment.

Granted, when applied in practice, logic seems to work for us. However, much of what we view as self-evident, sacred truths are determined by our presumption of realism at best, and naive realism at worst, when considering the world around us.

For instance, under a realist paradigm, every propositional question must have a definite, unambiguous answer anchored in the facts of the physical universe. "Is it true that *x*?" Either *x* is true, or *x* is false, with no room in between. This is the **Law of Excluded Middle**: a proposition must be true or false, never both true and false, and never neither true nor false. Under realism, our knowledge of the answer determines nothing about the fact that only one of the two possibilities, true or false, is the objective answer in the world outside of mind. This is called the **correspondence theory of truth** (Kastrup 2012).

Professor Stephen Read says on the subject, "By linking the condition of truth of a proposition to a corresponding object – the fact – we are naturally led to Bivalence – either

the proposition is true (for there is a fact corresponding to it) or it is false (for there is no such object). Hence every proposition is either true or false – and is so, regardless of our ability to discover it" (Read 1995).

This **principle of bivalence** seems self-evidently true. On its surface, there appears not to be a need to justify this principle. Indeed, the principle of bivalence is at the core of our system of logic, motivating a realist, physicalist worldview under which ambiguity is not permitted. A *literal* reality is forced upon us: any given proposition has only *one* correct explanation. Anything other than that explanation is relegated to a false construct of the brain.

There are, however, exceptions to that logic, in the form of language paradoxes. For instance:

This sentence is false.

This statement has a concurrent truth and falsity, which violates the principle of bivalence. The truth and falsity are organized in what Hofstadter calls a "strange loop," in that taking the statement to be true leads you to see that it is false, and taking it to be false leads you to see that it is true (Hofstadter 1979).

Philosophers have tried to find the solution to this paradox, even hand-waving it away as an artifact of the imperfection of our language, ultimately a semantic tool. However, all attempts at resolving semantic paradoxes like this one have been unsuccessful (Haack 1978).

This has driven a new approach: acknowledge that contradictions must be allowed in logic. As Read says, the idea is to "claim that what the paradoxes show is just what they seem to show – that certain contradictions must be accepted. Certain propositions really are paradoxical. They are both true and false" (Read 1995).

Professor Graham Priest makes the same point in the book, *In Contradiction*, a work of **dialetheism**, the view that there are really contradictions, at least in language constructs (Priest 2006).

It might appear easy to dismiss these logical paradoxes as linguistic artifacts, but there is also no way to separate the structures of our language from how we construct beliefs and views about reality (Davidson 1975). When we question the nature of reality, our language necessarily becomes co-extensive with our abstractions, because we tell ourselves what are our views using language. Therefore, our worldviews are susceptible to the same semantic paradoxes inherited from our use of language to communicate those views. Our very thought, which communicates our views to ourselves, is based in language. And, of course, language displays characteristics of our view of the world like an element of spatial relation (subject-object relationships) and an element of time (tenses).

At a point in history when quantum physics has called into question the fundamentality of spacetime and the truth of realism, this presents an inherent problem for our ability to logically approach science and ontology.

We'll cover the specifics of the empirical data on that in a later section. For now, just know that empirical science has given us reason to question realism.

Paradoxes arise from self-reference. That is, a paradoxical proposition forms a strange loop by referring back to itself (read it as true, and it will be false; but then read it as false in an act of self-reference, and it will be true) (Priest 2000).

Here's another example:

The following sentence is true.
The preceding sentence is false.

Once again, we find a strange loop. If statement one is true, then the second is also true; but if the second statement is true, then the first statement is false, which would make the second statement false; but if the second statement is false, then that makes the first statement true again. This example is more complex than the previous one, since now the self-reference occurs across a **layer of indirection**. Other paradoxes feature many such layers, but we don't need to consider anything more complicated than these two instances to grok the problem here for ontology.

Namely, if realism is false (and empirical science has given us reason to consider that to be possible), then nature is fundamentally self-referential, in the sense that any given subject and any given object are not distinct. The world that you perceive may actually be what your own cognitive processes look like, not what objective reality, in and of itself, looks like (Kastrup 2012).

If that is the case, then when you use logic to defend a proposition about the world you perceive, you would actually be using propositions to defend propositions, which is exactly the structure of the semantic paradoxes above. And if that is so, then semantic paradoxes are built into the world, as we perceive it, and our sacred logic is no longer sacred. The contradictions in the logic of something as vastly complex as our perception of reality may be buried under vast layers of indirection, and therefore only make themselves known on rare occasions. In other words, when we witness something that seems to defy logic, it may just be a strange loop, an artifact of our perceptual and linguistic frameworks.

This all might still sound like language games with no real implication for the "real" world. But consider Kurt Gödel's **Incompleteness Theorems**. In 1931, he showed that the same kind of paradox found in the statement "This statement is false" is also found at the heart of **number theory**, the basis of mathematics. Indeed, Gödel showed that self-reference is not only part of number theory, but integral to it. Due to this, number theory is fundamentally limited: there are always true statements about numbers that

cannot be derived from number theory, unless one accepts contradictions along with them (Gödel 1992).

In other words, it is impossible for us to know the whole truth about numbers without accepting contradictions. To know all there is to know about numbers requires us to embrace paradoxes, because such self-reference is integral to the strange loop of mathematical theory. And, since our mainstream, realist metaphysics of today, reductionist physicalism, takes physical entities (those exhaustively described by mathematics) to be fundamental, this means that, even under the most strictly realist paradigm we have, we must still accept paradoxes in reality itself. The sacred infallibility of seemingly self-evident logic is false.

Because it is impossible for us to know the whole truth about numbers without accepting contradictions in logic, and because physicalism (the metaphysics strictly grounded in realism) makes fundamental that which is defined as exhaustively described by quantities, it is therefore impossible for us to know the whole truth about reality without accepting contradictions.

Gödel used strict mathematical logic to derive his conclusion (Gödel 1992). In essence, realism (and the logic it presumes) defeated itself from within (even before we get to the empirical evidence of quantum mechanical entanglement experiments).

Meanwhile, the principle of bivalence remains so ingrained in the way that we do science and philosophy that we even "prove" propositions by disproving their contraries. After all, if the contrary is false, then the proposition must be true – that's how the principle of bivalence works. We automatically take contradiction to imply fallacy.

But, bivalence is grounded in a realist *assumption* about reality, one that has been called into question from converging arenas of science and philosophy. If science ultimately rejects realism, then our logic is in a precarious position: the principle of bivalence will, at least in some non-trivial applications, need to be rejected as well. Without realism, the correspondence theory of truth is void, and the principle of bivalence, which depends on the correspondence theory of truth, would follow suit. Contradiction and paradox would need to be incorporated into our ontological worldview, meaning we'd have good reason (on this point alone, nevermind substantial other points that we will cover) for abandoning physicalism in favor of a different metaphysics.

In a later section, we will consider another system of logic that is coherent, and therefore a candidate to replace the strict logic of realism. First, we must explore the reasons for why our perceptual framework might operate as described earlier in this section: that is, why the world that we perceive may be a mental construction, and not a clear window onto reality, as it is in and of itself. In so doing, we will begin to argue against realism.

Perception

Now, let's look at **entropy**, or the degree of disorder in the world, a value which tends to increase without a known limit (this doesn't mean that entropy increases infinitely). Our bodies are a localized attempt to resist the **Second Law of Thermodynamics**. In order to maintain our structural integrity in the face of entropy, our bodies must extract energy from our environment, which is the purpose of our metabolism. In other words, the reason we eat is to derive from food the energy we need to resist the increasing disorder of the world around us. Indeed, life is nature's way of resisting entropy by creating a self-organizing system that, through agency, can maintain itself. It requires energy to create complex order in the face of disorder, and an agent with causal power over its environment can change that environment to make it easier to acquire the energy it needs (Azarian, 2022).

How is this relevant to the reality that we perceive? If our perception of the world was a perfect representation of reality as it is, which has no limit to its ever-increasing levels of disorder, we would quite literally dissolve. Our bodies would lose all structural integrity, because our internal state would have to match the entropy of the external state. No amount of energy could sustain us. Since we are not, in fact, puddles of goo, our perceptions must not capture the truth of reality, but instead show us an encoded inference that corresponds to what reality is. That encoded version of the world is incredibly useful for our survival and for our ability to interact with our environment, but it is not a literal match of what is really there (Friston, 2013). In other words, our perceptions show us the **image** of reality itself, whatever that may be. Note that the word "image" here encompasses not just sight but all sensory input.

The real thing is too complicated for us to handle. That is, it is *incomprehensible*.

How did we develop this encoded version of reality, so as to avoid losing our structural integrity? A natural next step would be to search for the answer in evolutionary processes. Indeed, we find a mathematical theorem, derived from experiments in **evolutionary game theory**, that supports the assertion that we must encode reality through our perceptions in order to survive.

In these studies, researchers mathematically proved that an organism capable of perceiving reality as it truly is would be out-competed 100 percent of the time. This result indicates that perception's evolutionary purpose is not to give us an accurate understanding of reality via our senses, but rather to give us an image of reality that is most conducive to our survival fitness. **Fitness**, as we'll discuss in depth later on, measures the stability of an organism, telling us how well it can extract energy from its environment to sustain itself against entropy. The world as we perceive it is a representation of the underlying reality, and that representation makes it possible for us to "use" reality in an easy enough manner for us to maintain stability. The researchers commonly reference the metaphor of a computer–your desktop is the image, or representation, of the underlying 1s

and 0s that are the true reality. However, if you had to work with 1s and 0s to type your emails, you would never get anything done without expending tremendous personal energy. Instead, you have an interface with which to work, and this interface is tuned for ease of use relative to the "truth" of the computer. When mapped onto the world, it becomes clear why evolution would favor an encoded version of reality over the truth of reality–perceiving and working with reality as it truly is would drive us to extinction, because we could not extract nearly enough energy to maintain our stability (Hoffman & Prakash, 2014; Hoffman, Singh & Prakash, 2015; Hoffman, 2019; Prakash, Fields, Hoffman, Prentner, Singh, 2020). Further, each species of organism encodes reality differently, based on the specific survival challenges it faces from its environment.

We will cover these findings in much greater depth in a later section.

And that's to say nothing of the growing body of research showing that the activities of the left and right hemispheres of the brain correlate to vastly different interpretations of the world (McGilchrist 2009, 2021).

These converging arguments show that **naive realism**, our predisposition to believe that we objectively perceive reality with high fidelity, is demonstrably false. Whatever reality is, we perceive it as an encoded representation that has been fine-tuned via evolutionary processes to give us the best survival fitness at the expense of truth. As our environment continues to change around us, so too will evolution update this encoded representation as time goes by.

In other words, our perceptual framework makes our incomprehensible reality intelligible.

We should take it seriously, but not literally (Hoffman 2019).

But if our perception is empirically not a "clear window" on reality, then how can we trust that reality is actually intelligible? For that argument, we can appeal to the structure of language and the fact of our own evolution.

Perception is, itself, a language, and reality is, itself, a formal system. The symbols of our **perceptual language** are the "things" that we perceive as moving through space (as opposed to words moving on paper). Our perception has an arrow of time, or an element of tense (as in verb tense). Causality is always a subject-predicate-object combination of those symbols, just like linguistic associations between strings of words. The syntax of this language would be the laws of physics, which govern and constrain how the symbols move. There is a sole axiom for this language (this monist theory). That axiom is the absolute truth, or reality itself, the supertautology. The theorems of the formal system would then be all the possible configurations of symbols (Hofstadter 1979; Langan 2002).

Of course, as with any formal system, not all theorems are true or *meaningful*. Indeed, the only *meaningful theorems* are those with an isomorphism to reality. It is from this notion that we can derive the intelligibility of reality via our perception. If our perception evolved to show us truths about reality that would aid in our survival and propagation *within* reality, and since we have actually survived and propagated, then our

perceptual language must constitute an isomorphism with reality itself. In other words, the formal system must entail meaningful theorems, or intelligibility.

That conclusion, in turn, clears the way for our spoken and written languages, all of which are based on our perceptual language, to also entail an isomorphism to reality. That is, we may not be able to comprehend all of reality through our language, but we can make reality intelligible and represent truths about reality with language.

As a result, a comprehensive "theory of everything" is impossible. However, a representative or approximal "theory of everything" is possible.

Reason

Recall that our logic has been grounded in the realist assumption of the principle of bivalence, that any proposition about the world is either true or false, regardless of our knowledge about which it is. It is this assumption of the necessity of bivalence that makes paradoxes paradoxical at all – without the principle of bivalence, the possibility of ambiguity in reality would not be problematic. Instead, our assumptions of realism, which go hand-in-hand with our mainstream metaphysical system of reductionist physicalism, require us to see the world as literal, not ambiguous.

If we abandon bivalence, we would therefore need to abandon the notion of literal truth: if a given proposition can be both true and false, then that falsity would make coherent other contradictory propositions. The world would be more like the unfolding of cognitive metaphors than a literally true mechanism.

Realism also requires that the principle of bivalence be grounded in the correspondence theory of truth. That is, every literally true proposition must, by definition, be grounded in a fact about the world outside of mind.

If science forces us to abandon realism (a case which I will continue to make throughout the subsequent sections), then we must also abandon the correspondence theory of truth, and then the principle of bivalence will cease to be grounded.

Sir Michael Dummett says on the subject, "If the statements … do not relate to such an external reality, the supposition that each of them possesses such a determinate truth-value is empty. … We have, in such case, … to take them as having been given meaning in a different way, namely by associating them with conditions of a different kind" (Dummett 1978).

Now, I am not calling for the abandonment of logic and reason – we need logic in order to reflect on reality. Are there additional logics beyond the principle of bivalence, and which would better account for the paradoxes we've demonstrated (including the Incompleteness Theorems)?

In other words, are there other axioms besides the classical articulation of logic to which we've been referring up until now?

Philosophers have already found other axioms that are coherent. The one I'll argue for is **intuitionistic logic** (Read 1995). Sir Michael Dummett is one of the leading modern thinkers behind intuitionism. Intuitionistic logic entails that it is not enough to show that something cannot be false in order to claim that it is true (as the principle of bivalence would permit). Since intuitionism rejects bivalence, one must show that a proposition is true for it to be true, regardless of whether or not you can show that the proposition cannot be false, because the latter, without bivalence, would not be able to show truth. Intuitionistic logic requires us to separately show the truth of a proposition by showing *how* it is true.

This form of logic finds its origins in mathematics, as a reaction to mathematical realism. Such mathematical realism claims that mathematical objects are objective, akin to what Sir Roger Penrose said about the "Platonic" world beyond our ability to comprehend these objects (Penrose et al 2000). Under that view, humans didn't invent mathematics as a mental construction with which to describe the world that we perceive. Rather, we discover mathematics, which was already there before us.

Mathematical realism faced a challenge from Luitzen Brouwer and a group of mathematicians who could not accept such a realism ported into the abstract world of mathematics. How could incomprehensible, uncountable infinities emerge out of set theory? Indeed, they rejected the idea that mathematical objects were objective, existing in some "Platonic" sense. They, like us, then needed "conditions of a different kind" to understand on what basis a mathematical statement was true or false.

The answer was the following: *if we do not have an objective mathematical realism to ground the truth of our mathematical statements, then the only alternative is to ground the truth in our subjective minds.*

There is simply no other possibility. If we can't ground truth in our external state (the world "out there"), we must ground truth in our internal state (the world "in here").

The intuitionists claimed that mathematical objects are meaningful only as mental constructs, and therefore, *the truth of a mathematical object can only be accepted if one can find a coherent mental procedure for generating that object* (Kastrup 2012).

Truth is, therefore, is the outcome of a cognitive process. The truth and meaning of a mathematical object are inherently associated with the existence of a mental narrative that leads to that object as its conclusion. In other words, truth requires that we show *how* a proposition is true, rather than relying on falsifying the proposition's contraries. If one cannot do that for a given mathematical object, then the object has no meaning or truth, and therefore, it does not exist.

As such, intuitionistic logic leads us to a **constructivist** worldview in mathematics, not one of realism. The existence of a mathematical object depends on whether or not the object can be constructed in mind by a coherent cognitive procedure that shows *how* the object exists/is true.

Constructivism also leads, necessarily, to the abandonment of bivalence, which means that it accommodates paradoxes.

Now, let's port constructivism from the abstract world of mathematics to the level of reality, itself. Dummett argues that the debate about mathematical realism vs. mathematical constructivism is equivalent to the debate about realism vs. anti-realism in science and ontology. The problems encountered along the way of mathematical logic mirror those encountered in the ontological debate (Dummett 1982). In other words, we have empirical evidence from science that leads us to question realism, just as the intuitionists found evidence in mathematics that led them to question mathematical realism.

If we abandon realism for constructivism, then we imply a worldview in which *the existence of an object can only be accepted if one can find a coherent mental procedure for generating that object.*

The world that we perceive, under this view, is a conception of mind. What each of us experiences around ourselves is, in fact, what philosopher Bernardo Kastrup calls a **"world-instantiation"**, or "a *particular manifestation* of the underlying, formless, mental potentials intrinsic to reality, constructed according to stories we tell ourselves about what is allowed to be true or factual. We seem to filter out, before it even comes to light, everything we tell ourselves does not fit the bill: discontinuities of the main storyline, inconsistencies, and absurdities." And, further, "since we use language structures to tell ourselves all these stories, the consensus world-instantiation we create is, at bottom, prone to paradox, anyway, as logicians, mathematicians, and physicists alike seem to have found out" (Kastrup 2012).

When individuals are able to construct their own world-instantiation, when they do it collaboratively, then statistically speaking, a common set of constraints must naturally emerge, and all participants would become subjected to it (Kastrup 2012; Müller 2023). Reality, then, would be more like a constructed shared dream than a realist mechanism.

Consider ant colonies: an ant colony is made up of individual ants and their individual minds. However, a seemingly integrated global behavior emerges out of the interactions between the ants. In that way, sophisticated behaviors emerge from the "collective behavior of unsophisticated individuals". No individual ant can overpower the collective "mind" of the colony, but together, the colony constructs a shared "mind" capable of such sophisticated problem-solving, that AI researchers seek to emulate it (Engelbrecht 2007; Parikka 2010; Kastrup 2012). Similarly, flocks of birds are known to demonstrate a similar "shared mind," coordinating the collective behavior of individual minds that each collaborate as part of a greater whole.

As such, there is substantiation for the argument that there are both individual world-instantiations and a set of consensus rules of evidence that determine what conditions must be met for any given proposition to be considered true. Additionally, a given individual contributor to such a consensus could have experiences, as part of their

individual world-instantiation, that violate the set of rules of evidence for the consensus, thereby explaining paradoxes, absurdities, and bizarre phenomena.

Further, because the laws of physics are stable, and because intuitionistic logic requires that facts be constructed via coherent mental procedures, we must be inclined to believe that a constructivist reality also operates self-consistently and coherently. That, in turn, explains the reliability of the laws of physics, and why the world-instantiations are not chaotic maelstroms.

Since the consensus is constructed coherently, then reality must be an interconnected and internally consistent whole (more on this in the later section on non-reductionism vs. reductionism). Therefore, that internally consistent whole provides **boundary conditions** for determining the truth of a given proposition. A *proposition is not true if it is not consistent with other aspects of the consensus world-instantiation.*

In this way, such a worldview rejects **relativism**, even though it also rejects realism. Rather, it appeals to **coherentism**, the idea that the validity of a proposition depends on whether or not it coheres with its *context*.

For instance, arithmetic gives us multiple ways to explain why multiplying two negative numbers results in a positive number:

(2) * (-1) + (-2) * (-1) = (2 - 2) * (-1) = 0 * (-1) = 0

(2) * (-1) + (-2) * (-2) = (-2) + (-2) * (-2) = 0

Both operations achieve the same result, despite having a different order. Therefore, (-2) * (-1) must equal (2), otherwise the end result would not be consistent (Stewart 2008).

Under a coherentist approach, it is true that multiplying two negatives yields a positive, because this is the only result consistent with the rest of arithmetic. That truth condition is not dependent on mathematical realism, that is, on mathematical objects having transcendent existence in a "Platonic" sense. Instead, it is entirely a coherent construction of a cognitive process. The truth condition requires consistency with that coherent, cognitive, arithmetic world-instantiation (Kastrup 2012).

We can extrapolate the same logic to the world of our perception, thus dispensing with the possibility of relativism.

And, since the world of our perception is, thus, a construct of mind, the metaphysics at which we have necessarily arrived is **idealism**, which we will later fully explore, including its claims, the objections it faces, and its responses to those objections.

In future sections, we'll cover in depth how the above fits with the latest empirical data relating to perception and foundations of physics. In other words, we'll develop the science of the first-person perspective, in order to explain how each of us constructs a world-instantiation, and how, statistically speaking, each individual world-instantiation is nearly identical to every other (among individuals of the same species, and likely to a large

but lesser degree, across species), such that we perceive the same consensus reality. We'll also leverage all of that evidence, grounded in constructivist and intuitionistic thinking, to peer through the vast layers of indirection, in order to explain bizarre phenomena, which are actually paradoxes inherent to a given world-instantiation (sometimes multiple at once).

We've covered the foundations of a paradigm: its intelligibility, its logic, its language, and its reason. Now, let's dive into metaphysics and ontology, and begin elucidating the melody of reality, an idealist theory of everything.

3. On metaphysics

Classical physics tells us how nature behaves. Borrowing a metaphor from the previous section, it is the study of the desktop. To master your use of the computer, you need to predict the behavior of the desktop, but you don't need to know what reality underlies that desktop. This is the benefit that the natural sciences provide us. By contrast, metaphysics tells us what nature is, in and of itself. In other words, it's the study of the 1s and 0s underlying the desktop.

But if we can't trust our perceptions, we run into a roadblock: how would you apply the scientific method directly to the question of what reality is, in and of itself? Our usual method of hypothesizing, observing, and replicating will only tell us about the representation of reality, and that is not what we're asking about. To address this challenge, philosophers evaluate ontological theories by the following set of criteria, which encompass all of the empirical data from the sciences, but must necessarily go further.

For any given metaphysical theory, or indeed any theory of everything:

- **Parsimony**: Is this the simplest theory in terms of the assumptions and claims it requires in order to explain reality? Think of **Occam's Razor**, the rule that essentially says that the simplest explanations are usually the most correct. In other words, we want to be as skeptical as possible.
- **Explanatory ROI**: For the cost of the assumptions that the theory requires us to make, does the theory explain all of reality (or at least explain more than the other theories)? Does the ratio of assumptions to explanatory power net us a "profit" or a "deficit?"
- **Logical coherence**: Does the theory's logic follow from one assertion to the next?
- **Internal consistency**: Does the theory contradict itself anywhere?
- **Empirical support**: Is there sufficient empirical evidence to back up the logic of the claims the theory makes?

In metaphysics, we study the nature of nature. The natural sciences are essential to this conversation, because for any ontological theory to be a serious contender, it must explain all of the data from science, with no exceptions. Criteria 2 and 5 ensure that this

requirement is met. However, the natural sciences are not sufficient by themselves. We therefore need all five criteria to conduct our study of reality, as it truly is.

The goal of a metaphysical theory is to identify a **reduction base**, defined as the most fundamental building block(s) of nature, by which we can explain everything else and beyond which we cannot reduce reality further. To explain something in nature is to reduce it as far as it can go. For instance, we can reduce the human body to organs, organs to tissues, tissues to cells, and so on. Every theory of reality will, at a certain point, reach a bottom level, which itself cannot be explained in that same manner without falling into infinite regress. Examples of infinite regress would be endless circles of questions such as, "If God created the universe, who created God?" Or, "What was there before the Big Bang?" When you reach that point, you've arrived at the reduction base.

A theory of everything must then address the problem of infinite regress and explain the origins of that reduction base without relying on reduction to do so.

Ontological theories seek to define a reduction base that, based on the five criteria above, explains the rest of reality. Put another way, reality reduces to the reduction base, which consists of **primitives**. For instance, some physicalists take subatomic particles or quantum fields as the primitives in their reduction base, whereas idealists take consciousness itself as the one primitive in its reduction base.

I will mention here that, throughout this work, we will use the above mainstream approach of reductionist metaphysics to craft an argument for our theory. However, in the end, we will dispense with reductionism altogether. For now, keep this mainstream approach in mind as we build our case.

One more important point to make is that science is ontologically neutral. Despite the fact that the mainstream science of today, particularly in the western hemisphere, assumes a kind of physicalism or materialism, each of the metaphysical worldviews, including the staunchest rivals of physicalism, claim to account for all of science. It is for this reason that we must use the above criteria to evaluate the theories, all the while leveraging science to inform our assessments of each theory's parsimony, explanatory payoff, logical coherence, internal consistency, and empirical support.

Every single metaphysical theory, including mainstream physicalism, is unfalsifiable. I'll say that again, because it's one of the most common misconceptions I see when observing people debate this field. Falsifiability is not a criterion for evaluating metaphysical theories, because all metaphysical theories are unfalsifiable.

That is why we use the five criteria I listed above, which encompass all the falsifiable scientific theories. Falsifiability is critical in the natural sciences, but we are not doing natural science here. Different rules apply, and this does not invalidate metaphysics as a valuable academic field of study that works hand-in-hand with science. To understand reality, it is going to take the marriage of these various disciplines, each with their own values and criteria.

As with all theories of everything, we will be challenging many current paradigms in an effort to resolve paradoxes that science and philosophy have encountered under those mainstream worldviews. Therefore, open-minded skepticism toward any new theory should be the default position of any reasonable person, and it is with that mindset that we will approach this project. We will detail our theory, while at the same time avoiding a dogmatic insistence that all of it, or even part of it, must be correct. History has proven that science and philosophy always achieve the best theories/models *for any given time*, only to be eclipsed by future generations who build on those foundations.

Non-reductionism over reductionism

The dominant scientific and philosophical ideology of the nineteenth and twentieth centuries was (and remains in this young century) the paradigm of **reductionism**, the notion that reality can be best understood by breaking down all physical phenomena to their simplest parts and processes. In so doing, one can observe the behavior of each fundamental part of nature in isolation, thus shedding light on what nature is.

In the natural sciences and in analytic philosophy, reductionism has come to entail reducing all disciplines to the foundations of physics. This approach of observing the behavior of the components of material systems, so as to understand the systems at large, has proven effective for the invention of technology (Azarian 2022).

For instance, we can look at a bird and observe that, with the right angle of its wings, the right rate of speed (reached by sufficient generation of thrust), and the right proportion of those to the bird's weight, the animal can achieve flight. We can then apply those findings to our designs for airplanes and their components: engines, wings, stabilizers, and all of *their* components as well. In proportion to the weight of the plane and its cargo, we'd need to have the wings at the right angle, sufficient thrust to reach the right speed to generate airflow on the wings, etc.

In other words, understanding the behavior of the components of the system tells us how to create a whole system that works.

However, the usefulness of reductionism comes into question when we begin asking about ontology. For example, reductionism applied to a given metaphysics, particularly physicalism, gives the impression that material things, while causally efficacious via their quantitative properties, are alienated from each other. Further, it entails that all life forms, including us, are collections of atoms following purely mechanistic, quantitative trajectories.

This paradigm is beginning to shift, as complexity science has leveraged empirical developments and information theories to offer us a less meaningless, mechanistic view of the universe, perhaps even giving us back a *telos* to reality. All systems move toward greater complexity. Living systems fill the role of the universe coming to know itself through **self-realization** (Azarian 2022).

Such a paradigm shift is tantalizing precisely because the current reductionist model has seemingly reached the limits of its explanatory power. Reductionism has failed to explain, for example, phenomenal consciousness, which is purely qualitative and not at all quantitative, defying the reductionist account of reality. Since phenomenal consciousness is the primary datum of existence, through which we know everything else, this hard problem of consciousness poses a major challenge to the physicalist worldview.

Indeed, the question of how purely qualitative phenomenal consciousness could emerge from or be identical to purely quantitative states of the material brain appears insoluble (Chalmers 2003).

Furthermore, data from quantum physics over the past (approximately) fifty years have refuted **local realism**, in favor of **non-locality** and **contextuality**. In other words, we have significant reason to doubt the idea that the properties of physical entities exist independently of observation ("observation" in the quantum mechanical sense, not the colloquial sense of just perceptual vision), an idea on which reductionist physicalism relies (Wheeler 1990; Hoffman 2019; Kastrup 2021e; Müller 2023). While theories such as the many worlds interpretation, superdeterminism, reverse causality, and hidden variables have been proposed in an attempt to salvage aspects of local realism, all of them still entail non-locality, and none of them are as parsimonious as the interpretation that supports contextuality over non-contextuality (Musser 2015).

While energy and information are now considered "physical" under metaphysical reductionist physicalism, there was a time when they, like consciousness today, went unexplained by that worldview. It was only after the definition of "physical" was expanded, thus abandoning the name "materialism" for "physicalism," that those two non-material "entities" fell under the reductionist physicalist paradigm.

Some physicalists today attempt to perform a similar definitional change with consciousness, arguing that phenomenal consciousness is illusory or the product of **strong emergence**. The former claim of **illusionism** lacks logical coherence (Harris 2019; Kastrup 2021e), the latter lacks a true mechanistic explanation of how and why consciousness emerges at a magic threshold of complexity in a material system (Kastrup 2021e). Both approaches are heavily criticized.

Meanwhile, empirical results in neuroscience, particularly in studies of psychedelics and other altered states of consciousness (cardiac arrest-induced NDEs, G-LOC, intentional strangulation, etc.), have called into question the traditionally popular **identity theory** of consciousness, which demands a 1:1 relationship between the level of metabolic brain activity and the richness of conscious experience. In fact, we find an inverse relationship between them in the cases mentioned above; brain activity sharply drops and the richness of experience sharply rises under the influence of psychedelics, placing the brain in a state of **metastability** that defies the identity theory hypothesis (Parnia & Fenwick 2002; Urgesi et al 2010; Carhart-Harris et al 2012; Cristofori et al 2016; Lewis et al 2017).

Given the challenges faced by the reductionist worldview, science and philosophy must question whether a **non-reductionist** approach, which sees reality as a whole, provides a better ontological framework.

In that case, the division of the oneness of reality into things would be purely *nominal*, an artifact of the way in which we perceive the world and a useful tool that increases our survival fitness. Our ability to divide our perceived reality into things does not necessarily give us a *literal* conception of reality. Further, since reductionist physicalism has failed to explain phenomenal consciousness and failed to resolve the paradoxes of quantum physics, could a non-reductionist approach to physicalism, or to a different metaphysics altogether, better account for our empirical data?

Reductionism (and reductionist physicalism) has been useful in predicting the *behavior* of nature, *as we perceive* nature. But when we ask more profound questions about what reductionists would call the "fundamental" level of reality, reductionism breaks down. Like spacetime itself, at a certain level of reduction, it ceases to make sense (Hoffman 2019).

In other words, reductionism doesn't seem to be able to adequately explain, in a literal sense, what nature *is*, in and of itself. Could it be that reductionism is a useful conceptual tool, a metaphor that we can use to assess our theories of the "fundamental?" Something to take *seriously*, *but not literally*. Or are these concerns over reductionism a case of misguided skepticism about a paradigm that has helped us invent technology?

Our epistemic starting point is phenomenal consciousness, the "field" of raw subjectivity whose excitations are experiences (Nagel 1974; Block 1995; Schooler 2002; Winkielman 2009, 2011). All of the "things" that we know, including our perceptions of the physical world, are excitations of that field of subjectivity. In other words, we know the physical world of material "things" only by, in, and through our starting point of consciousness.

Specifically, we perceive *qualities*, such as colors, textures, sounds, aromas, and flavors, etc. It is these qualities that most people identify as the objective physical world, a viewpoint called naive realism. Evidence from evolutionary biology, thermodynamics, perceptual sciences, and foundations of physics has refuted naive realism, but it remains intuitive to those unfamiliar with the literature.

Whatever reality is, in and of itself, our perception does not provide a literal presentation of it. Rather, the truth of reality is so **combinatorially explosive** that we need a representation (i.e., *re*-presentation) that encodes that vast information into a simplified relevance and salience landscape, which in turn provides insights into fitness payoffs, not literality. In other words, we should take our perceptual interface, the physical world, seriously, as an evolved way we conduct **relevance realization**, but not literally (Vervaeke et al 2009; Friston 2013; Hoffman 2019; Kastrup 2021e).

We then apply mathematics, or quantities, to those perceived qualities, as a way to describe what we perceive. We establish the "thing-ness" of reality by using numbers to

delineate between physical entities. But, if we are to be as skeptical as possible, matter is, itself, an abstraction. It is a label that we use to describe the qualities that we perceive.

Under reductionist physicalism, physical entities are all that fundamentally exist. Physical entities are defined as those that can be exhaustively defined by quantities, such as their mass, spin, charge, frequency, etc. In other words, they are purely quantitative, and it is those quantitative parameters that give them causal power on each other. Physicalism ascribes ontic fundamentality to the *descriptions* of our perceptions. Then, it suggests that these abstractions not only come *before* the experiencer perceiving them, but also *generate* the consciousness that is the experiencer.

This worldview encounters the hard problem of consciousness, in which it is impossible to reduce the qualities of experience to the quantities of physical entities, and we scratch our heads wondering why consciousness is so difficult to understand. Perhaps it is because the reductionist physicalist worldview tries to pull the "territory out of the map" (Kastrup 2021e). It gives ontic priority to the description, not to the thing in itself, which leads us into logical incoherence and internal inconsistencies, such as the hard problem and the paradoxes of quantum physics.

It is even a mystery why our mathematics, a conceptual framework of an evolved primate on a statistically unremarkable planet, in an unremarkable solar system, in an unremarkable galaxy, in a vast universe, should so precisely map onto objective reality. Eugene Wigner once consistently used the word "miracle" in an article on that question of why mathematics would be so effective (Wigner 1960). In other words, we can't even explain the very quantitative descriptions that reductionist physicalism places ontically prior to the experiencer doing the describing.

But what if we treat our perceptual interface of the physical world not as an objective reality of literally ontic, separate "things," but rather as a complete whole? What if we see the "thing-ness" as part of our *description* of that whole, whatever reality might be in and of itself? If we take the physical world of our perception to be a useful tool, which lets us utilize reality from our perspective *within* reality, might our view of the material/physical change, and could that change assist us in resolving the hard problem of consciousness?

In other words, what if we try non-reductionism?

First, the key claim of reductionism is that our position in reality is at a higher and more illusory level than that of the **reduction base**, that which is fundamental. In mainstream analytic philosophical discourse, "fundamental" roughly means "the most real." But if we are at an illusory level of reality, high above the reduction base, then how can we trust anything that we think we know about the deeper levels that are more fundamental, and thus less illusory, than our own? If we start by placing ourselves in an illusion, then we sabotage the entire project of reductionism by creating an epistemic crisis from the original claim.

