A rational, empirical case for postmortem survival based solely on mainstream science

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Introduction

What is the best available evidence for the survival of human consciousness after permanent bodily death? For self-evident reasons, this is undoubtedly a central question for all of us. Yet, the question itself already betrays a ubiquitous but nonetheless unexamined assumption: that the postmortem survival of human consciousness isn't—at least in principle—the expected outcome and, therefore, one needs the best possible evidence to convince oneself of it.

Indeed, the continuation of consciousness after bodily death is regarded, in our culture, as an extraordinary hypothesis that contradicts *prima facie* expectations. As such, it requires equally extraordinary evidence—or so the story goes—to be taken seriously; evidence of a so-called 'paranormal' nature. This is a subtle but crucial point: our culture assumes that the *normal*, *ordinary*, *mainstream* evidence routinely collected in laboratories worldwide is either neutral on the question of postmortem survival or outright contradicts it.

But is this really the case? Are we correct in assuming that our ordinary observations of nature's *normal* behavior suggest that consciousness perishes upon bodily death? In this essay, I shall argue that such an assumption—pervasive and vulgarly intuitive as it admittedly is—is in fact *not* correct; that the mainstream evidence, when assessed carefully and rigorously, indicates precisely the opposite.

[1] I have undertaken the writing of this essay as part of my work as Executive Director of *Essentia Foundation*. Therefore, should this essay win a prize, the proceeds should be donated directly to *Stichting Essentia Foundation*, Stadionweg 1, 1077 RV Amsterdam, The Netherlands, RSIN No. 861178555. *Essentia Foundation* is an official Dutch Public Benefit Organization—i.e. a charitable non-profit. Donations received by the foundation are taxed in an advantageous manner, so *Essentia* will be able to leverage any eventual prize money more effectively than I, as an individual, could.

In this context, I shall report on recent results from mainstream fields as diverse as neuroscience of consciousness and foundations of physics, which provide us with a picture of reality in which phenomenal consciousness[2]—that is, our raw subjectivity—is not a by-product of physicality, but in fact *precedes* physicality. Logically, therefore, the eventual loss of integrity of the physical body doesn't entail or imply that consciousness suffers the same fate; for consciousness is now understood to be *prior* to the physical body, not a product of it. Indeed, this picture of reality—grounded on decades of repeated and now exhaustively confirmed experimental results—entails that *it is the body that is in consciousness, not consciousness in the body*. After all, you have never become acquainted with this thing you call your body outside your own consciousness, have you? And if you think you have, you are conflating theoretical implications with actual acquaintance, a logical fallacy common enough in our day and age.

As a matter of fact, not only does the empirical evidence indicate the primacy of consciousness over physicality, but simple reasoning—when done rigorously—already shows that our mainstream, vulgar physicalist intuitions are incoherent: when looked at carefully, physicalism—the notion that physical entities are all there ultimately is—fails on all key post-enlightenment epistemic values: it is internally inconsistent (meaning that it contradicts itself), conceptually unparsimonious (meaning that it is not the simplest model to account for the facts), empirically inadequate (meaning that it cannot accommodate the evidence) and explanatorily weak (meaning that it doesn't make sense of observations).

Given all this, I contend that it is, strictly speaking, unnecessary to look to the paranormal for high-confidence validation of postmortem survival. Not that there is anything wrong with doing so, or that paranormal research is unreliable (often enough the contrary is the case); but given present-day cultural sensitivities and prejudices, I believe that an argument for postmortem survival based solely on rigorous reasoning and sufficiently replicated laboratory evidence—both of which

[2] Throughout this essay, what I mean by the word 'consciousness' is what is technically called 'phenomenal consciousness' in analytic philosophy: the ability to experience, without necessarily entailing higher-level mental functions such as introspective meta-cognition. Moreover, as is tradition in Western philosophy, I use the word 'mind' interchangeably with 'consciousness,' and thus also in the sense of phenomenal consciousness.

are *not* contested by the mainstream—is more likely to resonate. Moreover, once this argument is presented, evidence of phenomena currently regarded as 'paranormal' may be considered with less prejudice, since the argument lays a coherent theoretical foundation to accommodate said evidence.

Therefore, this essay shall deliberately overlook evidence of the paranormal and base its case completely on 'ordinary' laboratory results and reasoning informed by traditional Aristotelian logic. As the reader shall hopefully realize, this self-constrained approach is already more than sufficient to lead us—with a high degree of confidence—to vast new horizons regarding the possibility of postmortem survival.

The fallacy of our everyday intuitions

When we look around ourselves, we see a world of forms distributed across space and time. Automatically, and without critical reasoning, we assume that these forms—and the spatiotemporal extension that allows them to exist—are the forms of the world[3] *as it is in itself*. In other words, we think that the objects we perceive have standalone reality outside our perceptions; we think that they are indeed the objects that constitute the world in itself, not just inner representations of ours. To put it as simply as possible, we regard perception as a *transparent window into the world,* which reveals to us—perhaps with some but, at any rate, inconsequential distortion—the world as it truly is, outside perception.

I shall call this assumption 'perceptual realism': the notion that the forms displayed on the screen of perception are the forms of the world as it is in itself, outside and independently of perception. Mainstream physicalism is largely founded on perceptual realism, as the physicalist model presupposes isomorphism—i.e., direct correspondence of form—between what we empirically perceive and the standalone structure of the world. Without this presupposition, there would be little sense in stating e.g., that the world is material, for the properties that characterize

[3] Throughout this essay, when I say 'the world' I mean by it more than just planet Earth, but also the totality of our shared environment at a cosmological level.

materiality—such as size, shape, mass, etc.—are directly derived from, and grounded on, what is discerned through perception.[4]

But does this vulgarly intuitive assumption survive careful scrutiny? Do we have reasons to believe that nature would have equipped us with a transparent window into the world, revealing to us the world as it is in and of itself? What does modern science tell us in this regard?

Research done at the Institute of Neurology of the Wellcome Trust Center for Neuroimaging, in London, has shown mathematically that perception would be incompatible with life if it were akin to a transparent window [1, 2]. Here is a somewhat loose verbal paraphrase of the researchers' rigorous mathematical account: for perceptual realism to hold, our internal perceptual states would have to mirror the external states of the world. Indeed, such mirroring is the *definition* of perceptual realism. However, since there is no *a priori* upper bound to the dispersion of the world's states—i.e., our mere perceiving the world cannot constrain what the world is or does—mirroring them internally would mean that there cannot be an upper bound to the dispersion of our inner states either. Consequently, simply by looking at the world our inner states could become so disperse that our nervous system would dissolve into hot soup. This metaphorical imagery may sound exaggerated, but it captures the technical facts quite accurately: if perception mirrored the world, there would be no structural upper limit to our internal entropy and, therefore, no guarantee of our maintaining our structural integrity. Statistically speaking, perceiving would be very deadly business indeed. Like Perseus facing the Gorgon, we would be far better off keeping our eyes tightly shut.

Now, since living beings have been safely perceiving the world for about three and a half billion years, perception is *not* a transparent window, but *an encoded*

[4] It is true that, under mainstream physicalism, the real world, as it is in itself, has no intrinsic qualities: in it there supposedly are no colors, flavors, melodies, smells or textures. Under physicalism, these qualities are side-effects of brain activity and therefore reside entirely within our skull, not in the world outside. But the *contours* of the external world—still under mainstream physicalism—are assumed to be the same, *in principle*, as the contours displayed on the screen of perception. These contours can be fully characterized through abstract mathematical relationships—think of angles and distances—and thus be defined independently of qualities. The alleged absence of intrinsic qualities in the real world of physicalism simply means that the contours aren't 'filled in' with e.g., colors. This is how physicalism can be founded on perceptual realism without contradicting itself on this specific point.

representation of what is salient about the world instead; a kind of internal dashboard of instruments telling us what we need to know, but which *doesn't itself look anything like the world*. Indeed, it is precisely this latter fact that places an upper bound on our internal entropy and allows us to survive perceiving. Perception is a layer of indirection between us and the world as it is in itself: it tells us what we need to know to overcome the Gorgon, but without showing us the Gorgon as she actually is.

It is easy to gain felt intuition about all this. Imagine a pilot flying and airplane during a severe storm: it would be very difficult to fly safely under such circumstances if all the pilot had were a transparent windshield to see the storm; there would be just too much going on outside, too much confusion, too much dispersion to allow for safe flying. Instead, the pilot ignores the windshield and flies by instruments: the dials on his dashboard present, *at a glance*, an *encoded representation* of what is *relevant* about the storm outside. Yet, there is an upper bound to the state dispersion of the dials on the dashboard: the needles can move left or right, the numbers can vary within their assigned scales, but all these variations fall within predetermined limits. The dashboard is *designed* to prevent information dispersion overload, while presenting to the pilot what is salient about the world outside.

The possible configurations of a storm are virtually infinite: the number, shape, size and movements of the constituent clouds, the specific spatiotemporal patterns of rain drops and lightning distribution, etc. But the dashboard of dials encodes what is relevant about all those possible variations in a neat, compact form, which limits the dispersion of the data the pilot has to contend with: it presents the pilot with indications of relevant air pressure variations, wind speed and direction, etc., regardless of which *particular* pattern of cloud, rain and lightning behavior is unfolding outside. The airplane's flying manual doesn't have to tell the pilot what to do for each of the countless possible configurations of the world, but solely for each of the possible configurations *of measurements displayed on the dashboard*. The entropy of the world outside, as it is in itself, is unbound. But the entropy of the data the pilot has to work with is bound *by design*.

We are pilots and our dashboard is the screen of perception. Life is our flight through the storm. *We have no transparent windshield to contemplate the world as it is in itself;* for if we had one, we would have to face a more deadly kind of Gorgon: one that, instead of turning us into stone, melts us into a highly entropic soup. All we have are our sensors—our eyes, nose, tongue, ears and skin—whose measurement output is displayed on the dials of the screen of perception. Yet, just as an airplane's instrument panel looks nothing like the storm outside, so what appears on the screen of perception looks nothing like the world as it really is. Allow me to repeat this: by design, what we see is *not*—and *cannot* be—what we get. The world, as it is in and of itself, is not made of tables, chairs, mountains, moons, stars and what-not. For exactly the same reason that the storm is not made of dials, the world is not made of matter. *Matter is the dials, not the thing in itself.*

Indeed, our very conception of a world of objects distributed across space and time is but the paradigm of the dashboard: the paradigm of needles moving within dials, as they make measurements of what is going on outside. Space and time are the scales of the dials, not the objective scaffolding of the external world. The vulgar intuition underlying physicalism is thus fallacious: the world isn't made of material objects occupying space and time; the latter are just the representational conventions of our internal dashboard of instruments.

What gives us very high confidence in this conclusion is not only the mathematical rigor with which it has been derived; it's not even its self-evident validity once it's correctly understood; what really gives us confidence in it is that *the exact same conclusion has been derived from an entirely different and independent line of argument*. Indeed, when independent and seemingly unrelated streams of thought converge to the same destination, we are justified to feel particularly confident about the corresponding conclusions.

And so it is that Prof. Donald Hoffman and his team at the University of California, reasoning from the perspective of evolutionary theory (as opposed to thermodynamics), have proven mathematically that evolution by natural selection drives perceptual realism swiftly to extinction [3, 4, 5, 6]. And just like before, while the mathematics may seem arcane, the conclusion is self-evident once correctly

understood: perceptual realism would overwhelm us with survival-irrelevant data and be detrimental to our ability to react timely to environmental challenges.

To demonstrate this, Prof. Hoffman uses a computer desktop metaphor, which is largely equivalent to the instrument dashboard metaphor I used above: on your computer desktop, the file corresponding to, say, this essay is represented by a colored rectangle. But is a colored rectangle what the file *really* is? Well, of course not. A computer file is a vast pattern of open and closed microscopic switches in a silicon chip; it looks absolutely nothing like a colored rectangle. But would it be efficient—even merely useful—for you to see the file as it *really* is when using your computer? Surely not, for having to discern which file you need by decoding a pattern of millions of open and closed microscopic silicon switches would be literally mind-boggling; it would guarantee that you cannot use a computer. Therefore, the desktop metaphor used by a computer's operating system aims at telling you solely what is *relevant* about the files, in a way that *encodes* the relevant information according to a *structured, entropy-limiting paradigm*—namely, the desktop paradigm.

Hoffman's team has proven that evolution will always seek to do the same: instead of showing us the world as it truly is—i.e., the millions of microscopic switches in our analogy—it presents us with a 'desktop metaphor' of the world, a 'virtual reality headset' or 'user-interface' that sits in between us and the world. What we call the physical universe is merely this user-interface, this virtual reality headset. The world, as it is in and of itself, is neither material nor framed by an objective spacetime scaffolding.

Although these recent results are immensely important, in that they have provided us with a level of conceptual clarity and mathematical certainty that wasn't available before, the conclusions themselves are nothing new. Already in the late 18th and early 19th centuries, Immanuel Kant and Arthur Schopenhauer maintained that what we ordinarily refer to as 'matter' is merely an internal cognitive representation of ours, not the substance of reality [7, 8]. Both also maintained that space and time are categories of perception, not an objective empty box where nature places itself in. Moreover, according to Schopenhauer [8], even Plato himself, two and a half thousand years ago, already had this insight. Clearly, thus, perceptual realism—a key

foundation of physicalism—has been known by careful thinkers to be a naïve and fallacious notion since the inception of Western thought.

The implications of this insight to the question of postmortem survival are as self-evident as they are inevitable: if spacetime and matter are off the table as fundamental aspects of reality—for now they are understood to be merely cognitive representations *in human consciousness*—the notion that the loss of *spatial* integrity of the *material* body at the *time* of death implies the end of consciousness loses whatever couching in logic it might otherwise have. The most we can say is that death is an event *in consciousness*: in the consciousness of the dying and of those observing the dying process and its aftermath. Any extrapolation beyond this is logically unfounded, regardless of how tempting it might be from a culture-bound perspective.

More generally speaking, the assumption that bodily death indicates the end of consciousness is culturally nurtured by mainstream physicalism, a metaphysics that ties consciousness to the function of living brains. Therefore, an important next step in my argument for postmortem survival is to show the logical and empirical untenability of mainstream physicalism, so we can get that out of the way and explore more promising theoretical landscapes later on.

The internal contradictions of mainstream physicalism

Although largely founded on a form of perceptual realism, mainstream physicalism entails more: according to it, not only is the world made of a substance—matter or physicality—outside and independent of consciousness, but particular arrangements of that substance—such as living brains—also somehow *generate* consciousness (or at least an 'illusion of consciousness,' as if such an idea were coherent at all). Is perceptual realism then the only error underlying mainstream physicalism? Not quite.

Physicalists start from where we all start: from our *qualitative experience* of the world around us, with its colors, tones, flavors, smells and textures. They then realize—quite correctly—that it is useful to *describe* these qualities in *quantitative* terms. This way,

if one tells me that a piece of luggage weighs 50 pounds, instead of 5, I will know what qualitative experience to expect if I try to lift the piece of luggage. The convenience of quantitative descriptions is quite general: we describe distances in yards, colors in Hertz, sounds in decibels, etc., all to very useful practical effect. Moreover, in describing nature in quantitative terms we can successfully *predict* nature's future behavior by plugging the respective quantities into mathematical models. This, in fact, is the very basis of engineering and technology.

So far so good.

But then something very strange happens: physicalists start taking the descriptions for the thing described, the map for the territory. They seemingly forget that the numbers come *after* the qualities, merely as a handy way to describe relative qualitative differences, and—bizarrely—postulate that the numbers are the things in themselves! They conceptually define what we colloquially call 'matter' as an entity that can be exhaustively described in quantitative terms alone, even though what we ordinarily refer to as 'matter' is eminently qualitative (think of the feeling of carrying weight, the quality of seeing a color, the loudness of a sound, etc.). In other words, physicalists maintain that one can say *everything* there is to say about matter if one provides a sufficiently long list of numbers; no qualities are needed.

Perhaps even more strangely, having divorced matter from all qualities *by definition*, physicalists then proceed to try to explain all qualities in terms of... well, matter. They maintain that experiential qualities—which philosophers technically call '*qualia*'—are somehow generated by the particular structure and function of biological nervous systems, even though these nervous systems—by the physicalists' own account—are entirely incommensurable with qualities. The result is what today is called the 'hard problem of consciousness' [9, 10]: there is nothing about physical parameters—i.e., quantities—in terms of which one could deduce the qualities of experience. Is this really a problem to be solved, or merely a glaring internal contradiction of sophomoric reasoning? Is the fact that one fails to pull the territory out of the map a problem to be solved by future, improved versions of the map and the process of pulling, or does it merely show that the very attempt is stupid, and one needs to revise one's way of thinking about maps and territories?

Physicalism attempts to explain consciousness in terms of an abstraction *of* consciousness, *in* consciousness: all we are ever acquainted with are the qualities of experience, such as the colors we see, the sounds we hear, the textures we feel, the hurt of heartbreak, the bitterness of disappointment, the warmth of love, the fire of passion. As such, matter—as *conceptually* defined under mainstream physicalism—is but a theoretical abstraction of and in mind, not an empirical fact. We never become directly acquainted with purely quantitative matter, for we are always cooped up in qualitative consciousness. Yet, physicalism postulates that consciousness is reducible to this theoretical abstraction *of* consciousness, a circularity that, unsurprisingly, leads to internal contradictions such as the 'hard problem of consciousness.'

Notice that I am not denying that which we colloquially refer to as 'matter,' i.e., the contents of perception. These things we perceive and then call 'material' objects undeniably exist *as contents of perception*. Only a fool would deny that. What I am questioning is physicalism's *conceptual, theoretical definition* of matter as a substance outside and independent of consciousness.

Even if such a definition didn't lead to internal contradictions, it would still be a highly questionable theoretical move insofar as we can make sense of the world *without* it. For matter is an *extra* ontological category beyond the one given—namely, consciousness. The latter is the sole undeniable fact of existence, the one ontological category we are directly acquainted with before we start theorizing. Therefore, if we can successfully model nature using consciousness alone—not *your* consciousness alone, or *my* consciousness alone, or even the consciousnesses of all living beings put together, but consciousness as a 'substance,' a *type of existent*, which the Greeks called '*Oussia*' (Ουσία)—then matter becomes an inflationary postulate that must be discarded on the basis of Occam's Razor.

This may be subtle, but it is nonetheless important as a matter of principle. Admittedly, there is nothing etched in stone in nature proclaiming that the correct explanations are always the simplest ones. But if we neglect Occam's Razor, we will open the door to all kinds of nonsense. For instance, nobody can *prove* that the laws of physics aren't enforced by the Flying Spaghetti Monster manipulating physical

events, from a higher dimension, with its noodly appendages. But we don't consider the Flying Spaghetti Monster a plausible theory of reality because it is *conceptually inflationary;* it postulates more than what we need to make sense of things. By exactly the same token, if there is a successful theory of reality that requires consciousness alone as '*Oussia*'—and, as I shall soon discuss, there is a hole family of such theories—then physicalism isn't a plausible alternative. Physicalists cannot appeal to parsimony to refute the Flying Spaghetti Monsters promoted at the fringes of our culture, and then turn around and disregard parsimony to safeguard their own views. This may ultimately be a moot point—as the internal contradictions of mainstream physicalism are already sufficient to render it untenable, irrespective of parsimony considerations—but the *principle* underlying it is important enough to be mentioned here.

Strictly speaking, the internal contradictions of mainstream physicalism are more than enough for any reasonable person to abandon mainstream physicalism altogether. But it would also be naïve of me to ignore the cultural momentum physicalism has accumulated, with the sense of plausibility that it artificially manufactures. I shall thus make a concession to the reader's presumed expectation that I provide more than just a logical argument. I shall present and discuss solid empirical evidence that contradicts physicalism. For, as it turns out, there is plenty of such evidence in mainstream science. Nonetheless, my discussing it below should not be construed as an admission, on my part, that anything more than clear logical reasoning is necessary to falsify physicalism definitively.

Physical realism has been empirically falsified

Another key assumption of mainstream physicalism is *physical realism*: fundamental physical entities, be them invisible fields or abstract elementary subatomic particles, must have *standalone existence*. In other words, physical entities must exist in and of themselves and not be dependent on anything nonphysical to exist. This is so because physicalism postulates that physical entities are the bottom level of reality, the so-called ontological primitives, the things at the

very end of the chain of reduction. If it turns out that these physical entities depend on something else nonphysical to exist, then physicalism is false.

So, do physical entities have standalone existence, insofar as modern science can determine? The answer is 'no': from a series of experiments that started in the late 1970s and have been refined and replicated for over 40 years, we now know that physical entities do *not* have standalone existence, but are instead an *image*, an *appearance*, a *representation* of a deeper layer of reality, which is itself nonphysical by definition.[5] The only alternative to this conclusion is to postulate—in a far more extreme and implausible version of the Flying Spaghetti Monster—that countless bazillions of real physical universes pop into existence every unimaginably tiny fraction of a femtosecond, for which we have precisely zero empirical evidence.