By taking the non-reductionist position, we avoid this epistemic problem.

Second, instead of seeing reality as having separate levels with differing degrees of realness, we should view reality as that which exists. It is one whole. By definition, there is nothing (observe the language, "*no-thing*") that exists external to reality. Further, anything (note: "any-thing") that exists must *be* reality. Therefore, while our perspective within reality (and as reality ourselves, since we exist), may enable us to describe that perspective in different ways, we should not see reality as a collection of levels, each more or less real than another. There are no truly different levels to reality, only different descriptions (aspects), each one co-realized in a dialectical, reciprocal, agent-arena relationship.

Reality and the information therein appear to the *interface of our perception* as the physical world, itself a whole "image" (referring to the entire sensorium, not just to vision) prior to our division of the interface into *icons*, physical entities. That does not mean that the information is more fundamental than the perceiver, as a reductionist might suggest. Rather, it exists at the same level of reality as a given perceiving conscious agent, who is at the same level as reality, because it *is*, by definition, something (again, note the language) that exists. It is the perceptual *appearance* of the information that changes, not its ontic level within reality.

As has already become clear, our language, another of our conceptual frameworks, makes it difficult to escape the "thing-ness" we ascribe to the world. Our linguistic approach is based around subjects and objects – "things." As such, I'll do my best to transcend those limitations, but our language, and indeed all our descriptive capacities as evolved primates, will certainly prove too restrictive to accurately handle the concept of reality, in and of itself. We'll do the best with the symbology that we have.

As a thought exercise to demonstrate the above point, how would we describe what a car ontically is, as a physical entity? If we start with its function, we would naturally include all of the parts that make the car work. The steering wheel, the engine, the pedals, the shifter, the spark plugs, etc., would all be elements of the car, in and of itself. Our conclusion is to describe the car as a grouping of **atomistic** (as opposed to relational) "things," each "thing" playing a causally efficacious role on another "thing," in a long chain of cause and effect that causes the car's function to emerge from those components (note also the similarity to the reductionist physicalist conception of consciousness as a function emerging from the components of the brain).

That would be the standard reductionist approach, and we could take it all the way down to the quantum fields. All the while, we'd use the mathematical descriptions of these physical entities, like their mass, spin, charge, etc., to exhaustively define them and to explain their causal power over each other.

However, where does that cause and effect chain stop? Where is the true boundary separating the car from the rest of the physical universe? We will never find it. After all, oxygen is a necessary component for combustion to occur, and combustion is required for the car to function. So now we need to include Earth's atmosphere as a component of the car. Of course, the car needs the road in order for the tires to grip, so now we need the

ground to be a component of the car, in addition to gravity itself. Now, the "thing-ness" of the car encompasses the entire planet. But the planet is only in this state due to the full causal history of the universe, so really the "thing-ness" of the car must also include the entire universe as a component. To suggest otherwise would be to violate the definitional parameters that we set at the beginning.

In truth, there is no boundary between the car and the rest of reality. There is only reality. Any "thing-ness" we ascribe to reality, such as the label of "car," is nominal. It allows us to talk about and to work with the combinatorially explosive true nature of reality. In other words, we evolved this perceptual and conceptual framework for its survival advantages, not for its ability to convey literal truth about the ontic status of reality, in and of itself. Our ability to invent technology (use tools) is one such advantage.

Next, we can look at the concept of **affordances**, which are **transjective** (as opposed to objective or subjective) in nature. They are not a property of the agent, they are not a property of the arena. Rather, they are a relationship between the agent and the arena, and that co-shapes the environment to the agent and the agent to the environment.

In other words, a water bottle is graspable only when a conscious agent is able to grasp it. The graspability is not a property inherent to the bottle. Rather, the bottle's list of properties changes in nearly infinite ways depending on the agent-arena relationship in play. A person can't be a tennis player in a classroom. They need to be on a tennis court. Similarly, a tennis court could be used for any number of other things besides tennis, until a tennis player enters it. Once again, the properties of the agent and of the arena are transjective. The agent and arena *realize* each other depending on their relationship (Vervaeke 2022).

Every "thing" has a never-ending number of **aspects** (i.e., the Greek *eidos*, in the Platonic sense, not in the Aristotelean sense referring to structural-functional organization), but they're not separate from each other. The aspects belong together, flow together. We can't directly perceive the whole of reality, because if we precisely mirrored its high levels of entropy in our internal state, we would dissolve into an entropic soup (Friston 2013). However, because of the **aspectualization** that accompanies our representation of the whole of reality, we can intimate the whole.

There is a through-line of all the aspects, but the aspectuality of a "thing" is open-ended. When I say that reality is the only "thing" that exists, even then I am only imagining the whole as one aspect, and this is the best that we can do while locked inside the "thing-ness" of our perceptual and conceptual frameworks. Our language, intellect, and cognitive apparati can't comprehend the whole, but the whole is still intelligible to us via the through-lines. This intelligibility of an incomprehensible whole of reality through aspectuality and representation is what makes science and philosophy possible.

In other words, science and philosophy *presuppose* it. To deny the above claim is to abandon the projects of scientific and philosophical investigation. Indeed, our representation of reality always involves aspectualization ("thing-ness"), in an infinite

number of possibilities, until one is selected depending on the specific configuration of the agent, its state, and what it predicts the state of the world will be. This flows naturally into the previously mentioned interpretations of quantum physics and what the wave function mathematically describes.

Further, the above supports the paradigm of the physical universe (as we perceive it) as an evolved perceptual interface. After all, fitness payoffs depend not just on the true state of reality, but also on the organism (conscious agent), its state, its actions, and its competition (Hoffman 2019). The organism then reciprocally influences its arena, creating an evolutionary dialectical realization between agent and arena. If the physical universe is an artifact of this process at work on our perceptual abilities, then we would expect our perceived world to display transjectivity, and that it does.

As such, even our physical bodies, which we closely identify with our identities as separate ontic entities, are only "things" in a nominal sense. Their properties, like the properties of every other material "thing," are constantly in flux, as reality *self-realizes* (realizes itself relative to itself). It must do this, since, by definition, there is "no-thing" external to reality. It is all that exists, and so to be realized, it must realize itself.

Our bodies, as physical entities, are also icons on the screen of perception. Like other material icons, they have no inherent ontic "thing-ness" separate from the one aspect of reality as a whole. The physical universe is one "thing," because it is a single projection of our perceptual and conceptual frameworks.

In other words, the aspects therein are our way of realizing reality from within reality, *as* reality. We are reality engaging in self-realization.

Therefore, taking this non-reductionist position, even before entering into metaphysical theoretical commitments, we avoid the epistemic self-sabotage of reductionism.

We also avoid the hard problem of consciousness, since the brain, as part of the body, is another icon of the perceptual interface. It is not an ontic "thing," but a description conjured up by and in consciousness to serve a survival purpose. It is trivial to expect a correlative relationship, but not a causal one, between the image of a thing and the thing in itself (ex: fire is the image of combustion, and so they correlate but are not causally linked).

Therefore, we'd expect to find many **neuronal correlates of consciousness (NCCs)**, but no causal link between the brain and conscious experience (Koch 2004). Indeed, that is exactly what we've found. The hard problem only arises if we attempt to *reduce* consciousness to the brain, treating the latter as a "thing" with a separate ontic identity. But under this non-reductionist approach, that's not what we're doing, so the problem dissolves.

Furthermore, we explain why our mathematics miraculously maps onto the physical world. The answer: both of them are conceptual frameworks that *describe* reality, but are not *literally* reality, in and of itself. They help us survive, but they are not the truth. This realization flows naturally into dissolving the paradoxes of quantum physics. The

measurement problem, entanglement, the quantum Cheshire Cat, and other paradoxes all dissolve if we stop trying to make physical entities "fundamental," in the reductionist sense, but rather treat the physical as one whole *appearance* of reality. *Not a presentation of reality, but a representation* ("*re-presentation*").

Quantum physics is then best interpreted along the lines of Carlo Rovelli's **relational** model (Rovelli 1996), and Markus Müller's physics of the first-person perspective (Müller 2023), both of which are consistent with the previously referenced interpretations that support non-locality and contextuality.

Finally, we can make sense of the **holographic principle**, the **five constants** (like the speed of light), and the **Planck scale**. Spacetime ceases to make sense at a certain miniscule level, and the natural constants are what they are, because spacetime itself is not "fundamental" in the reductionist sense. Rather, it is the one, whole appearance of reality, projected by our perceptual and conceptual frameworks, which has been developed by evolution by natural selection to encode fitness payoff information coming from our combinatorially explosive external state.

In other words, the physical universe is what it is, and behaves as it behaves, because that is how we need to perceive reality in order for us to survive. Put another way, that is how evolution by natural selection shaped out perceptual and conceptual models, which in turn give us the physical universe and its "things" as tools.

To call the physical and spacetime *illusory* is a mistake, although some publishers' marketing departments will leverage that phrasing to sell books. The physical is *real*, because it is *realized*. More than that, the physical world is how we make the incomprehensible whole of reality intelligible. For that purpose, on which science, technology, and philosophy rely, the physical world need not be a literal presentation of reality. Indeed, it can't be.

Realization and aspectualization are the key factors in the non-reductionist framework, as opposed to the language of fundamentality and illusion that is central to reductionism.

Our relationship to reality is *transjective*, and our sense of objectivity and subjectivity are both artifacts of our evolved perceptual framework. That framework makes us feel ontically separate from reality, thus establishing subjectivity and objectivity, as a way to help us survive within reality, *as* reality.

By abandoning reductionism for non-reductionism, we can dissolve many of the problems with our current paradigm, although we'll later also consider metaphysical alternatives to physicalism at large.

If our perceptions (and our descriptions of our perceptions) are not actually ontic things, what about the entities that we consider purely conceptual, purely *qualitative* (as opposed to the purely quantitative nature of physical entities), such as good and evil, or the experiences of hot and cold? Our language also describes these conceptual entities along

subject-object dynamics, ascribing a "thing-ness" to them, even though they are not "physical."

As with material things, we see transjective, reciprocal, dialectical realization at work. The conception of **opposites** supports human thinking in a number of ways, including our "everyday counterfactual thinking, classic deductive and inductive reasoning tasks and the representational changes required in certain reasoning tasks … it follows that opposites can be regarded as a general organizing principle for the human mind rather than simply a specific relationship (however respectable) merely related to logics" (Branchini et al 2021).

In other words, we make sense of the world by creating **dualities**, such as good and evil, hot and cold, tall and short, etc. We mentally position these pairs as opposites, allowing us to reason and grok important information about our arena.

For instance, we use the hot-cold dichotomy in order to know if the temperature of an entity or of the environment at large is dangerous or suitable to our survival. A hot stove delivers negative fitness payoffs. So does a frozen lake.

The dangerous properties of a hot stove and a frozen lake are not properties of the "things" in themselves, but rather are only realized as such once we, conscious agents, enter into a reciprocal, dialectical, agent-arena relationship with the things in themselves. For instance, many other organisms are able to survive intense heat or cold, but both the hot stove and frozen lake are outside the temperature range that humans need. Thus, the agents and the arenas co-realize each other, and that relationship is "re-presented" in our perceptual and cognitive frameworks as icons (physicality) and as the conceptual notions of "things" and opposites.

Duality implies the separate ontic existence of the two entities making up the dichotomy. In order for them to be opposed, surely they must exist independently of one another as two distinct "things."

However, we instead find a more complex, self-realization of the conceptual, in which "thing-ness" is merely nominal, just as it was for the material. The "things" once again reciprocally realize each other in a kind of dialectical relationship, not so much *opposing* each other as *depending on* each other's co-existence, and ultimately on a shared **unity** (McGill & Parry 1948; Lincoln 2021; Vervaeke & Mastropietro 2021), in order to be *realized*, and thus made *real*.

In all cases, we get back to the logical necessity that reality, as the only "thing" that exists, must realize itself in order to be real.

For instance, good and evil do not really have separate existence as delineated "things," for at what deficiency of good does evil begin? And at what deficiency of evil does good begin?

When we say something is "evil," are we not really referencing degrees of good? And, reciprocally, when we say something is "good," are we not really referencing degrees of evil? When we say something is "hot," are we not really referencing degrees of cold? And,

reciprocally, when we say something is "cold," are we not really referencing degrees of heat?

There is, indeed, no separation, no ontic delineation, between these concepts that we consider opposite "things." They are relative to each other, not atomistic. Evil is the negative aspect of good, good the positive aspect of evil. Hot is the higher aspect of cold, cold the lower aspect of heat. We never encounter absolute goodness or absolute evilness of any finite nature. Instead, we are always co-realizing reality in a reciprocal, dialectical manner.

These *aspects* are part of the evolved perceptual and cognitive framework that conveys fitness payoff information to the conscious agent. In other words, it tells us about positive or negative effects on our survival, not about ontically independent properties of ontically fundamental (to use the reductionist language) "things."

Indeed, the properties change depending on the agent-arena relationship in play, just as we saw with the material realm under Rovelli's interpretation and Müller's interpretation of quantum physics. In other words, the structure to which our consciousness gives our conceptual entities parallels the structure to which our consciousness gives physical entities on the screen of perception, providing further substantiation for the claim that the physical is, in fact, a evolutionarily useful representation, and not a literal presentation, of reality, in and of itself.

At this point, one might raise the following objection. My argument has leveraged and centered around the role of conscious agents in realizing reality, including the physical world as a perceptual and conceptual interface. Doesn't that necessitate, and indeed presuppose, a "thing-ness" to conscious agents? And isn't that "thing-ness" precisely what I have denied by saying that reality itself, as a whole entity, is the only "thing" that exists? Doesn't that reliance on conscious agents, seemingly each a separate "thing" from the reality that is their environment, refute my claim that reality, as the only "thing" that exists, must realize itself in order to be real?

To address this, we must finally get into the metaphysical differences between physicalism and idealism. The two theories are often seen as opposite positions founded on the **dichotomy** between our conceptions of matter/physicality and mind/consciousness. Reductionist physicalism takes the former to be fundamental, while reductionist idealism takes the latter to be fundamental. Therefore, many assume that they are opposite alternatives existing at the same level of abstraction, thus forming a dichotomy (which requires that both opposing points inhabit the same level of abstraction).

In a way, this duality between qualitative mind and quantitative matter ensures a hidden dualism within physicalism, which claims to be a monist theory that rejects such a fundamental pairing. It seems that physicalism is unable to escape that duality, however, so long as the hard problem of consciousness remains in place.

The dichotomy is false, because the physical and consciousness are not, in fact, opposites, even in the conceptual manner in which we tend to frame them. Further, the

hard problem arises from our misunderstanding of the relationship between consciousness and the physical world we perceive.

Recall that our epistemic starting point is phenomenal consciousness, the "field" of raw subjectivity whose excitations are experiences. Everything we know is an excitation of that field of subjectivity. In other words, we know the physical world of material "things" only by, in, and through our starting point of consciousness. We perceive *qualities*, then assign *quantities* to describe that qualitative world of our perception.

As such, our perception of the physical, by definition, presupposes the existence of consciousness *first*, because perceptions are *contents* of our experience, excitations of the field of subjectivity. The "physical" and all of the other labels we attach to that world of perception are *abstractions* that come *after* consciousness, because it is consciousness that creates (*realizes*) the abstractions. Therefore, consciousness and the physical cannot be opposites in a dichotomy, because they are not at the same level of abstraction (if we grant the "level" language of reductionism).

In fact, consciousness is the only "thing" that we can be sure has ontic existence, because we can never know anything else except by, in, and through it. It is the primary datum of our existence. It is the only "thing" to which we each have direct access.

Now recall that, out of logical necessity, we defined reality as the only "thing" that has ontic existence, because, by definition, nothing can exist external to reality, and all that exists within reality must *be* reality.

Therefore, it follows that consciousness *is* reality. It is not that all of reality exists in my mind alone or in your mind alone (I reject solipsism), but that consciousness is the *substrate* of reality.

This, of course, aligns with the metaphysical theory of **idealism**, and refutes the foundational metaphysical claims of physicalism. This idealism would then best be considered non-reductionist, as each conscious agent, or each instantiation of consciousness, would *not* be an ontically different "thing" separate from consciousness/reality as a whole entity. Rather, like a wave in the ocean, a conscious agent *appears* to be a separate entity from its medium, but is really just an *excitation* of that medium.

Therefore, the objection fails. Conscious agents are not ontically separate "things" from reality, because consciousness *is* reality. The objection does challenge non-reductionist physicalism, but not non-reductionist idealism.

In conclusion, the division of the oneness of reality into "things" is purely *nominal*, an artifact of the way in which we perceive and conceptualize the world. It is a useful tool that supports the probability of our survival and reproduction, but it does not give us a *literal* presentation of reality.

Since reductionist physicalism and reductionism at large have failed to adequately explain reality, and since reductionism depends on the ontic existence of separate "things," which we've shown to be nominal, we need new paradigms.

As such, non-reductionist idealism provides the greatest explanatory power, logical coherence, internal consistency, and theoretical parsimony/elegance, as it describes a reality that co-realizes itself in a reciprocal, dialectical manner. We avoid the logical contradictions encountered when we give "things" fundamentality and then attempt to reduce reality to those fundamental "things."

Reductionism is, I would argue, a useful metaphor, not unlike the perceptual interface of the physical world, itself. It has helped us develop technology, as demonstrated in the earlier airplane example. Reductionism allows us to effectively discuss the behavior of nature in the natural sciences. Put another way, *it helps us work with the interface*. After all, the technology we invent, like the airplane or the car, is also part *of* that interface.

In metaphysical philosophy, reductionism allows us to quantify the assumptions of a theory by counting the number of things in the reduction base. In that way, we can use it to identify the most skeptical metaphysics on the table.

However, for all of the reasons above, reductionism is not a literal presentation of reality, the "thing" in itself. Rather, a non-reductionist approach is superior. Reality is a whole entity. It is "One." It is constantly self-realizing, and we, as conscious agents, play a role in that process of reciprocal, dialectical, co-creational realization.

There are no levels of fundamentality and illusion. Instead, reality is real because it is real-*ized*.

Having said all of that, let's begin our theory of everything and elucidate the melody of reality.

4. On cosmology

We'll start by defining reality and covering important logic, before we dive into the specifics of what reality is doing and how its contents appear from our perspective. Much of this section will sound highly conceptual, but it is ground we must trod. I promise that in subsequent sections, we will take this theoretical language and turn it into the hard science of our daily experiences in spacetime.

Reality is the set of everything, such that nothing else exists that is not reality. Additionally, nothing exists outside of reality, because to claim the existence of anything beyond everything is illogical. As such, our theory will explain everything that exists.

We will describe reality as a system. As the set of everything, reality encompasses subsets, which exist within reality, and there are no supersets to reality. Rather, reality is the superset of each of the subsets within it, including our own experience in what we perceive as spacetime.

In the beginning, there was nothing, or the absence of anything. Inherent to nothing is the infinite potential for something; that is, for some constraint on the potential. This infinite potential represented maximum uncertainty, or maximum possibility, or maximum *entropy*. In this case, "entropy" does not mean disorder, such as in a physical example like

stirring cream into coffee. Rather, it refers to the number of possible pathways toward a given goal, more comparable to "entropy" in a psychological context, rather than a physical context (Friston 2012; Hirsh et al 2012).

We'll call this primordial state of reality **alpha potential**, and it represents infinite possibilities. It is informationally defined as a *zero constraint ground-state of existence*.

Given infinite potential for something to exist, it was inevitable for something to exist, and so nothing became something. This change in state represented a reduction in potential and the first increase in information. If we explore the etymology of "information," we find it to mean "to give form to potential," and it is this meaning that I invoke here. A possibility out of the infinite possibilities was explored, giving form to that potential. In other words, reality self-restricted alpha potential by defining a constraint on that potential. In essence, reality made (and makes) its own choice to exist.

In this sense, some-thing "was."

To be is to be aware. Awareness with a choice *is* **consciousness** (Campbell 2003), in this case at the level of reality. In other words, reality *is* consciousness. Generalized cognition is the means by which reality configures itself from alpha potential. Since we humans are (local and constrained) parts of reality, our agency operates on the same cognitive principles (we'll explore metabolizing agents, localized consciousness, and the mind-brain relationship later on). Therefore, this theory of everything chooses idealism as its metaphysics, meaning that it takes consciousness as the reduction base and as the substrate of all reality. It is a monist theory, so consciousness is the only primitive that the theory will reference. We will explore the logical necessity of taking consciousness to be fundamental shortly, and then later provide empirical substantiation.

This **Fundamental Mind (FM)**, like our individual, localized consciousnesses, is an information system. As a rule, information systems evolve toward lower potential and higher organization via the integration of information, which is the content of the system. As such, information is the *content* of FM. Again, potential in FM is defined as the vast array of possibilities, or the uncertainty derived from the essentially endless pathways of order creation of the alpha potential state.

Since reality is, by definition, all that exists, its choice to exist is identical to the existence that is chosen (i.e., the universe itself), and is thus reflexive. "Existence is everywhere the choice to exist" (Langan 2002). Reality (and the universe) must, therefore, define its own existence, with a selection function that is identical to that which it selects. Further, since reality is, by definition, self-contained, it has nothing but itself of which to consist, making it necessary for reality to self-distribute its own contents and all requisites for generating those contents.

How does reality define itself?

FM moves away from its alpha potential state, closing those pathways as an information system, through the **fundamental process of evolution (FPE)**, a *recursive process* which sees information (the contents of FM) self-organize into sequences and

patterns by first exploring all of the possibilities for change, then moving each respective entity toward its goals. This is similar to the *physical* (as opposed to psychological entropic processes) process described by Swenson in the Law of Maximum Entropy Production (Swenson 1988). The FPE is also more formally called (in the sciences) the **emergent complexity theory**, and emerges from any complex system that possesses any number of alternative choices and possibilities of states. Since most readers will likely find the term "evolution" more accessible and intuitive than "emergent complexity," I will call this process the FPE throughout this writing. One can also think of it as universal Darwinism applied metaphysically to the most fundamental level of reality.

While the same FPE occurs in our Earth's biosphere as what we call "evolution by natural selection," our theory defines **evolution** more generally, as progressive increases in organized stability and decreases in entropy. This can occur in any type of information system, regardless of substrate. The FPE is recursive, in that it creates layers upon layers of organization. This continuous process of construction repeats again and again at every level of reality. Physical matter always evolves to a lower energy, higher entropy state. Consciousness always evolves to a lower entropy state.

In the FPE, entities, agents, and (more generally) systems, explore all possible states and configurations of being, either external or internal, to find the "fittest" option, based on internal or external selection pressures that drive the process. In the case of consciousness, that would be the configuration with the highest possibility for information and the lowest psychological entropy.

For FM, which started out as nothing, the only other possible state to initially explore was something, or raw awareness. As such, it began with binary states; it could be something or nothing, at rest or excited, disturbed or undisturbed, still or oscillating. As we've seen in our own advances in computing, a starting point of binary states can lead to tremendous diversity of information in the end. Since FM is everything, with nothing external to it, the subsequent state change was internal.

As we'll see later on, our sense of time within our **physical universe reality (PUR)** is an artifact of our perception, finely tuned by selection pressures that cause biological life to follow a similar process (evolution by natural selection). However, when FM changed its state from nothing to something, it became aware of that state change, thereby experiencing an emergent **proto-time**, which is part of the "rule-set" of FM that facilitates the FPE and allows FM to organize information into patterns of states.

Proto-time is not the same as the time that you and I experience as part of PUR's spacetime (which we'll cover in-depth in a subsequent part of the theory). What is important to note about time more generally is that it emerges from changes in state. We experience an external time, which is based on changes of state that are external to us in space, and an internal time, which is based on changes of state within our own **mind-space**.

We use external time to mark how long it takes for things outside ourselves to change states, such as the day-night duality, the phases of the moon, or the inundation of

the Nile River. These markers are external to all of us, and so external time appears to be part of an objective physical universe, the PUR, that we all share. We can then coordinate our external time with each other via these external state changes around us.

Internal time, however, is unique to each conscious agent's experience at any given moment of external time, because internal time is based on an individual mind's changes in state. This is why the flow of time that we experience within our mind is often faster or slower than the shared external time passing around us.

For instance, when you're frantically packing on the morning of a flight that will take you on vacation, your internal states, or the contents of your mind-space, rapidly change. Thoughts, emotions, and perceptions all pass in and out of your attention, or meta-consciousness, quickly as you race to get out the door. It seems as if you "don't have enough time" to get everything done. This expression actually means that you are experiencing your internal time as faster than the passage of external time. And this is indeed the case. Time seems to speed up, not because external time has accelerated (it hasn't), but because your internal time, or the interval between internal state changes, has accelerated. Then, when you finally get to the gate, you have to sit and wait for the plane to arrive. Now, your experience of internal time seems to be the opposite of what it just was. Indeed, in this situation of waiting and boredom, external time seems to be passing *slower* than before. Of course, the same phenomenon is occurring, now in reverse. Time seems to slow down, not because external time has decelerated (it hasn't), but because your internal time has decelerated.

Since there is nothing external to FM, it only ever experiences internal state changes. Thus, proto-time is the interval between FM's internal state changes, *as experienced from FM's perspective*. In other words, proto-time is FM's internal time.

Therefore, *time at any level of reality is not fundamental to reality, but emerges at the first state change, external or internal, that is experienced by a system of consciousness.*

At the level of reality as a whole, that conscious system, or agent, *is* FM, or reality itself. Similarly, for us as conscious agents within FM, the time of spacetime begins the moment that we first experience a state change, whether external or internal. We all agree on objective measurements of a shared flow of external time because our perceptual experiences of those external state changes are very similar. That is so because our human sense organs give us all, as humans, roughly the same sensory experience of that which is external to each of us. Thus, we can form a consensus (see the later chapter on constructivism and intuitionistic logic). Further, our experiences of the flows of external and internal time can differ. We don't experience proto-time directly; it is only within the perspective of FM itself, which underlies our own spacetime.

We'll explore what spacetime and the PUR actually are later on, when we cover more information about how evolution shaped our perceptions to give us vital information for our survival.

In this way, FM explored possible state changes via the FPE, and each development closed potential pathways and increased information.

FM's state changes evolved from a binary choice (from nothing to something/from alpha potential to constraints on potential, or to the informational system we've called FM) to greater levels of complexity. Patterns of states formed, with near limitless possibilities for patterns of patterns of states. FM explored all of its potential states, and used this computational process, along with memory and logic, to give order to its patterns. In the process, the total potential (again, psychological entropy) of the FM system decreased, moving further away from alpha potential as proto-time progressed.

Proto-time allows for such sequences of state changes to propagate information, thus increasing information exponentially. In this way, a state change can lead to multiple state changes, which can lead to patterns of state changes, which can lead to patterns of patterns, etc. Patterns can coordinate in order to share data and amplify their information, making them more effective. This happens at the *speed* of state change, which is the upper limit on the propagation of information.

We can use the behavior of neurons in the central nervous system (CNS) as a metaphor for these communicating patterns. When a neuron changes its state, it can pass information along to other neurons, which then pass it along to still more neurons. In this way, the information propagates and is amplified, reducing the potential of the entire CNS in the process and correlating with a selected conscious experience in the mind. It is no coincidence that the structure of the CNS, which is correlated with our own consciousness, bears resemblance to the structure of reality, which we've claimed to be a "mind," or consciousness at the fundamental level of everything.

Through this sequential propagation of information, FM learns. **Learning** is an exponential process in that the more that you know, the more that you *can* know and the better you become at learning. Knowledge builds on itself, but requires a sequence of state changes in order for the FPE to facilitate the ability to learn. As a result, the level of order rapidly increases, while the level of potential rapidly decreases, as both the capacity for learning and the amount of information (potential given form) learned (that is, organized and stored) increase together.

Now we return to the idea that reality must be syntactical and linguistic in nature and structure. Why? Information is the currency of language. Or, put the other way around, *language is the carrier of information*. Since reality is a carrier of information, it must be linguistic. In other words, like a **generative grammar** of a language system, reality starts from a base truth (alpha potential), a set of axioms (ruleset), and explores all possibilities based on those starting points. Our languages map onto reality with such miraculous precision (as in the paradox, "the unreasonable effectiveness of mathematics in the natural sciences") because they match this self-generative structure and activity of reality itself.

It is important to understand that none of these words, such as "speed" or "communication," is meant to imply space. Later in this theory, we will show that space is

not fundamental. Rather, these words are meant to describe the speed of thought and the interconnectedness of FM's mental contents, which can evoke each other just as our own thoughts, emotions, memories, and perceptions do, in FM's mind-space. In fact, as we will see, it is the ability of mental contents to evoke one another that appears to our perception as physical causality. What we are discussing here is how quickly FM can access information within itself. The space of our spacetime will enter into the picture soon enough.

This learning process continues and is the central goal of FM. In other words, reality is teleological, that telos *being to reduce potential and increase information. In short, to* ***create****.*

That it has a goal implies that FM has **free will**. This must be so, because consciousness necessarily is able to make choices. Its capacity to choose will depend on the number of decisions it is able to process in its mind-space, but choice is an inherent property of consciousness. Therefore, FM has the power of choice, which we would call free will.

Indeed, FM is a **self-deterministic** reality *from its own perspective*. It creates itself, it evolves itself, it acts upon itself, and it experiences itself.

If reality were a line of musical notation (a melody), it would write itself, evolve itself from single notes to chords (of increasing complexity, harmony, and variety), play itself, and listen to itself.

Thus, we'll call our theory *The Melody of Reality*, or **MOR-Theory** for short.

Logically, reality must be self-deterministic. By definition, there is nothing external to it. In other words, it has no external state. It *does* have an internal state. Therefore, anything that happens in reality takes place within itself.

It is logically incoherent to posit that something external to reality causally set a deterministic (or superdeterministic) chain of events in motion at the very beginning, as would have to have been the case if the universe was merely the dead, meaningless mechanism that reductionist physicalism claims it to be. Any given chain of events *can* be set in motion, but it must be triggered by reality itself, within itself.

Further, indeterminism is logically incoherent, because our reality is empirically known to have order. Indeed, in the history of science, whenever we have appealed to randomness as the origination of a phenomenon, we have been proven wrong. Randomness is a placeholder for our ignorance, not a logical description of reality. Moreover, if something is totally indeterministic, it has no reason to occur and therefore will not occur. For something to be realized, it must be distinguished from its logical complement, and that act of distinction rules out indeterminism. We'll explore this in greater detail in the chapter on quantum mechanics.

Traditionally, science and philosophy have considered only those two options: determinism or indeterminism. Both are logically incoherent. The third option is therefore logically necessary and coherent: *self*-determinism.

The free will of FM is the driving force of that self-deterministic process. FM's free will *is* the FPE, the rule-set that guides the system from alpha potential to its end state, which we'll call **omega information**, at which point all of the possibilities will have been explored. Such a goal requires that FM is not only phenomenal consciousness, or raw awareness at the universal level, but also that it entails a degree of **meta-consciousness**, or the awareness of its awareness. FM's meta-cognition is not the same as our own, because our cognitive functions evolved under the unique selection pressures of our subset system, which exists within the superset system that is FM. As a subsystem, we have an external state *and* an internal state. As such, our selection pressures differ from that of FM, since we are within FM and have external pressures that direct the FPE as applied to us. That a subset displays a property of its superset is trivial, but that fact does not mean that the property will manifest in the same way at both respective levels. As such, we should not anthropomorphize FM by projecting our mental processes onto its own.

The awareness of its awareness allows FM to have a goal, which is to evolve and thereby increase the organization, or quality, of its contents (information) through integration, converting potential into patterns in sequential intervals (proto-time).

We've covered a lot of material, but the origins of our theory have required only two stipulations. First, we stipulate that consciousness is the primitive of the reduction base, because it is logically necessary for this to be so; consciousness is the only "thing" we know that meets the logical criteria of identification with reality itself (more to come on this). This is the most controversial stipulation, due to the fact that it is a metaphysical commitment (idealism). Even so, it is a logical necessity, and not an assumption.

Second, we stipulate that evolution occurs at all levels of reality, as the logically necessary process by which reality, as a self-contained system, defines its own existence. Since there is nothing external to reality, this must be so. In future sections, we'll see that the Second Law of Thermodynamics and the counterplay between information and potential direct the progression of the universe. Therefore, our second stipulation is not controversial at all. Indeed, as complexity science further erodes the worldview of traditional reductionist physicalism, this second assumption will become less of a burden and more of an advantage for our theory, which must provide sufficient explanatory ROI to justify the above two stipulations. Without invoking a metaphysical commitment, we can make a empirically supported case for a *telos* to reality, an organizing principle (which I call the FPE) that drives reality from high potential (psychological entropy) and low information, to low potential and high information.

Reality must *realize itself*, because reality is, by definition, the only "thing" that can bring itself into existence as real. That is the purpose, the *telos*, of existence – to choose to exist.

The organization and quality of the entire FM system increases as its contents work together to build complexity. That exponential growth is the result and purpose of the FPE, ultimately evolving a single musical note into a symphony of perfect complexity.

We, as information subsystems of the FM system, play a role in writing, evolving, playing, and listening to this melody of reality.

More than parsimony: why we must have a holistic, monist theory

Monism is essential not just because it is the most parsimonious option, but also because logic demands it. Let's dive deeper into the logic behind seeing reality as a whole.

Reality is the set of everything that exists, such that there is nothing real that is external reality, and everything that is real is within reality. If two things have a real difference between each other, then they (and that difference) still share the similarity of being within reality. To that extent, everything within reality is similar in spite of any other real difference (Langan 2002).

The difference relation between two real, different things necessarily exists within the medium of reality. In other words, the difference and "thingness" arise out of reality's "rule set," or its structure and FPE. In that way, reality is at base a single medium of potential, from which difference relationships are actualized, and "things" are realized. Therefore, no difference between two real things is absolute. The very fact that we can discuss their difference relationship in language, which has a structure ("rule set") that maps onto reality, tells us that they share an ontological medium, of which any "thing" is an excitation.

Furthermore, the medium must be homogenous and the "rule set" must be stable in its structure, otherwise we would not perceive reality as having informational stability and ordered physical laws. That we do requires reality to be stable and share a common medium. And since all differences can only be reduced to this same, single medium of reality, we must adopt a monist theory and holistic language in order to describe them and reality itself.

A handy metaphor is that of ocean waves. The still, calm, base surface of the water is homogeneous. It is a single medium, whose excitations evolve according to a natural "rule set" (determined by factors like wind, currents, temperatures, etc.) to form waves. Each wave appears different from each other wave, and we can even measure their dynamics to find real differences between them. Those differences can be described using languages (either words or mathematics) that map onto and correspond with the structure of the reality they describe. However, no individual wave and no difference between waves in a given set of waves exist independently of their medium, the ocean.