Let us look more closely at this remarkable series of experiments and discuss why they refute physical realism. The experimental procedure is the following: two subatomic particles are generated together, so that they are 'entangled.' Entanglement is physics jargon for saying that the particles become interrelated in such a way that their behavior cannot be described independently of one another. The particles are then shot in different directions at (near) the speed of light and, after a certain distance is covered, measurements are done on both particles, separately but concurrently. What then transpires is that the choice of what to measure about one particle determines the result of measuring the other. How can this be? How can the choice of what to observe determine what a particle *is*? Shouldn't observation merely *reveal* what a particle already was, in and of itself, regardless of what is observed about it?

This result is extremely counterintuitive from a physicalist perspective. If the two particles were *real* in the sense of having standalone existence, then their measurable properties would be whatever they are regardless of what one chooses to measure about them. Take a table, for instance: it seems to have a certain mass, height and length regardless of what is being measured about it. If it weighs 40 pounds, then it will still weight 40 pounds when it's not sitting on a weighing scale—

[5] By definition in the sense that what we define as physicality is the appearance, the image of something else. That something else is then, by the very definition of physicality, not physical.

or so we like to think. Measurements supposedly *reveal* something that was already the case about the table immediately before the measurement was done, not determine it. If mainstream physicalism were true, the same should apply to the subatomic particles in our experiment: measurement should simply reveal the properties the particles already had, in and of themselves, immediately prior to measurement.

Experimentally, however, what we see is that the properties of one particle depend on what we choose to observe about the other. It is as though the particles' properties didn't have standalone existence but were, instead, created *by the very act of measurement*. As a matter of fact, since there is nothing about a physical particle but its measurable physical properties, it is as though *the particles themselves didn't exist* unless and until they are measured. This, of course, is incompatible with the physicalist notion that elementary subatomic particles (or their respective quantum fields) are things in themselves, not just appearances, representations or images of a deeper layer of reality.

The first well-known experiments in this 40-year-long series were those performed by Alain Aspect and his team in the early 1980s [11, 12, 13]. Since their results contradicted physicalist expectations, physicists at the time came up with a long list of possible experimental loopholes that, if true, would throw doubt on the experiments' conclusions and perhaps save physical realism. Over the years, these hypothetical loopholes became increasingly implausible to the point of sounding fantastic. For instance, some physicists speculated that the particles could somehow be secretly exchanging information with one another, so as to synchronize their behavior. This would, in principle, account for the observed correlations between the measurements of the two particles while preserving physical realism. It has also been speculated that the measurement devices themselves could somehow be tipping each other off, so as to create the measurement correlations in a kind of conspiratorial manner. Perhaps the most bizarre of the proposed loopholes has been that there is some undetectable but real physical entity 'smeared across' all spacetime, which is capable of *instantaneously* synchronizing the measurements without relativistic limitations (needless to say, there is precisely zero direct

evidence for this postulated entity, technically called a 'global hidden variable').[6] Never mind that these hypothetical loopholes, if true, would themselves create even more problems for both physics and physicalism; at least they would avoid the immediate conclusion that physical entities do not have standalone existence and, thereby, safeguard a physicalist way of thinking.

A whole series of experiments then began in earnest to attempt to close the loopholes and decide, once and for all, if the original conclusions were really correct [14, 15, 16, 17, 18]. The most remarkable in the series were experiments done in 2015 and 2018 [19, 20], which were celebrated by the popular science press as having closed all the loopholes [21]. Needless to say, the results were the same as the original experiments: physical properties do not exist unless and until they are measured. In the words of renowned physicist Anton Zeilinger, "there is no sense in assuming that what we do not measure about a system has [an independent] reality" [22]. Physicality has no standalone existence.

Strictly speaking, it can be argued that what some of the experiments refute is not physical realism *per se*, but the combination of physical realism with locality. The latter is the notion that physical influences cannot propagate faster than the speed of light. Therefore—the argument goes—perhaps physical realism is still true, and it is just locality that we have to abandon: the universe may be a relativity-transcending integrated hole at its deepest level.

The problem is that some of the experiments were constructed precisely to test physical realism *in isolation*, irrespective of locality [e.g., 23, 24, 25, 26]. And they, too, refuted physical realism empirically. As a result, the science press went as far as to proclaim that "Quantum physics says goodbye to reality" [27], "the unreality of the quantum world" [21] and even that "reality is what you make of it" [22]. Alas, mainstream science journalism today doesn't seem capable of conceiving of anything that is *both* objectively real *and* nonphysical. Even if the physical is not

[6] I am not providing references to these loophole claims at this point because the claims are expounded at length in the technical literature of the experiments designed to close the loopholes, as referenced below.

ultimately real, something else clearly *is*, for the chain of reduction must end with something that exists in and of itself.

The surviving interpretation of the experimental results that could, in principle, still preserve physical realism is called 'Bohmian Mechanics' [28, 29]. Alas for physicalists, this interpretation is plagued by a number of other problems. For instance, unlike regular Quantum Mechanics with its Quantum Field Theory extensions, Bohmian Mechanics has no relativistic version and, thus, cannot be true. Physicists Raymond Streater and Luboš Motl are on record reviewing this and other compelling technical arguments against Bohmian Mechanics [30, 31]. Finally, recent experiments have refuted the interpretation empirically, driving the final nail into its coffin [32].

As two renowned physicists, along with myself, have discussed on *Scientific American* [33, 34, 35, 36]—perhaps the world's most respected popular science magazine—the options left on the table are quite clear. Either one has to adopt what is arguably the most inflationary and implausible theoretical hypothesis conceivable to physics—namely, that countless new physical universes pop into existence every fraction of a moment, for which we have precisely *zero* empirical evidence, and wherein everything that can physically happen actually *does*[7]—or we have to accept that physical reality is but an image, an appearance, a representation of a deeper, by definition nonphysical layer of reality. In other words, *the physical world is but the dashboard of perception, not the real world as it is in itself*.

Indeed, it is remarkable to realize how well the completely independent lines of evidence we've reviewed thus far converge: the world we see is not the final layer of reality. Kant and Schopenhauer were right. Physicality is akin to dials on our internal dashboard of instruments.[8] Therefore, it only comes into existence when a

[7] The idea here is that, since every physical possibility allegedly *does* happen in one of these countless bazillions of physical universes, we just happen to live in the one wherein the particular measurement correlations we observe take place.

[8] Thoughtful physicists acknowledge without hesitation that physics is a science of *perception*, not of the world as it is in itself, for we have no access to the latter. Even when we use instruments such as telescopes and microscopes, we are still limited to perception, for we must *perceive* the output of such instruments. Here is how renowned physicist Andrei Linde, famous for his seminal theory of cosmological inflation, put it: "our knowledge of the world begins not with matter but with perceptions … Later we find out that our perceptions obey some laws, which can be most conveniently formulated if we assume that there is some underlying reality beyond our perceptions … This assumption is almost as natural (and maybe as false) as our previous assumption that space is only a mathematical tool for the description of matter." [37, p. 12]

measurement is actually performed on the *real*, nonphysical world surrounding us. Without observation, there is no physicality, for without a measurement the needles in the dials don't move and nothing is registered. That's why physical properties only come into existence upon being measured: the needles in the dials only move when the attached sensors probe the environment; prior to this probing, nothing is shown on the dashboard, even though the *real* world out there continues to exist. How could things be clearer or more sensible?

Again, physical properties only come into existence upon measurement because physicality *is* the result of measurement, just as the movement of the needles in the dials on a dashboard is the result of probing the real world outside. This conclusion is so natural, so self-evidently rational and empirically inevitable that the dogged resistance against it from the likes of physicist Sean Carrol—who insists on the equivalent of the Flying Spaghetti Monster in modern physics[9]—is baffling. Is it really so incredible that physicality is just the result of our observing our environment? That it is merely an encoded appearance, a representation, an image of a deeper, by definition nonphysical layer of reality to which we have no direct access because we would otherwise die?

The dashboard hypothesis can even make straightforward sense of the correlations between measurements of two distant entangled particles, as discussed above. These correlations are only puzzling if we assume that the particles have standalone existence, not if they are mere images. To see this, consider the following analogy: imagine that you are watching a football match at home. Because you are such a great fan of football, you bought two large TVs to follow the same match, simultaneously, on two different channels. Imagine also that the two different broadcasters have their own cameras in the stadium, so each channel shows *different* images of *the same* match. And you watch the two different images side by side.

Now, obviously, the two images will be entirely correlated with one another, for they are images of the same match, of the same underlying reality. The images have no standalone existence, only the football match at the stadium—the thing in itself—has.

[9] I am being charitable here.

Nonetheless, the images will also be different, for they are produced by different cameras and camera angles. Is this in any sense counterintuitive or difficult to understand?

However, if you were a time traveler from the 19th century and didn't understand how TVs work, you would conceivably be flabbergasted by the correlations between the two images: how can the real little men running around inside the two TVs behave in such an instantly synchronized, perfectly correlated manner? How can that happen even when the TVs are totally isolated from one another, and no signal can be transmitted from one to the other? Magic!

Of course, the source of this puzzlement is the unexamined and arbitrary assumption, by our time traveler, that the images aren't actually images, *but the things in themselves*. If you think that there are real little men, with standalone existence, running around inside the two TV sets, the correlation of their behavior across the sets, when no signal is transmitted between them, would seem magical indeed. And this is precisely the mistake we make when it comes to the physical experiments being discussed here: we think of the particles as things in themselves, not mere images of a deeper, nonphysical layer of reality. If we understood and accepted the latter, the experiments wouldn't seem magical at all. But instead, we insist on thinking like 19th-century people in face of 21st-century experimental evidence.

Educated but non-specialist readers could contend that these experimental results are only applicable to the microscopic scale of elementary subatomic particles, and that the conclusions cannot be extrapolated to the world of tables and chairs wherein we live. But most physicists know very well that this is a naïve and invalid point. Although there are undeniable operational differences between the behavior of the world of tables and chairs and that of isolated microscopic quantum systems, these differences are *per force* merely epiphenomenal. After all, macroscopic objects and events are just compound results of microscopic dynamics. To quote renowned physicist Erich Joos, a

> method for sweeping the interpretive problems under the carpet is simply to assume, or rather postulate, that quantum theory is only a

> theory of micro-objects, whereas in the macroscopic realm per decree (or should I say wishful thinking?) a classical description has to be valid. Such an approach leads to the endlessly discussed paradoxes of quantum theory. These paradoxes only arise because this particular approach is conceptually inconsistent ... In addition, micro- and macro-objects are so strongly dynamically coupled that we do not even know where the boundary between the two supposed realms could possibly be found. For these reasons it seems obvious that there is no boundary. [38, pp. 74-75]

Joos goes on to say, "whichever interpretation [of Quantum Mechanics] one prefers, the classical world view has been ruled out" [38, p. 76]. There is no actual boundary between the microscopic and the macroscopic. The distinction between the two is arbitrary, nominal, motivated by convenience and purely epistemic. Our everyday world is quantum.

Admittedly, there are experts in foundations of physics that are both (a) reluctant to acknowledge the refutation of physical realism and (b) unable to muster the faith required to follow Sean Carrol into the many-worlds interpretation of the experimental results. What do *they* then make of the results?

A representative case is perhaps that of renowned physicist Carlo Rovelli. For 25 years Rovelli has been on record denying the standalone existence of all physical observables [39]. His interpretation—called 'Relational Quantum Mechanics'—is entirely consistent with the dashboard metaphor discussed above: according to it, all physical observables are *relational*, just like movement. The inevitable implication is that all physical quantities are mere representations of some underlying, absolute dynamics, just like the movement of dials on a dashboard is a representation of the dynamics of the outside world.

Rovelli himself explicitly uses movement as an example of what he means by relationality: if you are sitting inside a high-speed train, in relation to the train you are not moving. But in relation to someone standing on a platform you are moving at high-speed. So movement is not absolute; it doesn't have existence in and of itself, but depends instead on the things *that* move. After all, there is nothing to movement

but things in movement. In this sense, according to Rovelli all physical quantities are akin to movement.

So far so good for, again, this is entirely consistent with the dashboard metaphor: the dials' indications are also relational, not absolute, for they depend—for their very existence—on the relationships between sensors and the properties of the world outside. The dials aren't the world in itself, but the result of an observation of the world.

But Rovelli's view immediately raises a critical philosophical qualm: if physicality is relative, then what is it relative *to*? If everything is akin to movement, then what is it that is moving so to give rise to physicality? What is the absolute world that underlies the relational world of physics?

After 25 years expressly avoiding this philosophical qualm, Rovelli has decided to finally bite the bullet and publish his answer [40]. His proposal is unexpected, though probably not in the way he intended: instead of acknowledging that Relational Quantum Mechanics *implies* that there is a nonphysical layer of reality underlying the physical, he maintains that it's turtles... err, relations all the way down! According to him, there are *only* relations. And since relations are physical, there is then only physicality.

But if relations are all there is, then physical quantities can only be relations across meta-relations (for there is nothing else that can be relating); and meta-relations are relations across meta-meta-relations; and so on. The fallacy of infinite regress is upon us, and it isn't even disguised by some theoretical subtlety.

Worse yet, there is no *meaning*—in a straightforward semantic sense—to saying that there are *only* relations. It's like saying that there is only movement, but nothing that moves. This is something one can write in words in a way that satisfies all grammatical and syntactical rules, but which lacks all semantic content. It literally means *nothing*. It's akin to saying that the Cheshire Cat's grin stays behind after the cat itself disappears. Lewis Carrol wrote this to great literary effect, which he got away with because we all understand it to be a metaphor. But Rovelli means it literally.

Surely there is more to Rovelli's argument than this, right? Well, having made his case for Relational Quantum Mechanics in an explicit, unambiguous and strictly scientific manner, at a crucial juncture Rovelli suddenly changes tack altogether and appeals instead to 3rd-century Indian mystic Nāgārjuna. Such an arbitrary pivoting away from science would be suspicious enough, but it gets worse. According to Rovelli's read of Nāgārjuna, the ultimate essence of reality is *emptiness*, in a literal sense. In other words, there is *nothing going on right now* (not just no-thing,[10] which is what Nāgārjuna probably meant, but *literally* nothing). That there obviously *is* something going on—for even if life is entirely illusory, illusions are not nothing—doesn't seem to bother Rovelli. Moreover, even if Nāgārjuna did mean what Rovelli thinks he did, merely referring to Nāgārjuna doesn't exempt Rovelli from having to make explicit, *rational* sense of the empirically absurd statement that nothing exists. For again, even if the world is an illusion, *something* is having the illusion.

It's precisely the absurd claim that reality is essentially nothing that gives Rovelli an excuse to reconcile 'movement' with the absence of anything that 'moves.' But at what cost? Adding two absurdities together doesn't magically erase them; it just compounds them. Why would Rovelli even attempt such a move? Only he, of course, can answer this question, but he is open about the *subjective* motivation behind his appeal to Nāgārjuna: he describes how relieved he was upon reading the Indian sage, because it freed him from the pressure of having to find out what the underlying essence of reality is.

I find this extraordinarily interesting from a psychocultural point of view. Here we have a leading champion of the enlightenment values—conceptual clarity, explicit reasoning, explanatory closure, empirical grounding, etc.—suddenly resorting, at the critical juncture of his argument, to a vague, ambiguous, handwaving appeal to another man's introspective insights more than 17 centuries ago, so as to avoid a conclusion he dislikes. Rovelli prefers to say that reality is *nothing*—regardless of how silly this claim is from a rational, scientific perspective—instead of something nonphysical. Who would have guessed that, to save physicalism, renowned scientists

[10] No-thing in the sense of no objects separate from, or outside, the subject of experience; no substance in the sense of no *objective* substance, as opposed to a field of pure subjectivity.

would resort to mystics? Fantastically, we now find ourselves in a situation wherein people like me argue for postmortem survival based purely on mainstream science and reason, while people like Rovelli defend physicalism based on vague appeals to centuries-old mystical writings. Oh, the irony.

I shall close this section with a prediction. Confronted with the self-evident untenability of his case, Rovelli and others will eventually propose an entirely abstract but allegedly absolute 'something' to underly the physical world; something that could only be said to exist by virtue of ostensibly corresponding to some convenient, overdetermining mathematical equation. They will then insist that this purely abstract something—lacking any direct empirical evidence—is *physical*, despite its intrinsically not having *any* of the properties we associate with physicality, such as mass, charge, spin, momentum, etc. There will be an overt, unashamed attempt to preserve physicalism by mere *word redefinition*. In other words, whatever reality turns out to be, they will wrap an overdetermining equation around it and call it 'physical,' so that physicalism is true by definition. If you think this would be too obvious a charade, watch carefully. It won't even be malicious, but driven instead by unexamined—yet irresistible—subjective belief.

Correlations between brain activity and experience contradict physicalism

According to physicalists, it's the particular structure and dynamics of matter inside our skulls—i.e., our brain activity—that somehow *is* or *generates* consciousness. Their position is based on reliable correlations between patterns of brain activity and inner experience. Indeed, that these correlations exist doesn't even require scientific equipment to be determined: alcohol in the blood stream and trauma to the head have obvious correlates in inner experience. Physicalists then construe these correlations as instances of *causation:* specific patterns of brain activity are thought to be or generate inner experience.

There is now growing neuroimaging literature substantiating this point. For instance, neuroscientists have identified specific patterns of neuronal activation that correspond to subjects dreaming of clenching their hand [41, 42]. The dream

experience of clenching one's hand is then construed to be, or be generated by, those patterns of activation.

Similarly, neuroscientists can determine, based purely on brain activity scans, whether a subject is dreaming of something as boring as looking at a statue [43, 44]. Even this boring experience correlates with enough brain activation to be recognized from functional brain scans alone, without the subject having to report it.

If the physicalist hypothesis is correct, we would expect *all* experiences to correlate with specific patterns of neuronal *activation*, just like the ones discussed above. After all, an entirely non-active brain is a dead brain, which presumably doesn't generate any experience. Moreover, as we have just seen, many experiences correlate so well with brain activation that they can be identified based solely on scans of the latter.

The problem is that there is a broad, diverse, consistent and *repeatable* pattern of brain activity *impairments* or *reductions* that correlate precisely with *richer*, *more intense* experience. If experience were, or were generated by, brain activity, then how could we get *more* experience out of *less* brain activity?

For instance, up until 2012 neuroscience and most lay physicalists had always assumed that psychedelics generate immensely rich and intense experiences—which subjects report as ranking among the top 5 most significant experiences of their lives [45, 46]—by lighting up the brain like a Christmas tree. That's why, when researchers realized that psilocybin (the active ingredient of magic mushrooms) in fact *only reduces activity throughout the brain*, without increasing it anywhere (see Figure 1) [47], the neuroscience community was surprised [48].

Since that seminal study, the results have been consistently replicated for most other psychedelic substances [49, 50, 51, 52]. In all cases, the physiological effect of the psychedelic is to reduce brain activity, particularly in the so-called 'default mode network,' which is correlated with our ego or sense of individual identity (see Figures 2 and 3). The phenomenological effect, on the other hand, is one of the richest and most intense experiences a human being can possibly have. If one's brain is effectively going to sleep during those experiences, where are the experiences then coming from?