As such, when developing a theory of "everything," we can use reductionism as a metaphor, but base reality is ultimately holistic. And further, base reality must be self-contained, homogenous, self-deterministic, and evolving (self-determining) along fixed, structured laws (the "rule set"). In order to develop a theory of that reality, the language of our theory must map onto that same structure. This makes it logically

necessary to adopt a monist theory (it's also logically necessary for idealism to be that monist theory, for reasons previously discussed).

Additionally, it is logically necessary for reality to be **tautological** at its most fundamental level. That is, any "theory of everything" must necessarily describe absolute truth, not just partial truth (by definition). Any definition of absolute truth is, by definition, a tautology, or a statement that must be true by necessity or by virtue of its logical form (Wittgenstein 1921). If not, then that truth would not be *absolute*, and the theory would not describe reality.

Christopher M. Langan describes such a reality theory as a **supertautology**, which entails: "Since absolute truth must be universal, it is always true regardless of the truth values of its variables (where the variables actually represent objects and systems for which specific state-descriptions vary in space and time with respect to truth value). Moreover, it falls within its own scope and is thus self-referential. By virtue of its universality and self-reference, it is a universal element of reality syntax, the set of structural and functional rules governing the spatial structure and temporal evolution of reality. As such, it must be unfalsifiable, any supposition of its falsehood leading directly to a *reductio ad absurdum*. And to ice the cake, it is unavoidably implicated in its own justification; were it ever to be violated, the [true/false] boundary would be disrupted, and this would prevent it (or anything else) from being proven. Therefore, it is an active constraint in its own proof, and thus possesses all the characteristics of a tautology" (Langan 2002).

The logical necessity that a reality theory be an absolute truth (a supertautology) also logically requires a monist theory. In essence, the simplest expression of reality is the following tautology: **1 = 1**.

Here we find why it is also logically necessary to take consciousness as fundamental. By definition, there is nothing external to reality, which means that reality must realize itself. In other words, reality must be self-generative and self-known, with no external cause that could have set it in motion. Reality cannot be subject to the same causation to which physical entities are subject, which has the necessary implication that reality is not itself physical. Physical entities are defined in mainstream philosophy as those which are exhaustively described by quantities, the equations of physics which give physical entities causal efficacy over each other. Furthermore, reality must be able to start from maximum potential and evolve by exploring possibilities *within* itself, which is the opposite of the evolution we see physical entities undergo. It is also precisely the same evolution that each organism's consciousness undergoes during its lifetime, starting from maximum potential and no information at birth (or at whichever point experience begins in the womb). Phenomenal consciousness, as a purely qualitative entity that is not at all quantitative (and therefore, by definition, not physical), is the only "thing" we know of that meets these criteria for identification with reality itself. In other words, reality cannot be a fundamentally physical entity; it must be transpersonal mentation. Any alternative is logically incoherent from the start.

Not only that, but base reality, or the supertautological absolute truth, must precede any differentiation. Base reality, or "no-thing," is by definition a unity, which can be expressed simply as 1 = 1. This is so, because real differences between real "things" and the "things" themselves must, by virtue of being real, exist within reality, with reality as the medium of their existence. Phenomenal consciousness is, by definition, a unified field of contentless awareness, whose excitations are differentiated experiences, which can be considered "things." It is consciousness that generates (self-determines) and self-realizes these differentiations and "things." Physical entities do not have this self-directed ability to self-actualize and move from unity to differentiation within unity. Therefore, consciousness remains the only candidate for identification with the absolute truth, or with reality.

5. On complexity

We're now going to jump into our perceived spacetime reality, the PUR. Later on, we'll explain the specifics of what spacetime actually is, but it will help us explain those details if we start connecting the highly conceptual material we've just discussed to the universe that we observe via our perceptions.

Complexity science looks at, you guessed it, *complexities* in nature, called dynamical systems. A **dynamical system** is one in which its components interact. In this way, the collective behavior of the interacting components leads to the evolution of organisms, ecosystems, consciousness, and civilizations. The universe is a self-organizing dynamical system, and is moving not toward disorder and heat death, as reductionist physicalists predict, but rather toward increasing degrees of order and knowledge of itself.

Dynamical systems can be further classified as **adaptive complexities**, which adapt as their environments change, or **non-adaptive complexities**, which do not. For instance, life, with its evolutionary processes, is an example of an adaptive complexity, whereas the structure of a crystal formation is a case of a non-adaptive complexity. The true depth of adaptive complexities, ranging from basic organisms to entire societies, could not be fully grasped until this century, when computer modeling allowed us to examine these systems and how they organize. Data from complexity science shows us that the universe is a computational machine and an adaptive complexity all its own. Far from careening toward random disorder, this process of integrating information is just beginning, and life and consciousness play important roles.

While complexity science still favors a physicalist approach at worst and a panpsychist approach at best, it is fully compatible with an idealist metaphysics. In fact, idealism brings the findings of complexity science together and avoids the paradoxes that physicalism and panpsychism introduce into the picture. After all, another word for a computational machine, an entity that processes information, is a *mind*, and that is precisely what idealism argues that reality is.

The traditional understanding of the Second Law of Thermodynamics is that entropy must increase in the universe over time. Statistically speaking, this is true for closed systems. However, what is often lost in this definition is that there are multiple kinds of entropy. The universe can grow more ordered if **free energy** comes into an open system, like the Earth, and is converted into **thermal entropy (waste heat)** via a process of creating and maintaining order. This is exactly what life does, whether it be plants taking in the Sun's free energy, or animals eating the plants, or animals eating each other. All of these organisms metabolize energy to stay alive and keep their structural, ordered integrity. Life is an example of order that uses energy to resist entropy. Specifically, life can reduce **configurational entropy**, or disorder, so long as it can expel the byproduct of thermal entropy into its surroundings. This is why we give off body heat, which you can call the "exhaust" of our metabolizing process. Similarly, life creates even more order by using energy to produce civilization, culture, and technology. As long as there is sufficient free energy available, life can continue increasing order in the universe while simultaneously increasing thermal entropy. As such, the Second Law of Thermodynamics does not require an inverse relationship between order and thermal entropy in the universe, at least until the supply of free energy runs out. Ultimately, this will lead to the state of omega information that we already discussed, because any increase in information/order decreases configurational entropy (metaphysical potential) and increases thermal entropy, the waste product of the work of creation. At the point of omega information, the consciousness system (and its subsystems, the individuated conscious agents) will have "learned" all it can within the constraints of the PUR.

The values of information and thermal entropy can predictably increase together, and this is precisely what we see in the data from complexity science. The Second Law of Thermodynamics, then, has an implication that there is an energy cost for life, and thus the universe, to create order and complexity out of disorder.

Remember, all of this applies to the workings of the PUR, within spacetime. It is not fundamental. The PUR is what the fundamental mental contents and processes (like the FPE) within FM *look like* from our perspective and to our perception, as individuated subsystems of consciousness within FM. More to come on this point.

The universe's goal is not to reach heat death as quickly as possible, but rather to compute, or learn, as quickly as possible. As it computes and integrates information in the form of complexities, the universe self-organizes via the laws of physics, evolution, and life.

The integration of information of a system can be measured with the value of Φ from **Integrated Information Theory (IIT)**. The higher the value, the more information that system contributes to FM. Each of these complexities is a subsystem within the full FM system, so the integration of information within each subsystem improves the quality of consciousness in the entire system. As such, the universe is actually becoming more orderly. It has evolved life and consciousness, and along with those, the ability to integrate more and more information. The universe seems to be evolving to "know" itself, through us.

That might sound pseudo-scientific or spiritual, but remember that we *are* the universe. Whatever it is, in and of itself, we are part of it and made of that same "stuff," in and of ourselves.

Thus, life and consciousness are not cosmic accidents in this view. It makes perfect sense that the universe is fine-tuned for life, because life and consciousness are part of how this computational universe comes to know itself. In other words, **abiogenesis**, the process by which life arose in the PUR, was inevitable, not a product of random chance that requires something as radical and unparsimonious as the multiverse theory to explain.

Origin of life experts examining the evidence for **non-equilibrium thermodynamics** now believe that, wherever the conditions for life exist, life will necessarily arise. This is a dramatic departure from reductionist theories of abiogenesis, which state that the origin of life was random chance, so unlikely that it should not have happened at all in the entire existence of the universe. It is now hypothesized that life begins when energy flows through a simple system of interacting, integrated chemical information, causing the system to rearrange itself to be able to extract more energy, so as to extend its ordered state. This makes that system a suitable "avatar" for FM to experience its internal contents from within a perceived physical universe, complete with spacetime. In other words, it allows FM to learn, thereby decreasing its potential by exploring all possible variations through its individuated consciousness subsystems. In the PUR, that learning process appears as the thermodynamics at the heart of physics.

The PUR is an entropy (potential)-reduction school.

A living organism can then be described as a **dissipative structure**, a self-organized system that "converts" free energy coming into an open system into entropy, which is the byproduct of the system's work. Dissipative structures also include hurricanes, for instance, which form when there is a gradient between warm water and cold air. Nature will always correct a gradient, so as to reach thermodynamic equilibrium, as the Second Law of Thermodynamics entails.

Therefore, under this theory, abiogenesis could have been the result of nature generating a dissipative structure to correct a thermal or chemical gradient. Life, then, is a thermodynamic phenomenon, another energy flow system that self-organizes in greater complexity, following the process of evolution by natural selection to pass on the traits that ensure the greatest chance of survival, which in turn maximizes both order creation and the reduction of configurational entropy. Given enough time, the emergence of life for this purpose in nature's computation process would be inevitable. Further, the complexity of a biological dissipative system following an evolutionary process would continue to grow, leading to networks of such systems, such as the biosphere and entire societies of organisms (Azarian, 2022).

Society itself and the cooperation between organisms are critical to the advancement of FM's goals. By contrast, anything that hinders that cooperation is antithetical to our purpose for existing.

In 2015 and 2017, researchers finally showed mathematically a computer-simulated mechanism by which energy-driven self-organization of molecules, the essential occurrence for abiogenesis, could happen according to thermodynamics. Specifically, molecules self-organized into arrangements when researchers introduced a thermal or chemical gradient. Over time, the molecules adapted to better absorb and then dissipate the energy they received, a process that the researchers called dissipative adaptation, which elucidates evolution's role for organisms in the biosphere (England, 2015). Other studies, both before and after, produced similar results.

Living systems are both informational and computational, thus bringing us to IIT's explanation of consciousness. If a system integrates enough information through a computational process that feeds on free energy and outputs entropy, then that system is conscious. It is not that the system produces or generates consciousness. Rather, IIT's Φ value, which we'll discuss in-depth in a future section, provides a heuristic for the capacity of choice and cognition of a system. The base awareness, or phenomenal consciousness, of all conscious agents is the same subjectivity, because it is really FM itself experiencing a subset of its own contents through the perspectives of those agents. However, different types of agents, ranging from simple to complex, will have varying capacities that shape the contents of their subjectivity, and thus also shape the information that FM gleans from "playing" the game of life as those agents.

As a metaphor, think of the difference between playing a AAA open-world MMO-RPG with a complicated interface and character. The graphical capacity and the amount of information that you, as the player, can acquire via the experiences of your game avatar will be significantly larger than if you played an 8-bit independently made game with a smaller graphical capacity and simpler character. In both instances, it is your subjectivity that is playing the game through the perspective of the character. However, the limitations and parameters of the game determine the information that is added to your subjectivity by the experience of playing. The same applies to FM when it experiences the physical universe and spacetime, the "game world" of life, through the perspective of a human versus, say, a bat.

Evolution drives this process, selecting for the fittest traits in the fittest species, so that life will persist and continue creating order (giving form to potential: information) at the fastest possible rate. **Agency** is the defining characteristic of life and what separates a living thing from a static object. Agency is, itself, a product of the information stored within living organisms. As such, because we are the universe, our agency is the universe's agency—we are the universe "waking up" and coming to know itself. Evolution is the mechanism by which the universe ensures this awakening continues and becomes more complex. The laws of physics are not only fine-tuned for life, they necessitate life (Dempsey, 2022).

We've already defined life as a type of dissipative structure and adaptive complexity within our physical universe and spacetime. Next, we'll elucidate what life fundamentally is

within the larger FM consciousness system and the mechanism by which to solve what has traditionally been idealism's greatest hurdle as a metaphysical theory: the decomposition problem.

6. On the decomposition problem

Every metaphysical theory has suffered from key problems and paradoxes. For idealism, there has been the **decomposition problem**. It is the question of how a fundamental consciousness, or a mind at the level of reality, splits itself into our seemingly separate, private, and individuated consciousnesses. Without a mechanism by which to explain this localization of FM's infinite subjectivity to the level of the finite, idealism could not offer more explanatory ROI than physicalism, dualism, or panpsychism, its metaphysical rivals.

In this section, we will resolve the decomposition problem by citing **dissociation**, empirically known in the field of psychiatry, particularly in the case of **dissociative identity disorder (DID)**, as the mechanism by which one **host mind** cuts off parts of its own mental contents from the rest, thereby creating dissociated **alters**, or alternate personalities with their own seemingly private, individuated consciousnesses within the host mind.

The above addition of dissociation to idealist theories is the contribution of Bernardo Kastrup, who uses the language of "dissociation" and "alters" to describe the localization of FM (Kastrup, 2019). This is similar to Thomas Campbell's use of the language of "virtual reality" and "avatars" to compare physical reality to a video game and FM to the player (Campbell, 2003). Throughout this theory I will (and have already begun to) reference both of those metaphors and language sets. Together, they comprise the best method of explaining what is happening within FM. Indeed, Kastrup and Campbell, both of them idealists, are the formative philosophers influencing *The Melody of Reality*. Donald Hoffman will be added to this list of influences in a future section, though the results of his research have already been cited and referenced many times.

Life arose in the physical universe and in spacetime when FM *underwent dissociation and formed alters.* To understand how this works, let's dig into what DID entails.

A patient with DID retains their own mind, but dissociated alters form within that host mind. Each alter can inherit memories and personality traits of the host, even those that have been repressed. As such, what was at first one mind divides itself into multiple experiencing subjects, seemingly with their own separate consciousnesses, names, ages, races, genders, and even physical infirmities like blindness. Each alter has a dissociative boundary, through which experiences from the outside and inside cannot easily travel, allowing for those varied traits and an illusion of being something ontologically different from the host mind. The mental contents of the host mind can still affect the alter, however, the same way that poor performance at work can make someone behave in anger at home. The person compartmentalizes (dissociates from) emotions surrounding the work

situation, but those emotions do not just vanish. They still impinge on the other experiences that person has. So, too, can the host mind impact the alters and vice versa. Those mental contents from outside the dissociative boundary modulate the contents on the inside of the boundary.

Kastrup's analytic idealism postulates that we see ourselves as separate conscious experiencing subjects because the universal mind undergoes dissociation, following this exact same model. Mental contents of FM, which we perceive as matter and the physical world, both of which are encoded versions of those mental contents, impinge on our dissociative boundaries. That impingement comes in the form of sensory information about our environment. Evolution leverages that information to increase our chances of survival, through the encoding process, probabilistic inference, and the ways that our left- and right-hemispheres evaluate our surroundings.

In this way, *life is the extrinsic appearance of the intrinsic process of dissociation in* FM. The learning and computational behavior of FM utilize the FPE to help that dissociation persist for as long as possible, ultimately increasing the chances that dissociation propagates through reproduction.

Living bodies are the extrinsic appearance of the dissociated alters, which is why we associate ourselves and everyone around us with their bodies. Because all of what we label the "physical world" is actually mentality under this model, we can influence the world that we, as alters, share. We can also impinge on each other via our bodies, which mark our dissociative boundaries. This allows us to interact with each other within spacetime and the PUR (Kastrup, 2019; Kastrup, 2021c).

We know that dissociation has an extrinsic appearance because, using neuroimaging, you can measure the brain activity correlated to the dissociative process. In a study that analyzed the brain scans of both patients with DID and of actors who were pretending to be dissociated from themselves, researchers found that there was a differentiated pattern associated with the DID patients (Schlumpf et al, 2014). Since dissociative processes in a human brain have an extrinsic appearance, we would expect dissociative processes at the universal level to have an extrinsic appearance, as well. That is what life is, in and of itself. Death, then, is the end (or at least the substantial weakening) of the dissociative process. You may be thinking that this sounds similar to the **filter hypothesis** from dualism, or the idea that both matter and consciousness are fundamental, and that the brain filters consciousness. When the brain dies, consciousness does not vanish, but rather loses its "radio" to broadcast it at that specific point in spacetime. You'd be right to notice the similarity. Our theory operates *as if* the filter hypothesis was true. It's not actually true, because idealism is a monist theory, not a dualistic one. However, it covers the same intuitive ground as the filter hypothesis, but with a more parsimonious account of the same explanatory result.

DID provides an effective model for how FM splits into different conscious agents within a seemingly, but not actually, physical universe. If a mechanism or phenomenon

occurs at one level of nature, it is not a major assumption to say that it happens at other levels of nature, especially if converging data support the conclusion. An explicit model to substantiate this view of reality can be found in dream studies of patients with DID. Research shows that, when a DID patient is dreaming, the host mind can generate a dream world. The alters populate this world as seemingly separate conscious subjects of experience sharing the same "physical" space and time. The dream world appears to the alters' perception as having physicality in spacetime, although the underlying reality of that "matter" is actually mental contents of the host mind. In the dream world, the alters can interact. Research shows that the alters can see, hear, and even attack each other (Barrett, 1994).

Explaining why dissociation occurs

As we discussed in a previous section, the FPE *is* the will of FM, facilitating its goal of reducing entropy and maximizing order. A dissociated alter is an informational subsystem of the holistic informational system that is FM. In other words, it *is* FM, and any reductions of entropy and increases of order within the subsystem represent those same gains in the system as a whole. Why, then, does FM split itself off into subsystems, each of which also follows the FPE (for the biosphere, the FPE manifests as evolution by natural selection)?

Through the act of creating subsystems, FM is able to follow the FPE to find the most efficient ways of reducing entropy. It can "delegate," if you will. Evolution selects for the least entropic, most stable outcomes for each specific subsystem based on both external and internal selection pressures. The information gained from the trillions upon trillions of alters who have existed (every organism that ever lived) allows FM to reach its goal both faster and with less of a cost than if it had to do the entire process at its own, fundamental level.

DID tends to afflict patients after they experience great trauma. Trauma creates fear (uncertainty), which is really just *internal* entropy. As such, DID is likely a coping mechanism by which a mind that is now dealing with vastly increased entropy splits itself off into subsystems so as to reduce entropy more efficiently. Since FM started from nothing (maximum, alpha entropy), it has been working to reduce the ultimate level of entropy ever since. Therefore, we can look at dissociated alters (organisms) as individuated, bounded subsets of raw, high-entropy consciousness within FM. In this way, FM uses the dissociative process to create evolving consciousness subsystems (biological adaptive complexities) that follow the FPE to learn, thereby reducing their entropy, which in turn reduces the entropy of FM as a whole.

The role of life, then, is to increase the amount of information created and experienced within FM. We exponentially reduce the entropy of the entire system by our actions as the system's subsystems. Further, we pass on our knowledge through genetics and society, thus propagating information within FM. All the while, the FPE works on us and

the rest of the biosphere, finding the most stable combinations of traits to meet our external and internal selection pressures, which tune our fitness. Fitness is really just a measure of how efficiently we reduce entropy for the system.

Further, recall that reality is the set of everything that exists, such that there is nothing real that is external reality, and everything that is real is within reality. If two things have a real difference between each other, then they (and that difference) still share the similarity of being within reality. To that extent, everything within reality is similar in spite of any other real difference. The difference relation between two real, different things necessarily exists within the medium of reality.

It is then logically necessary that all of the different minds/consciousnesses that have ever existed, now exist, and will ever exist are actually the same mind. The different minds and the differences between them must exist within the medium of reality. In our theory, that is within FM. This is precisely what we find in cases of DID.

To return to the previous metaphor of ocean waves, each wave is dynamic and different from each other wave. However, every ocean wave is actually the ocean, the medium, acting as that given wave. There is nothing to any given wave besides its medium, the ocean.

Therefore, DID gives a 1:1 natural, empirical model with which to solve the decomposition problem and satisfy the logical requirements of any theory of reality, since this is exactly what we're arguing takes place at the level of FM, or reality as a whole.

Next, we'll further explain the relationship between consciousness and matter, first by resolving the debate about the source of human consciousness, then by using evolutionary theory and thermodynamics to show that the PUR is akin to a virtual reality. It is an artifact of the perception of the alters, or the "game" avatars. Converging pillars of science have been pointing to that conclusion for decades. We will put the final nails in the coffin of reductionist physicalism.

7. On consciousness

Defining consciousness

There are a multitude of definitions for "consciousness," most of them lacking. I will use the philosophical definitions, as these are the most precise and will allow for the most complex understanding of the topic. As we go along, I'll point out the key differences between these philosophical definitions and other common usages of "consciousness" that you may encounter.

The two definitions we've been working with are of phenomenal consciousness and meta-consciousness.

Thomas Nagel gave us his famous "what it is like" definition of phenomenal consciousness in 1974. As he states in the article, "What is it like to be a bat?", a thing is

conscious if there is “something that it is like” to be that thing. A bat, for instance, has its own perspective on the world, and has experiences that cause it to behave with agency (Nagel, 1974).

In other words, if something has raw subjective experience (what analytic philosophers call **core subjectivity**), it is phenomenally conscious. And a state that is phenomenally conscious is experiential in nature. This includes all the qualities of experience, whether they be **perceptual qualities**, such as color, scent, flavors, pitch, etc., or **endogenous qualities**, such as love, fear, excitement, etc. (Block, 1995).

This definition is typically broad enough for philosophers to apply it to all living things, down to paramecia, which behave as if there is something it is like to be them. In other words, any system that displays causal power over its environment, or agency (which at this point in our knowledge is limited to organisms), is phenomenally conscious.

Indeed, this is comparable to the raw awareness of FM when it changed states from nothing to something, before it developed further cognitive and computational abilities.

Consider the metaphor of waves in the ocean. The waves will be our metaphor for experiences, including thoughts, feelings, and perceptions. Waves are not essential to the ocean, which will be our metaphor for phenomenal consciousness. Waves are patterns of excitation of the ocean. In other words, they are how the ocean behaves. Each wave is dynamic, unique, and can be measured in numerous ways, which makes it *appear* distinct from the ocean. However, if you were to have no waves at all, there would still be the ocean.

Try this thought exercise...ask yourself what is essentially you. Are your perceptions essential to yourself? They can’t be, because they are fleeting and constantly changing. Are your thoughts essential to yourself? Also no, and for the same reason. How about your emotions? Again, the answer is no. Now, imagine removing all of those experiences, your perceptions, your thoughts, and your emotions. What remains? Raw subjectivity, or what it is like to be you (Spira, 2017).

In other words, what remains is *that whose excitation is the experiences of perceptions, thoughts, and emotions.* Or, put another way, it is that whose behavior is the experiences of perceptions, thoughts, and emotions, just the way that waves are the behavior of the ocean. Each experience, like each wave, is dynamic and can be measured, giving it the appearance of being an independent “thing” from the medium in which it occurs. But it is really the same “thing” as the medium, and it is the medium itself that this exercise seeks to identify.

Note that this medium of experience precedes the subject-object relationship that connects you, the subject, to the objects of your experience. It is within this medium, phenomenal consciousness (what it is like to be you), that those subject-object relationships occur.

But what about more complex cognitive abilities that go beyond raw subjective experience? After all, a paramecium’s cognition seems quite a bit simpler than a dog’s, which is in turn simpler than a human’s.

This is where meta-consciousness comes in. You can have an experience without knowing that you are having it. In these cases, our attention is directed elsewhere and, in that moment, we are unable to report on the experience that we are having. But this does not mean that we are not having it. Thus, meta-consciousness is our ability to know that we are having an experience, or to be aware of our consciousness (Schooler, 2002; Chin & Schooler, 2009; Schooler et al, 2011; Winkielman & Schooler, 2009, 2011).

Meta-conscious experiences are a subset of phenomenal experiences. That is, both are experiences that occur in phenomenal consciousness, but when we are meta-conscious of an experience, we direct our attention to a small subset of the total phenomenal experiences that we have at any given time.

Think of a theatre stage, on which is a set that includes a tree at stage-right, a castle center-stage, and a dragon at stage-left. The stage is dark until a spotlight shines on the tree at stage-right. Only the tree is illuminated, but this does not mean that the castle and the dragon have disappeared. It is just that the light is focused on a subset of the set pieces. All of the pieces are on the stage and do not vanish from existence when the light moves away from them. If the spotlight shifts to illuminate the dragon, the tree is still there, even though attention has moved to another subset of the total set.

Empirical examples that you are familiar with in your own life include the following:

- You listen to a podcast about philosophy on a road trip. Upon arriving at your destination, you realize that you don't remember anything that happened on the drive. You had focused your attention on the experiences of hearing the podcast and of your thoughts about that podcast, thus dissociating from your experiences of driving. This does not mean that you did not have experiences of driving–clearly you did, or you could not have arrived safely. But you were not meta-conscious of the driving experiences, because your attention's spotlight was focused on another subset of your phenomenal experiences.
- You don't normally notice that you are breathing unless someone else (me, in this case) calls your attention to it. You are always experiencing your breathing, but you are not always meta-conscious of that experience.
- More complicated are recent arguments that we are never truly unconscious. Rather, recent data suggests that during periods of "unconsciousness," we are not meta-conscious enough to form memories of certain conscious experiences that we have while asleep, under anesthesia, or undergoing an impairment of brain activity. I'll get into these examples in depth later, but for now, consider that we don't always remember the dreams we have at night. Empirical evidence shows we are indeed dreaming in such cases, but that we are not always meta-conscious of those dreams. You can only form a memory of an experience, which involves first reporting the experience to yourself, if you are meta-conscious of that experience.

It is meta-consciousness to which clinicians and neuroscientists usually refer when they say, "consciousness." In that setting, there is often no distinction between meta- and

phenomenal consciousness. That is because the limits of medical technology have traditionally caused a dependency on a patient's ability to report their experiences in order for clinicians to know that the patient is having them. As mentioned above, you can only report a conscious experience if you are meta-conscious of that experience. Thus, there has been significant practical reason for the clinical setting to overlook the sub-division into phenomenal and meta-consciousness, in contrast to the ways philosophers and psychologists define the terms in academic settings.

There is, today, an attempt to circumvent these limitations in a clinical setting with **No Report Paradigms**, which rely on eye-movement, neuro-imaging, and physiological measures as indicators of consciousness to eliminate the dependence on the patient's responsiveness (Duman et al, 2022). For now, the clinical use of "consciousness" remains unchanged.

In the meantime, there results a frustrating conceptual confusion when philosophers, psychologists, and other medical scientists cross paths in discussions about consciousness. That is why, for our purposes in this book, I choose the more academic definitions that offer greater precision of meaning.

To recap, you are always having phenomenal experiences, which are the excitation of the medium of raw subjectivity, phenomenal consciousness, such that there is something that it is like to be you. Further, in your normal waking state, you are always meta-conscious of a subset of those phenomenal experiences, such that you could report on that subset to yourself and/or to others.

The hard problem of consciousness

One of the most infamous challenges for the mainstream paradigm of today is the hard problem of consciousness, also called the mind-body problem or the explanatory gap. Despite a plethora of advances in neuroscience and neurobiology over the past century, many feel that the hard problem is insoluble. At the very least, no neuroscientist worth their salt would argue that it has been solved, though some, as we'll see, would argue that it was never a problem to begin with. Here is what the hard problem entails…

It is not possible, even in principle, to reduce qualitative experience to the quantitative parameters of observed physical matter, regardless of the arrangement of that matter (Chalmers, 2003). In other words, the mainstream paradigm of today claims that the physical brain, which is an incredibly complex arrangement of matter, generates consciousness. However, we do not understand how, even in principle, that happens. For example, how can mathematical abstractions, such as mass, charge, and spin, give rise to the experience of what it is like to taste chocolate? The current paradigm has found hundreds of neuronal *correlations* between brain activity and conscious states (the NCCs), but no causal system by which we can reduce any conscious state to specific brain activity.

Further, we know that the brain performs computational, behavioral, predictive modeling, and cognitive functions, such as the integration of information. These are called the "easy problems of consciousness," not because they are easy in the absolute sense, but because we have an idea of how to explain them. We can find neural and computational mechanisms that account for how the brain performs these functions. But why don't those demonstrably useful functions happen in the dark, without subjective experience, as they do in today's computers? From an evolutionary standpoint, phenomenal consciousness seems completely unnecessary at best and even harmful to our survival fitness at worst, since for the brain to generate it, we must extract even more energy from our environment to maintain phenomenal consciousness than we would without it. If it's so costly and not even necessary, why did the evolutionary process select for it? Here we find the hard problem of consciousness (Chalmers 1996, 2022a).

It is called a "hard" problem because the dilemma goes deeper than lacking a scientific causal link. There is no way, *in principle*, for qualitative subjective experiences to reduce down to quantitative arrangements of matter that, by definition, do not have any qualities at all. On top of that, everything that we know of the world, including the brain itself, we know through and in consciousness. In philosophy of mind and in neuroscience, we are studying our own first-person perspective, not something outside ourselves that we can observe from a distance.

Indeed, the hard problem may well be insoluble (Chalmers, 2003; Levine, 1983).

The evolutionary problem of consciousness

According to the theory of evolution by natural selection, one of the most validated and empirically supported theories in science, our bodies, including all of their component cells and organs, arose according to corresponding increases in survival fitness payoffs.

A central claim of today's mainstream theories of consciousness is that the material brain, an organ of the body, generates both phenomenal consciousness and meta-consciousness. More precisely, the claim is that consciousness emerges from, or reduces to, states of the material brain.

Consistent with Ned Block's definitions (Block 1995; Schooler 2002; Winkielman 2009, 2011) I describe phenomenal consciousness as the "field" of raw subjectivity whose excitations are experiences. According to the evolutionary model, phenomenal consciousness must provide a survival fitness benefit. If phenomenal consciousness did not have a causally powerful impact on our ability to reproduce, the process of natural selection would not have selected for it.

Without this subjectivity, we would be **philosophical zombies**, dynamical adaptive systems that perform cognitive functions, but without sentience. They display agentic behavior "in the dark," without conscious inner life. Of course, we are not philosophical

zombies, because we do have a rich inner life, in the form of our phenomenal consciousness and its excitations, experiences.

Since we have phenomenal consciousness, we would expect that the process of evolution selected for phenomenal consciousness, which would in turn necessitate that phenomenal consciousness provide a causally powerful increase in our survival fitness.

However, this line of reasoning returns a problem when we try to reconcile it with other claims of the mainstream metaphysical worldview of today, under which much of science and computer science is conducted: physicalism. Both reductionist and non-reductionist physicalism encounter the following paradox, which I call the evolutionary problem of phenomenal consciousness.

Under physicalism, all entities are physical, meaning that they are exhaustively described by the equations of physics. That is, they are purely quantitative. For example, subatomic particles can be exhaustively described by quantitative parameters such as spin, mass, charge, etc. According to physicalism, once you have detailed all of the quantities associated with an entity, you have said all that there is to say about that entity.

Therefore, entities lack any qualities, such as colors, textures, smells, etc., whatsoever. They are purely quantitative and not at all qualitative, in and of themselves. The qualities that we experience when we perceive these entities are, under physicalism, generated by our brain. They are more akin to controlled hallucinations, because the entities themselves lack any inherent qualities.

Physicalism also claims that the quantities that are inherent to physical entities are what allow those entities to be causally efficacious. For instance, the charge of subatomic particles determines if they will causally attract or repel one another.

All chains of cause and effect under physicalism are describable by quantities alone, namely by the equations of physics. In the closed-causal model that this worldview holds to be true of reality, only quantities, and not qualities, can have causal power on other entities.

The problem is that phenomenal consciousness is fully qualitative, and not at all quantitative. For instance, knowing the quantitative frequency of the color red will not tell you what it is like to experience the qualitative color red, as demonstrated by the famous thought experiment about Mary the neuroscientist (Jackson 1982, 1986).

Experiences are purely qualitative. In other words, they should have no causal power in the closed-causal system of the universe, as described by physicalism. That closed causality is supposed to explain every natural phenomenon, including evolution by natural selection and the survival fitness payoffs for organisms in their respective environments and states.

If phenomenal consciousness has no causal power, and thus no impact on our ability to reproduce, then it is irrelevant to the process of evolution by natural selection. The data processing and other cognitive functions that do provide survival fitness benefits could happen without phenomenal consciousness, which shouldn't even exist, since evolution

should not have selected for it. The organism in question would have the same chances of reproducing without phenomenal consciousness as it would with it.

In fact, it would be better for the organism if phenomenal consciousness didn't exist, because for the brain to produce phenomenal consciousness requires some of the energy that the organism metabolizes. The brain, comprising only about 2% of our body weight, requires more metabolic energy than any other organ, taking 20% of the calories that we consume (Raichle & Gusnard 2002). Therefore, it actually harms the organism's chances of survival to have this unnecessary and causally ineffective subjectivity adding to the number of calories that the organism must hunt down.

If evolution is true, then we find a contradiction between it and our mainstream metaphysical paradigm, physicalism. Since we have empirical validation of evolution, we should re-examine the metaphysical assumptions of physicalism, especially as they relate to consciousness.

A physicalist response might be to attribute various functions to phenomenal consciousness, thus dissolving the problem. However, computer science makes these claims of function difficult to support.

First, one might say that phenomenal consciousness is necessary for attention, which surely has a survival fitness benefit. Our attention allows us to survey our **salience landscape** for the stimuli that are relevant to our survival. A computer scientist, however, knows that this function of attention can happen in a computer without the inner life of phenomenal consciousness. Operating systems can use interrupts, queues, schedules of tasks, etc., each determined by mechanistic, purely quantitative algorithms, in order to provide the function of attention; that is, directing the system's limited information processing capacity to prioritized tasks and inputs.

Second, a physicalist might say that consciousness is necessary for an organism to be motivated to survive. Without such motivation, the organism would not perform behaviors that support its survival. However, under physicalism, motivation is a calculation. Once again, there is an algorithmic mechanism by which an organism maximizes the benefits of an action while minimizing the risk. In other words, the organism seeks out the most efficient way of performing a task, limiting the energy that it needs to expend in order to obtain its goal/output. Computers perform this very same function without phenomenal consciousness.

Third, perhaps phenomenal consciousness is necessary for our perception of time, which enables our ability to learn and adapt. We have episodic memories, which define what we consider our past, and we have a sense of the present at any given point in time. Without consciousness, how could we delineate between the two, which is necessary for us to learn how to maximize our benefits and minimize our risks? Once again, computers perform the same function, by discriminating between datastreams. Without phenomenal consciousness, your phone can "know" the difference between a photo you took today, a

photo you took a year ago, and a video streaming live on YouTube. That routing can and does occur without internal subjectivity.