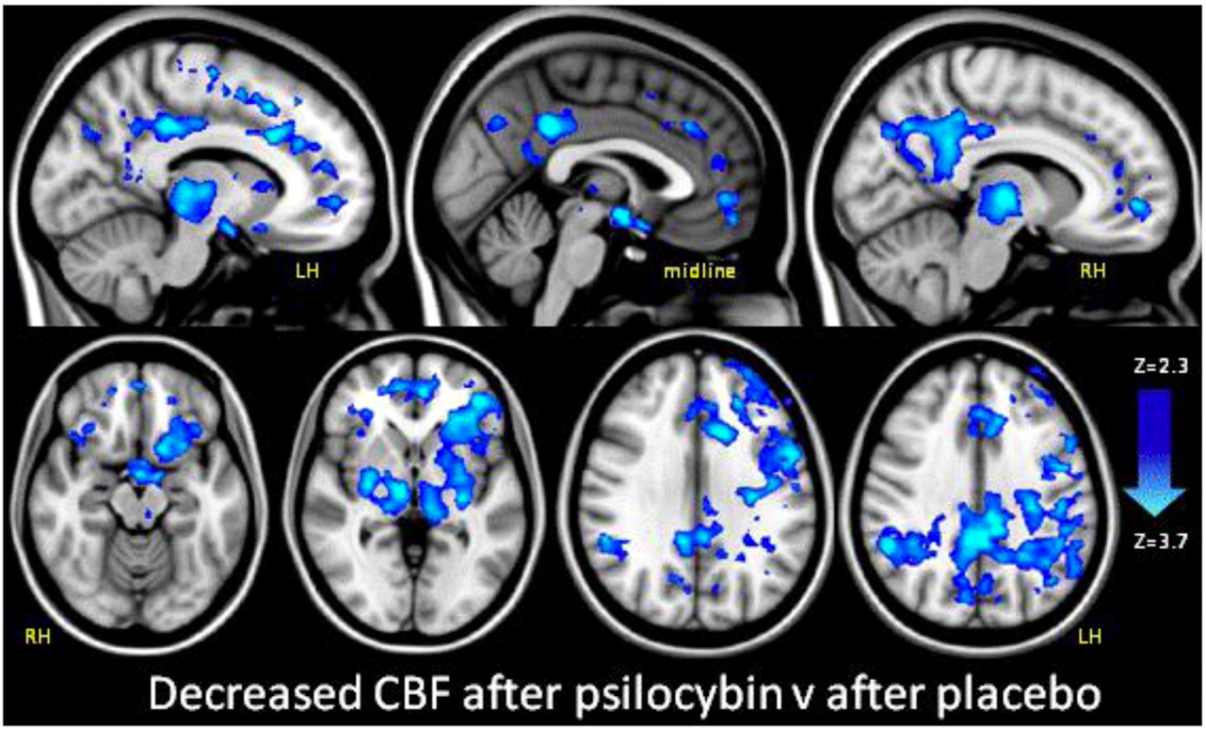

Figure 1. In blue, brain regions with decreased Cerebral Blood Flow (CBF, a proxy of brain activity) under the effect of psilocybin. Image source: *Proceedings of the National Academy of Sciences of the USA*, Vol. 109, No. 6. Copyright © 2012 by the National Academy of Sciences (NAS) of the USA. Re-use permission for noncommercial and educational purposes is not required by the NAS.

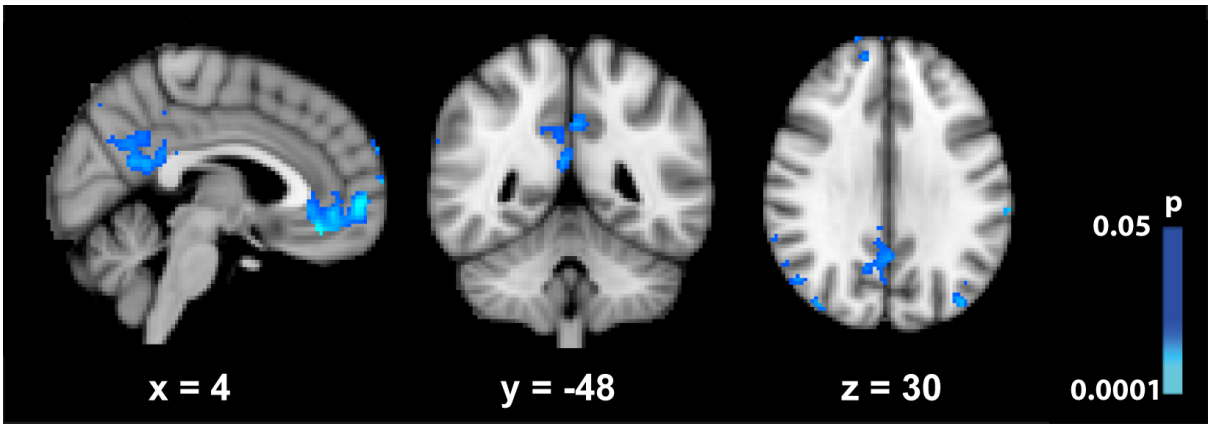

Figure 2. In blue, reductions on brain activity in the default mode network (associated with the executive ego) induced by the psychedelic brew Ayahuasca. Source: *PLoS ONE* 10(2): e0118143. Reproduced here under a Creative Commons Attribution License.

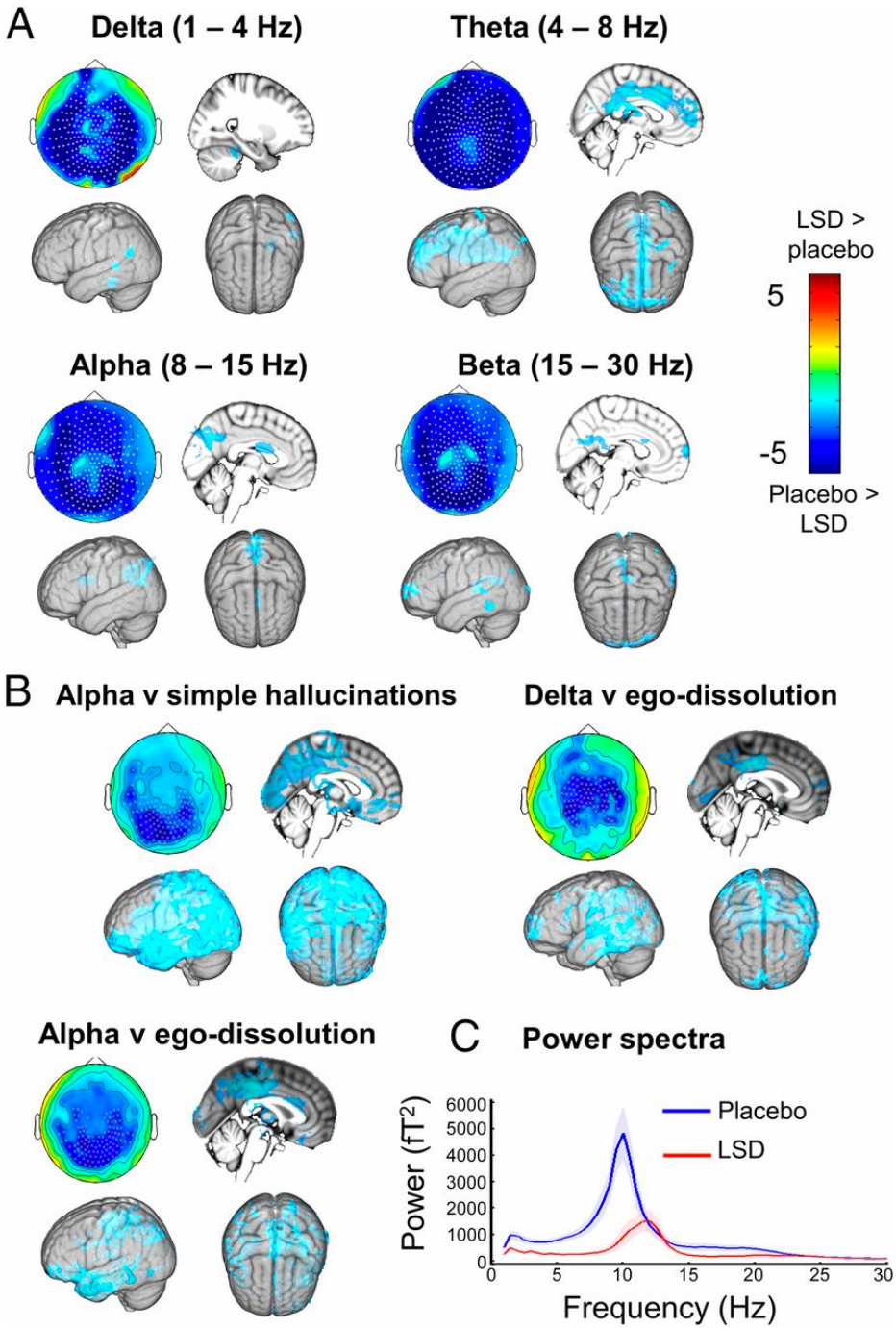

Figure 3. LSD effect on the brain. A and B: in blue, brain regions with decreased activity in the respective frequency band. C: reduced overall power signal of brain activity under LSD, across the spectrum. Source: *Proceedings of the National Academy of Sciences of the USA*, Vol. 113, No. 17. Copyright © 2016 by the National Academy of Sciences (NAS) of the USA. Re-use permission for noncommercial and educational purposes is not required by the NAS.

No established worldview, regardless of how silly, ever accepts evidence against it without putting up a fight [53]. And so it is that the neuroscience community and its

funders have mobilized to levels never before seen, so as to find *something* in brain physiology—some *physical* parameter of brain dynamics—that *increases* in the psychedelic state [54]. The best-known result of that effort, which has attracted the most consensus among physicalists, is the so-called 'entropic brain hypothesis' [55].

According to this hypothesis, a physiological parameter the researchers variously refer to as 'entropy,' 'complexity' or 'diversity' is shown to increase in a statistically significant manner in the psychedelic state. The not-always-explicit but ubiquitous and conspicuous suggestion is that this increase accounts for the phenomenology of the psychedelic state, thereby safeguarding mainstream physicalism.

But if we dig a little deeper into the technical material, things aren't as they seem. For starters, what the researchers portentously call 'complexity,' 'diversity' or 'entropy' is just *noise*; they are talking about unstructured, incoherent brain activity that forms no discernible pattern. The suggestion that an increase in brain noise accounts for the highly structured and coherent phenomenology of the psychedelic state seems highly implausible. No one who has undergone a true psychedelic experience would describe it as noise or brain fog. Trip reports contain sharp and highly coherent narratives and insights [56, 57].

Second, if we look at the size of the effect reported, we realize that it is *minuscule*.[11] See Figure 4. We are talking here of an average increase in noise level of about 0.005 in a scale of 0 to 100! See the graph scales in Figure 4. To suggest that such a minuscule increase in noise accounts for the literally mindboggling intensity and richness of the psychedelic experience, under physicalist premises, requires a complete abandonment of any notion of plausibility. It is embarrassing. Moreover, in several of the cases studied, noise levels actually *decreased* in the psychedelic state, although the subjects still did have the experience. What caused the experience in those cases? It couldn't have been an increase in brain noise.

[11] The researchers' claim that the effect is *statistically significant* doesn't contradict the fact that it is minuscule. Although there is much debate today about the arbitrariness of the statistical significance threshold—and the recognition that it is leading to all kinds of spurious conclusions [58, 59, 60]—I am prepared to grant, for the sake of the discussion, that the effect in question is statistically significant. But this only shows that the effect *exists*, not that it is anything more than minuscule.