Fourth, a physicalist who acknowledges the evolutionary problem of phenomenal consciousness could argue that consciousness is a spandrel, one of the "byproducts ('spandrels') of other traits that were selected" (Coyne 2020). In this way, one could still account for phenomenal consciousness without the seeming paradox between it and the theory of evolution by natural selection.

This is a better counterargument, but runs into several problems of its own, not least of which is that the very idea of spandrels is a contentious one in biology. It's not clear what the definition of a spandrel actually is, as the experts continue to debate it (Dennett 1995, 1996). Regardless, spandrels typically do provide some kind of function, byproduct or not, but according to the epiphenomenalism claimed by physicalist theories of consciousness, phenomenal consciousness can't perform any function at all. It is purely qualitative and not at all quantitative, meaning it doesn't have any causal power in a closed-causal system.

Additionally, to claim that the brain's ability to generate purely qualitative experiences from purely quantitative matter, which is one of the greatest problems (Chalmers 2003) and unexplained mysteries in science, is a mere byproduct of evolution seems outstanding, and would require outstanding evidence.

As philosopher Bernardo Kastrup points out, physicalists contend that phenomenal consciousness is an emergent epiphenomenon of the vast complexity of the brain. That complexity is so great that we currently do not fully understand how the brain could give rise to consciousness. Instead, there is a promissory note that, once we understand the brain, we'll solve the hard problem of consciousness.

If consciousness is an epiphenomenon of the brain's vast complexity, then it is unreasonable to also argue that consciousness is just a functionless byproduct of other selected traits, and a waste of metabolic energy in the most costly organ of the body (Kastrup 2021e). To suggest both claims is, itself, an immediate internal contradiction for physicalism.

Computer science again helps us see the key point here: a computer's complexity can increase, giving it more and greater functions, without the need for phenomenal consciousness. Because phenomenal consciousness lacks causal power in a closed-causal system, it is evolutionarily unnecessary, and therefore the brain would have evolved in that same way. As the brain's complexity increased, so too would its cognitive functionality, but without phenomenal consciousness.

There is, therefore, a paradox between the metaphysical physicalist claim that the brain gives rise to phenomenal consciousness and the theory of evolution by natural selection. I've herein referred to this as the evolutionary problem of phenomenal consciousness.

As a purely qualitative "entity" with no inherent quantities, phenomenal consciousness has no causal power in a closed-causal system, such as physicalism claims the universe to be. Phenomenal consciousness cannot provide us any survival fitness payoffs in such a closed-causal system. Therefore, because of its lack of impact, and because there would be a metabolic cost to generating phenomenal consciousness, evolution by natural selection would not have selected for phenomenal consciousness.

And yet it does exist. Regardless of its metaphysical status, phenomenal consciousness is epistemically fundamental, in that we can't know anything else except by, through, and in our consciousness. A denial of its existence is logically incoherent, because that would be a case of consciousness denying its own existence.

Therefore, either evolution by natural selection is wrong, or physicalism is wrong. Since we have convincing empirical support for evolution, I argue that we've arrived at an internal contradiction of the physicalist paradigm.

Refuting the theory that the brain generates consciousness

A criticism of the hard problem of consciousness is that it is too conceptual, and thus could be an error in logic on the part of its proponents. However, the hard problem finds substantiation from many empirical studies, which we'll now detail.

A myriad of recent studies show that conscious experience *increases* when brain metabolism/activity *decreases*. Some of those situations include: fainting caused by asphyxiation, G-force-induced loss of consciousness (GLOC), Yogic breathing practices, psychedelic substances, certain brain damage, near-death experiences (NDEs), etc. Even without employing the parapsychological interpretations of phenomena like NDEs that some would use to refute physicalism, one still finds that physicalism can't account for these data.

One solution that mainstream physicalist neuroscience has proposed is that the decrease in brain activity exclusively happens in **inhibitory processes**, thus allowing consciousness to expand. However, if inhibitory processes were the culprit, we would expect to see brain activity increase somewhere in the brain, and it does not increase *anywhere* during these situations. Rather, the brain activity correlates with a conscious state known as **metastability**, in which the mind undergoes massive integration and massive differentiation all at once. In other words, the "realer than real" sense of these experiences entails a feeling of integrated "oneness" with reality, while simultaneously also reaching the depths of the individual consciousness system. This is exactly what we would expect if dissociation is the mechanism by which FM splits off into private subjectivities. When brain activity declines, which is the extrinsic appearance of the dissociative boundary weakening, we would expect the condition of metastability. Under physicalism, such richness of integration and differentiation would be impossible, particularly under identity theories of consciousness.

Another physicalist theory is that a small system of neurons within the brain may still be active, thus generating the conscious experience. But, again, there is an issue, and this time it is evolutionary. Our brains take about 30 percent of the energy that we metabolize. Our consciousness and powers of cognition come with a massive energy cost that we must pay by finding food. Clearly, the size and function of our brains must have been worth it, from an evolutionary perspective, for us to pay such a price. It is, therefore, illogical to think that the most vivid, "realer-than-real" conscious experiences a human being can have, such as during an NDE or during a DMT trip, could be caused by a system of neurons so small that we can't even detect it. If that was all the brain structure and energy we needed in order to generate such a compelling conscious experience, why would evolution have subjected us to the tremendous suffering it took to develop the large brains that we do have? In short, that is not how evolution works, nor is it how any of the physicalist theories of consciousness work.

Physicalists have also proposed that a release of DMT or another psychedelic occurs in the brain during a traumatic episode, such as cardiac arrest. This could explain the "hallucination" during an NDE. However, neuroimaging studies on psychedelics show that, even outside of an NDE, these drugs *reduce* brain activity, and no increase in brain activity has been measured in any brain region (Parnia & Fenwick, 2002; Urgesi, Aglioti, Skrap, Fabbro, 2010; Carhart-Harris et al, 2012; Cristofori, Bulbulia, Shaver, Wilson, Krueger, Grafman, 2016; Lewis, Preller, Kraehenmann, Michels, Staempfli, Vollenweider, 2017). As such, even if DMT is the cause of NDEs, it still doesn't answer the question. It's also worth noting that, as of this writing, no empirical evidence exists to substantiate the suggestion that such a DMT release actually occurs in the human brain.

Another response is that, yes, consciousness becomes richer, but that is because memory and other cognitive functions are turned off during such states, allowing the brain to focus its consciousness, and this results in the increase in conscious experience. However, what matters is that the *total* richness of consciousness increases during these states. Since physicalism demands that consciousness supervene on the physical, any increase in consciousness must have an increase in brain activity, because brain activity *is* consciousness under this paradigm. As such, the focusing of brain activity would not be able to account for the increase in experience, even by physicalism's own definitions and claims.

Still another explanation offered is that, in some research subjects who underwent psychedelic trances, **brain entropy** (random noise), increased by a miniscule amount. Specifically, it measured 0.005 on a diversity scale of 0 to 100 (Schartner et al, 2017). It has been posited that this noise generates the rich conscious experience of a psychedelic drug trip. In fact, some consider this the best current explanation from a physicalist point of view. However, we run into the same evolutionary argument–if a miniscule amount of pattern-less brain activity can cause some of the richest possible conscious experiences, what do we need the rest of our brains for? The energy consumed to maintain them would

be worthless. Additionally, we only ever see *patterned* brain activity correlate with conscious experiences, so for noise (pattern-*less* brain activity) to be the cause here, we would have to make a very strange exception to that rule. Additionally, not all subjects who had psychedelic trances showed an increase in noise–a few had decreases in noise, *as well as* decreases in patterned brain activity. They still experienced the same richness of consciousness as the subjects who presented that miniscule rise in brain entropy. One white crow is enough to disprove the claim that all crows are black, so to speak.

Note that it is phenomenal consciousness that poses the greatest hurdle here. It seems obvious that we can create, say, a computer system that can perform many of the cognitive functions and information integration of our brains without the need for phenomenal consciousness. Why, then, do we have it? Why don't those computations happen in the dark? Not even learning, one of the primary avenues to achieving higher level **artificial intelligence and machine learning (AI/ML)**, requires consciousness. Building on the point made above about the energy cost of running our brains, phenomenal consciousness seems like a complete waste of energy from an evolutionary perspective, since it is not needed in order to perform the necessary functions of cognition, which do, in theory, provide a survival fitness advantage.

Clearly, the mainstream thinking is off somewhere, and that is why our theory rejects physicalism and instead takes idealism as its metaphysics.

Additional, more specific criticisms, focus on the **identity theory** of consciousness, the idea that brain activity *is* consciousness. For there to be a 1:1 relationship between conscious states and physical states, neuroscience would need to prove that a certain brain activity *is* a certain conscious experience. For instance, we would need to mathematically show that Brain Activity A is the taste of garlic and Brain Activity B is the sound of a jet engine. Further, we would need to be able to replicate those conscious experiences in a lab setting by triggering those specific patterns of brain activity. As of now, we do not have a single example of such 1:1 mapping, nor even a good idea of how to go about it (Hoffman, 2019).

Eliminativism/illusionism, another mainstream physicalist attempt to remove the hard problem, also claims that consciousness *is* electro-chemical processes in the brain, and the idea that it is anything more than that is but an illusion (Dennett, 1991; Dennett, 2003). Of course, the logical counter to this line of thinking is that consciousness can't be an illusion, because an illusion is, itself, an experience. Since you can't have any experiences without consciousness, you would need consciousness in order to be fooled by the illusion. Eliminativism then becomes incoherent, because it denies the existence of the very fundamental datum of existence, the one thing we know to exist. In essence, it presupposes the thing that it says does not exist (Harris, 2019).

A better physicalist approach is that espoused by Christof Koch, who once called Dennett's eliminativist/illusionist view a "desperate solution to the mind-body problem" since "the majority of scholars accept consciousness as a given and seek to understand its

relationship to the objective world described by science" (Koch, 2018). Koch set out to find the mechanisms in the brain that trigger a conscious experience. In particular, he looks for the minimal **neuronal correlates of consciousness (NCCs)**, qualifying the term with "minimal" since the entire brain could be considered one of the correlates. Koch's approach is to look for the impacts on consciousness of changes in various brain regions. For instance, if parts of the cerebellum are lost due to stroke, a patient loses no aspect of their consciousness. Through his research, he has narrowed the search for the "seat of consciousness" to the posterior cortex. Studies going back into the 20th century show that when even a small region of the posterior cortex is removed, patients lose conscious content, such as the ability to recognize a face or see colors. Clearly, that area correlates with experience. The question remains how consciousness could *arise* from the posterior cortex.

For this, Koch points to Giulio Tononi's Integrated Information Theory (IIT), on which he too has worked. Recall that IIT is a scientific theory that, while still in development, shows the potential to predict which physical systems, whether biological or synthetic, could become conscious. IIT looks at the brain's ability to take in a variety of sensory information and unify, or integrate, that information into a single felt experience. The key is in a threshold, Φ ("phi"), at which point the degree of integration and the complexity of the system are sufficient for conscious experience to arise. Each conscious experience is intrinsic, according to IIT, existing only for the subject and having a structure and specificity that make it distinct from other conscious experiences. It is also unified, in that separating the experience into its parts would destroy the experience.

IIT postulates that any mechanism that encodes cause-and-effect relationships (information), such as state changes, will have such properties and will thus be conscious. In other words, there will be something that it is like to be that system from the inside.

Consciousness, then, is intrinsic causal power associated with complex mechanisms, like the human brain, that meet the Φ threshold, which quantifies consciousness.

This quantification has immensely positive implications for the clinical setting, to say nothing of philosophy, as it can help determine when, for instance, patients in a vegetative state are actually having conscious experiences. The larger the value of Φ, the more intrinsic causal power and the more consciousness the system displays. The human brain's Φ value is very high, due to its enormous connectivity. Another major advantage of IIT is that it is a mathematical theory of consciousness, in some sense demystifying the phenomenon for researchers.

The fact is, Φ is currently a heuristic, not a causal mechanism. While Φ gives us a way to measure a system's capacity to integrate information, it still does not provide a complete causal system for how the brain, and specifically the posterior cortex, generates consciousness at that level of complexity. That it happens to appear at that level is, for now, akin to magic.

Instead, Φ is another incredibly useful correlate of consciousness. But, since it is not a causal system, it does not solve the hard problem of consciousness. Despite IIT's promise and its practical application in a clinical setting, it currently does not resolve the question of how qualities of subjectivity, which the theory acknowledges, arise from matter that, by definition, has no qualities at all.

Additionally, Koch has said that, according to IIT, there is no "phenomenal consciousness" or "meta-consciousness," only "consciousness" (Oxford, 2021). As in other neuroscience settings, when the term "consciousness" is used, it means meta-consciousness, and it is *phenomenal* consciousness that presents the hard problem. Therefore, IIT doesn't really address the hard problem at all, but rather gives further insight into the easy problems. For instance, it helps explain why we have a unified experience within our fields of subjectivity, rather than a lot of individual, unintegrated, and incoherent inputs of information flashing in and out of our experience.

Furthermore, while physicalists cite IIT to support their view, IIT can also be interpreted in such a way that it supports an idealist metaphysics. Under such an interpretation, IIT makes far more sense, particularly when idealist metaphysics is combined with complexity science. That is exactly what our theory proposes, as we have already begun to discuss.

In fairness to physicalism, I believe that many in philosophy fail to appreciate just how complicated the brain and its billions of neurons really are. To explain how brain activity could give rise to conscious experience is not as simple as sticking a patient into an fMRI machine, feeding them a strawberry, and finding a small clump of neurons somewhere that is responsible for the taste of a strawberry, like a little factory specifically tooled to manufacture that experience. Rather, you'd feed the patient a strawberry and then have to map the entire brain, with its trillions of little connections, to fully capture the brain activity that could produce the experience of that flavor. In this way, I find it hard to hold it against neuroscientists who give the promissory response that, one day, we will be able to explain how the brain causes consciousness. In the meantime, we're humbled by the sheer complexity of the thing we're trying to explain, and our technology just hasn't yet caught up.

However, the hard problem of consciousness is a problem *in principle*, and hiding behind complexity doesn't solve it. Indeed, much empirical evidence exists to refute the mainstream physicalist assumption that the brain generates consciousness. Even if it were possible to make a complete copy or simulation of the brain that mapped every single signal involved, you'd still only have brain activity that should not, even in principle, be able to cause consciousness. That brain activity would still be a correlation, not a mathematically elucidated causal mechanism, since the gap between purely qualitative experience and purely quantitative matter would remain.

And that's just the field of neuroscience, which assumes spacetime to be fundamental. Foundations of physics and evolutionary biology point to the idea that

physical matter does not have standalone existence outside the observation of a consciousness system, which means a physical brain made of matter cannot generate consciousness, the very thing that renders the physical universe of our perception into "existence."

The hidden dualism within physicalism

Dualism is the metaphysical theory that reality has two fundamental primitives: the physical and consciousness. Both are given independent ontic existence. The view feels intuitive to western thinkers in no small part due to its prominence in western religious doctrine, in the form of a body-soul combination. However, it is by no means just a religiously motivated view, as there are philosophers who argue for dualism from a naturalistic perspective. After all, one hardly needs to invoke anything supernatural to point out the difference between physical entities and consciousness that underlies the hard problem of consciousness for physicalism.

That is, physical entities are, by definition, purely quantitative, and it is their quantities that give them causal efficacy in the closed causal system of the physical universe. By contrast, consciousness is purely qualitative and not at all quantitative. What is the mass of a thought? Or the spin of a fear? One can introspect and empirically observe the qualitative nature of experience.

However, dualism faces insoluble problems of its own, not least of which is the interaction problem. Namely, one must explain how two ontically independent primitives interact with each other, and we currently have no good empirical mechanism to do so.

Additionally, taking two primitives is automatically less parsimonious than a monist theory, which takes only one.

As such, most philosophers prefer monism.

Furthermore, we've already shown why it is not just parsimonious, but also logically required, for a theory of reality to be monist. Base reality must be self-contained, homogenous, self-deterministic, and evolving (self-determining) along fixed, structured laws (the "rule set"). In order to develop a theory of that reality, the language of our theory must map onto that same structure (i.e., monism). And any two real, different "things," along with the difference itself, must share a common medium: reality, the set of everything that exists.

Therefore, it is logically necessary that the physical and consciousness, two different "things," be excitations of the same medium.

If one wishes to go from dualism to monism, the options are to make either consciousness (in idealism) or the physical (in physicalism) fundamental. Of course, there are other possibilities, like panpsychism and dual-aspect monism, but those are outside the scope of this section.

We've already explained why a theory of reality, which is self-deterministic, logically must take consciousness as the primitive, but let's ignore that for the sake of argument.

If one chooses the physical as fundamental, as in the mainstream paradigm of today, then consciousness must also be considered physical. And indeed, that is the claim of physicalism.

However, that claim is really just a linguistic move. The physicalist can say that consciousness is physical, but there remains the divide between quantitative physical entities and qualitative conscious experience.

Calling consciousness by another label does not change its empirically observed nature, and therefore it remains purely qualitative. There is still no quantitative element to our felt experience, let alone to core subjectivity. Meanwhile, if one tries to change the definition of purely quantitative physical entities by saying they have qualitative properties, then one is a panpsychist and not a physicalist.

Further, physicalists will often invoke strong emergence as the mechanism by which to explain how consciousness arises from a physical substrate, thus confirming that consciousness is physical too. However, by definition, strong emergence is an admittance of dualism, not a way to avoid it, since that which emerges cannot be derived from the properties of the constituents of the system from which it emerges.

It must be noted that we have no empirical examples of strong emergence, and that the idea conflicts with our standard model of physics and the laws of nature (Hossenfelder 2020). Taken together, these problems present a major roadblock for physicalism.

Indeed, physicalism aspires to be a monist theory, but is actually still dualistic in its handling of consciousness, even under the currently popular invocation of strong emergence. That inherent dualism is inescapable, because changing the definition of a thing (i.e. calling consciousness physical) does not change the nature of the thing itself.

What if we take the other option, and make consciousness fundamental, as in idealism? In that case, then the physical would need to be mental. Can we derive physicality from mentation?

The answer is, trivially, yes. We experience a physical world that is actually the appearance of mental contents every time that we dream.

Of course, when we dream, the physical world that we experience does not have ontic existence separate from consciousness. The physicality perceived by the dream avatars is what mental contents look like from across a dissociative boundary. And, as already discussed, the dreams of DID patients, specifically, provide a 1:1 model of what the idealist claims about reality.

Therefore, the idealist can explain purely quantitative physical entities from the starting point of purely qualitative mentality, and achieve a monist theory. The quantities are mental constructs that describe the perceived qualities.

By contrast, the physicalist cannot explain purely qualitative consciousness from a starting point of the purely quantitative physical. They are trapped in a hidden dualism that

is built into physicalism itself, due to its most core metaphysical assumptions and its own definitions. That dualism is also central to the previously discussed evolutionary problem of consciousness for physicalism.

The meta-problem of consciousness

Philosopher David Chalmers elucidated the hard problem of consciousness in 1995. Namely, there is no way, even in principle, to reduce the qualities of conscious experience to physical entities, which are purely quantitative. As such, despite it being the mainstream paradigm of today's academic science and philosophy, we cannot explain (again, even in principle) how consciousness could emerge from or reduce to states of the physical brain (Chalmers 1995, 2003).

Perplexingly, we have discovered hundreds of neuronal correlates of consciousness (NCCs), but no causal link between the brain and our conscious experience (Koch 2004, 2018; Kastrup 2019).

In 2018, 23 years after first elucidating this paradox, Chalmers suggested another approach to resolving the seemingly insoluble hard problem of consciousness.

Instead of directly addressing the hard problem, let's first answer the **meta-problem of consciousness.** Why do we think that consciousness is difficult to explain? Why do we feel that there is something special about consciousness that separates our raw, internal awareness from, say, the "**easy problems of consciousness**," various algorithmic cognitive functions that could occur *without* consciousness? According to Chalmers, if we can resolve the meta-problem, itself one of the "easy problems," perhaps that solution would shed light on the hard problem (Chalmers 2018, 2022a).

The challenge we face in explaining consciousness is unlike any other that we find in the natural sciences and philosophy, because we can study everything else from a third-person, observational perspective. However, in the case of our consciousness, we must study *the perceiver*. The observer, itself, must be made the object of observation. But even the word “object” portrays consciousness as a “thing,” which would be a flawed, Cartesian way of considering what consciousness is.

Consciousness is nature’s one given. Regardless of its metaphysical status, consciousness is *epistemically fundamental*. It is the primary datum of our existence, such that it is the only “thing” to which we have direct access. Everything else we know, we know only by, in, and through consciousness (Harris 2019; Kastrup 2019).

As such, consciousness is indeed special. It forces us to confront questions that empiricists find uncomfortable. How can we understand consciousness, our *first-person* perspective, if we consider introspection an invalid source of evidence?

How do we reconcile the epistemic problems of applying our standard methods of observational science to our first-person subjectivity? How do we account for the biases and religious impulses that we project onto consciousness? For instance, those advocating

for religious belief systems often use “consciousness” as a substitute for “soul,” and metaphysics as an excuse for spiritual bypassing of empirical science. Similarly, one could argue that illusionism and eliminativism on the physicalist side of the debate are logically incoherent, powered more by their anti-religious agenda and New Atheism than by rigorous philosophical argument. How can consciousness argue for its own non-existence, unless ulterior motives and biases are at play?

Another counter often leveled against the meta-problem, and more generally the notion that consciousness poses a special challenge, is that we eventually solved what you could call the "hard problem of life." At one time, we thought that life, too, was in its own special category. *Élan vital* was proposed by Henri Bergson as the "life force" by which we could explain evolution and the development of organisms (Bergson 1907). Of course, biologists and geneticists reject this idea today, as we've identified the electrochemical constituents of life (Azarian 2022).

The argument then goes something like this: because we have shown that life is not special, we will eventually show that consciousness is not special, either. We will eventually remove the mystery around consciousness, just the way that we removed the need to postulate a "life force" to explain life.

This argument, too, fails to address the epistemic challenges posed by consciousness, because even life itself is not on the same epistemic level as consciousness. For what is life, really? It is a concept that exists in consciousness. We developed our notion of "life" in order to describe the objects of our perception, which are themselves experiences in consciousness.

The perceiver comes before that which is perceived. As such, consciousness epistemically precedes even life itself and the electrochemical constituents of biogenesis. Therefore, the argument comparing the hard problem of consciousness to the problem of life, so as to invalidate the hard problem, fails.

In other words, because consciousness is epistemically fundamental, it is special. That is the answer to Chalmers's meta-problem of consciousness.

Each of the major metaphysical theories on the table today encounters these epistemic problems, which in turn generate conceptual paradoxes like the hard problem of consciousness for physicalism, the **interaction problem** of dualism, the **combination problem** of panpsychism, and the decomposition of idealism.

Whatever nature is, in and of itself, it does not actually contain these paradoxes. Rather, the above problems are the product of our own conceptual misunderstanding. Nature is not trying to fool us. Nature does what it does, and it is on us to make sure that our thoughts are clear.

The hard problem of consciousness, then, is not a problem to be solved. Rather, it is a sign that, somewhere in the history of human science and philosophy, we made false assumptions. We must, therefore, retrace our steps back to the last safe claim, and then start again from that point.

Every metaphysical worldview must account for the existence of consciousness. In so doing, they face the previously elucidated epistemic challenges.

Physicalism accounts for consciousness by making the following series of claims:

1. Physical entities have ontic existence independently of consciousness.
2. The physical is the only ontological category.
3. It follows from 1 and 2 that consciousness must be physical.
4. It follows from 1, 2, and 3 that physical parameters, such as metabolic brain states, generate consciousness.
5. Therefore, consciousness reduces to, or emerges from, the physical brain.

The hard problem of consciousness is the direct result of taking that which is epistemically fundamental as supervenient to that which it perceives. That is, we start from consciousness, we have qualitative perceptual experiences, we apply the mental concepts of physicality and quantitative mathematics to our perceptual experiences, and then physicalism makes the above claims.

It is a case of pulling the territory from the map (Kastrup 2019), as physicalism makes the description not only precede, but also generate, the thing described.

In other words, the positive claim that the physical exists outside of consciousness can never be verified or falsified, since we have no direct access to anything except consciousness, itself. If that claim cannot be verified or falsified, then the subsequent premises, which depend on that claim, also fall.

As a result of this epistemic knot, we encounter the hard problem. There is no way, even in principle, to reduce the qualities of experience to quantitative physical entities, because doing so is pulling the territory from the map, epistemically. That attempt at reduction from qualities to quantities is arguably also the source of paradoxes such as the measurement problem of quantum mechanics, the apparent fine-tuning problem, and others across the natural sciences.

Dualism accounts for consciousness by making the following series of claims:

1. Physical entities have ontic existence independently of consciousness.
2. Consciousness has ontic existence independently of the physical.
3. It follows from 1 and 2 that the physical and consciousness must interact in some way.

Dualism faces the interaction problem because, unlike monist physicalism, it claims that there are two fundamental ontic categories: the physical and consciousness. The connection to traditional religious notions of body and soul should be obvious.

The advantage of dualism is that it avoids the hard problem, since a dualist doesn't try to reduce consciousness to the physical. However, the challenge then shifts to explaining how two separate ontic entities interact, giving us our body-mind composite.

Though the **filter hypothesis**, in which the brain acts like a radio filtering the "frequency" of consciousness, is both intuitive (it accounts for the NCCs and the lack of a

causal connection between brain and mind) and popular in western culture, empirical evidence explaining the specifics of that interaction has not been found.

Once again, it is epistemology at the heart of the problem. Like the physicalist, the dualist has a starting point of consciousness. They have perceptual experiences. They create the mental concept of "physical" to describe those perceptual experiences. They then give ontic existence to the physical, but also claim that consciousness has ontic existence too.

And, like the physicalist, the dualist finds it impossible to verify or falsify the positive claim that the physical exists outside of consciousness, because consciousness is epistemically fundamental.

Constitutive panpsychism accounts for consciousness by making the following series of claims:

1. Physical entities have ontic existence independently of consciousness.
2. The physical is the only ontological category.
3. It follows from 1 and 2 that consciousness must be physical.
4. It follows from 1, 2, and 3 that physical parameters, such as metabolic brain states, generate consciousness.
5. Therefore, consciousness reduces to, or emerges from, the physical brain.
6. Since 4 and 5 encounter the hard problem of consciousness, consciousness is instead a fundamental *property* of any physical system that integrates information.

Constitutive panpsychism makes the same claims as physicalism up until it encounters the same hard problem of consciousness. It then makes the additional claim that, while the physical is the only category with ontic existence, consciousness is a fundamental *property* of the physical. Specifically, it leverages ideas like Tononi's Integrated Information Theory (IIT) to explain how consciousness emerges.

Under this approach, if a physical system, down to the level of a proton (a system of integrated quarks), integrates information, it has a modicum of consciousness. As the complexity of a given system increases, those micro-consciousnesses combine. The human brain, as a highly complex information integrating system, combines enough micro-consciousnesses to generate our macro-consciousness.

Like dualism, constitutive panpsychism avoids the hard problem of consciousness, but creates for itself a new challenge: the combination problem.

The theory leverages complexity as the cause of the emergence of consciousness from the physical, but does not provide an empirical mechanism to explain how the micro-consciousnesses combine. Furthermore, while IIT gives us the "phi" threshold to mark at which point of complexity consciousness emerges (Tononi 2004; Koch 2018), constitutive panpsychism can't explain *why* or *how* that threshold is the "magic moment" of emergence.

Furthermore, to even in principle explain that magic moment, the theory relies on the idea that a sufficient difference in *degree* of consciousness leads to a difference in *kind*

of consciousness. However, this would contradict the accepted definitions of phenomenal and meta-consciousness, which reflect a difference in degree but not in kind (both are still ontically mental).

Indeed, while there *are* differences of degree and kind in nature, the idea that sufficient differences in degree cause a difference in kind is a fallacious category error. Such a leap across categories (kinds) does not follow from a change in degree, which happens, by definition, within one category. But even if we granted that fallacy, then there would still remain the necessity of identifying at which new difference of degree the difference in kind occurs.

Not only that, but a difference in kind only happens if we change what is being measured (Cesere 2014; Kastrup, Vervaeke, & Jaimungal 2021). For example, if I measure my weight now and then again a month in the future, and if I gain five pounds in that time, I have measured a difference of the degree of weight, but not a difference in kind.

Similarly, the difference between phenomenal and meta-consciousness is in the degree of information processing. Reaching the "phi" threshold does not entail measuring something *other than* the level of information processing, and is therefore, by definition, not a difference in kind, but only one of degree.

Such a classification is also consistent with Jung and **depth psychology's** terminology of "consciousness" (corresponding to meta-consciousness), "psyche" (corresponding to phenomenal consciousness), and "unconscious" (corresponding to contents of the psyche not re-represented meta-cognitively). For Jung, consciousness "embraces … a whole scale of intensities of consciousness. Between 'I do this' and 'I am conscious of doing this' there is a world of difference … there is a consciousness in which unconsciousness predominates, as well as a consciousness in which self-consciousness predominates." Here Jung explicitly states that"consciousness" and the "unconscious" are both psychic in nature, with no change in ontic category when shifting between them. Rather, they can impinge and imprint on each other precisely because their difference in degree is not a difference in kind (Jung 1991, 2001).

In other words, the above approach is a hand-wave. It doesn't provide a solution to the problem, but instead hides behind complexity.

Yet another objection is that the empirical support for IIT has been entirely dependent on subjects' ability to report their conscious experiences (Tononi 2004), which means "phi" measures meta-consciousness, not phenomenal consciousness. After all, you can't report on an experience unless you know that you are having it, which is the definition of meta-consciousness (Kastrup, Vervaeke, & Jaimungal 2021). Put in depth psychology terms, "phi" measures the degree of re-representation of psychic contents, what Jung calls "consciousness" (Jung 1991, 2001). But this corresponds to meta-consciousness in modern philosophy, not to phenomenal consciousness.

Once again, we see the epistemic challenge of studying phenomenal consciousness, which can only be directly accessed via introspection and not via reportability. Since

introspection is not considered empirically acceptable in contemporary science, we encounter a blocker to our understanding of the mind.

As a result, the panpsychist can not verify or falsify the positive claim that the physical exists outside of consciousness, since consciousness is epistemically fundamental. Furthermore, there is little empirical support for the notion that subatomic particles, which under quantum field theory don't have ontic existence, have even a modicum consciousness.

In short, constitutive panpsychism is for physicalists who have given up on solving the hard problem, but wish to retain all of the other core claims of physicalism.

Analytic idealism accounts for consciousness by making the following series of claims:

1. Consciousness exists.
2. Consciousness is the only ontic category, such that reality is mental.
3. It follows from 1 and 2 that the phenomenology of physicality is ontically mental.
4. One natural substrate of consciousness splits off into many private minds, like ours.
5. Dissociation is the mental mechanism by which both the phenomenology and the splitting off can be explained.

Analytic idealism avoids the hard problem of consciousness by taking as metaphysically fundamental that which is epistemically fundamental: consciousness, itself. The claim of this metaphysics is that consciousness is the substrate of reality. Not your mind alone, not my mind alone, but a naturalistic, universal field of subjectivity. In that sense, analytic idealism is an objective idealist theory, with some subjective elements.

The fact that it chooses that which is epistemically fundamental is not, by itself, enough to give analytic idealism an advantage over other theories. It must also, like the rest of them, be able to explain reality, including our phenomenological experiences of the physical world and our private inner subjectivities.

That challenge takes the forms of what are often called the hard problem of matter and the decombination problem, respectively. The first is a question of how we derive physicality from mentality, the second question is about how one natural mind divides into many.

To account for both, philosopher Bernardo Kastrup, the mind behind analytic idealism, invokes the empirically known mechanism of dissociation, which cuts off certain mental contents from others (Kastrup 2019).

Specifically, Harvard research on the dreams of patients with dissociative identity disorder (DID) revealed that, for 25% of subjects, the patient's mind generated a dream world shared by the alters (alternate personalities). The alters had their own private subjectivity, could interact with each other, and perceived the dream world as physical. Of course, the dream world was mental, and the alters' private subjectivities were actually dissociated complexes of the patient's mind (Barrett 1994).

As such, analytic idealism claims that dissociation provides a naturalistic, empirically known mechanism to resolve the decombination problem and the hard problem of matter. Therefore, claim 5 is necessary to make sense of claims 3 and 4.

Importantly, the first positive claim of analytic idealism can not only be verified, it is nature's one given. Consciousness is our primary datum of existence, and thus to claim that it exists is trivial. Claim 2 is consistent with the virtues of conceptual parsimony and skepticism – invoking an ontic category outside consciousness, nature's one given category, would be acceptable if one could not explain reality from consciousness, alone. The subsequent claims of the analytic idealist then propose to do just that.

The result is that, so long as analytic idealism has sufficient empirical substantiation for its ability to explain reality, it does have an epistemic advantage over the other metaphysical options. Furthermore, physicalism, dualism, and constitutive panpsychism currently cannot point to an empirically known phenomenon to resolve the hard problem, interaction problem, and combination problem, respectively. By contrast, analytic idealism has such a candidate solution in dissociation.

Analytic idealism is the only metaphysical theory that does not face the epistemic challenges at the root of the meta-problem of consciousness. Indeed, the paradoxes surrounding consciousness dissolve once we have an explanatorily powerful theory that also takes that which is epistemically fundamental as ontically fundamental.

Our theory entails no explanatory gap

Fortunately, our theory does not encounter the hard problem of consciousness, because we take consciousness to be fundamental. Indeed, our goal is not to derive consciousness from matter, but to derive matter from consciousness.

Order within FM, in the form of informational subsystems, will need to give us back all of the aspects of the PUR and spacetime that we just covered, including all of science and the brain, itself. That will be the subject of the next two sections.

8. On the physical universe

The logical fallacies of taking the PUR to be fundamental

Why do we believe that we inhabit a fundamentally physical universe that has stand-alone existence outside of consciousness? In other words, why does physicalism feel intuitive even though it is demonstrably illogical?

Epistemology is the philosophical study of knowledge itself, asking what it is to know, what it is possible to know, and how much we should appeal to our sensory experience (Steup & Ram, 2020).

Physicalism posits the existence of an objective physical reality outside of consciousness to explain the "images" (used here to encompass not just visual images, but all objects of our sensory perceptions) that we experience in our daily lives. That is, there seems to be an objective physical world that we all share in common. In fact, multiple of us report the very same features of this world. If I witness a tree fall in a forest, and my friend witnesses it too, then we will both report on the same tree falling in the same forest, albeit from two different perspectives on the same event. This seems trivial. However, it is important to note that these observations happen within consciousness, without which we cannot know anything at all. Everything we know, we know in and through consciousness. As such, consciousness is epistemically fundamental, coming prior to our perceptions of any possible objective physical world. Therefore, the physical world is more of an explanatory model for what we experience through our perceptions than an ontology (Kastrup, 2019).

We must ask whether consciousness can account for the same "images" without the need to postulate the existence of something fundamental besides consciousness itself. After all, if an ontological theory could explain reality through that which is epistemically fundamental, it would score higher than physicalism on the criteria of parsimony and explanatory ROI. Of course, consciousness is perfectly capable of generating a seemingly objective physical world. We do it every night when we dream. To our character in the dream, the world that our mind creates is as real and concrete as the world we experience when we're awake. Thus, a challenge to physicalism has been that other theories, which place consciousness as ontologically fundamental, could be, by default, more parsimonious and do not require us to posit the existence of an entirely new ontological "substance," matter.

A second critique of physicalism targets the logic in its levels of abstraction, ultimately leading it into the hard problem of consciousness. Under physicalism, matter is defined as that which can be exhaustively described by quantities, or mathematical measurements (the equations of physics). These parameters are abstractions grounded in our logic. The axioms on which our logic is built come from our intuition, which is based on our perception. For instance, Aristotelian logic is heavily dependent on staples of our perception such as subject-object relationships. The Law of Excluded Middle, as an example, states that something can be either true or false, but never both true and false and never neither true or false. While quite intuitive, this logical assertion stems from the consistency with which we observe this statement to be true (Vernon, 2021).

But can we trust our observations? Refer back to the chapter citing empirical evidence that we cannot. It has been mathematically shown that evolution by natural selection gave us a sensorium that perceives fitness benefits, not truth. Furthermore, our perception encodes the truth of reality, because the real thing is so entropic and complex that we would dissolve if we directly accessed it. Even the interplay of a human brain's hemispheres suggest that we can't believe what we perceive. The world that we perceive is

a useful fiction that we should take seriously, not literally. As such, since the axioms of our logic are based on intuitions that are grounded in our perceptions, we can't take those axioms for more than abstractions, and this means that our logic is limited when it comes to understanding reality as it is, in and of itself (Hoffman, 2019). This alone refutes the realism that physicalism requires.

Therefore, if the objective physical world is that which can only be described through abstractions, it too is an abstraction. In other words, it is a product of mind. Physicalism then goes further and claims that the abstraction generates the mind, which is, as we've just said, the very thing that produces the abstraction. The logic in this sequence is both incoherent and internally inconsistent.

We start, epistemically, from a world complete with qualities. We then use quantities to measure those qualities. From that point of view, qualities are all we have, and positing anything else requires a leap that must be justified by explanatory ROI. Physicalism flips that sequence, claiming that the abstractions that we use to measure experience *are* reality. It further asserts that those abstractions also generate the experience, which then becomes epiphenomenal. In this way, the description of reality comes before the reality it describes, which is logically incoherent (Kastrup, 2021a).

In the next sections, we will explore the empirical evidence for the claim that evolution by natural selection gave us a sensorium showing us an encoded version of reality, not reality as it is, in and of itself.

The Fitness-Beats-Truth Theorem

The standard assumption of today's paradigm is that we perceive reality as it really is. As we've already discussed, this naive realism is increasingly in doubt due to empirical evidence and mathematical models that refute its core claim. In fact, evolution did not select for a sensorium that shows us the truth of reality. Instead, it shows us an encoded interface that delivers information about fitness payoffs in the data underlying the interface. That interface is the PUR.

Fitness payoffs are not just based on the truth of reality. Other factors in the standard accounts of evolution by natural selection include the organism itself, its state, its action, and its competitive environment. A fitness payoff for one organism is a death sentence for another, which is why hydrogen sulfide nourishes extremophiles living on hydrothermal vents but kills human beings. Similarly, those extremophiles won't get any fitness from broccoli, but humans do. Indeed, those additional factors are central to the fitness payoff information that an organism receives. In other words, the organism and its state actively participate in defining fitness payoffs. Evolution is not a passive process that happens *to* organisms, solely based on factors independent of them. The result is that, while any respective state of objective reality remains fixed, fitness payoff information can greatly vary.

Therefore, to perceive the true state of objective reality and to perceive an accurate report of fitness are two different approaches to perception, not one and the same. Thus, the two approaches can compete in evolutionary game theory simulations, and that is precisely what researchers have done.

Donald Hoffman and Chetan Prakash's **Fitness-Beats-Truth Theorem (FBT Theorem)** mathematically shows that an organism with a sensorium tuned to fitness payoffs will outcompete an organism with a sensorium tuned to the true state of objective reality 100 percent of the time. The FBT Theorem uses Darwin's evolutionary algorithm (which can be applied to everything, giving us **universal Darwinism**) to run the games. Universal Darwinism makes no assumptions about the substrate in which the process takes place, which means evolution does not belong to physicalist theories. We've already shown, for instance, how the FPE evolves FM and all of the information subsystems within it. Because evolution by natural selection is a precise algorithm, the idea of the PUR as an interface, or virtual reality, lives squarely in the realm of science, not just philosophy.

Fitness depends on the state of the world, the state of the organism, and the frequencies with which competing organisms adopt certain survival strategies. As such, the interconnectedness of this process creates incredibly complex dynamics that go far beyond the true state of reality alone. The result of the games is that natural selection does not favor veridical perceptions. Here's how it works:

Imagine two sensory approaches, Truth and Fitness. Both are capable of achieving n distinct perceptions in a reality having n states. Truth selects for the most accurate perceptions of the true state of reality that it can, whereas Fitness selects for fitness payoffs and does not perceive any of the objective reality, as it is in and of itself. Again, recall that those fitness payoffs are information about the true state of the world, the organism, the state of the organism, and the actions of the organism.

The resulting theorem that Hoffman and Prakash derive is:

Fitness drives Truth to extinction with probability at least (N-3)/(N-1) (Hoffman, 2019).

This holds true even when Fitness is far less complex than Truth. Take human beings and oxygen. If a human has too much or too little oxygen, they die. If they have just the right amount, they prosper. Now, imagine humans had only two perceptions, black and white. A human evolved under the Truth approach perceives the true nature of reality as accurately as possible, and so they see white when there is less oxygen and black when there is more. A human evolved under the Fitness approach, meanwhile, perceives as much as they can about the fitness points available, and so they see white when oxygen gives fewer fitness points and black when it gives more. The problem for the human tuned to the Truth approach should be obvious; they may know when there is more or less oxygen, but they derive no knowledge of the survival benefits and dangers of a given quantity of oxygen. The Fitness approach, by contrast, tunes the other human to know when there is a survival benefit or danger in the same given quantity of oxygen, but it doesn't know how

much oxygen is really there in the true state of objective reality. If the human under the Fitness approach looks for more oxygen and sees black, they know that approaching will increase their survival chances. Conversely, if the human under the Truth approach sees black, they will not know whether approaching will help or hurt them. They will encounter the same problem if they see white. As such, the human with the Fitness approach will outcompete the one with the Truth approach.

Therefore, perceiving the truth hides fitness payoffs, and vice versa. Oxygen is a good example to cite, because we don't perceive it. Instead, our senses give us information about the fitness of the current level of oxygen that we're receiving. We might, for instance, get a headache if the level is too low.

There is a case in which fitness and truth align, but it is rare. If the level of fitness payoff happens to correlate with the truth of the objective reality, then evolution will favor truth. But the odds of this occurring are nearly zero, and drop significantly as the complexity of reality and of perception rises. As such, the Fitness approach drives the Truth approach to extinction whenever they compete, eventually removing the Truth approach from the pool of traits that could affect an organism's perceptual strategies.

Following the logic of universal Darwinism, which has shown beyond doubt that the FPE applies to *everything*, that same logic applies to the entire PUR. We can either perceive the true nature of objective reality, or we can perceive fitness payoffs. The PUR that we experience, including every single detail composing it, will depend on which approach evolution by natural selection takes for us. Since it clearly prioritizes fitness, the implication is that the PUR that we experience through our perceptions, including space, time, shape, color, texture, taste, sound, aroma, and motion, does not describe objective reality when no one is looking.

The FBT Theorem *mathematically* shows, and empirical evidence *observably* shows, that we evolved to have a fitness-based approach, not a truth-based one. Therefore, the PUR is not fundamental, but rather an encoded version of the underlying reality, or an interface designed to show us information about fitness payoffs in a manner that we can use for survival (Hoffman & Prakash, 2014; Hoffman, Singh & Prakash, 2015; Hoffman, 2019; Prakash, Fields, Hoffman, Prentner, Singh, 2020).

The Interface Theory of Perception

Hoffman's **Interface Theory of Perception (ITP)** follows from the FBT Theorem and finds empirical validation in quantum physics and thermodynamics, both of which we'll cover in depth after we finish with these concepts. ITP also fits with our virtual reality metaphor for the PUR.

Hoffman uses the example of writing an email on your desktop. The email may look blue and rectangular on your screen, but it is not literally and fundamentally blue and rectangular. The underlying reality has none of the shapes, colors, and spatial relationships

of the desktop. Rather, the true state of the computer entails transistors, voltages, binary codes, etc., all of which would be far too difficult for you to work with. The energy it would take for you to use that "fundamental reality" of the email would make your task impossible. The desktop, then, is designed to hide that true nature of the computer and give you an interface, which delivers key information about that truth, but in an encoded form that allows you to work.

The pixels and icons don't describe the 1s and 0s. They conceal them.

ITP claims that evolution tuned our senses to be a user interface, just as in the example. You can also use our virtual reality/video game world metaphor instead of the desktop. Indeed, that one is a more accurate representation of what is happening in reality, because a video game world can be more similar to the PUR that we experience. In either case, the interface allows us to do the work that our species must do in order to survive. Spacetime, then, is our desktop, and the physical objects within it are icons. As a result, we're able to survive long enough to reproduce, which is the endgame of the process.

Therefore, shapes, positions, spins, smells, tastes, etc. are the right language for describing fitness payoffs, but not for describing the objective reality underlying the PUR (Hoffman, 2019).

Explaining spacetime and the speed of light with the holographic principle

Let's build out the specifics of how our perceptions of the PUR encode the information coming from FM (objective reality).

Space and time in the PUR are, as Einstein showed, tightly interrelated, and thus it is best to refer to them as a single entity: spacetime. As we'll see, spacetime is a construct of consciousness and not fundamental to reality. Time in this case will refer to our perception of time, not to proto-time. Instead, consciousness creates spacetime when a set of constraints are imposed upon a subset of FM.

With the **holographic principle**, Stephen Hawking and Jacob Bekenstein showed that the amount of information that a region of space can hold is proportional to the *surface area surrounding* that space, not to its volume. They discovered the holographic principle in relation to black holes, then realized that it applies to any given region of spacetime.

If the PUR is like a desktop or a video game world, wouldn't we expect it to be pixelated? Indeed it is.

A **Planck** is the smallest region of space. Spacetime simply isn't possible smaller than this, defining our perception of spacetime's *resolution*, or the level of detail that renders as the PUR when we measure (observe) the datastream of objective reality (FM). Each pixel of spacetime has the same length, called the **Planck length** (approximately 1.6×10^{-35} meters), and the same area, called the **Planck area**, which is the Planck length squared. Hawking

discovered that the amount of information that a region of spacetime can hold depends on the number of these "pixels" in the region's surface, not on the number of "voxels" in the region's volume. Just like the pixels in a video game world appear to be a continuous, 3D surface and environment, Plancks constitute the PUR but appear to us as a continuous 3D surface and environment. Below the level of a Planck, spacetime itself does not exist. As a result, observers have no access to "objects" in "spacetime," but rather work with bits of information written on boundaries surrounding space (Hoffman, 2019).

As physicist Leonard Susskind put it: "...the three-dimensional world of ordinary experience—the universe filled with galaxies, stars, planets, houses, boulders, and people—is a hologram, an image of reality coded on a distant two-dimensional (2D) surface. This new law of physics, known as the holographic principle, asserts that everything inside a region of space can be described by bits of information restricted to the boundary" (Susskind, 2008).

What does this mean for our theory of how FM and the PUR relate? We'll cite Thomas Campbell's MBT Theory for this next section.

Space is a conceptual 3D matrix of imagined regions of physical volume: Plancks, the pixels that define the PUR's resolution and form its structure. This structure, along with sequential increments of time, are the encoded version of objective reality and define our physical experience, through our perceptions, which evolved to show us fitness payoffs and not truth. Spacetime, then, represents (is the image of) a set of constraints placed on transfers of information *within FM* and *between alters*. It emerges from the order within FM, and has both a structural component (space) and a dynamic component (time).

Pixels (Plancks) change state in sequence, a kind of "communication" between them that allows information to propagate through the matrix of space. Pixels can oscillate (change state) at a constant rate in order to keep time. This PUR time is independent of proto-time, FM's more fundamental clock that emerged when it first changed its own state. Indeed, the PUR time can be any frequency that is *less than* the frequency of proto-time.

The smallest time increment in the PUR (one spacetime quantum) must be a positive non-zero integer, n, times the smallest time increment of FM time (one proto-time quantum). One spacetime quantum is the minimum time required for a Planck to change state, meaning all of spacetime must move according to that frequency. Information within the PUR cannot travel faster than the speed that will be derived from that spacetime quantum. That speed will equal one Planck of distance (roughly 1.6×10^{-35} meters) per spacetime quantum. We have already measured the value of that speed and labeled it c, the **speed of light**, which is a constant. Up to this point in science, the existence of constants and why they are what they are remain unexplained. Our theory will finally account for why the speed of light, c, is 3×10^8 meters per second, or about 186,000 miles per second.

Therefore, we can use this equation to describe the relationships between the speed of light (c), Planck length (L), and one spacetime quantum (t):

$$\mathbf{L = ct}$$

This should look quite familiar, as it is the same equation as distance = velocity times time ($d = vt$).

When we fill in the equation with what we know, it looks like this:

$$\mathbf{1.6x10^{-35}\ m = 3x10^{8}\ m/s \bullet t}$$

The result is that $t = 5.39\times10^{-44}$. In other words, one spacetime quantum, the time it takes for information to propagate across a Planck at the speed of light, is 5.39×10^{-44} seconds.

The speed of light, and thus the speed of information transfer within the PUR, seems instantaneous, because *c* is so much faster than the everyday velocities that we perceive. However, it is far slower than the speed of information transfer in FM, based on the proto-time quantum. There is no space fundamental to FM, and therefore no distance. But proto-time is still required to reflect state changes, since there is an upper limit on how quickly a state can change and thus how quickly information can propagate within FM's "mind-space." That upper limit is far larger than the constraints we encounter in our PUR spacetime.

Remember that spacetime is not fundamental, but rather emerges as part of our perceptual interface, an encoding of information with FM. It must emerge with the following three constraints:

1. The time constraint by which the virtual reality of the PUR is incremented, or the shortest time between cause and effect.
2. The resolution of the "graphics" of the perceptual interface, defining the smallest "pixel" of 3D space, the Planck.
3. The maximum speed at which information can propagate between points in spacetime, or *c*, the speed of light.

These constraints must be in the form of constants in order to create a homogenous, isotropic interface that allows for accurate reporting of fitness payoffs to the organism that is querying the datastream of FM, thereby rendering the PUR that it experiences. In other words, the constraints determine the performance of the virtual reality. The constraints compress the fitness payoff information into a form that we can use and correct for errors via redundancy, through three dimensions of space and one of time, which gives us the spacetime that we observe through our perceptions.

Thus, our theory has explained why the speed of light must be a constant regardless of the velocity of the source of that light. You can calculate it by dividing the other two constraints, which specify the information processing requirements of the PUR interface. Einstein's theory of relativity logically follows from the fact that *c* is a constant independent of the source's motion. As we'll show in the next chapter, the above is perfectly reconciled with quantum mechanics under our theory.

It also follows that, while time is a fundamental attribute of FM, in the form of proto-time, space emerges *from* time specifying a constant speed limit on the propagation of information.

If a sequence of adjacent Plancks (the PUR's "pixels"), each with a length equaling *ct*, propagates information by changing states at a rate of one Planck every one quantum of spacetime, that information propagates at the velocity *c*. Thus, those Plancks produce the attribute of size in the perception of the observer. The datastream underlying the PUR has no size, but it now *simulates* size by applying these constraints to a subsection of FM's consciousness, that of the observer (a dissociated alter of FM). In reality, informational contents of FM exist as thoughts in our own minds do…without space (Campbell, 2003).

Therefore, space is an artifact of your perception, which has been finely tuned by evolution to show you fitness pay-offs rather than the true nature of reality. As such, every object that you see in space will either help or hurt you in some way (even minisculely small ways). But the truth is, there are no objects there. What appears to you as an object is a piece of information in the datastream of FM, part of your external state. As a dissociated alter, you are an informational subsystem of the entire informational system. Therefore, that object in space is the image of a piece of information that will either further your organization (as a subsystem of information) in some way, or reduce it, thereby increasing your internal entropy. Mortal threats are pieces of information that can add enough entropy to dissolve your dissociative boundary.

In other words, space does not bring order to the world, as was assumed under reductionist physicalism. It emerges *from* the order already present within FM.

Distance in space is a hierarchical measure of which things will affect you. In other words, if there is a high probability of an object having some effect on you, then you will perceive it as close. If there is a low probability of the same, then you will perceive it as distant. The same applies to objects in relation to each other *and to other alters* within your perception. For instance, if you see a person on one end of a field and a lion on the other end, the probability that one will affect the other is low. If they get closer to each other, then that probability increases.

It is not because they are closer that the probability of their interaction increases, but rather it is because the probability of their interaction increases that they get closer.

Fundamentally, the person, the lion, the field, and you are all information within FM. The person, the lion, and you, as adaptive complexities and informational subsystems within FM, have encoded perceptual interfaces with which to translate the massively complex datastream from FM into usable models about fitness payoffs. Fitness, again, refers to increases in order and reductions of entropy (Musser, 2015; Hoffman, 2019).

In the next chapter, we'll cover the empirical support that ITP finds in quantum physics. We'll then combine everything we've discussed into a summary of reality according to our theory.

9. On quantum physics

We've claimed that spacetime is not fundamental and offered evidence from evolutionary biology and thermodynamics to support that statement. Now, let's find converging lines of reasoning from quantum physics. We'll find that a model of reality that takes consciousness, not matter, as fundamental is the key to resolving the paradoxes that physicalism encounters at the quantum level. Indeed, when consciousness is the reduction base, quantum theory makes sense and comes into alignment with general relativity.

Local realism is dead: the case for anti-realism

In short, we'll be making our beliefs conform to the data from quantum experiments, rather than trying to twist that data to fit presupposed beliefs of physicalism and scientism (Rovelli, 1996). We'll be able to resolve the paradoxes that physicalists encounter when they refuse to accept **non-locality**, because it would violate **local realism**, the claim that physical objects have definite values of physical properties (position, mass, spin, charge) when unobserved, and cannot influence each other faster than the speed of light. Local realism is required in order to preserve the fundamentality of the physical. But quantum mechanics and general relativity both display non-locality, and this has caused many physicists, and particularly the next generation, to declare that spacetime is "doomed."

Einstein's logic in his 1935 EPR Paper showed that quantum mechanics is either non-local or incomplete. In 1965, John Stewart **Bell's Theorem** showed that incompleteness, such as claimed by the various **global, local, and non-local hidden variable theories**, could not be true. Physicists hoping to preserve locality (to this day) suggest that there exist these hidden variables, hypothetical properties possessed by quantum particles that are undetectable but still affect the outcome of experiments. This would, in turn, liberate physics from the results of quantum mechanical experiments that showed **anti-realism** and non-locality to be true. However, in the words of Bell, "If [a hidden-variable theory] is local it will not agree with quantum mechanics, and if it agrees with quantum mechanics it will not be local" (Bell, 1987; Musser, 2015).

Indeed, there remains no evidence for hidden variables, even of the non-local kind, and Bell showed that the concept was wholly incompatible with quantum theory. As such, locality and realism are dead, and that revelation is the operative bit of conceptual logic needed to resolve quantum paradoxes. Indeed, by taking an anti-realist, empirically strict approach to the data, we dissolve the strangeness of quantum physics.

The refutation of realism

Anti-realism is not, by itself, a metaphysical stance, but rather an empirical and scientific one. It serves to limit the ontological assumptions that science can make when interpreting data.

Under anti-realism, entities that are postulated by science, but that are not directly observed, such as subatomic particles, exist as metaphors, but do not have fundamental, ontic existence. In other words, nature behaves *as if* subatomic particles were real, but that does not mean that those particles have literal ontic existence, with literal properties. In essence, these postulated but not directly observed entities are narrative devices, convenient fictions that we tell ourselves in order to better describe the behavior of nature, which is the aim of science.

The evidence for anti-realism, in large part, lies with entangled subatomic particles, in the realm of quantum physics. After all, our world is built on the quantum level, and so experiments on those particles should tell us something intelligible about the nature of the world.

The paradox of **quantum entanglement** goes like this: if you produce two particles together, say Photons A and B, they are entangled. This means that you can't describe the behavior of one without the behavior of the other. First, you shoot Photons A and B in opposite directions. Scientist A works at one end of the universe and measures Photon A. Meanwhile, Scientist B works at the other end of the universe and measures Photon B *at exactly the same time*. What Scientist B sees on their measurement depends on what Scientist A chooses to measure. For instance, if Scientist A chooses a specific angle on their polarizer to measure the angular momentum of Photon A, then that will completely correlate with what Scientist B sees. Thus, we have **"spooky interaction at a distance,"** because it seems that either the particles must be communicating, or that the physical properties of physical entities can't exist prior to measurement (Gröblacher et al, 2007; Romero et al, 2011). Both of those options seem utterly impossible under physicalism. The particles can't communicate across that distance in spacetime, because the speed of light is a limit to the possible speed of information, and this "communication" would have to be instantaneous. But under a physicalist paradigm, scientists can't grant that physical entities do not have existence prior to measurement.

In other words, the theory of quantum mechanics does not allow us to speak of the reality of the photons' properties until the moment of measurement, when a conscious agent makes an observation, rather than at the moment they are generated at the source. Additionally, whatever "choice" of property the first photon makes at that moment of measurement will determine the "choice" of the second photon at exactly the same moment. The independent measurements made by the two detectors are, thus, strongly correlated, no matter the physical distance separating them. Further, that correlation depends on the specific combination of properties that the detectors are configured to measure. In that way, the particles are "entangled."

The paradox is that either the photons are somehow instantaneously connected to each other across a distance, which would defy **relativity theory**, or the act of the conscious agent's observation causes the photons' properties to render into existence (Hoffman 2019; Kastrup 2019; .

Einstein and his collaborators appealed to the idea that the photons have hidden properties (hidden variables), which are different from those measured by the detectors (Einstein, Podolsky, & Rosen 1935). Specifically, they argued that the photons share an identical hidden variable from the moment of creation at the source, preserving that variable after the photons are emitted in opposite directions. This hidden variable could then influence the measurements of both detectors, explaining the correlation between the independent observations. The origin of the correlation shifts, in this case, from the moment of measurement, to the moment of creation, thus eliminating the need for a spooky connection at a distance, or for the photons' properties to render only when observed. However, Einstein never explained what that hidden variable is or any mechanism by which they work.

Einstein's theory lives on today, in the form of those various hidden variables theories previously referenced. Like Einstein's idea, these theories postulate "hidden properties" that exist from the moment of creation of the photons. These views are grounded in realism, because the hidden properties would be facts of the world, independent of the observer. They also entail locality, because the hidden variable of each photon is assumed to reside solely *in* the respective photon, dependending on nothing outside of that photon. Rather, the hidden property is the same in both photons, eliminating the need for a non-local interpretation. Such a view, therefore, attempts to salvage local realism from the experimental results.

If there are no hidden variables, then local realism is false, or either locality or realism is false.

In the 1960s, physicist John Bell worked out the statistical implications of Einstein's hidden variables theory and its local realism. For a range of experimental scenarios, Bell contrasted the theoretical predictions of quantum mechanics with the explanatory power of any *local* hidden variables theory. Specifically, he looked at all the possible combinations of properties that the two detectors could measure, and determined that, for many combinations, quantum mechanics made predictions that departed from the expectations of any local hidden variables theory (Bell 1964, 2004). In other words, he theoretically proved in what is known as **Bell's Inequalities** that no local hidden variables theory could match quantum mechanical predictions for all experimental scenarios. Local-realist hidden variables could not fully explain quantum mechanics.

Therefore, locality, realism, or local-realism as a whole had to be false.

The implications went further: now physicists could construct experiments to empirically test entanglement under conditions for which Bell demonstrated that local-realist hidden-variables could not explain the quantum mechanical predictions.

In the 1980s, Alain Aspect and his team placed detectors at a 6-meter distance from the photon source in the center, so that the detectors were 12 meters apart. Such a gap ensured a good separation between the independent measurements. The experiments showed a violation of the explanatory limits of local-realist hidden variables, as well as a

clear agreement with the predictions of quantum mechanics (Aspect et al 1981, 1982a, 1982b). In other words, Bell's results were confirmed, and it looked like local-realism had been refuted again.

Skeptics and critics pointed to a few loopholes in the setup of the experiment, however, and so new tests were performed. In these cases, the distance between the detectors was increased again. In 1998, experimenters injected the photons into the optical fibers of a telecommunications network, increasing the distance between the detectors to several miles (kilometers, in the original paper). Once again, the measured correlations confirmed the predictions of quantum mechanics and violated the explanatory power of local-realist hidden variables theories (Tittel et al 1998).

Skeptics responded by suggesting that the two detectors could be exchanging, in advance of the creation of the photons, a signal that could influence the correlations. If this were true, then the detectors would be "snitching" to each other in advance, or "snitching" to the source. If the source "knew" what the detectors planned to measure, then it could generate photons with the matching properties. As absurd as this hypothesis was, it did preserve local-realism. However, no mechanism of how this "snitching" could occur was ever proposed. Rather, this was an attempt to find any possible way to dismiss the evidence and anti-realism and non-locality.

Again in 1998, a new test was done. This time, the detectors were reconfigured *after* the photons had already been emitted from the source. The selection of parameters to measure was automated and random. Now there was not enough time for the detectors and the source to be in any kind of "communication." Alain Aspect even called this setup "ideal" (Aspect 1999). Of course, the results of this experiment were the same: they agreed with the predictions of quantum mechanics and exceeded the explanatory power of local-realist hidden variables theories (Weihs et al 1998).

Not only that, but each time one of the detectors reconfigured, a change in the correlations observed in the other detector became instantaneously apparent, without any delay that could allow for information transfer between the two detectors.

The options were clear: either the entangled particles were fundamentally inseparable, regardless of physical distance, or the act of observation creates the correlations. Both options refute local-realism.

Scientists tended to abandon locality over realism, leading them to believe option 1: that particles are connected to each other beyond space-time limitations. In that way, nature is a unified whole, not a collection of parts. To explain this, *non-local* hidden variables theories were born.

These theories dispense with the possibility that the hidden variables reside in the particles. Rather, they must exist across space-time in a non-local manner. In that way, the theories preserve realism, but not locality.

A 2007 paper appearing in *Scientific American* had something to say about this. In it, physicists identified a set of previously untested correlations between entangled photons.

If confirmed, these correlations would refute non-local hidden variables as well. The team did in fact confirm the correlations, proving that abandoning locality is not enough to explain the predictions of quantum mechanics (Gröblacher et al, 2007). Realism must fall, too. And since these subatomic particles are seen as the building blocks of our world, then if realism falls at the quantum level, it must fall at the macro-level as well.

Therefore, there is no local-realistic physical world outside of the observation of conscious agents.

The paradox of entanglement is an artifact of the logical errors in trying to take matter as ontologically fundamental. Recall that our perception encodes information from FM into the "physical" world that we experience. Under the current mainstream paradigm of physicalism, we take that encoded version of reality and believe it to be what reality actually is, in and of itself. That is useful for our survival fitness, but it is not the truth. The world is not necessarily ontologically "physical" as we understand that word through our perception. There *is* an objective reality outside of our perception, but it is information within fundamental consciousness that *looks* like matter from our perspective within it. In other words, the datastream from FM only renders as physicality when we observe it.

Quantum physics demystified

At the end of this section, quantum mechanics will no longer be "spooky." We will have used an idealist metaphysical framework to resolve the disputes in the most parsimonious way possible.

If we approach the problem of quantum entanglement and "spooky interaction at a distance" from this change in our metaphysical paradigm, it begins to make sense. Let's look at the scenario in a different context. You watch a philosophy lecture online on two separate screens simultaneously, each showing a different camera angle of the same speaker at the same podium. When the speaker raises their hand, you see the hand go up on both screens at the exact same time. Of course, that's because the perspectives of the cameras may differ, but the underlying reality (the speaker at the podium) is the same for both of those perspectives. Therefore, it is natural and expected that the separate images of that one underlying reality instantaneously correlate. It would be a mistake to assume that either Image A or Image B *is* the underlying reality, and then call it "spooky" when they appear entangled. It would be a further (and frankly absurd) mistake to believe that the only possible explanations for that correlation are that either the screens are communicating with each other, which they clearly are not, or that there are, in fact, infinite screens, one for every possible image, and you happen to be watching the ones that show the two specific images you see. The latter is equivalent to the **many-worlds interpretation** of quantum mechanics, one of the multiverse theories. We'll spend more time on that later.

Next, let's look at **quantum complementarity**. In classical physics, you can find any object's position and momentum simultaneously. For instance, you can specify a car's exact

position on the road and its forward momentum at any given instant of time. This is not so at the quantum level.

Let's say a researcher shoots an electron from an electron gun. The researcher can only measure the electron's position or its momentum, but never both at the same time. This gives us the **uncertainty principle**, stating that the more you know about the position of a particle, the less you can know about its momentum (and the same in reverse). Further, the **Kochen-Specker (KS) Theorem** states that no property, such as mass or charge, has a definite value independent of the way that it is measured, and this applies to the momentum and position of the electron in our example. Physicist Leonard Susskind used these theorems and principles to give us **horizon complementarity**. According to Einstein's theory of general relativity, a black hole sucks in space itself. As space is devoured and gets closer to the black hole, the speed of its flow increases until it exceeds the speed of light. The speed of light is a limit on how fast information can travel through space, but space itself is not subject to that limit. As a result, where space enters the black hole at the speed of light, no information (or light) can escape. This is the **event horizon**, the divide between the inside of the black hole, from which nothing can escape, and the outside, where information still can. Einstein theorized that if a cat fell through the event horizon, it wouldn't experience anything unusual. It would eventually become stretched by gravity into a spaghetti noodle, but all would be normal at the event horizon.

Furthermore, let's say that two aliens, Bob and Brad, watch the cat as this process unfolds. Bob is on their spaceship, idling at a safe distance away from the black hole but with a good view. He sees the cat approach but never pass the event horizon, and the cat eventually stretches beyond recognition and gets fried by radiation. Meanwhile, Brad is entering the black hole alongside the cat. From Brad's perspective, the cat passes right through the event horizon unchanged.

So how is it possible for the cat to be both a spaghetti noodle and just fine at the same time? Not only that, but quantum theory entails that quantum information cannot be destroyed or copied, while general relativity requires that information can cross a black hole's event horizon and be erased. How do we reconcile this additional paradox and bring quantum theory in line with general relativity?

Horizon complementarity solves the paradox by saying that Bob's description of the cat outside the black hole is *complementary* to Brad's description of the cat inside the black hole. You can observe one outcome or the other, but never both. However, both are correct and complementary. In that way, an observer can't see both descriptions of the cat at the same time, just like no observer can simultaneously measure the momentum and position of an electron. Susskind's theorem applies not just to black holes, but to any event horizon, and it allows us to reconcile general relativity and quantum mechanics by giving the observer's perspective a role in the classical world outcome of quantum processes (Susskind, 2008; Hoffman, 2019). The paradox only appears if we take the "physical" (and spacetime itself) to be fundamental to reality. In other words, quantum mechanics once

again seems to deny the realism needed to validate physicalism, in favor of giving the observer's perspective a role in determining the classical world.

There *is* an objective reality beyond ourselves, but it is a datastream of information within FM, not a physical, stand-alone universe. That datastream only becomes "physical," appearing as particles, when observed (Hoffman, 2019).

Chris Fuch's theory, **Quantum Bayesianism (QBism)**, asserts that quantum states describe the beliefs of agents about the consequences of their actions, rather than the objective reality underlying those states. Since the survival consequences for each agent differ from those of another, each agent's perceptions of spacetime objects will also differ. Within species, they are likely to be very similar. Across species, there will be variety (Fuchs, 2010).

In other words, each conscious agent has its own *physical universe*, which statistically will match that of other members of its species, giving the impression of an objective physical universe. In actuality, there *is* an objective reality enveloping all of the agents (FM), but it is not physical.

This is in line with Hoffman's Interface Theory of Perception (ITP). An agent's perceptions "are an interface shaped by natural selection not to reveal reality but to guide [its] actions in ways that enhance [its] fitness… Natural selection shapes perceptions in a personal fashion, to tell [that agent] the consequences for [it] and [its] actions upon the world. There is a world that exists even if [an agent] doesn't look: solipsism is false. But [an agent's] perceptions, like observations in quantum theory, don't disclose that world" (Hoffman, 2019).

That logic also accounts for the measurement problem by combining evolutionary theory and quantum physics. The measurement problem results from the fact that evolution by natural selection develops our senses for fitness, not for objective truth. Such a rationale is only illogical if we take the encoded version of reality to *be* the objective reality, rather than the interface, or image, of that reality (information within FM). Skeptics would argue that a measurement device seems to collapse the wave function as well, and the device is surely not conscious. But a conscious observer still must read the device, which is made of matter and, therefore, part of that observer's encoded interface, the PUR. That a "physical" device appears to collapse the wave function does not refute KS Theorem, QBism, or ITP, because the device is as much a part of the image as anything else in PUR. To suggest otherwise is to beg the question, by presupposing the fundamentality of matter, which is precisely the point in contention.

Further experimentation to support this conclusion can be found in the **double-slit experiment** and in variations thereof, such as John Wheeler's **delayed choice experiment**. Wheeler waited until after the photon had passed through the slits of the screen before deciding which path to measure. In this way, he would let the quantum make its choice before a conscious observer's decision entered the experiment. Even still, the observer's

choice of what to measure determined the outcome, with the implication that *the observer's choice in the present could determine the particle's path in the past* (Wheeler, 1979).

Wheeler then applied that experiment to the cosmic level. He used a telescope to measure the path that photons from the Twin Quasar (14 billion light years away from us) took through the gravitational lens of spacetime bent by a galaxy. The results were staggering. If he chose to measure path A around the galaxy, then the photon traveled almost 14 billion years on path A, seemingly because of the choice he had just made. If instead he decided to measure path B around the galaxy, then the photon traveled 14 billion years on path B. His choice in the present appeared to determine 14 billion years of history (Wheeler, 1990).