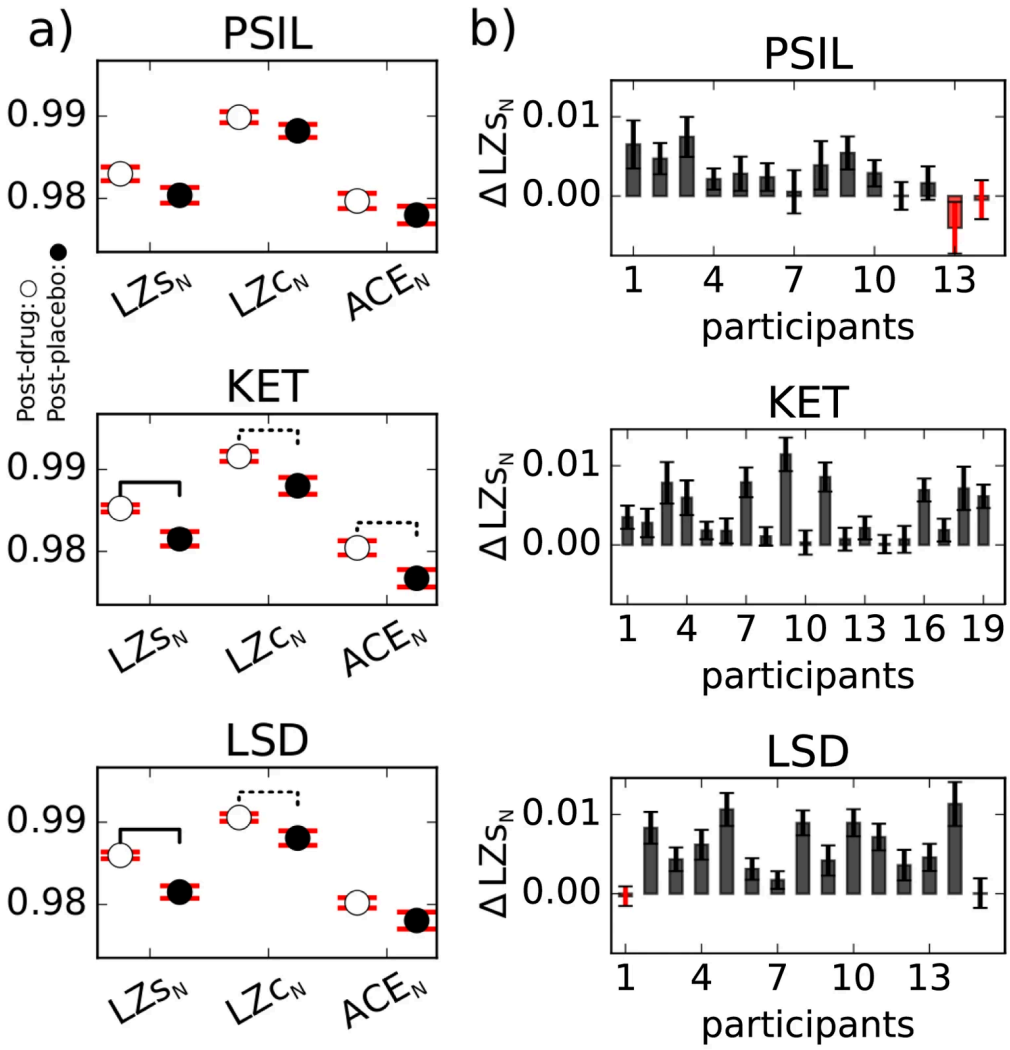

Figure 4. Tiny increases in noise in the brain of subjects undergoing a psychedelic experience. Top: psilocybin. Middle: ketamine. Bottom: LSD. Source: *Scientific Reports*, volume 7, article number: 46421 (2017). Reproduced here under the Creative Commons Attribution 4.0 International License.

Third, an appeal to levels of noise to account for the psychedelic experience contradicts the entire body of work that correlates experience with increases in *activity* level, not noise. Can there be two correct but completely different and mutually incompatible physiological accounts of consciousness? Is it coherent to maintain that, in the psychedelic state, experience is generated by noise levels in a brain that is effectively asleep, while in all ordinary cases experience is generated by brain activation levels?

Dreams are analogous to the psychedelic state in that the experience is endogenous. Yet, during dreams, experience correlates with clear patterns of brain activation, not inactivation accompanied by minuscule increases in noise levels. As we have seen, when subjects dream of something as boring as looking at a statue, or clenching a hand, neuroscientists can discern enough brain activation to correctly guess the dream content. But when someone travels to 'other dimensions' and meets 'unearthly beings' under psychedelics [57], *no activations* are to be found; on the contrary: the subject's brain effectively goes to sleep. How can this *not* be interpreted as directly contradicting mainstream physicalism? Physicalists cannot have a different and incompatible account of consciousness for each class of evidence, otherwise their view becomes unfalsifiable.

It is quite safe to say that the psychedelic experience is *not* generated by minuscule increases of—of all things—brain noise. The one robust physiological effect of psychedelics is an overall *reduction* of brain activity. If brain imaging studies had shown that psychedelics light up the brain like a Christmas tree, physicalists would be shouting, "You see?! We told you so!" But now that the result is the very opposite of what they expected, a significant part of the neuroscience community is prepared to throw reason and plausibility out the window and entertain embarrassing, preposterous suggestions with a straight face. This, unfortunately, is the psychosocial nature of the game.

Moreover, the pattern associating *enrichment* or *intensification* of experience with brain activity *impairment* or *reduction* goes much beyond psychedelics. In a neuroimaging study, researchers took brain activity readings of both a control group and a group of self-identified mediums while they wrote text. Compared to their baseline writing, neuronal activity in areas associated with language processing—such as the frontal lobes and hippocampus—*decreased* in the group of mediums when they wrote while in a self-induced trance. In the control group, on the other hand, brain activity in the same areas increased. See Figure 5. Yet, when the researchers scored the resulting texts on a scale of complexity, text written by the mediums during trance was more complex than their baseline writing [61]. As an observant journalist remarked, more complex writing

typically would require more activity in the frontal and temporal lobes—but that's precisely the opposite of what was observed. To put this another way, the low level of activity in the experienced mediums' frontal lobes should have resulted in vague, unfocused, obtuse garble. Instead, it resulted in more complex writing samples than they were able to produce while not entranced. Why? No one's sure. [62]

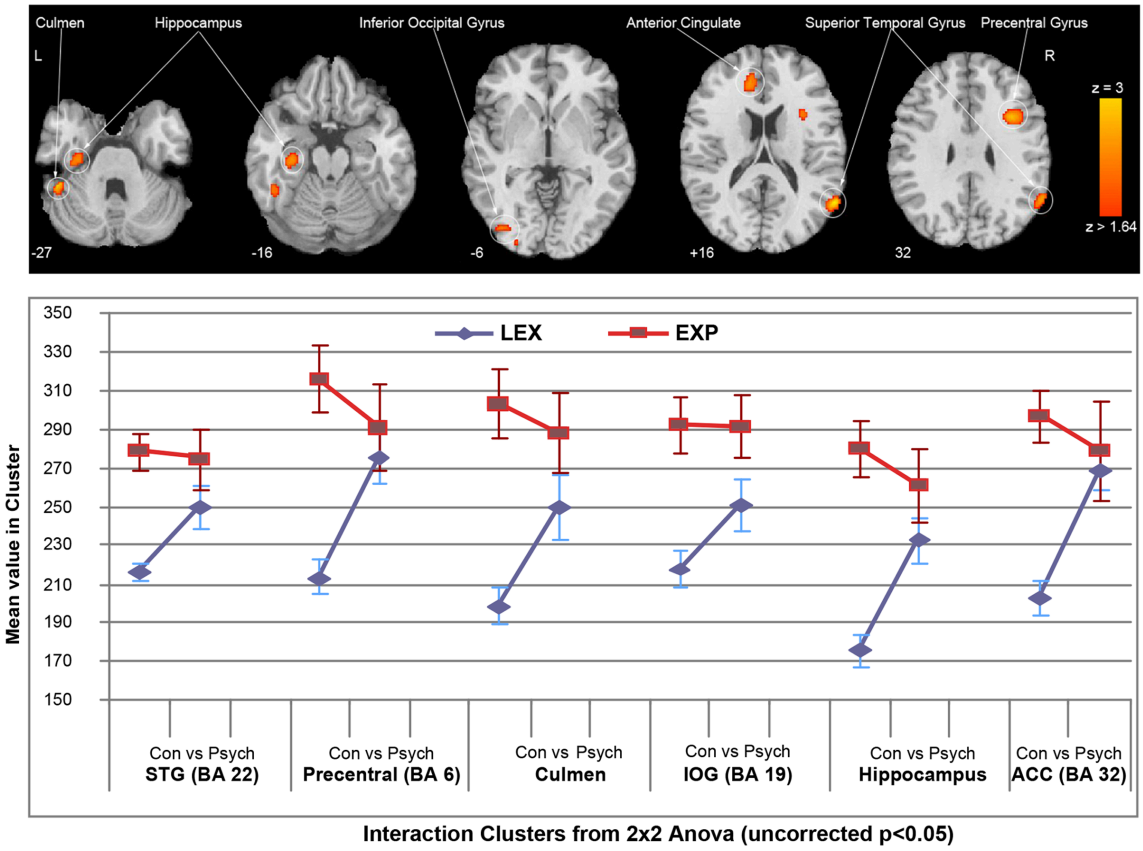

Figure 5. EXP: Higher cognitive function accompanied by *reductions* of brain activity in different brain regions during trance state (red lines go down from baseline to trance writing). LEX: controls display *increases* of brain activity in the same brain regions (blue lines go up from baseline to 'trance' writing). Source: *PLoS ONE* 7(11): e49360 (2012). Reproduced here under a Creative Commons Attribution License.

A prospective study of patients who underwent brain surgery for the removal of tumors—which often causes collateral lesions to surrounding tissue—has shown that, post-surgery, patients display significantly higher levels of feelings of self-transcendence [63]. See Figure 6.