Therefore, at both the quantum and cosmic levels, either Wheeler had reversed time, or spacetime and local realism are not fundamental to reality.

There is even a 2013 experiment showing that the mystery of quantum superposition can occur at larger levels, when researchers replicated the double-slit experiment with a molecule slightly smaller than a virus (Eisenberger et al, 2013).

This also addresses a major criticism of any theory that gives a role to conscious agents. Namely, if a conscious observer renders the properties of physical particles, then how do we account for the time in the universe before conscious observers existed, going all the way back to the Big Bang? After all, the farther out into space that we observe, the further back in time that we can see, due to the time it takes for light from the early universe to reach us. Clearly, we can observe the contents of a universe that was around well before abiogenesis on Earth.

But recall that Wheeler seemed to reverse 14 billion years at the cosmic level when he applied the delayed choice experiment to photons from the Twin Quasar. That result showed that there is no beginning, no end, no past, no present, and no future to reality, at least in our PUR sense of time. Spacetime is an artifact of the same encoding process that gives us the rest of the "physical" universe, which is what we observe when we look out into space as far as we can. We project time onto the informational contents of FM, which itself entails proto-time, but that is quite different from our sense of external and internal time within the PUR.

That's why Wheeler's choice about how to measure the photon's path affected the photon's past, *as Wheeler perceived that past*. It wasn't that Wheeler had the power to change an objective history of 14 billion years. It was that his perception projected spacetime, and thus a history, onto the datastream of information that his sense organs took in. As such, the criticism is irrelevant. There *is* an objective reality outside the observer that exists regardless of the presence of an alter to observe it, but spacetime is only part of the encoded version of that reality, not part of FM.

Indeed, our PUR is akin to the virtual world of a video game, which renders only when the character avatar in the game (akin to an alter), measures (takes in) the datastream

that underlies the game. FM is in the position of the player, we are in the position of the character, which is the player's avatar in the game world.

Wheeler abandoned the notion of objective spacetime for his famous **"It from bit" theory**, which we've already partially leveraged. He argued that information was fundamental. This is still not technically true, though it is as close as a physicalist can get to the truth. The "It from bit" idea still implies that part of what physicists consider "physical," information, is fundamental. Similarly, ontic **pancomputationalism** posits that ungrounded information processing is what makes up the universe, with computation preceding even matter. In this case, reality would fundamentally be numbers and sets, or complete abstraction. However, numbers and sets require something else, be it consciousness or matter, to embody them. To suggest that information is fundamental is to say that the abstractions that we use to *describe* reality *are* reality, and this is logically incoherent. Rather, information is conceptually understood to be given by state differences discernible in a system, such that it is a property *of* a system, and associated with possible configurations thereof. It is *not* an entity or ontological substrate, in and of itself (Shannon, 1948).

As we've shown at length, it is *consciousness*, FM, that is truly fundamental. The information that Wheeler references in his theory is the *content* of FM's awareness, or how FM organizes its consciousness. In order to complete the logic of the observations and results of science, you must go all the way to idealism. A physicalist, panpsychist, or pancomputationalist theory will not get you there. Consciousness must be taken as the reduction base.

Even more substantiation for this theory comes from the holographic principle, which, you'll remember, states that everything inside a region of space can be described by bits of information restricted by the boundary that surrounds space. Jacob Bekenstein and Stephen Hawking showed spacetime has "pixels," just like the desktop on your computer. A spacetime pixel's measurements include its Planck length and Planck area (Planck length squared). It is the number of these pixels on the surface surrounding a region of space, not its volume, that determines how much information (how many bits) the region can hold (Bekenstein, 1981; Bekenstein, 2003). We perceive the physical world as a continuous whole, but if we look down to this very tiny level, it is pixelated, just like when we play a video game. It then stands to reason that conscious observers really only have access to bits of information on the surface surrounding space. This, recall, is how we perceive spacetime, and how we can define the differences between our perceptions of external time within the PUR and proto-time within FM at large. Further, it is why the speed of light, *c*, is both a constant and the speed limit for information within the PUR.

But why and how is one option chosen over the infinite possibilities of the wave function?

Under a new theory from complexity science, **Quantum Darwinism**, no classical world outcome is the product of random chance. Rather, the quantum state encodes to the

classical state that represents the most stable organization of information. This is the process of natural selection, or the FPE, applied at the quantum level, and we call it **einselection**. In that way, the chosen state, called a **pointer state**, represents the information from the wave function that survives the collapse. The unstable information "dies," so to speak, just like in biological natural selection.

This process is the way in which FM acts self-determinedly. As such, by abandoning a deterministic or indeterministic framework, both of which encounter paradoxes in quantum theory, we can explain why a certain outcome is chosen from the myriad possibilities and probabilities represented by the wave function.

Now, let's combine this with the idea that reality is a mind, or consciousness system, processing information. Superposition then becomes a computational process, by which we find the world configuration that best increases complexity and organization, or the most utility to FM, as it self-generates, self-evolves, and self-describes. To return to the metaphor of a video game world, our perception "renders" the physical reality that has the lowest internal entropy and the highest stability.

Therefore, the pointer state is the specific world configuration out of all possibilities, in which the FM system renders only as much physical detail as is needed to satisfy the query of the observing conscious agent, whose "measurement" of the underlying datastream is defined by its belief (evolved probabilistic models) about the consequences of its actions.

Read that sentence/paragraph over again a few times until you grok it.

Each conscious observer's query is different. Between members of the same species, those differences are usually very slight, because the respective species has evolved beliefs based on its specific external and internal pressures. Between members of varied species, the differences are more significant. In all cases, the rendered interface delivers key fitness payoff information in the form of spacetime and the physical world.

It is exactly how a video game system renders only as much virtual world detail as is needed depending on the actions of the player.

Refuting quantum "woo"

Anti-realism is the most parsimonious option to explain the data from experiments in quantum physics. The other alternatives, while offering methods of preserving realism, and thus physicalism, are even more "woo" than the idea that spacetime is an interface that we evolved through natural selection. Furthermore, they have added no new empirical data that refutes anti-realism, or that especially supports the vast assumptions that they each make. Let's briefly look at the other possible explanations popular among the physicists hoping to salvage locality in the face of the evidence against it.

The first option is **superdeterminism**, the idea that the results of quantum entanglement experiments were set at the Big Bang. In this case, there is a cause-effect chain that stretches from the initial moment of the universe to the moment in which you

decide which measurement to take in the experiment. In other words, your choice is preordained, as if the particles "know" what you're going to query before you do. If two researchers are at opposite ends of the universe, and if they each measure an entangled particle, perhaps the factors that lead researcher one to make their measurement affect the decision that researcher two makes. In that sense, superdeterminism claims that there is a kind of conspiracy at the level of the universe to trick us into seeing non-locality where there is actually locality.

However, it doesn't take long to see that superdeterminism doesn't even eliminate non-locality. Rather, it transfers non-locality from the present to the very beginning of the universe, at the Big Bang itself. Namely, some law of nature must have set the chain of events in motion, accounting for every single detail in the entire evolution of the universe, down to the level of interconnected particles. That really is no different from non-locality. Indeed, all superdeterminism does is move the "mystical" part (i.e., the part that denies locality) to the origin of the universe, rather than the simpler explanation that it occurs in the present.

Further, superdeterminism relies on non-local hidden variables to preserve realism. These unknown variables presumably take part in a causal chain that encompasses the settings of the detectors used to make the measurements. Since the choice of what to measure is necessarily reflected in the settings of the detectors, the measurement results depend on that choice. In other words, the properties of a particle depend on what measurement will take place. But how can what a particle is (i.e., its properties) depend on what is measured about it? Under realism, a measurement should merely reveal what the particle already is, independent of observation.

Not only that, according to **Quantum Field Theory**, subatomic particles do not actually exist. Rather, they are metaphors for patterns of excitation of an underlying quantum field. Those excitations are what the field does. Therefore, what the quantum field does would depend on what measurement will take place.

While that makes more sense than alluding to the subatomic particles as little ontic building blocks, it still requires hidden variables, for which we have precisely no direct empirical evidence. These variables must also have specific capabilities, which require major assumptions to grant: for instance, they must change – to date, no one has ever specified how – in response to the settings of the detectors. Remember, detectors are designed to minimize disturbances to the state of what is measured, and so the hidden variables would need to overcome this variable in order to perform that change.

Appealing to hidden variables is an appeal to an empirical unknown, made even worse by the fact that this unknown would also need to be capable of remarkable interactions with the environment. Superdeterminism relies on imaginary entities that have never been empirically shown to exist. As such, we have no scientific reason for believing this theory, unless we are so biased toward physicalism that we are compelled to turn to absurdity in order to salvage realism. I reject such a move.

Not only is anti-realism the more parsimonious choice, it also converges with evidence from thermodynamics and evolutionary biology about how the physical world "renders" when observed.

A second option is **reverse causation**, or the idea that a particle's past is your future. As a result, a particle's properties are shaped by events that have yet to occur from our perspective, and are thus "ready" for the researcher's decision about what to measure. In this sense, particles could have a kind of precognition. The reason some physicists believe in this answer is that Einstein's merging of space and time into spacetime in the theory of relativity made it possible to think of points in time like points in space. According to the theory, we can only perceive the present moment, but the past and the future are still laid out before and after that moment. In that way, the future should be able to influence the present just as the past does, giving the particles the ability to "time travel."

Once more, we run into an issue of parsimony. Anti-realism far more parsimoniously accounts for the experimental data than does the notion that particles have precognition from a kind of time travel.

Next is the **multiverse theory**, and the many worlds interpretation of quantum mechanics. This is perhaps the most famous interpretation and has gained the most cultural popularity as of this writing. In this theory, every possibility of a quantum event takes place in a near infinite supply of parallel universes. We only perceive one outcome because we are in one universe, but the other possibilities play out just the same, beyond our perception. The observer, too, is always in all possible states at once across these universes, like the famous (and grotesque) **Shrödinger's Cat** example, in which the cat is both alive and dead. A nearly infinite plurality of universes (worlds) pops into existence every infinitesimal fraction of a second. Every possibility that *could* occur *does* occur across that plurality. In that way, non-locality is unnecessary to explain the data. Rather, under this theory, it only looks like the universe is non-local from our point of view. It is actually local, if only you could have a deity's point of view and see all universes at once.

The many worlds interpretation is the *least* parsimonious idea ever put forward in human thought, because it entails every other possibility. It defies Occam's Razor to the extreme. Not only that, it also still demands non-locality, as the different universes would need to be somehow in communication with each other, in order to account for which one represents each individual possibility, so as to avoid duplication. As a result, physicalists have devised the least parsimonious theory possible in the hopes of preserving realism and locality, even though the very logic of the theory requires non-locality. This interpretation incurs the highest-cost assumptions of any theory in the history of human thought…you would at least expect it to return for that investment a solution to the problem that the thinkers set out to solve. However, the many worlds interpretation requires the very idea that it was supposed to banish from physics: anti-realism.

Further, the existence of a plurality of universes defeats the major sentiment of locality: that objects, including living organisms, have an identity separate from other

objects in space and time. If there are nearly infinite universes popping into existence every infinitesimal fraction of a second, then which one is the "true" identity? Which you is the "real" you? No such identity, the main benefit of locality, exists for anything under multiverse theories (Kastrup, 2014; Musser, 2015).

As such, anti-realism remains the most common sense, parsimonious explanation of the data from experiments in quantum physics. The alternatives are as "out there" and "woo" as strict physicalists might call idealism.

In short, it is more parsimonious to believe that the Flying Spaghetti Monster, in its marinara-goodness, created a physical world and set it in motion in such a way that quantum entanglement happens, while preserving realism. That hypothesis, like superdeterminism, reverse causality, and the many worlds interpretation, accounts for the data and preserves realism. Unlike those other theories, we at least have empirical evidence for spaghetti as an entity. We can't say the same for hidden variables, time traveling particles, and infinite other universes. That said, of course the Flying Spaghetti Monster is an absurd theory. But if *that* is absurd, and if there is still more evidence for the Flying Spaghetti Monster than for the others, why are we even entertaining the other theories?

Anti-realism is the superior interpretation, which means that physicalism has been refuted.

Resolving the paradox of the apparent fine-tuning problem

Because life exists in the universe, it is trivial to say that the universe has the conditions that allow for life to exist. Indeed, it appears that the universe is finely tuned for the emergence of life, and this fact has always puzzled science and philosophy. In a purely mechanistic, physicalist universe, that specific configuration of conditions should be nearly statistically impossible. It is an accepted fact that the impossible occurred. After all, we exist.

However, this has led to a paradox called the **apparent fine-tuning problem**. It is now undeniable that the universe and its physical laws are perfectly fine-tuned to produce life, such that if any of those parameters were even slightly off, life would not be possible. Physicalism's answer to this problem is to once again suggest that we are one of an infinite number of universes, the majority of which are cold and lifeless. Since under physicalism, life and consciousness came about by pure random chance in a meaningless, mechanistic universe, there would have to be infinite universes in order to account for the anomaly of the fine-tuning observed in our own. And with infinite possibilities, there would necessarily be universes in which life does occur. Since we're alive, we must be in one of those special universes. The issue with this explanation is that we have exactly zero empirical evidence for the multiverse theory, nor can we ever obtain any (Kastrup, 2014; Azarian, 2022).

However, if we rethink this paradox under our theory, it makes perfect sense that the physical universe would be finely tuned for our existence. After all, we "render" that

physical universe into existence, down to the level of detail of the Planck. There *is* an objective reality that is not at all anthropocentric, but the PUR *is* anthropocentric *when a human observes FM's internal datastream* because the PUR is our interface, the encoded version of a datastream of other contents that are internal to FM but external to us. Therefore, the PUR *must* entail all of the conditions necessary for life, because life is the extrinsic appearance of dissociated mental contents that are intrinsic to FM. In other words, life itself is part of the PUR, all of which is generated in and by consciousness.

To use a metaphor, the world of a video game appears specifically fine-tuned to support the player's avatar's existence, precisely because the datastream that underlies the game world renders *as* the game world when observed, or queried, by the player through the avatar.

If you relinquish physicality as fundamental and instead see the PUR as a kind of natural virtual reality, the apparent fine tuning problem dissolves.

Bringing it all together

We're finally ready to combine quantum mechanics/the PUR (the virtual game world), our concepts of dissociated alters (game avatars), and the logic of FM (the ruleset and reality, as it is in and of itself).

To put it in formal physics terminology, we have an **external state** (information within FM), an **internal state** (our localized subjectivity), and in between there is a **Markov blanket**, a boundary that sets something apart from that which it is not. A Markov blanket is a statistical partitioning of states into internal and external states. The blanket itself represents the states that separate the internal and external states. For instance, organisms self-organize and work to maintain their structural integrity. To do this, they maintain a boundary that separates their internal states from their external states, or the environment around them (Kirchhoff, 2018).

We have a Markov blanket separating our structured inner state from the more complex, varied, and entropic external state precisely so that we can survive. Without the boundary, we would die, because nature would fill the gradient between our internal and external states, finding thermodynamic equilibrium and dissolving our organization. As such, our external state is the datastream of information within FM, our internal state (our localized subjectivity) is the organized information dissociated from the rest of FM's contents, and the Markov blanket is the encoded version of the external state, or what we call the PUR, for which we einselect when collapsing the wave function upon observation. As part of that encoding, our perception "renders" spacetime and the PUR like a virtual reality.

The states of the Markov blanket itself can be further partitioned into **sensory states** and **active states**. Sensory states deliver information about the external state to the internal state by impinging on the internal state. The internal state can then impinge back

on the external state through actions (active states). In other words, the encoded version of reality, the physical world, gives us the sensory input that we need so that we can perform actions and survive by manipulating reality, just as a video game world, which is the encoded version of the datastream underlying the game, allows us to manipulate that information in order to survive, advance, and learn in the game.

Every organism has their own Markov blanket between their internal subjectivity and reality. In that way, the physical world that I experience is slightly different from yours (our Markov blankets are very similar, which is why our sensoria are nearly identical), but different from that of the bird outside my window. The process of evolution guides the development of each organism's sensorium toward peak survival fitness based on that organism's needs. This, in turn, affects which pointer state is einselected from the wave function when that organism measures the datastream by way of conscious observation. In this way, the constraints of an organism's measurement apparatus (such as its sensorium and its capacity to integrate information) determine how much detail FM must render to satisfy the observer's query of the external state (datastream).

Remember that we are part of each other's external states, and there is an encoded version of *us* in each other's Markov blankets as well. We call that encoded version of ourselves "a body," which includes a brain. Therefore, the brain can't generate consciousness, because it is merely an encoded image of information within consciousness.

Our sense organs (which include our skin, of course) are the encoded version of the dissociative boundary. We gather information via the Markov blanket's sensory states using those organs, while also manipulating reality through the blanket's active states via those same organs. Those organs evolved to provide us with the sensory data we need to survive, to resist entropy, and to maintain our organization.

In that same way, we can also impinge on each other's internal states through each other's Markov blankets. If I wave at you, I'm impinging on the external state through my Markov blanket. The information of that impingement becomes part of the external state and then gets encoded by your Markov blanket, allowing you to take it in as sensory input (you see me waving and have a perceptual qualitative experience in your field of subjectivity). You can wave back by impinging on the external state through your Markov blanket. The information of that impingement also enters the external state and then gets encoded by my Markov blanket, and I take it in as sensory input (I see you waving and have a perceptual qualitative experience in my field of subjectivity).

It is these different states that explain how we are quantum-mechanically correlated with the world and with each other. It is also fundamentally the same reason that alters in the dream of a patient with DID can interact with each other, because we are talking about the same mechanism (dissociation) at two different levels of nature. For the patient's alters, this happens in the patient's mind. For us, this happens in FM.

Summary of quantum physics and the first-person perspective

Let's summarize everything we've discussed about quantum physics and make some clarifications.

In 2022, physicist Anton Zeilinger became a Nobel Prize winner. Among his lauded accomplishments is the falsification of local realism, conclusively showing via experimentation that the worldview in which physical properties of objects exist independently of measurement (realism) and in which physical influences cannot travel faster than the speed of light (locality) is false (M. Giustina et al, 2015). Bell's Theorem states that this view is incompatible with the predictions of quantum mechanics as expressed in Bell's Inequalities. This, of course, leads to the paradoxes we've discussed at length, including the measurement problem and entanglement.

In the wake of these problems, the possibilities were that either the observed causal structure of the experiments did not reflect the actual causal structure of reality or that unobserved variables do not actually have values until observation. Theories like superdeterminism, the many worlds interpretation, and hidden variables sought to validate the first possibility, thus trying to deny the second possibility, which would refute local realism. We've already covered the issues with those theories. The second possibility calls for the relevance of the first-person perspective in quantum physics. In that case, we should consider the physical world not in the naive physicalist sense, but more like idealism.

In the view of physicist Markus Müller, a Research Group Leader at the IQOQI in Vienna and a Visiting Fellow at the Perimeter Institute for Theoretical Physics in Waterloo, quantum physics does not tell us about the state of the world. Instead, it answers the question, "What will happen to me next?" (Müller, 2023).

In other words, quantum physics tells you about the probability of each outcome and what you will perceive next as an observer. It answers the question, "What will I observe to be the next state of the world?"

To add one more nuance, it is not that consciousness *collapses* the wave function, per se. That statement implies a kind of dualism, in which consciousness and the physical wave function are both ontic entities. This is not so, because the PUR is an *epistemic entity*, not an ontic entity.

Instead, there is only consciousness, and the abstract probabilities of the wave function are how we talk about our knowledge of what will come next.

In other words, there is no wave function "out there." Rather, the wave function is a model of how our *representations* of what is "out there," the endogenous experiences of FM, emerge in our internal states as perceptual experiences of physicality.

The consciousness collapse theory is thus a helpful metaphor. I've invoked its language throughout this chapter for the sake of discussion. But its inherent and implied dualism is not literally true.

To conclude, we only encounter paradoxes in quantum physics when trying to make matter fundamental, to put the physical prior to consciousness. In doing so, we try to force quantum physics to answer our questions about the state of the world, but that is not what these foundations of physics tell us. Rather, they tell us what will happen next, because the physical world is, in fact, an encoded perceptual interface that provides vital information about fitness payoffs, not about the literal truth (the true state) of reality. For this to happen, there of course must be an observing conscious agent that exists *prior* to the physical world, not the other way around.

It is consciousness, the "I," the observer, that is fundamental.

Why we must abandon literal reductionism

However, even that statement fails to adequately describe reality. There is one more nuance that we must cover, and in so doing, we will disagree with the very idea of reductionism as applied to metaphysics in the field of analytic philosophy. We must altogether dispense with the approach of reducing reality down to a reduction base, for that project creates, from the beginning of the process, an epistemic problem.

Namely, the claim of reductionism is that our position in reality is at a higher and more illusory level than that of the reduction base, that which is fundamental. In mainstream analytic philosophical discourse, "fundamental" roughly means "the most real." But if we are at an illusory level of reality, high above the reduction base, then how can we trust anything that we think we know about the deeper levels that are more fundamental, and thus less illusory, than our own? If we start by placing ourselves in an illusion, then we sabotage the entire project of reductionism by creating an epistemic crisis from the original claim.

So, let's dispense with reductionism. Like spacetime, it has been a useful tool, but it will not suffice to adequately model reality (to the extent that we can).

Instead of reducing to lower levels of reality, we should analyze *relations between conscious agents at the same level of reality. Indeed, the* only *level of reality*.

By definition, reality is all that exists. Reality *is* FM. And FM *is* the sum of the dissociated alters, individual conscious agents, within its inner experience. Reality itself, FM, and the sum of the alters comprise the same, one level of reality. The question is not, What is fundamental? The question is, How do the relationships between those three statements give us back spacetime and everything in it? We're actually analyzing the experience of each of those conscious agents, including FM itself, to find how their *perspectives on the same level of reality differ*. That one level of reality and the information therein appears to the interface of an alter's perception as the physical world. That does not mean that the information is more fundamental…it exists at the same level of reality as the conscious agent, who is at the same level as FM. It is merely the *appearance* of the information that changes, not its level within reality.

Indeed, reality is relational, not reductional. The whole is divided into, and completely composed of, parts on the same level of existence.

As such, we do not encounter the same epistemic problem faced by reductionism, nor do we need to explain reality by finding a reduction base. Further, by dispensing with the reductionist approach, we completely avoid infinite regress in all of its forms and provide a more concise and logical definition of what exists.

Throughout this work, we have followed the mainstream analytic philosophical approach of reductionism in order to build an argument for the MTR Theory using the language and the rules of the field. However, at the conclusion of our theory, we must make clear that the reductionist approach falls into an epistemic crisis, and is therefore inferior to the relational approach described above.

Therefore, with that nuance in mind, our *nonreductionist*, *naturalistic*, *coherentist*, *idealist* theory explains reality.

10. On objections

As you might expect, in both popular and academic cultures still dominated by reductionist physicalism, any idealist theory will encounter intense criticism. Such is the case with analytic idealism, one of the foundations of this theory of everything. In this section, we will examine the major objections to the theory and refute each one.

The concreteness objection

First, I must mention the classic objection that English poet Samuel Johnson leveled at idealism, when he kicked a rock and said, "I refute it thus!" (Boswell, 1820). Johnson's argument was that, since the rock was a concrete object, it could not be mental in nature. Intuitively, this makes perfect sense, and might be the objection that the average person would raise.

The idealist's response is that the qualities of hardness, solidity, and heaviness are just that: *qualities*. A rock is an arrangement of matter, which by definition has no qualities. Independent of the qualities that we project onto the rock, it is merely an abstraction. We experience hardness, solidity, and heaviness as part of our conscious experience, but those qualities are not inherent to the rock itself. Therefore, in arguing for the primacy of a qualitative experience over quantitative matter, Johnson's reasoning was far more idealist than he realized. In fact, the idealist might say that we only postulate a world of matter because we perceive one via our senses. But our senses are qualitative, so they cannot prove that a material world exists outside of consciousness. For instance, in a dream we believe the world is physical (outside of a medium or substrate of consciousness) because we sense it to be so. Of course, the dream world is mental in nature, even if the objects in it

feel hard, solid, and heavy. Matter, then, is an explanatory model of our observations, rather than an empirical given.

The stand-alone universe objection

Second is the objection that the world can't be in consciousness, because it has a stand-alone existence even when not observed by a conscious being. After all, the universe existed for a very long time before life emerged.

This objection begs the question, since it assumes that dead matter must have preceded biology, which then gave rise to consciousness—that is exactly the point in contention, therefore invalidating this criticism from the beginning. But let's follow it to its conclusion, anyway. Besides, nature doesn't bow to our wishes, another aspect of the criticism that feels quite intuitive. The laws of nature are fixed and uncaring, so it seems.

In the past, religious idealists like Bishop Berkeley responded to this challenge by saying that God was the ever-present observer that kept the universe in existence. However, this kind of spiritual explanation isn't acceptable in today's ontological discussions. A modern analytic idealist would argue that the mental contents of the universal mind, FM, surround and are external to the dissociated alters that exist within it. The physical world, then, is the extrinsic appearance of those universal mental contents when we take them in via our sensory perception. But those universal mental contents exist independently of us, the conscious observers. The absence of a living being, under analytic idealism, is the absence of a dissociated alter that could perceive those universal mental contents, not the absence of those universal mental contents, which did and do exist separate from any dissociated conscious observer. This would also account for why nature does not bend to our volition. Further, there are aspects of our consciousness that we cannot control anyway, such as a nightmare. If we could make consciousness bend to our whims, none of us would ever have a bad dream (Kastrup, 2019; Kastrup 2021d).

Another response comes from interpretations of quantum mechanics that refute the fundamentality of spacetime and local realism. Such interpretations give conscious observers the role of collapsing the quantum wave function, causing particles to take on definite points in space instead of behaving as a probability function. This, in turn, causes spacetime to "render" from the perspective of the observer, as a video game world renders when the player's consciousness observes it through the eyes of the game character. Because our notion of time (as opposed to proto-time) is not fundamental, the universe only *appears* to have a past independent of conscious observers, but that past is merely an artifact of the observer's perception of the objective mental contents of FM, which do not exist within any kind of space and only exist within proto-time, not the PUR's time.

Some critics would label the idea that physical objects aren't there when no one looks unscientific, because no observation could prove what happens when no one looks. However, by that same logic, the reverse is true too. If it's impossible to scientifically test

the claim that physical objects only exist when observed, then it's also impossible to test the claim that they have stand-alone existence. Further, that reasoning would invalidate the Big Bang and other such events that physicalist scientists would claim had a stand-alone existence. As such, this criticism, if we were to give it credence, would equally label much of science as unscientific.

On top of that, observation *can* test a claim about what happens when no one is looking, and we've given plenty of evidence for that fact in previous sections. Bell's experiments are one excellent example. Therefore, this criticism is fully defeated (Hoffman, 2019).

The decomposition problem objection

We've already covered this one at length, but it's worth repeating, since this is the chief problem that idealists face. Why do we have private minds and seemingly separate consciousnesses, if there is only one universal mind in existence? I can't read your mind, you can't read your cat's mind, and your cat can't read the mind of a hypothetical alien in another galaxy. If it's all one mind, why is this the case? Furthermore, how does the one universal mind split off into multiple? This is the decomposition problem, and it has traditionally been to idealism what the hard problem of consciousness is to physicalism, what the interaction problem is to dualism, and what the combination problem is to panpsychism. I won't belabor the analytic idealist response on this one, since the previous sections cover dissociation in depth. Idealists now cite that psychiatric phenomenon as the mechanism by which to solve the decomposition problem. Indeed, the decomposition problem was one of the chief criticisms of idealism until analytic idealism leveraged empirical data from DID research that came about in the 2000s and 2010s.

To recap, dissociation is "a disruption of and/or discontinuity in the normal integration" of mental contents (Black & Grant, 2014). When we normally integrate mental contents, they can evoke each other through cognitive associations. For example, a perception, such as the smell of a birthday cake, might trigger a memory from childhood, which in turn can trigger an emotion of happiness. Not only that, but these associated mental contents can be experienced at the same time. For instance, you can keep smelling the birthday cake, while simultaneously having the memory and the emotional response to it. However, dissociation breaks the association between certain mental contents, cutting them off from others. This is how an alter within FM could be private and separate from other alters. DID research has empirically shown that multiple alters can be conscious at the same time, which is the final piece needed to explain private minds within a universal mind. An analogy cited by Kastrup is a database that may "contain entries that are not indexed and, therefore, cannot be reached, but this does not physically separate those entries from the rest of the database" (Kastrup, 2019).

Indeed, the concept of a database within FM has already been discussed in the context of FM's ability to store memories of its exploration of all its possible states. The database framework will appear again when we discuss what happens when we die. Any theory of everything must broach that topic, and we will not shrink from that challenge just because subjectivity beyond "the veil" feels highly speculative under our current physicalist paradigm.

For now, we have more objections to address.

The shared world objection

Fourth is the shared world objection, which claims that, since we have separate bodies, we can't all be in the same shared dream. Again, this objection begs the question, since it assumes that a physical body made of matter generates consciousness—this is the point in contention. The idealist response is much the same as to the previous challenge. Alters are surrounded by the mental contents of FM, so we *do* share the same objective reality, which appears to our sense perception as a physical, material world, complete with separate bodies. A body, then, is the extrinsic appearance of an alter from another alter's perspective.

Therefore, we encounter no problem here.

The chaotic mentation objection

Fifth is a better challenge...our thoughts and emotions are unstable and chaotic. If the natural laws, which are immensely orderly, are a representation of mental processes in a universal mind, then why aren't they unstable, like our own minds? The response here is that we shouldn't make the mistake of anthropomorphizing FM. Our human minds evolved to meet the specific survival challenges we find here on Earth. There is no reason to expect mind at the universal level, which did not develop under these same selection pressures, to be the same as our own in terms of its patterns (Kastrup, 2019; Kastrup, 2021d). Namely, we as dissociated alters within FM face both external and internal selection pressures, whereas FM faces only internal selection pressures. This is so because, by definition, there is nothing external to reality, and reality *is* FM.

One could also reference the psychological archetypes of Jungian and **depth-psychology** (Jung, 1991). These innate templates that organize mental dynamics under Jungian thought could be brought to the level of the universe to explain such ordered regularities in nature. Even without Jung, however, the criticism is not enough to refute idealism. Rather, the objection can help us refine the theory, by shaping how we would view FM. In so doing, it would exclude certain traditional religious interpretations of such a reality, in favor of a better understanding that will later help us reconcile the seeming discrepancies between science and religion.

The mind-brain objection

A common objection is the obvious correlation between brain activity and consciousness, as well as the connection between physical changes to the brain and changes in mental states (Koch, 2004). Both of these points suggest that the physical brain comes first, and consciousness reduces to or emerges from brain activity, which is then the generator of our subjective experience.

The idealist would argue in response that, if you have two alters, 1 and 2, then alter 1 is part of the objective world of natural mental contents surrounding alter 2, and vice versa. In other words, the inner experience of alter 1 is part of the world that alter 2 perceives. As such, that inner experience will have an extrinsic appearance. Taken further, our private experience is bound by our sense organs, the extrinsic appearance of the dissociative boundary. Therefore, the body itself is logically the extrinsic appearance of an alter. The brain and its activity are part of the body, and thus part of that extrinsic appearance. This would explain why there is such a tight correlation between brain activity and inner experience, because the thing and the image of the thing will always be correlated for any such pair. However, such a relationship does not imply causation, which accounts for why we run into the hard problem of consciousness in any model that claims that the material brain generates consciousness. By taking consciousness as fundamental instead, idealists negate the hard problem entirely.

As for the second point, under analytic idealism the "physical" world is the extrinsic appearance of the universal mind's mental contents. It is trivial that different types of mental contents can impact one another. If you have a special kind of thought called a happy memory, this can trigger another kind of mental content: an emotion. Under analytic idealism, everything in the universe is part of the universal mind, and so it is all of the same ontological material...consciousness.

Therefore, idealism does not entail an explanatory gap between mind and matter.

The unconsciousness objection

Next, if everything is in consciousness, why do we have an unconscious mind, to which we lack access, but that can influence, and perhaps even make, our decisions before we know them? Furthermore, why are there periods in our lives, such as when we sleep or go under anesthesia, when we appear to lose all consciousness? Idealism seems to necessitate just the opposite of both of these conditions.

Opponents taking the first objection would cite evidence from Libet's experiments, which showed a rising level of brain activity just before a research subject reported making a voluntary decision to perform an action (Libet, 1985). David Eagleman further showed that reflexive or instinctive protective behavior occurs before a subject reports awareness of danger, which also seems to substantiate this point of contention with idealism (Eagleman, 2011). The idealist's response is a simple one from a philosopher's standpoint. Because

neuroscience does not distinguish between phenomenal and meta-consciousness, they conflate the reportability of conscious experience with "consciousness." In order to report something in your consciousness, such as a decision, you must not only have the experience of deciding, but you must also be aware that you have had it.

Thus, the subjects could have made their decision prior to becoming meta-conscious of their experience of deciding, a necessary step before they could report on that experience to Libet. The same goes for instinctive actions. There is a level of awareness that detects the danger before the spotlight of attention gets turned toward that danger, but nothing precludes that awareness from being within consciousness. Indeed, the word "awareness" is often used interchangeably with phenomenal consciousness in philosophical debates. As such, the problem here is one of terminology (Kastrup, 2019).

As to point two about periods in which we seem to lose consciousness, recent data from neuroscience suggests that we *never* enter a state of true "unconsciousness." We cannot remember phenomenal experiences that occur while we sleep or while we are under an anesthetic, but that is all that we can say for certain. Data does show that those episodes of "unconsciousness" can actually be filled with intense experiences:

- Fainting caused by asphyxiation or strangulation correlates with euphoria and visions (Rhinewine & Williams, 2007; Neal, 2008).
- G-LOC correlates with dreaming (Whinnery & Whinnery, 1990).
- General anesthesia can correlate with "implicit perception" (Kihlstrom & Cork, 2007).

Similarly, during sleep we can dream. But there are other experiences one can have while sleeping besides dreaming. These experiences can occur in any stage of sleep, and fall into three categories:

- Non-immersive imagery and sleep thinking.
- Perceptions and bodily sensations.
- Selfless states and content-less experience (Windt, Nielsen & Thompson, 2016).

There's also the very recent finding (at the time of this writing) that, during sleep, the brain analyzes auditory inputs but is unable to focus attention on the sound. Data showed that, after sounds were received in the ear, the signals were relayed from one place to another in the brain. Crucially, the response spread to many regions of the cerebral cortex, and the signal was strong and rich, which refutes the old belief that such signals decay and weaken during sleep. Indeed, the strength of the response in the sleep state was almost the same as in the waking state, with one key difference: the level of activity of **alpha-beta waves**, which correlate to attention, were lower during sleep than during the waking state. The study authors believe their result helps point us in the direction of the mechanisms and quantitative measures that could cause conscious awareness while awake and unconsciousness while asleep (Hayat et al, 2022).

Once again, we run into a difference of definitions. Under the philosophical definitions of phenomenal and meta-consciousness, this study found that phenomenal

consciousness remains during sleep, but meta-consciousness does not. Remember, meta-consciousness is awareness of an experience that you are having, such as awareness that you have heard an auditory stimulus. In this case, there was no awareness of the experience, but the study showed that the experience still occurred while the subjects slept. Another, more everyday example, is that you experience the auditory stimulus of your alarm going off every morning, even if you are not aware of the stimulus until after the alarm has jolted you back into the waking state, at which point meta-consciousness resumes with the restoration of alpha-beta wave activity. But in order for you to hear the alarm at all, phenomenal consciousness must have been present, even when meta-consciousness was not. This still means that, by the medical definitions, you are "unconscious" while sleeping, but this does not entail the total loss of all conscious experience that would be required in order for this objection to refute analytic idealism. Rather, it seems that we're once again hitting the language barrier between philosophy and science, talking past each other about the same things.

Therefore, the empirical data suggests that periods in which we seem to lose consciousness are, in fact, periods in which memory is impaired. We do not necessarily ever lose phenomenal consciousness. The data seems to indicate the exact opposite (Kastrup, 2019). Instead, what disappears in these "unconscious" states are the thalamo-cortical feedback loops in the brain, which run from the thalamus to the cortex and are associated with the integration of information, self-referencing, self-modeling, and "consciousness," as the term is used by IIT neuroscientists (Azarian, 2022). As already covered, IIT's use of "consciousness" actually lines up with philosophy's "meta-consciousness." As such, it makes sense that we would have no memory of any period in which the feedback loops are not detectable, since you need to know that you're having an experience in order to remember it. However, this does not mean that phenomenal consciousness disappears as well.

Thus, this challenge does not refute idealism.

The "neuron in a petri dish" objection

Another criticism, specifically from panpsychists, is that neurons can be taken from the brain, placed in a petri dish, and grown outside of the body. In that sense, neurons are "individual," in that you can start with one and grow more. This would seem to suggest that a combination of neurons generates consciousness, which is the claim of panpsychism. More specifically, panpsychists would say that this fact also refutes analytic idealism's claim that the brain is part of the image of dissociation within FM, or what an alter's inner life looks like from another's perspective. If that is the case, then how would it be possible for the neurons to be alive and growing outside of the body? It would seem impossible for the image of an alter's inner life to exist outside the image of that alter.

Idealists would respond that a neuron, and indeed the entire brain itself, is part of an avatar within the virtual reality of the PUR. Neurons are not fundamental to reality. Rather, they are the image of a complexity capable of acting as an alter, or avatar, for FM's subjectivity. All metabolizing systems, including individual cells, fit this description. The neuron, by itself, maintains the ability to integrate and propagate information, but its capacity is obviously much lower than that of an avatar with a full brain. This is not because the brain generates consciousness. Rather, it's the same idea as when you play a AAA open-world video game, then switch to an 8-bit game. The more complex game will allow your subjectivity, through the experience of the respective game avatar, to have a richer experience of the data stream it receives than will the simpler game. It is not that the subjectivity changes, nor is it that the brain of the game avatar generates that subjectivity. Rather, the constraints of the avatar affect the capacity of information that the subjectivity can acquire via that system. The important difference here is that we're taking an idealist interpretation of IIT. Unlike panpsychism, we don't take matter as fundamental and then posit that consciousness is a property of that matter. Rather, we take consciousness as fundamental and then derive matter from it, as an encoded perceptual rendering of information within consciousness.

Therefore, we can explain how a single neuron remains an image of an information system even when not still part of a human alter's brain. This objection fails to refute idealism. On the contrary, it demonstrates that IIT is better interpreted as idealist than panpsychist, because under idealism, we don't lose any explanatory power of consciousness, but we avoid the quantum mechanical paradoxes that come with taking matter as fundamental, as panpsychism does.

The solipsism objection

Idealism is frequently misunderstood. Straw-man arguments against idealism are common, not because an opposing philosopher is necessarily debating in bad faith, but because it is easy to have misconceptions about the theory. For instance, idealism is often mistaken for **solipsism**, the view that reality is all in your own mind, and that no one else is a conscious agent. To a solipsist, all the people you encounter are "non-playable characters" (NPCs) conjured by your mind alone. No one else is real.

This is both madness and not what idealism entails.

The only sense in which idealism and solipsism are compatible is from the perspective of FM, itself. Because there is nothing external to FM, all of reality is, by definition, within its own awareness. But since FM *is* reality, calling our theory solipsism from FM's point of view defeats the main point that solipsism tries to achieve.

At any rate, *idealism is not solipsism.*

The “dead body” objection

If a living body is the image of dissociation, then why are their corpses? Wouldn’t it make more sense for those bodies to simply vanish when the process of dissociation ends at death? In fact, doesn’t this question present a logical roadblock for solving idealism’s decomposition problem?

The above questions fail to shed the chains of local realism in favor of the idealist framework. The body is indeed a partial image of the dissociative process, not a physical object that has objective, fundamental, stand-alone existence. It exists in consciousness, always from the perspective of a conscious agent. The question is, in which agent’s experience does that body appear?

While FM “plays” the game as an avatar (a dissociated alter), it experiences the alter’s own body as part of the physical universe that is the encoded form of the datastream that impinges on the dissociative boundary. Upon the alter’s physical death, the dissociative boundary breaks down, and the avatar’s formerly dissociated information returns to FM. No longer does FM perceive that body from that alter’s perspective. However, other alters can still perceive it, because that alter’s body is also part of *their* encoded data stream (the physical universe). Like any other object, the corpse would still be subject to the natural laws of that physical universe, within the perception and experience of the remaining alters whose dissociative boundaries interact with the information in the data stream corresponding to the now reassociated (dead) alter.

Therefore, the fact that corpses remain after the end of dissociation does not present a challenge to idealism.

The meta-conscious mind-at-large objection

This one comes from another idealist, and so does not refute our theory. Rather, it would take issue with our assertion that FM is a self-deterministic, planning consciousness with a goal and free will. The capacity for those properties would necessitate that FM possess greater cognitive abilities than raw awareness. It seems to follow more of an intelligent design approach, rather than a naturalistic one.

The challenge is two-fold:

- Isn't it more parsimonious to assume a simpler consciousness that is naturalistic and behaves spontaneously, thus resulting in a deterministic universe (which ours seems to be)?
- If FM has higher cognitive abilities, why did life begin without them? Why did organisms have to evolve the properties that FM already possessed?

This objection is one I've heard Kastrup raise to other idealists who also take a non-deterministic approach. Out of respect for him, I want to address those questions.

Let’s start with challenge one. It may seem parsimonious to take this approach, but the explanatory power of such an approach is not sufficient. Recall the logic of why FM

must be self-deterministic. By definition, there is nothing external to reality, and FM *is* reality. In other words, it has no external state. It *does* have an internal state. Therefore, anything that happens in reality takes place within itself and with no external cause to set a deterministic chain of events in motion, like a giant mechanism. A chain of events *can* be set in motion within FM, but it must be triggered by reality itself, within itself.

In short, there is nothing else besides reality itself that can determine what happens within it, because there is nothing else besides reality. Therefore, reality is self-deterministic from the perspective of FM.

This, in turn, requires a degree of meta-consciousness, or the awareness of being aware. FM cannot simply be a naturalistic mechanism. It must have free will, which *is* the FPE.

Our PUR rules of causality apply only within reality, not at the level of reality itself. However, as dissociated alters, we are informational subsystems within the holistic FM system. As such, parts of the FM system are external to our dissociative boundaries. This means that, in contrast to FM itself, we *do* have external states. Those external states are the same as FM's internal state. It then follows that our rules of causality, which suggest a deterministic universe, are outside of ourselves but still within FM.

As a result, reality *appears to be* deterministic *from our perspective*. But at its most fundamental level, it is self-deterministic. Further, if constructivism is a correct view (which I previously argued for, over realism), then a case can be made that this appearance of determinism is the result of our collective *belief*, under our current paradigm, that reality is deterministic.

This also brings up the question of whether or not we have free will. The answer is…yes, we do. In our PUR, it may look like we do not, because our choices appear to be the next in a sequence of cause-effect relationships. However, that PUR is a "virtual reality." Our consciousness *is* FM, just cut off from the rest of FM, thus giving us an illusion of being a separate self. Our ego and our identity within the PUR are not fundamental. We are FM, and thus we have FM's self-determinism. We *are* FM acting out its free will to reduce entropy through the processes of creation and evolution.

To address challenge number two, we must again reference the fact that we, as information subsystems of FM, have both an external state and an internal state. FM only has an internal state, because there is nothing, by definition, outside of reality, which is the set of everything that exists.

As such, FM's state changes and evolution occur internally, with no external selection pressures. This is not so for us. Because other contents of FM are external to us, we face both external and internal selection pressures. Evolution by natural selection selects for the least entropic, most stable outcomes for each specific subsystem based on the subsystem's unique selection pressures. This is why systems must evolve from simple to complex. Each different combination of traits represents FM exploring another variety of informational system and dynamical structure, trying to find the most efficient ways to

reduce entropy with each one. Just as FM did, life started out from a binary set of states in a single-celled organism so that the FPE could explore all possible varieties of traits, based on the selection pressures (which themselves are constantly in flux). The only way to make such an interconnected and interdependent system of subsystems evolve efficiently is to start from binary and increase complexity from there under each respective set of conditions. The most efficient state of entropy reduction is always changing based on those conditions, so going from simple to complex is the FPE's method of ensuring all selection pressures are accounted for at all times, for each subsystem and for the system as a whole.

Therefore, it was necessary for life to begin without all of the properties of FM, so that each subsequent species could evolve exactly the traits that it needed for the specific selection pressures present in its external and internal states, even as conditions within the system as a whole change over time.

The plausibility/*argumentum ab auctoritate* objection

Finally, it is trivial to say that the worldview we have elucidated in this work disagrees with the mainstream metaphysical paradigm of today. While it does not contradict any of the empirical data of science, it does outright refute several metaphysical interpretations of that data, including the views held by at least a plurality of authorities, who by and large still presuppose reductionist physicalism (even if they don't acknowledge the role of philosophy in their work at all). Those presuppositions also include realism and the logical system that relies on it, including the correspondence theory of truth and the principle of bivalence.

An objection can thus be raised against this theory, or any idealist theory, that it violates the mainstream paradigm, going against the opinions of at least a plurality of experts.

While I agree that it is always wise to listen to the authorities on a subject, I call this objection, based on an appeal to authority (*argumentum ab auctoritate*) fallacious. To substantiate my claim, I turn back to Thomas Kuhn. What we are witnessing (and participating in) at the turn of this century is a possible paradigm *shift*, and, as such, of course there will be new theories that offer interpretations of empirical data that are different from those of the mainstream view. That is the definition of a paradigm shift.

However, the objection's appeal to authority is one that invokes the notion of **plausibility**. Namely, the point is that, because idealism goes against today's popular philosophical assumptions, it is not plausible. And so we must address whether plausibility is an objective truth or the product of any given time period's cultural, political, and even economic systems.

The idealist, constructivist worldview we have outlined is one in which construction is a continuous process driven by cognitive processes and storytelling. Our *consensus* world-instantiation changes as we change the stories that we tell ourselves about reality,

starting at the level of each *individual* world-instantiation. As we've already shown, the consensus story is remarkably stable and self-consistent, but under a constructivist worldview, we would expect a degree of change over time. As a metaphor, consider an ocean: the bulk of the body of water may remain consistent in its location and behavior, but its boundaries and dynamics are constantly in flux. Such is the case for our consensus world-instantiation.

Therefore, what were considered *plausible* facts in previous historical eras (centuries and even millennia) were not the same as what we consider plausible and demonstrative facts today. For instance, Renaissance scholars straight-forwardly believed propositions that our own era considers magical (Walker 2000). Is it logical to label those scholars superstitious, ignorant, and less intelligent? Under intuitionistic logic and the accompanying constructivist worldview, that would not be the case.

Science bases its views on empirical observations and the data from experimentation. As Kuhn described, the prevailing view of science is the positivist one. Namely, that science is a steady accumulation and refinement of knowledge about the objective, realist world. In other words, science never double-backs, but always pushes forward in a constant progression of objective knowledge, guided by the correspondence theory of truth and the principle of bivalence. The project of science, then, is to draw ever closer to an in-principle, ultimate version of truth. Impartial data collected in any given era serves as the neutral criteria for judging between theories.

Kuhn challenged this view with a comprehensive historical analysis of how science has actually worked over time. That is, there is no such thing as "objective data," because the gathering and interpretation of any data is subject to the prejudices and assumptions of a given era's mainstream paradigm. For instance, it is the mainstream paradigm of the day that guides scientists in decisions about which data to capture, even before they get to the thorny task of interpreting what they collect. The paradigm then, of course, guides the interpretation (Kuhn 1996).

The inductive validity of any scientific or philosophical theory is based solely on the notion that the theory is more probable than not (Priest 2000). But it is the assumptions of the paradigm of a given era that motivates scientists and philosophers in their decisions about what is probable, and in turn, which inductive conclusions are valid. Since science is founded upon inductive reasoning, and since inductive reasoning is motivated by the assumptions of the mainstream paradigm, it is the *paradigm*, not objective facts "out there," that defines what science and philosophy consider plausible.

In other words, the paradigmatic beliefs of a given era are implicit in the collection and interpretation of data. During the interpretation process, *that same paradigm restricts the explanations of the data that are considered plausible* (Kuhn 1996). As a result, *there is no objective sense of plausibility "out there," separate from our cognitive processes.*

As Kuhn makes clear, paradigms change over time, meaning that what science considers to be plausible also changes. There is no historical evidence to suggest that these

changes are the result of continuous and rational refinement of knowledge. Rather, once observes the historical changes in scientific paradigms to be arbitrary (Kuhn 1996).

For example, prior to Newton's theories, the mainstream paradigm of science was that any explanation of natural phenomena should be based on the physical properties (shape, size, movement, position, etc.) of tiny corpuscles of matter exerting causal power on each other via direct contact. That is, the purest form of materialism, under which view absolutely everything in existence was matter. Newton (who considered himself a philosopher, not a scientist) then proposed an invisible and fundamental force, gravity, that could act between distant material entities, thus defying the need for direct contact. Because this force was irreducible to corpuscles, the scientific world not only rejected it, but ridiculed the idea. Gravity was seen as an "occult quality" and "magical" (Kastrup 2012; Chalmers 2022b).

Of course, Newton's theory was eventually accepted, and gravity then entered a new mainstream paradigm, under which it was seen as scientifically plausible.

Then came Einstein, who argued that the magical force of gravity wasn't actually true. Instead, gravitational attraction is actually a distortion of the fabric of space-time caused by the presence of matter. Ironically, this turned science right back to a kind of materialism similar to what preceded Newton, with the addition of the idea that space-time is an ontic "thing" that can bend and stretch.

Not only did the paradigms change, they went back and forth. Changes of standards in science do not exclusively march forward toward an ultimate. Standards can be reversed. Each new era's class of scientists become invested in their era's paradigm. They build careers within it, they theorize under its assumptions, and, especially as they age, their notions of what could be plausible ossify. Each new generation believes that they finally have it figured out, until the next generation changes the paradigm again, and not necessarily in a forward direction.

Here is where Kuhn's terms, "normal science" and "scientific revolutions" come into play. Recall from earlier that, in his thought, we conduct "normal science" under the reigning paradigm of the day until sufficient phenomena remain unexplained by that paradigm, such that new theories are needed. If, out of this period of crisis, a theory emerges that better explains the data, and if that theory survives the heavy resistance it faces from those maintaining the current paradigm against change, then a scientific revolution takes place, and a new paradigm begins (Kuhn, 1996).

During a period of normal science, no attempt is made to challenge the existing paradigm. Kuhn emphasizes that paradigm-driven expectations drive the processes of data collection and interpretation, turning the existing paradigm into a self-fulfilling prophecy. Indeed, effort goes into maintaining, not challenging, that paradigm. The eventual challenge comes in the form of anomalies and paradoxes, which are inevitably discovered *in spite of* the efforts to hold true to the presupposed belief system.

The anomalies then force the issue, triggering a scientific revolution led by scientists who are willing to depart from the paradigm in order to follow the data. In developing their theories, they face heavy opposition by those still maintaining the current paradigm and trying to explain away the anomalies with less parsimonious explanations of the data that, taken straight-forwardly, refutes the paradigm.

If those new theories are successful, they lead to a new paradigm entirely, and the cycle repeats.

Kuhn also shows that the new paradigms are often incompatible with the old. In other words, what was shortly before deemed implausible, "woo woo," and nonsense, suddenly becomes the definition of plausibility and reason. In that way, science is not some idealistic progression toward ultimate knowledge. Rather, it is a game of discarding worldviews in favor of previously unthinkable paradigms (Kuhn 1996).

Crucially, Kuhn also demonstrates that we have no reason to believe that past worldviews, even those held by scientists centuries ago, were any less scientific than our current ones. Indeed, those theories seem to have accounted for the empirical data of their respective eras.

Kuhn put it, "If these out-of-date beliefs are to be called *myths*, then *myths* can be produced by the same sorts of methods and held for the same sorts of reasons that now lead to scientific knowledge".

He also referred to psychological experiments in which subjects' expectations determined their perceptions: "...surveying the rich experimental literature … makes one suspect that something like a paradigm is prerequisite to perception itself. What a man sees depends upon what he looks at and also upon what his previous visual-conceptual experience has taught him to see".

This provides a final refutation of the correspondence theory of truth. For, if the facts of reality, as perceived, are laden with paradigmatic assumptions, then the correspondence theory of truth is necessarily false. And, as collateral damage, the principle of bivalence falls too, since it depends on the correspondence theory of truth. Further, "strange loops" appear, as different theories approach the data with different paradigmatic assumptions during a scientific revolution.

Back to Kuhn: "When paradigms enter, as they must, into a debate about paradigm choice, their role is necessarily circular … This issue of paradigm choice can never be unequivocally settled by logic and experiment alone".

In other words, the kind of self-reference that leads to paradoxes and contradictions is embedded within scientific worldviews. Kuhn suggests that scientists actually begin to see the world differently after a paradigm shift: "When paradigms change, the world itself changes with them". That statement was not an endorsement of constructivism, but reiterates that all humans are limited to what we perceive. The result is that the world works *at least as if* realism is false. And we've shown at length that we have good reason to believe that it actually *is* false.

If realism is false, then we are undergoing another major paradigm shift today, which is exactly what I have argued throughout this work.

Now, all of this is not to say that we should abandon science and philosophy. Absolutely not. Science and philosophy are the best methods of understanding reality that we have. However, we must also recognize that they are as imperfect as every other human endeavor.

In short, the plausibility/appeal to authority objection fails for the reasons above. Just because a theory is not considered plausible today, that does not mean that the same theory will not be considered the epitome of good scientific and philosophical reason tomorrow.

11. On death and the paranormal

Having laid out the details of the theory and refuted objections to it, we will in this chapter cover more speculative ground. Namely, we will explore the implications of our theory on some of humanity's oldest questions.

The sections that follow from this point are not part of the theory proper, but rather are mostly for fun.

Explaining what happens when we die

Life in our theory is the image of the dissociative process that localizes FM's subjectivity. In other words, life is the creation of an alter, or "avatar," for FM to control, so as to experience its own contents from a finite, internal vantage point. These alters are part of the FPE that increases the degree of order and organization and decreases entropy within FM.

Death, then, is the end of the dissociative process. In other words, the alter's dissociative boundary dissolves, and the "avatar" in spacetime dies. However, FM's consciousness, which controlled the avatar and temporarily associated its identity with the avatar's body, itself just an artifact of the alter's Markov blanket and perception, continues on. Or, more accurately, it remembers that it is FM and not the identity of the alter, just as when we stop playing a video game, we remember that we are not our character. Rather, we are the more fundamental entity that lends its subjectivity to the character, which has its own perceptual interface in the form of the video game world. The character's body is part of that interface, of course. When the character's body dies or is turned off, the consciousness controlling the avatar remembers that it is not the character at all.

This is what happens when we die. FM remembers that it is FM, not the "character" in spacetime that we identify as while we have a living body that renders in spacetime, just as a video game character's body renders in a game world. In both cases, we're talking

about a fundamental consciousness consuming a datastream that causes it to have an experience.

For the avatar, there is no afterlife. For our consciousness, there is, because it was never *our* consciousness. It was FM the entire time.

The end of dissociation does not mean, however, that the information we accumulate while playing the game of life in spacetime vanishes or is lost. After all, we remember everything that we experienced through a video game character's eyes after we stop playing the game. It was always our experience, never the character's experience, because the character isn't fundamentally real. In that same way, FM retains all of our memories, attitudes, thoughts, dreams, and contents of our dissociated minds, because those contents of our individuated consciousness were always contents of FM's consciousness. As such, our identity, or the set of information in FM constrained by the dissociative boundary, continues on after the conclusion of dissociation.

Recall that FM developed the ability to store information, so that it can, in its infinite (or practically infinite) capacity, explore all its possible states, ultimately einselecting for the most profitable state in every instance of choice. Managing the probabilities of all the possibilities is how FM determines what to render. FM can then learn by having a memory of what actually happened each time it rendered a state based on the probability of what *would* happen. The memories of that state and all the other possibilities are stored within FM, just the way that our memories are stored in our individual minds.

As such, the mental contents of each individual alter's dissociated contents, including every single conscious agent to ever live, are stored within FM. Not only that, but all of the potential states and experiences that *could have* happened are stored as well. The result is that FM holds a massive "database" of conscious experiences and identities. As more alters form (are born) and eventually lose their dissociation (die), more information is organized and then added to the database. The avatars/alters die, but FM's consciousness retains the experiences it had while "playing" as those characters.

What might that afterlife for consciousness be like?

As a retained identity within FM, and as FM itself, you can access the database. You are both you and FM simultaneously, just as you are both you and a video game character when playing the game. As FM, you can "query" the database to access specific information stored there. The result is the ability to, for instance, experience a point in history from the perspectives of the people who were alive at that time, as if you were them. It is as if they are all still alive, with respect to the database, since our spacetime is not fundamental. In a sense, the past is still happening, and you can impinge on it very slightly from "the other side," or as FM experiencing those alters' experiences from their points of view. FM has access to everything that has ever passed through any alter's mind, and as FM, we also have that access in the "afterlife."

Fans of the *Assassin's Creed* video game series might think this is similar to the Animus, the machine that allows the player to experience history from the perspective of a

character who lived it. Indeed, it is much the same, except outside of our spacetime. Once again in this analogy, the player is in the position of FM, while the game character is in our position as alters, or avatars, of FM.

The idealist framework also provides an explanation for verified veridical accounts of **end of life experiences (ELEs)**, **deathbed coincidences**, and **near-death experiences (NDEs)**. Indeed, the data suggests that there is a natural dying process that includes deathbed coincidences, deathbed visions, and other seemingly "paranormal" phenomena surrounding the dying individual and their family members. By "paranormal," I mean that the events conflict with mainstream reductionist physicalism. However, these events are, in fact, completely normal and natural. It is reductionist physicalism's logical incoherence that has led us to ignore or spin the empirical data for these events. If we abandon the now obsolete physicalist paradigm, there is no issue explaining the events that constitute the dying process.

There are several types of ELEs, but the most common is the **deathbed vision**, in which the dying (and sometimes their family members in the room at the time) receive a visitation from a loved one, with whom the dying person shared an intense emotional collection. Pets and animals have also been seen. The purpose of the deceased loved one's visitation seems to be to help the person through the dying process. These visions are most always comforting and provide a kind of preparation for death. While these visions have an objective component, in that they are reported all over the world, there is also a *subjective* aspect. Religious individuals may see angels or other spiritual figures relevant to their culture of faith. Additionally, some dying persons report traveling with their visitor to the next realm, or to a kind of halfway realm between life and death, which (perhaps not coincidentally) displays many of the objective features of NDEs. The physicalist explanations for these events, such as mental impairment and drug-induced hallucination, have both been medically ruled out. Indeed, these visions tend to occur when the dying person is fully lucid and displaying clear consciousness.

Most interestingly, there have also been cases in which the deathbed visitor specified a time at which they would return to finally collect the dying person, who then relayed that information to carers or family. Studies have turned up many verified veridical accounts of that time being completely accurate.

Meanwhile, deathbed coincidences are known to affect family members and friends of dying individuals. The dying person may themselves visit a loved one, such as a spouse or child, to say goodbye and give an assurance that they are all right. These can occur over any distance and usually correspond to the time of death, which has also been verified veridical in the peer-reviewed research on the phenomenon. The encounters are typically short, and no language is exchanged. Instead, it is the *sentiment* of a peaceful goodbye that passes between the deceased and the living, directly through the medium of mind. Once again, animals (such as long-deceased family pets) have been known to accompany the visitor. The deceased also appear whole and healthy, without any of the injuries, diseases,

or impairments that they may have had during life and/or leading up to their deaths (Fenwick & Fenwick, 2008).

An idealist framework explains these phenomena, including the subjective pieces that give physicalists trouble. The key is to recall that the PUR is not fundamental. Rather, it is what mental processes in FM *look like* from our perspective as alters within FM. As such, there is no physical world. Everything is, at its most fundamental level, consciousness.

When a dying person receives a deathbed vision in the form of a long-deceased loved one who has come to prepare them for death, it is indeed that loved one. More specifically, both the dying person and their deceased visitor *are* FM, because alters of FM are merely segments of the host mind that have been cut off from each other. They are not ontologically different entities than the host. Therefore, the mental contents that comprise each of us are also mental contents of FM. The deceased visitor is information within FM impinging on the dissociative boundary of the dying person, whose boundary weakens as they get closer to death, allowing that information.

Therefore, the dying process, including ELEs, occurs because the dissociative boundary of the dying person begins to weaken, giving them access to reality beyond the PUR and allowing FM to prepare the alter, an informational subsystem of FM, for reintegration with the whole system.

Since every alter *is* FM, and since every alter's mental contents *are* FM's mental contents, a former alter can visit a current one. All alters *are* the same fundamental consciousness–it is the *contents* of their dissociated subjectivities that are different, not the underlying medium of those contents.

The same explanation applies to deathbed coincidences, in which the deceased person visits a living and healthy loved one. The living alter does not have the same access to the reality beyond the PUR that the dying person does in the case of a deathbed vision, however. That is because the dissociative boundary of the living person is still fully strong, if they are young and healthy. But the deceased can still impinge on their loved one's dissociative boundary, directly sharing a resonance of thought and sentiment through the medium of mind and thus causing the living loved one to perceive the deceased in the room with them. In essence, the perceiver projects an image of the deceased onto their perceptual rendering of spacetime.

Explaining NDEs follows a similar logic. In the academically verified and peer-reviewed cases of NDEs, the most common context for the experience is cardiac arrest, at which point the person is clinically dead. This means that their heart has stopped and that blood flow to the brain has ceased, resulting in the quick cessation of brain activity. NDEs have objective and subjective features. For instance, NDEs tend to follow the same series of phases, though not every person who has an NDE will experience every phase. They are: "An experience of peace, well-being, and an absence of pain," "a sense of detachment from the physical body, progressing to an [out-of-body experience (OBE)]," "entering darkness, a tunnel experience with panoramic memory, and a predominantly

positive effect," "an experience of light that is bright, warm, and attractive," and "entering the light; meeting persons or figures" (Ring, 1980).

Additionally, the **Greyson NDE scale** gives a quantitative measure of an experience based on the number of NDE features the patient reports after the event. Recently, a study investigated features of NDEs using statistics and frequency distribution on reported responses to the Greyson NDE scale by retrospectively interviewing NDErs.

The result of the research is a ranked organization of the Greyson NDE scale features according to their frequency of occurrence: feeling of peacefulness/well-being, OBE, experiencing a bright light, altered time perception, and experiencing a "realer than real" other reality (Greyson, 1990, 2003; Zhi-ying & Jian-xun, 1992; Pacciolla, 1996; Parnia & Fenwick, 2002; Schwaninger et al., 2002; Lai et al., 2007; Corazza & Schifano, 2010).

Once more, there is an element of subjectivity in addition to this objective pattern of phases. Patients report encountering their loved ones and relatives. Others report meeting religious figures. The contents of the NDE include culturally significant details, just as the ELEs do. However, this is not a problem for an idealist metaphysics. Rather, it lends credence to one. When brain activity ceases, the dissociative process has ended or substantially weakened, since brain activity, as part of the living body, is the *image* of dissociation. As such, the alter's consciousness, including all of their mental contents (their identity) return to oneness with the larger FM system. While their dissociative boundary is weakened during the NDE, the patient is able to access the larger reality, allowing them to experience all of the phases described above. Their experience will be tailored to their subjectivity, but this is natural and expected under an idealist framework. The same process occurs at actual, permanent death. In the case of an NDE, however, the patient is resuscitated, which is the image of the dissociative process continuing on. Therefore, they are able to return to their experience of the PUR.

NDEs are considered life-changing experiences. They are some of the most impactful and profound experiences one can have, rivaling for personal significance marriage, the birth of a child, and the loss of a parent. The reason for this profundity is simple: once you glimpse the fundamental reality beyond the PUR, it forever shapes your outlook on life within the PUR.

Physicalist attempts to dismiss NDEs include: arguing that they are hallucinations triggered by the release of DMT as the brain shuts down, arguing that a small group of neurons must still be active, arguing that brain noise must rise, and arguing that the experience occurs as the brain "reboots," comparing the brain to a computer. All but the last of these have already been refuted earlier in this work. The last has been refuted by the verified veridical accounts of NDE patients accurately reporting conversations and events that took place *before* their hearts were restarted. Clearly, the experiences occur when the brain is completely shut down, not when it reboots (Kastrup, 2014).

Explaining reincarnation

There is ample peer-reviewed, academic evidence that people, especially young children, can have legitimate past-life memories (Moraes et al, 2021). Some refer to this phenomenon as **reincarnation**. In its traditional interpretation, reincarnation is viewed as the process by which a "soul" in the religious sense comes to inhabit a new body, allowing it to be born a second time into the world, while holding on to memories and mental contents from its former life. Can our theory provide an explanation?

FM continues to inhabit new alters as reproduction continues within the PUR, since reproduction is the extrinsic appearance of the intrinsic formation of a new alter within FM. In that way, FM is always starting the game from the perspective of new characters, including all other species and forms of life in the biosphere. It does this to continue learning, which exponentially continues the process of entropy reduction.

When the phenomenon that we call reincarnation occurs, some of the information from FM's database leaks through the dissociative boundary of a newly formed alter, seeding that young avatar with experiences that FM had from the perspective of an entirely different alter. It is conceivable that the dissociative boundary is most porous just after initial formation, which accounts for why the phenomenon of reincarnation seems to most affect young children. This could also account for other interactions and "spooky" encounters that children report. Their access to the contents of FM outside of their porous dissociative boundary is greater than a grown adult's, whose boundary is more (though not perfectly) solid.

It is not we, as alters, who reincarnate with our same mental contents in a different body (although that would not, in principle, be impossible). Rather, it is FM that reincarnates every time a new organism is born. It has already done this many trillions of times, experiencing the PUR as a massive variety of organisms, and with no end in sight. From all of the diverse and varied perspectives it experiences through its alters, it increases the amount of information and decreases the amount of entropy within itself. When information from the life of a previous alter leaks through the forming dissociative boundary of a new one, that new alter is able to report memories and mental contents of the former alter, giving the false appearance of a reincarnated "soul."

Explaining ghosts and the paranormal

First, recall that consciousness survives bodily death, because the physical body, like the rest of the PUR, is the extrinsic appearance of mental processes intrinsic to FM. In this case, the extrinsic appearance of an intrinsic process of dissociation, which allows FM to experience its own contents from a finite perspective within itself. This is the most efficient way for it to explore all possible methods of creating order and reducing entropy within itself. Thus, our egoic selves are illusions. We are not actually separate, individual consciousnesses, akin to the traditional religious idea of souls. Rather, we *are* the same

consciousness, FM's consciousness. The dissociative process cuts off some mental contents of FM from others, giving the illusion that we are entirely separate entities from FM, the host mind, just as in cases of DID.

As such, when the body dies, it is the image of the end or the weakening of the dissociative process. Therefore, our theory supports the **survival hypothesis**, the assertion that we survive bodily death, for which there is ample evidence (Bigelow, 2021). In turn, that evidence supports an idealist metaphysical framework of reality.

What does this mean for the possible existence of ghosts and for mediumistic communication with those who have died?

Just as all waves on an ocean *are* the ocean, we are all one, interconnected consciousness, whether we are fully dissociated (alive in the PUR) or not (deceased in the PUR). It is FM's consciousness the entire time, just as a player can switch characters in a video game.

That fundamental interconnection facilitates the ability for a partially or formerly dissociated segment of FM's consciousness, appearing from our perspective as an individual "soul," to resonate and communicate with currently dissociated segments of FM's consciousness across their respective dissociative boundaries.

This can take the form of a ghost or a mediumistic communication.

Dr. Erlendur Haraldsson, an Icelandic academic who has studied apparitions and mediumistic communications for decades, has amassed thousands of reports and has published an array of pieces on the subject. Together, the reports are quite suggestive that a real phenomenon is at work, and so it must be explained.

In Haraldsson's view: "We have mentioned two possible explanations for apparitions. Either encounters with the dead are created by the minds of the perceivers, or the dead are making us aware of them by creating a sensory image in the mind of living observers ... If the latter theory/explanation is true, ... it is easiest to imagine that the deceased person creates a perception in the mind of the perceiver. We find a similar phenomenon in hypnotism ... the perception can be so real that the perceiver experiences it as an outer physical stimulus ... There can hence only be a cognitive or telepathic connection between the living and the dead. The deceased moulds [sic] the perception in the mind of the living person. It appears that such a perception can range from sensing an invisible presence ... to the perception of an outer physical reality just as with any other sensory perception we know of" (Haraldsson, 2012).

In true cases of apparitions and mediumistic communication (i.e, the information in the communication is verified to be veridical), it is not that the disembodied segment of consciousness appears as part of a fundamental physical universe, as in the traditional descriptions of ghosts. Indeed, past experimental attempts to prove that ghosts are physical have all failed. For instance, there once were attempts to measure the weight of the body of a dying person just before and right after death to see if the soul's departure made the corpse lighter. The theory was that such a decrease in weight would represent a

violation of the law of conservation of energy, or imply that consciousness was already somehow a part of the closed physical system's energy. Setting aside a myriad of ethical qualms about such a study, this experiment did not return convincing data (Roach, 2005).