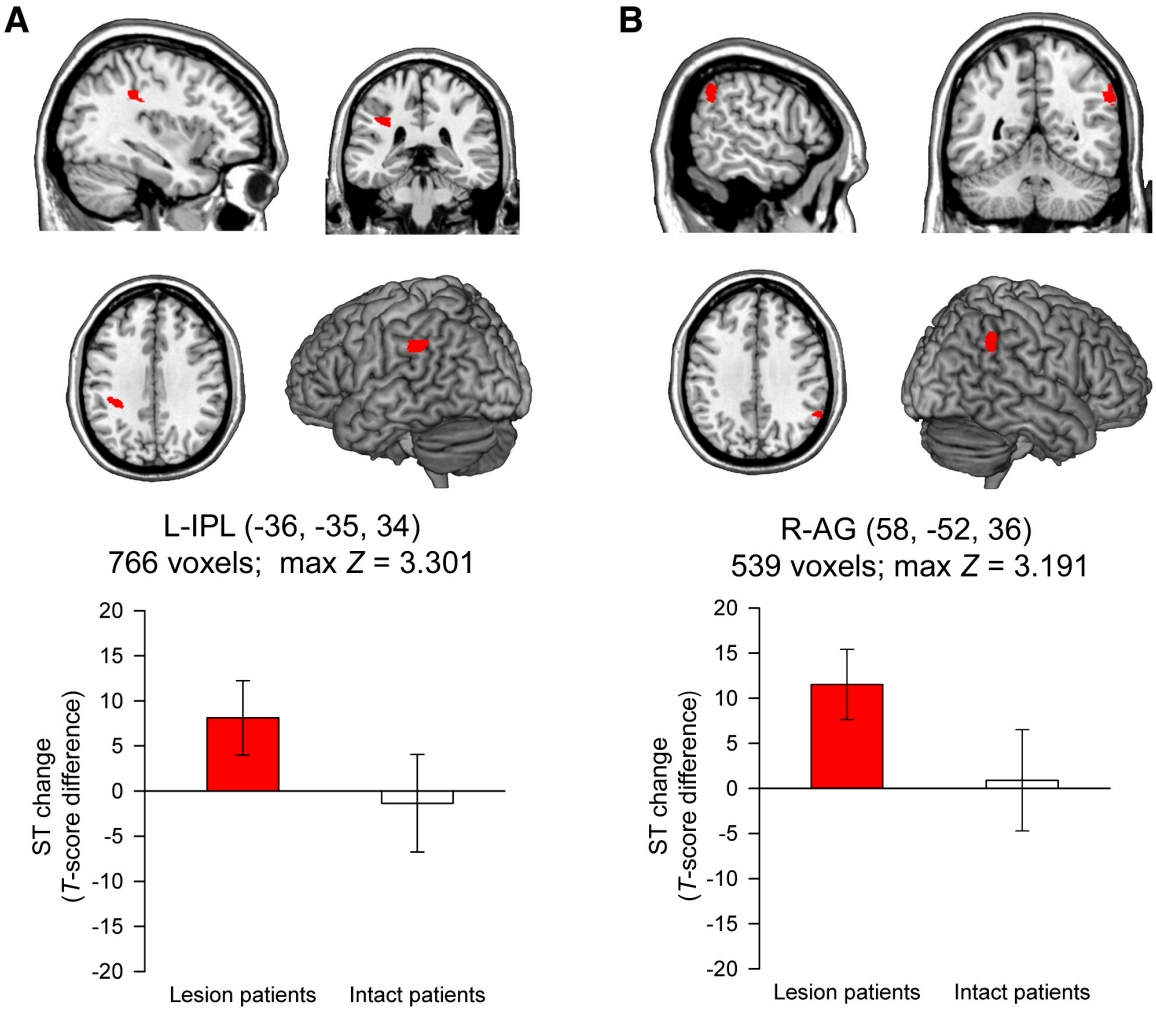

Figure 6. Increased feelings of self-transcendence (ST) after normal brain function is impaired by surgery. Source: *Neuron*, Vol. 65, p. 313. Copyright © 2010 Elsevier Inc. Reproduced here under a license obtained via the RightsLink Copyright Clearance Center.

In a study of pilots undergoing G-force induced Loss of Consciousness (GLOC) in training centrifuges, subjects reported experiencing "memorable dreams" comparable to Near Death Experiences (NDEs) during the period of syncope [64]. Clearly, although outwardly the subjects were unresponsive and seemed unconscious, from the inside they were having rich endogenous experiences despite the massive draw of blood from their heads caused by centrifugal acceleration.

In a Dutch study of cardiac arrest patients, a number of subjects reported intense and rich NDEs during the period of cardiac arrest, when brain activity is at least severely compromised due to the lack of blood circulation [65].

In cases of so-called 'Acquired Savant Syndrome,' subjects display remarkably increased cognitive abilities (prodigious memory, ability to perform complex calculations instantly, artistic talent, etc.) concurrent with brain trauma. Car accidents, lightning strikes, the progression of dementia and even bullet wounds to the head have been documented as triggers of acquired savant, despite (severely) impairing brain function [66, 67, 68, 69].

In a study of over one hundred Vietnam war veterans, damage to the frontal and parietal lobes was shown to increase the likelihood of "mystical experiences" [70].

I could go on and on. Teenagers worldwide play a dangerous game called 'the choking game.' They have realized that partial strangulation—which reduces blood flow to the head and compromises brain metabolism—can lead to intense and rich experiences akin to the psychedelic state, but without the drug [71, pp. 310-315]. The technique of 'Holotropic Breathwork' aims to unlock transcendent experiences through hyperventilation, which constricts blood flow to the brain [72]. Initiatory rituals in pre-literate cultures worldwide consistently involve severe physiological stress—through exhaustion, fasting, poisoning, dehydration, exposure to the elements, etc.—which undoubtedly impair brain metabolism. The rituals are reported to unlock profound insights about the nature of reality [73]. The list goes on.

In all these cases, there is a robust correlation between brain activity *impairment* and *enriched, more intense* inner experience. In some of the cases—psychedelics, trance—this correlation is repeatable on demand under controlled experimental conditions. In the studies involving neuroimaging and permanent brain damage, we know for sure that the period in which enriched experience is reported is concomitant with the period of reduced or impaired brain activity. Mainstream physicalism just cannot account for this.

Therefore, the question now is whether an alternative ontology *can* do so, while also accounting for the undeniable empirical fact that, in *ordinary* circumstances, experience does correlate with brain activation. I shall shortly discuss an ontology

that does precisely that. For now, however, the important point is this: our motivation for assuming that bodily death implies the end of consciousness is largely the physicalist postulate that brain activity somehow is or generates experience. For if the brain *doesn't* generate experience, why should consciousness end upon brain death? As such, if mainstream physicalism is proven to be untenable—which I submit is the case right now—we must review the logic behind our vulgar expectations. A change in our *state* of consciousness upon brain death is a very reasonable inference to make—for our normal state of consciousness seems to be tightly correlated with regular brain activity—but not the *end* of consciousness. If anything, the evidence suggests precisely an *expansion* of consciousness upon brain death.

If not physicalism, then what?

In analytic philosophy—the academic discipline that deals with the question of what reality *is*, as opposed to how it behaves—there are three main types of ontology, i.e., theories about the nature of reality. Each of them faces a canonic challenge or problem.

Mainstream physicalism—the notion that reality is essentially outside and independent of consciousness—faces the 'hard problem of consciousness' we've discussed earlier.

Constitutive panpsychism—the notion that consciousness is an irreducible property of elementary subatomic particles—faces the so-called 'combination problem' [74]: how can the fundamentally separate fields of subjectivity of the particles making up our brain combine to form the unitary consciousness we experience?

Idealism—the notion that reality is fundamentally mental (not in your or my consciousness alone, but in a transpersonal field of subjectivity spanning the entire universe)—faces the so-called 'decomposition problem': how can *one* universal consciousness ground the multitude of seemingly separate minds in existence? After all, I can't read your thoughts and presumably you can't read mine. Neither can I

know what is going on in the galaxy of Andromeda right now. If all existence is unfolding in one universal consciousness, why are these things not possible?

We have seen in previous sections that mainstream physicalism is untenable on both logical and empirical grounds, so we can discard that one.

Constitutive panpsychism, in turn, is *physically* incoherent, as I've argued elsewhere [75]. It assumes that elementary subatomic particles are entities with defined spatial boundaries. This way, because the particles that make up our brain are confined inside the skull, the combined consciousness that allegedly emerges from them is localized in space, just as we experience our own consciousness. The problem is that there are no spatial boundaries at the most fundamental physical level. Elementary subatomic particles are just patterns of excitation—'ripples'—of spatially unbound quantum fields that theoretically span the whole universe. There is nothing to the particles but their respective quantum field, in the same way that there is nothing to a ripple but the water where it ripples. The only thing that is supposedly *truly* real, in and of itself, is the field. Therefore, if constitutive panpsychists want to circumvent the hard problem of consciousness by attributing consciousness to the fundamental building blocks of nature, they have to attribute it to the *fields*, not the particles. And then they cannot account for the fact that our consciousnesses seem to be localized in space and separate from one another.

Moreover, the combination problem faced by constitutive panpsychism is also arguably as insoluble as the hard problem of consciousness [76, 77, 78]. Some argue even that the alleged combination of fundamentally separate fields of subjectivity is an altogether incoherent idea [79]. For all these reasons and some more, which are too technical and detailed to discuss in this essay, constitutive panpsychism is not a tenable alternative to mainstream physicalism.

This leaves us with idealism and its decomposition problem. If we start our theory by postulating that there is only one, universal consciousness, and that everything else in nature can be explained in terms of particular configurations and patterns of excitation of this one consciousness, can we account for multiple, seemingly separate minds such as yours and mine?

Many of the technical discussions about the three problems listed above—which include the decomposition problem of idealism—are centered on whether they can be solved *in principle*. In other words, experts devote a lot of time to trying to find out whether it is at all coherent to even look for a theoretical solution to each of the problems. The issue with this approach is that our own cognitive capabilities are not a reliable basis for determining what can or cannot happen in nature. It is much more conclusive to look to nature to see if nature herself has already 'solved' any of the three problems. This way, even if we can't *understand* precisely how the solution works, we will know that *there is* a solution.

In this context, we must ask ourselves whether there are *empirical* instances of (a) physical arrangements generating consciousness, (b) fundamentally separate minds combining to form a higher-level but seemingly unitary mind, and (c) one mind seemingly fragmenting itself into multiple centers of awareness. To answer any of these questions in the affirmative, we must also avoid the fallacy of question-begging, perhaps better known as circular reasoning.

For instance, if physicalists were to claim that each human brain is already an empirical instance of matter generating mind, they would be begging the question: since correlation does not necessarily imply causation, human consciousness can only be said to be generated by human brains if physicalists *presuppose* physicalism—the very point in contention—in their interpretation of the empirical data. The same goes for constitutive panpsychism: human consciousness is only an instance of combination if panpsychists presuppose panpsychism in their interpretation of the empirical data.

Once question-begging is excluded, there are no empirical instances of solutions to the hard problem of consciousness or the combination problem. There just is nothing in nature that one could argue—without circular reasoning—is unquestionably an instance of matter generating mind or minds combining to form higher-level minds.