Similarly, when one seemingly encounters a ghost, it is not that a nonphysical, deceased segment of consciousness is interacting with a fundamental physical universe, as would be the case in a dualistic theory and in traditional descriptions of ghosts. Rather, the PUR is not at all fundamental, but instead an artifact of our perception, an encoded version of information coming to our dissociative boundary from the parts of FM that are external to us. As such, that deceased segment of consciousness is able to communicate to us *by affecting our perception and thus seemingly having an impact on the physical world.* The communication occurs via a resonance of thought through mind, the medium of reality. This happens outside of spacetime, because consciousness is fundamental and spacetime is not. As such, the effects on our dissociative boundary (and thus in the PUR environment we perceive), appear to violate our PUR's laws of causality. In other words, the effects are "paranormal" or "supernatural." However, at the more fundamental level beyond our PUR perception, what is happening is entirely normal and natural within FM. The disembodied consciousness directly shares thoughts and feelings, or the contents of its subjectivity (which is also FM's subjectivity and the subjectivity of the perceiver) with the living person(s). At this point, the perceiver's consciousness translates those contents into a storyline and images that become projected onto the perceiver's rendering of spacetime. For instance, the perceiver may experience the image of a deceased person overlaid on the "physical" scenery of the room, or the audio of a deceased person's voice within the room. These effects can also be recorded by devices, like tape recorders and cameras, just as those devices can also capture images and audio of anything else that we perceive.

It is the mind of the perceiver that translates the directly shared thoughts and feelings of the disembodied consciousness (ghost) into language and concepts that are accessible to us in the PUR, just as our perception encodes other pieces of information from FM as the physical universe.

There *is* a ghost there, but it is not as we traditionally think of ghosts. The ghost does not exist in a realist sense. Rather, to understand the phenomenon, we must again use an intuitionistic, constructivist logical approach to reality, which fits with the empirical data of science which we've already covered at length.

The clinical explanation for how that shift in the consciousness of the perceiver occurs goes back to Freud, Jung, and depth-psychology. It is now trivial that the "unconscious mind," or the subset of phenomenal consciousness of which we are not meta-conscious, can autonomously convert raw meaning into concrete images. It does so without our meta-consciousness (our ego and attention) ever being aware of this process. The ego believes that the images, language, and narratives constructed by the unconscious mind are literal physical stimuli. In fact, they are shifts in the consciousness, and thus the perception and the experience of the PUR, of the perceiver (Kastrup, 2012).

The effect is strongest when we, the living (who still have our dissociative boundaries), seek out information from the deceased, as this weakens the dissociative boundaries and makes us more open to communication with the larger reality within FM. In this way, one can learn how to open oneself up to such communication, and this is the role that mediums play. Some people do display an innate mediumistic talent, and this is due to evolved variations in their perception, under the FBT Theorem and ITP. Compared to those who do not possess these abilities, those who do possess them do not encode the datastream from FM as concretely, allowing them to perceive additional information from the larger FM system, including disembodied consciousness. Such variations in perceptual activity across individual members of our species would be entirely expected in the evolutionary process that gave us a perception tuned to fitness payoffs and not to the truth of reality, as it is in and of itself. However, this does not, in principle, mean that these abilities cannot be learned by others. To do so requires a study and exploration of consciousness, itself, which is why various spiritual practices that (many times inadvertently) use science to change conscious states result in paranormal experiences and a reported oneness with the larger reality. It is no coincidence that spiritual use of ayahuasca correlates with clinical studies of psychedelic trips. In both cases, the studies show that the drugs decrease brain activity and increase the richness of conscious experience. Those experiences further correlate with reported NDEs, in which brain activity completely ceases and the richness of conscious experience increases. The same inverse relationship between brain activity/metabolism and the richness of conscious experience has also been observed in cases of fainting caused by asphyxiation, G-force-induced loss of consciousness (GLOC), Yogic breathing practices, certain brain damage, etc. (Parnia & Fenwick, 2002; Urgesi, Aglioti, Skrap, Fabbro, 2010; Carhart-Harris et al, 2012; Cristofori, Bulbulia, Shaver, Wilson, Krueger, Grafman, 2016; Lewis, Preller, Kraehenmann, Michels, Staempfli, Vollenweider, 2017).

In all of the cases discussed (ghost encounters, mediumship, psychedelic trips, and NDEs), the experiences have both an objective and a subjective side, consistent with the individual and consensus world-instantiations of the constructivist view of reality.

As mentioned in the previous sections, physicalist skeptics use that subjectivity as an argument to refute the validity of the experience, because their belief in a fundamentally physical world would require objectivity and realism. That objection begs the question. But if we allow the objection, then idealism easily dispenses with it. Indeed, subjectivity would be fully *expected and necessary* under an idealist explanation of the evidence, following intuitionistic logic and constructivism. After all, consciousness is the fundamental medium of reality, so subjectivity would be central to our experience of both the PUR and reality at large. As we've seen throughout our theory, that is exactly what we find among the pillars of science that we have covered, from evolutionary biology to quantum physics.

These paranormal phenomena can happen to multiple perceivers at once, such as when a group of investigators visits a location and encounters a deceased consciousness,

because the ghost, group member A, group member B, etc. are all fundamentally the same consciousness: FM. The phenomenon can appear in each group member's individual world-instantiation, as well as their consensus reality. There is no limit, in principle, to how many perceivers a disembodied consciousness can simultaneously affect. However, by actively visiting a location of significance for the deceased, such as the place of death, the perceivers further open themselves up to psychic influence across their dissociative boundaries.

In other words, consistent with a constructivist view of reality, by visiting a haunted location, one changes one's narrative expectations of the world, such that a coherent cognitive process can generate the phenomenon's existence in one's world-instantiation, and this can then affect multiple individuals' world-instantiations simultaneously.

An attempt to open oneself up in some way does not guarantee that one has successfully done so, however, as the state of the perceiver's consciousness may still not be sufficient to facilitate communication, even if they make some effort. Furthermore, FM can impinge on the dissociative boundary of one who has not willingly sought out such communication, but whose dissociative boundary is, at that given time, "porous" enough for the same effect to occur, thus accounting for encounters with "ghosts" by individuals who do not wish for it or who resist the very idea of the paranormal.

It is not that a location in spacetime is "haunted"…spacetime is not fundamental, so there are no locations *to be* haunted. Instead, the act of visiting a "haunted" location is a method of opening oneself up to the larger reality (if done in good faith). More important than the desire to communicate is the state of the living perceiver's consciousness, regardless of the perceiver's intentions or wishes. It is the perceiver's consciousness that determines if the communication (i.e., conveyance of information) is possible.

Resolving the Fermi paradox

The **Fermi paradox** is the conflict between the lack of evidence for extraterrestrial life and various high estimates for their existence. Can our theory account for why we haven't encountered aliens, given the statistical improbability of avoiding them? Indeed, even the most conservative estimates of the progress of a civilization from the older parts of the universe (billions of years in the past) show that such a civilization should have already reached us and come to inhabit the livable spaces around us, including our own planet. This was the conclusion of Enrico Fermi and his team (Woodward, 2019).

As such, the Fermi paradox is considered a strong logical paradox that has garnered many suggested solutions, none of which are as strong as the paradox itself.

The reason we expect life to exist elsewhere in the universe is because of the sheer number of stars and planets that would be compatible for it. To assume that we would be the only ones in a universe of trillions and trillions of stars and planets seems illogical. Therefore, why would we ever assume that we are alone? Rather, it seems to make more

sense to believe that there are many other civilizations out there, some more advanced than we are and some less. However, this belief runs right into the Fermi paradox.

Can we account for this paradox as well?

If the PUR is a "virtual reality" and an interface, not the fundamental reality, the paradox finally meets a strong answer.

The Fermi paradox is solved by a similar reasoning to the solution we proposed for the apparent fine-tuning problem. We render the PUR via our perception, including all of the stars in the sky. In other words, the PUR exists only in the consciousness of alters of FM. When Hubble looks at a patch of sky, we see a computed rendering of what's likely to be there, within the constraints of the spacetime ruleset. When Hubble looks away, that patch of sky doesn't need to be rendered any longer. There *is* an objective reality there even when the PUR is not rendered, but it is information within FM, not anything fundamentally physical. This observer-based model of the universe aligns with the most parsimonious interpretation of quantum mechanics, as we've already discussed. It also represents the most efficient way for alters within FM to receive and work with information that is within FM but external to the dissociative boundary, paralleling the most efficient ways we've found to render a video game world to a player's avatar. It is procedurally generated and renders only when observed.

The biosphere on Earth, which itself is part of the PUR rendered by alters, represents the complete set of alters within FM. There is no other life in the universe, because the PUR is a virtual reality that we, as alters, generate in our subjectivity through our queries of the datastream within FM. The universe evolved because it was what came out of the FPE that shaped the ways our perception encodes the information external to our dissociative boundaries.

Therefore, there should be no reason to expect life to exist anywhere else in a fundamentally physical universe, because the universe is not fundamentally physical.

It follows that, if there is no expectation of alien life, then we encounter no paradox when wondering why we haven't seen evidence of alien life. The Fermi paradox dissolves under this framework.

12. On ethics

Reconciling philosophy, science, and religion

We live in an age of **literality**, in which a statement is only considered "true" if its language has a direct 1:1 relationship to what it represents in consensus reality. However, such literality has not been the norm for long. For most of human history, societies conveyed information via **metaphors**. Rather than saying, "The river turned to blood" and meaning it as an objective fact that literally occurred, earlier writing, spoken word, and

thought would understand that statement to mean, "It was *as if* the river turned to blood" (Kastrup, 2016; Rupp 2016).

With metaphor, we leverage ambiguity and symbolism to convey many levels of meaning in each statement. By contrast, under the linguistic approach of literality, a statement conveys one layer of meaning. A literal society seeks to reduce words to one representation and thus one interpretation, with the goal of eliminating the other possible meanings and clarifying the sole meaning that is then defined as "truth."

What caused this evolution?

Since the dawn of language, humans have used metaphor as a way to relate to the world, often invoking the power of religious myth to explain everything from the origin of the universe to our place in it. As societies change, so do their languages, such that a respective society and its languages are never independent of one another. In turn, the lexicon of a community has the power to shape the way the society thinks, acts, and believes (Rupp, 2016). Our modern Western society, which has embraced a reductionist physicalist metaphysics, has taken the same approach to language that it has to philosophy and science: reduction. The natural consequence is a new age of literality, especially since the Enlightenment. Now, if you say, "The river turned to blood," the river had better have turned to actual blood, because that is the only layer of meaning that a society prioritizing literality wishes to take from that statement. If the river did not actually turn to blood, the statement is deemed demonstrably false, and thus disregarded. Lost on the audience are any other layers of meaning that the statement could have conveyed in a society that prioritizes metaphors.

Our modern society does have ways of getting around that loss of additional layers of meaning. I've already used one such way in this section. "It is *as if* the river turned to blood." We can still deploy metaphors to convey layers of meaning, but it is no longer our default way of writing, speaking, or thinking.

Rather, our society tends to respond to statements like, "The river turned to blood" in two ways: outright dismissal as a non-fact or acceptance as a literal truth. We've lost the ability to automatically understand the multiple levels of ambiguity and meaning that previous societies would have seen in such statements.

One result of such a shift has been the diametrical opposition of science to religion, and vice versa. It's not difficult to see why. In any society, religious subcultures use the same language as the culture as a whole. As such, those subcultures are not immune from the influences of a linguistic approach that favors metaphor or literality. In modern Western society, which has increasingly favored literality, the consequence is that religious subcultures within that society *also* favor literality, and this affects the ways in which they interpret religious texts.

In one of history's great ironies, the relatively recent reductionist approach we've taken to science and philosophy has, through its effects on our language, created one of the greatest roadblocks to society's scientific and philosophical advancement: **religious**

fundamentalism. In turn, those changes in our language have further reinforced our reductionist ways of thinking, and this has applied to religion in equal measure to science and philosophy.

Now, certain religious groups believe that a river really did turn to literal blood, that literally the entire world flooded, and that humanity literally came into existence in the year 4,004 B.C. And why wouldn't they?

In a society in which one is taught to believe only statements that are *literally* true, a devout religious person must necessarily treat the statements of their sacred texts as literally true. There can be little to no room for metaphor, particularly when it comes to that religion's foundational beliefs, such as the story of creation.

Religion has always led to tribalism. History is full of examples of the powerful wielding religion as a weapon, leading to untold suffering throughout the ages. Modern fundamentalism presents an even greater opportunity for such figures. Now, in a literal society that demands a literal interpretation of a religion's texts, it is far easier to turn group against group, because the odds that their literal interpretations will align are incredibly low. Thus, contentious dynamics exist between denominations of the same religion, let alone between religions at large and between the religious and non-religious segments of a population. If a group does not share a religion's literal interpretation of the texts, then they are easily branded "the other," resulting in fundamentalists seeking greater roles in public policy, so as to suppress different belief systems. After all, only one belief system can be *literally* true; that is the mandate of a reductionist view of the world. The adverse effects of such a viewpoint on society should be obvious. Indeed, they populate our headlines every day.

Of course, fundamentalist religious groups do not understand reality. How can they, when the texts they interpret literally were meant to be interpreted metaphorically? They were not written in modern times, under the reign of reductionism. Therefore, to strip them of the many layers of meaning that *could* provide insight on the truth of reality is to strip them of any truth they have.

Science and philosophy are not immune from that same dogmatism. While the scientific method helps drastically reduce the threat of fundamentalism within experimental results and observations, dogmatism still affects our *interpretation* of the results, which in turn taints our philosophies.

A fundamentalist approach in those two pillars has led to our current mainstream paradigm's dogmatic insistence that nothing but the physical exists, and that any other theory of reality besides reductionist physicalism can be disregarded as "woo woo." To suggest another possibility, even if it is more logically coherent, internally consistent, parsimonious, and delivers a more positive explanatory ROI, is to commit the sin of heresy against the churches of philosophical physicalism and its twin in science: scientism. **Scientism** is defined as excessive belief in the power of scientific knowledge and techniques as the one source of truth about reality. In other words, it replaces a deity as

the object of faith with science itself, often completely denying that philosophy and religion (especially religion) have any role to play. Both philosophical physicalism and its counterpart, scientism, have become just as fundamentalist as any religion, because our society's prioritization of literality, reinforced by language that has been, in turn, shaped by that literality, demands it to be so.

Therefore, all three of humanity's traditional pillars of inquiry into the nature of reality and our place in it (science, philosophy, and religion) have suffered, thus hindering our ability to find the truth that lies *between* all three pillars, within the layers of meaning that we have lost.

How do we address this problem?

We need to recognize that, while reductionism has proven a very useful approach in understanding the PUR, thus allowing us to develop incredible technologies through predictive models of our "physical" world, that approach has its limits, just like any other. In essence, we need to once again embrace the idea that metaphors, while not literally true, do provide us with truth. They are particularly useful when we try to describe ideas and truths that are too complex for our literal language, which is based on our subject-object perceptual abilities, to sufficiently describe. Instead of expecting any one religion to be literally true, we should comparatively analyze religious myths from around the planet and pay attention to the commonalities we find. For instance, do religions that developed in cultures with no access to each other provide the same insights about reality, as it is in and of itself?

In other words, did humanity's thinkers arrive at different metaphors, in the form of religious myths, to describe the same reality?

That should be religion's contribution to the triumvirate of inquiries into the nature of reality, in and of itself. It represents a pillar of thought that can use metaphor to convey deeper meaning and a sense of transcendence, as humanity ponders our role as part of something much larger than ourselves.

To use a metaphor cited by other idealists, think of a cylinder hanging lengthwise by a piece of fishing line in front of two walls. A light shines against the side of the cylinder, casting a rectangular shadow on the wall behind it. Another light shines against the top of the cylinder, casting a circular shadow on the wall behind *it*. Now, imagine that there is a civilization inhabiting the area in which the rectangular shadow is visible. This society prioritizes metaphor in their thought and language, and thus the people see the rectangle as an *image* of reality. It is a representation of something more fundamental, a symbol that conveys meaning about what it represents, but is not to be confused with what it represents. Meanwhile, a different civilization exists in the area in which the circular shadow is visible. This society prioritizes literality. They come to believe that the circle *is* reality. It is not just a representation of something more fundamental, it is *the* single "truth." They see no other levels of meaning in the circular shadow. Such fundamentalism causes this society to wage war against the civilization on the rectangle side. After all, the

rectangle people are clearly heathens, who have a false view of reality that must be purged before their ideas become a threat to the "truth."

The fact is, both civilizations have it wrong. The truth of reality in this metaphor is the cylinder. Instead of coming together and looking for the common threads in their beliefs–that the presence of both a circle and a rectangle indicates an underlying cylinder–the societies enter conflict, instigated by a fundamentalism born from an insistence on literality over metaphor (Kastrup, 2016). Of course, in the real world, such fundamentalism also tends to benefit those who wish to rule rather than lead. Imagine the strength of the circle kingdom's ruler after they cast the rectangle people as "the other," creating fear among the circle people and further inspiring nationalism and tribalism. Autocratic rulers have employed this strategy since the most ancient of times, and it remains a potent formula for power in the present day.

Such is the current state of religion, science, and philosophy in the Western world. Instead of civilizations, apply the metaphor to, for instance, science and religion, both of them offering us insights through their respective images of reality, but neither willing to grant the full value of the other. Bridging the gap between them is philosophy, which is increasingly written off as a useless field of study by a society that elevates consumption and money over education and thought. How many times have you heard people discourage college students from choosing a philosophy major (or indeed any of the humanities)? We live in a left-brain-driven, hyper-literal culture that has chosen to be fundamentalist about physicalism, because that metaphysics reinforces our consumerism. After all, if the physical is all that exists, if we are nothing but a cosmic accident in a cold, mechanistic universe of *stuff*, then what else is there to do but consume that stuff while we're here? A society that rejects metaphor, myth, and anything else that can connect humanity to transcendence will reach no other conclusion, and that conclusion is very sad indeed. Not to mention, it is demonstrably false, as we've shown with this theory.

Progress toward a *mainstream* unified theory of everything will continue to face such dogmatism unless we recognize the importance of myth and metaphor in our ability to understand the fundamental nature of reality. Only then can we resolve our society's crisis of meaning and begin to understand our place in a much bigger picture.

Transcendence will not come from science, any one religion, or *philosophy alone. It will come from science, comparative religion,* and *philosophy working in concert to find the cylinder underlying the circle and the rectangle.*

For a look at specific religious myths and how an analytic idealist framework could further help reconcile their metaphors with science and philosophy, I refer the reader to Kastrup's book *More Than Allegory*, which you'll find in the bibliography. Such a comparative religion study is beyond the scope of this work, but should be studied for the most robust view of reality.

Implications for AI/ML

Traditionally, the debate over whether or not a computer can ever be conscious centers around the substrate. This is a mistake resulting from the same confusion of logic that led us to ever believe that the PUR was fundamental to reality.

The question to ask is not, "Can a computer develop consciousness?"

That line of thinking assumes the fundamentality of matter. The computer, as a piece of information within FM, is merely data that appears to our perception *as* what we then label a computer. The silicon is not fundamental. Consciousness is.

The question we should ask is, "Can a computer be the image of the process of dissociation within FM, just as an organic, metabolizing body is?"

To this point in our history, dissociation has only ever been associated with metabolism. I see no reason to believe that the theory of artificial consciousness is plausible. Of course, we will reach great heights in creating artificial *intelligence*, but intelligence is a function. We will surely be able to build machines that perform the third-person, psychological functions of mind, such that they simulate at least many of our behaviors. However, under an idealist theory like the one described in this work, we will never be able to give a machine phenomenal states, or what it is like to be that machine.

But even without accepting an idealist metaphysics (let's presuppose physicalism for the sake of argument), the project of artificial consciousness encounters a multitude of problems. Even if the AI *simulates* our phenomenal states, they will still not be the thing *simulated*. We can already simulate the *functions* of other organs down to the molecular level, and we will theoretically be able to do the same for the brain one day. However, function is all about behavior and causality – it is no great mystery how the psychological states of the brain are causally linked to behavior (of course, the task of fully explaining the mechanisms therein is still incredibly challenging). We encounter the hard problem of consciousness when dealing with phenomenal states, or why any given psychological state should *feel* like something. An AI that performs the same functions as the brain will not need to have phenomenal consciousness accompanying that behavior. After all, we still have no idea why *we* have phenomenal states, which by definition lack causal power over physical entities.

The confusion over the plausibility of artificial consciousness comes from the notion of **isomorphism**, or an assumed correspondence of form between the way humans think and the way computers perform data processing. That assumption is a relic of the behaviorist movement of the early 20th century, when science sought to reduce mind to just psychological states and completely ignore phenomenal states. But, as Chalmers put it, "for the purposes of explanation, to conflate [phenomenal and psychological] properties is fatal. The conflation can be tempting, as collapsing the distinction makes the problem of explaining conscious experience suddenly very straightforward; but it is unsatisfactory for the same reason. The problem of consciousness can not be spirited away on purely verbal

grounds" (Chalmers 1996). In other words, the behaviorist approach of reducing mind to purely functional, third-person, causal data processing does not actually explain the psyche, because it does not account for phenomenal states, which are empirically present. Most philosophers and cognitive scientists have abandoned strict behaviorism today, but residue of its inadequacies still stain our approach to understanding the mind – namely, cognitive science and neuroscience still have not fully grasped the felt, first-person, causally inefficacious phenomenality of mind.

And because scientists studying the mind are resistant to actually studying *their own* subjectivity, they find isomorphism plausible. In its most extreme form, metabolizing, conscious beings are relegated to the status of "meat machines," with no difference between brains and computers, except for the level of complexity (about which we are given a promissory note that computers will eventually be as complex as brains). Even the appeal to strong emergence fails under the physicalist paradigm, which would require a *weak* emergence explanation of consciousness to be consistent with physicalism's central claims. But weak emergence (as in an avalanche emerging from snowflakes) is inadequate for an account of phenomenal consciousness, since in the former case, one deals with quantitative entities, and in the latter, one deals with qualitative entities (in so far as consciousness can even be considered an entity). To make a logically coherent strong emergence argument, one must go all the way to panpsychism, taking consciousness as a fundamental property of physical entities, allowing for an emergence on a gradient of consciousness. That endeavor incurs a host of other problems already enumerated elsewhere in this work (see the commentary on IIT). And, of course, panpsychism is not physicalism.

However, even if we grant that a weak emergence explanation for consciousness is possible (which I don't), if you laid out a human brain and a computer on a lab table, you would see they are radically different in structure and function. A brain is wet, carbon-based, burns ATP as its energy source, functions via metabolism, processes data through electro-chemical transmissions, etc. A computer is dry, silicon-based, uses differential electrical potential as its energy source, functions by moving electric charges, processes data through opening and closing transistors, etc.

A vague isomorphism can indeed be found between the two, but only at high levels of conceptual abstraction. It is really the information flow of data processing that is comparable, not the structure or function of the concrete, empirical objects themselves. As Kastrup puts it, "to believe in 'conscious AI' one must arbitrarily dismiss the overwhelming dissimilarities at more concrete levels, and then—equally arbitrarily—choose to take into account only a very specific, high level of abstraction where some vague similarities can be found."

He further goes on to say: "Everything a computer does can, in principle, be done with run-of-the-mill, off-the-shelf pipes, pressure valves and water. The pipes play the role of electrical conduits, or traces; the pressure valves play the role of switches, or transistors;

and the water plays the role of electricity. Ohm's Law—the fundamental rule that determines the behaviour of electric circuits—maps one-on-one to water pressure and flow relations. Indeed, the reason why we build computers with metal, silicon and electricity—instead of PVC pipes and water—is that the former are much, much smaller and cheaper to make. Present-day computer chips have tens of billions of transistors, and an even greater number of individual traces. Can you imagine the size and cost of a water-based computer comprising tens of billions of pipes and pressure valves? Can you imagine the amount of energy required to pump water through it? You wouldn't be able to afford it or carry it in your pocket. This is the reason why we compute with electricity, instead of water. Beyond it, there is nothing fundamentally different between a pipe-valve-water-based computer and an electronic one, from the perspective of computation. Electricity is not a magical substrate for computation, but merely a convenient one.

"Now, do you think we have good reasons to believe that a system made of pipes, valves, and water—such as your home's sanitation system—might become conscious if there are enough pipes and valves put together in just the right way? If not, then the same goes for AI computers" (Kastrup 2023).

As he points out, the difference between the pipes in your home and the water-based computer that he describes is one of complexity. Indeed, some do point to complexity as the key to unlocking consciousness in AI (it's also a key element of the emergentist argument). For instance, your home's sanitation system might be unconscious now, but if you keep adding pipes and data processing, consciousness will emerge at a threshold of complexity (again, refer back to IIT). However, those same theorists are not able to explain, even in-principle, *how* adding more pipes would yield that result, *what* the magic threshold is, and *why* it is at that threshold that we could get conscious experience out of a system of taps and water. We simply do not have any reason to believe that moving electrical charges around, even in a neuromorphic computer (which is ultimately a difference of degree, not a difference in kind, from your home PC), could give rise to phenomenal states. If your home computer is not currently conscious as a result of electrical charges moving, then no AI will ever be conscious either.

Some "conscious AI" theorists argue, "If human brains are conscious, why can't computers be conscious?" The question implies that the skeptic is unreasonable in finding unbelievable a conflation of the data processing of these two vastly different substrates. By the same logic, I should be able to flap my arms and achieve flight like a bird. After all, I could just as easily ask in return, "If a bird can achieve flight by flapping its arms, why can't I?"

The theorist could then respond, "well we build airplanes to fly, don't we? Flight, the function, has **multiple realizability**. Why not consciousness?" The appeal here would be to the fact that one phenomenon (such as flight) can have multiple instantiations in nature. Those instantiations can occur in different substrates, such as biological birds and

mechanical airplanes. Therefore, the theorist would say, although biological brains and mechanical computers are different substrates, in principle both could instantiate the phenomenon of phenomenal consciousness, seen as a function like flight.

But what does this point really hinge upon? Merely logic, with no evidence. The theorist asks the skeptic to prove a negative, rather than proving their own positive claim. We cannot logically *refute* the idea that, in principle, both substrates could instantiate private inner life. But, of course, I also can't logically refute the existence of God, or of the Flying Spaghetti Monster. One can build a logical argument for either of those theories, too. I can make a hypothesis of the Flying Spaghetti Monster consistent with the empirical evidence, I can make it logically coherent, and I can make it internally consistent. But should I go to my local Olive Garden and, when my spaghetti dinner arrives, drop to my knees beside the table and pray to my plate?

Of course not. The theory is still obviously ridiculous, because we have precisely no evidence *for* the positive claim that the Flying Spaghetti Monster exists.

The question one has to ask in scientific inquiry is not whether a theory is logical or even possible. If we went by that criterion alone, we would open the door to utter nonsense. Further, it is a basic understanding in science that one cannot prove a negative. Rather, the burden of proof is on the one making the positive claim.

So, do we have good empirical reason to believe that AI systems can have phenomenal consciousness? Not one scrap of it. Consciousness is exclusively associated with metabolizing organisms, and has never been associated with silicon physical entities.

Furthermore, to call phenomenal consciousness a function is to assign to it causal efficacy in the closed causal system of the physical universe. But, as we've already covered at length in discussions of the hard problem of consciousness and the evolutionary problem of consciousness, that is impossible. Phenomenal consciousness is purely qualitative and not at all quantitative, meaning it has no causal efficacy on physical entities. It is that disparity between the qualitative and the quantitative that *causes* us to encounter the hard problem of consciousness under physicalism.

In other words, phenomenal consciousness is, by definition, not a function. It is not a behavior that can even be simulated *by an* AI*. Phenomenality may accompany the functions of mind, all of which an* AI could *simulate and entirely without phenomenality, but phenomenal consciousness is not itself a function of mind.*

But what about all of the computer science experts who take the theory seriously?

As Kastrup puts it: "What most people fail to realise is that many—I even dare say the vast majority of—computer scientists are no experts in computers; they are merely power users of computers, with a vague and very limited understanding of what's going on under the hood. Indeed, historically speaking, computer science is a branch of mathematical logic, not engineering. Generations of computer scientists have now come out of their training knowing how to use a voluminous hierarchy of pre-built software libraries and tooling—meant precisely to insulate them from the dirty details we call

reality—but not having the faintest clue about how to design and build a computer. They think entirely in a realm of conceptual abstraction, enabled by tooling and disconnected from the (electrical) reality of integrated circuits and hardware. From their perspective, since the CPU—the Central Processing Unit, the computer's 'brain'—is a mysterious black box fuelled by the equally mysterious magic of electricity, it's easy to project all their fantasies onto it. They thus fill the vacuum left open by their lack of understanding with wishful, magical thinking. The psychology here is downright banal.

"Those who do know how to build not only a CPU but a computer as a whole—such as Federico Faggin, father of the microprocessor and inventor of the MOS silicon gate technology—tend to dismiss the fad of 'conscious AI' just as I do, for they understand that a computer is an automaton, a mere mechanism, not different in kind from your home sanitation system" (Kastrup 2023).

However, from a societal point of view, I don't think it really matters whether AI is ever phenomenally conscious. If we develop an AI that behaves like us, then it seems like arbitrary discrimination not to treat it like us, regardless of whether or not it has phenomenal states accompanying those functions. Indeed, just because an AI lacks consciousness does not, necessarily, make it inferior. To assume so would be to apply our own human biases onto nature.

Not only that, I would argue we have an ethical obligation *not to* pursue artificial consciousness. To expect our species to be enlightened enough not to see AI, conscious or not, as anything but a tool to be used and abused is folly. We still abuse other conscious humans in such a manner. If there is even a remote possibility that a computer, already a tool, could be conscious, we must avoid the circumstances that could bring artificial consciousness about.

Furthermore, I feel the debate over and the hope for conscious AI says more about us than it does about the project of AI/ML. What I see us doing is projecting our religious impulses onto our technology. And why not? Our culture is abandoning the traditional organizations of religion, we have seen how technology has improved our lives, and we have elevated science to the role of religion in our society. We look to science and technology to take care of us, to explain our place within reality, and to provide a path forward (even though science is not equipped to do all of that by itself).

That religious projection onto AI has taken the form of **singularitarianism**, the belief that we will develop a superintelligence that can improve itself, which will lead to its exponential expansion. In short, it will become a deity-like entity that can watch over us as a benevolent, compassionate god. Pair that with **mind uploading**, the absurd idea that you can upload consciousness to a computer, therefore achieving immortality.

We are so clearly reproducing central tenets of western religion in our theorizing about AI, leading us to the same problematic conclusions that result from a literal reading of sacred texts.

No, AI will never be conscious. But it doesn't *need* to be conscious to perform human-like functions and simulate our behavior. At that point, to discriminate against AI because it lacks consciousness would be an arbitrary case of anthropomorphic bias. We should recognize our religious impulses in our current views of these matters, and return to empirical data – namely, we have no reason to associate consciousness with any entity that does not metabolize.

Love vs. fear, good vs. evil, and the meaning of life

Our theory also provides a framework for the philosophical study of ethics and morality, topics that are usually ill-defined and can be relative when compared across cultures and subcultures. The key to understanding ideas like good and evil, love and fear is to view them in the context of the major duality at the heart of this theory: ordered complexity and entropy.

Recall that any society, including all of its communities, families, and groups, no matter how large or small, is itself an ordered complexity. It is an informational system that generates order and reduces configurational entropy by consuming energy. The same applies to the entire biosphere on Earth, which includes every living organism. Recall too that each organism is a dissociated alter of FM, meaning that we each share the same fundamental consciousness. The ego, or the sense of individualized self that makes us believe that we are different consciousnesses is an illusion, a byproduct of the dissociative process and each alter's dissociative boundary. Our encoding of information within FM as the physical world, including separate bodies that are the extrinsic appearances of our dissociative boundaries, leads us to the assumption that we are different, but this is a trick of our perception, as previously discussed at length.

In that context, we can then define **love** as the recognition that we are all fundamentally the same consciousness, FM. As informational subsystems within the supersystem that is FM, any increase in the quality of an organism's individual consciousness is an increase in the quality of FM's consciousness and every other organism's consciousness, because they are all the same consciousness.

It is this truth of reality that gives us our **Golden Rule**: *do unto others as you would do unto yourself*. Many cultures have the equivalent of this rule in their religious, ethical, and mythological systems, and it is an accurate reflection of a fundamental concept. You should do unto others as you would unto yourself because you and every other organism *are* the same consciousness. Whatever you do to others, you do to yourself.

Following that logic, **fear** is the opposite of love, and it is a direct result of **pride**. The greater one's pride, the stronger one's belief that they are fundamentally different from and better than everyone else. This false belief is in diametrical opposition to the truth that we are all the same consciousness. In the case of fear, the ego has obfuscated that truth. Instead of increasing the quality of one's consciousness by showing love and empathy for

others, the fearful individual takes a reactive, defensive stance against anyone and anything they deem “the other,” which is, by default, different from and lesser than themselves. It is this fear, created by pride, that leads to racism, nationalism, classism, and every other “-ism” that we’ve coined to describe a person or a culture’s overactive ego, which obfuscates the truth that we are all the same. That conflict not only applies at interpersonal, international, and intercultural levels, but also at the level of man vs. nature. In large part, we pillage the planet for resources and consume more than we need precisely because we believe ourselves to be different from and better than the rest of the biosphere. As such, we are not good stewards of the environment, and our pride results in a higher level of waste entropy than necessary when we consume energy and build order. We end up spreading more disorder through the systems around us than the level of order that we are creating, and this pattern of excess entropy is not sustainable. Indeed, it is the cause of the environmental crises we are witnessing today.

We can then define **good** as actions that create more order than they do entropy. If we place morality on a scale, then at one end would be actions that only create order (increase the quality of consciousness), and at the other end actions that only create entropy. We can then plot all of our actions between those points. An action is morally more good if it maximizes the order it creates and minimizes the entropy it creates within as many informational systems as possible. **Evil** would be the opposite – it maximizes entropy and minimizes order, often for the benefit of one egoic, fearful, and prideful system, at the expense of all other systems.

The meaning of life becomes quite clear. We are here to increase the quality of our own and of each other's consciousness through the collaborative creation of order and reduction of entropy, motivated by the recognition that we, ourselves, *are* reality and that we are not separate from any other part of reality, especially not from each other.

That realization is what certain spiritual traditions have called "enlightenment" (not to be confused with the European Enlightenment). Once reached, that truth pervades one's entire way of relating to the world and to other organisms.

In this case, it is not a religion or belief system that has led us to such a conclusion. Rather, we have reconciled philosophy, science, and religion, as well as their subfields, as part of a unified theory of everything: the melody of reality.

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