What about idealism, then? Are there unquestionable empirical instances of mental decomposition that do *not* beg the question? These instances must be ontology-independent: it must be undeniable that what started as one mind seemingly fragments itself into multiple, distinct centers of awareness regardless of one's

preferred ontology. In other words, the instances must be such that even reasonable physicalists and panpsychists would acknowledge that decomposition is happening. Is there any such instance?

Indeed there is, and it is now very well documented. It is called 'dissociation' in psychiatry. In an extreme form of dissociation—a condition called 'Dissociative Identity Disorder,' or DID—what was originally one integrated consciousness seemingly fragments itself into multiple, cognitively separate centers of awareness [80, pp. 167-174 & 348-352]. Each fragment is technically called an 'alter,' for 'alternate personality.' Alters may or may not be aware of each other's existence, but they always have private memories and idiosyncratic character traits. There is even evidence for different alters having different physical conditions, such as diabetes and hypertension. There is also evidence for alters being co-conscious, i.e., simultaneously conscious within the one host mind [80, pp. 317-322; 81, pp. 67-68].

Dissociation has literally blinding power. In a 2015 study in Germany, a woman with a variety of alters—some of whom, peculiarly, claimed to be blind—was instrumented with an EEG cap, so readings of her brain activity could be taken. When the host personality or a sighted alter had executive control of her body, the researchers could see normal brain activity in the woman's visual cortex. But when a blind alter assumed executive control, brain activity in the visual cortex would disappear, even though the woman's eyes were open [82]. This result not only conclusively proves the existence of dissociation—no subject can fake blindness by voluntarily turning off their visual cortex—but, importantly, shows that dissociation can be *literally blinding*. Indeed, if a psychological condition can make you blind even when your eyes are open to the world immediately surrounding you, it is no stretch to imagine that it could also make other people's thoughts—and whatever is going on in the galaxy of Andromeda—inaccessible to you.

The hypothesis here is thus that we—along with every living being—are alters of one universal consciousness. To substantiate this hypothesis, however, we need to address three important questions regarding its consistency with empirical observations.

First, living beings can be *seen*; they leave a footprint in their environment that can be detected. If you were next to me right now, I would be able to detect your presence through a variety of sensory modalities. Therefore, if living beings indeed correspond to dissociative alters, then *there must be something dissociation looks like* when observed from an outside perspective. And since human DID is the empirical reference I am using to make my case, the question is whether the dissociative processes in the brain of a DID patient have a recognizable image when measured with a functional brain scanner.

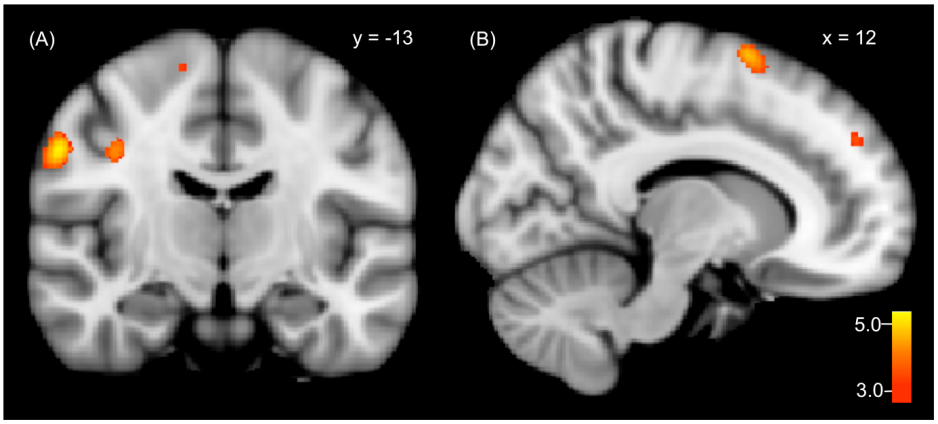

Figure 7. The extrinsic appearance of dissociation when observed through fMRI. Source: *PLOS ONE* 9(6): e98795 (2014). Reproduced here under a Creative Commons Attribution License.

The answer is, they do. In research completed in the Netherlands in 2014, Yolanda Schlumpf and her team studied a group of patients diagnosed with DID. The controls were a group of actors asked to pretend to *themselves*—a well-established acting technique—to be in a dissociated state, while lying in a brain scanner. Brain activity readings of both groups were then taken and compared. The researchers wanted to know if, by looking at the brain scans alone, they could identify the DID group by differentiating their scans from those of the control group. And sure enough, they could [83]. There is indeed something dissociation looks like when observed from the outside. It can be recognized by external measurement. See Figure 7.

Then the next question arises: people are simultaneously conscious and can interact with one another while partaking in a common environment. We share the same

world, wherein we can see and shake hands with one another. Can the same be said of the alters of a DID subject? Do they partake, while being co-conscious, in a common mental environment wherein they interact with one another?

To answer this question properly, we have to make sure the analogy between universal dissociation and human DID is applied and interpreted correctly. From the point of view of a hypothetical universal consciousness, there is no external world, since—*ex hypothesi*—the universal consciousness is all that exists. Therefore, to compare universal dissociation to human DID, we have to ask *not* whether a person with DID can see her alters 'out there' in the physical world, but whether the person's alters can interact *within the mind of the person*. In other words, we have to look at the person's *endogenous*, immersive experiences, such as dreams and schizophrenic hallucinations. But since the clinical overlap between DID and schizophrenia is too small to study, we must restrict ourselves to the dreams of DID patients. Can the patients' alters see and interact with one another when the person is dreaming?

Research done at Harvard Medical School has shown that this is precisely what happens [84]. Here is an extract from a dream report of a DID patient. The woman in question had a variety of alters, each going by a different name, such as Annie, Ann and Jo:

> The host personality, Sarah, remembered only that her dream from the previous night involved hearing a girl screaming for help. Alter Annie, age four, remembered a nightmare of being tied down naked and unable to cry out as a man began to cut her vagina. Ann, age nine, dreamed of watching this scene and screaming desperately for help (apparently the voice in the host's dream). Teenage Jo dreamed of coming upon this scene and clubbing the little girl's attacker over the head; in her dream he fell to the ground dead and she left. In the dreams of Ann and Annie, the teenager with the club appeared, struck the man to the ground but he arose and renewed his attack again. Four year old Sally dreamed of playing with her dolls happily and nothing else. Both Annie and Ann reported a little girl playing obliviously in the corner of the room in their dreams. Although there was no definite abuser-identified alter manifesting at this time, the presence at times of a hallucinated voice similar

> to Sarah's uncle suggested there might be yet another alter experiencing the dream from the attacker's vantage. [84, p. 171]

Clearly, several of the woman's alters partook in the same dream—a common mental environment created by the host's dreaming mind—wherein they perceived and interacted with one another, even clubbing one another over the head, while being simultaneously conscious. This is entirely analogous to what, according to the idealist hypothesis, is happening right now, in the waking world.

But there is a third and final question we must address, if the dissociation hypothesis is to hold up to its own empirical implications. Before we state the question, though, some preparation is required. Bear with me.

As discussed above, if living beings are dissociative alters of universal consciousness, then their living bodies—biology, metabolism—is what the dissociative process *looks like* from an outside perspective. This is a simple but critical point: the reason there are, ordinarily, tight correlations between our conscious inner life and our patterns of brain activity is that the brain, as part of the body, is part of what our conscious inner life *looks like* when observed from an outside perspective. In other words, instead of being the *cause* of our inner experiences, brain activity is an *appearance*, a *representation*, an *image* of our inner experiences on the dashboard of perception; brain activity is how our inner experiences *present themselves* to external observation from second- and third-person perspectives.[12] And that's why there are, ordinarily, correlations between experience and patterns of brain activity: the image

[12] An important observation needs to be made at this point. By saying that our body is what our inner experiences look like from the outside, I also include in these 'inner experiences' those that cannot be accessed through explicit introspection, but which are nonetheless experienced in the bare phenomenal sense. Indeed, to be able to introspectively report an experience, to others and even to ourselves, we must *both* have the experience, in the phenomenal sense, *and know that* we have the experience. This 'knowing' of an experience is an internal re-representation of the original qualities, which requires focused attention and is not always cognitively possible. It entails more than just phenomenal consciousness, but also what Jonathan Schooler has called 'meta-consciousness,' or conscious meta-cognition [85]. This way, among the experiences whose extrinsic appearance is our body are those that we cannot re-represent, or access meta-cognitively through introspection, and therefore know nothing about. They are experiences that, although qualitatively felt, cannot be reported even to ourselves. The body may also represent experiences that are altogether dissociated from the executive ego and, therefore, remain 'unconscious' *from the perspective of the ego*. In conclusion, the body represents *more* than just the experiences we—i.e., our egos—explicitly know we have.

or appearance of a phenomenon correlates *per force* with the phenomenon it is an image of.

Allow me to belabor this for emphasis: *brain activity is part of the representation of our inner experiences on the dashboard of dials we call perception*. Do you see how it all comes together? The thing-in-itself is our conscious inner life; that's what has standalone existence. Our physical body, on the other hand, is how this thing-in-itself *appears* on the dashboard of dials if probed from outside its dissociative boundary. As such, our physical body—the dashboard representation that arises from external observation, or measurement, of our conscious inner life—has no standalone existence; it is merely a representation of conscious processes. Consciousness is primary, the body secondary.

Very well. Now, if our conscious inner life has an extrinsic appearance in the form of a living body, then the inner life of universal consciousness must also have an extrinsic appearance. Moreover, since the appearances in both cases are appearances of mental processes, shouldn't they bear at least some similarities? If our personal mental processes look like biology, shouldn't the transpersonal mental processes underlying nature at large—short of its dissociative alters—also look something like biology? By the logic of idealism, surely, there should be some similarities. But then, *are there?* To answer this question correctly, we need a couple more considerations to guide our logic.

Notice that most of our body is related to our need to perceive, interact with and survive in an external environment: our arms and hands are meant to manipulate the world around us; our digestive, respiratory and circulatory systems are meant to extract energy from the environment; our perceptual systems are meant to collect information about the environment; and so on. Only our brain correlates with purely endogenous experiences, such as thoughts, emotions and insights.

Universal consciousness, however, has no environment; it's all there is. All of its hypothesized experiences are *per force* of an endogenous nature. So if we want to know what nature at large should look like, under the logic of idealism, we need to compare it *to the brain alone,* not to the rest of our body. Under idealism, *the inanimate universe*—i.e., nature minus its alters—*should look something like a*

neuronal network. If you haven't followed the logic here, consider re-reading the last three paragraphs again, before you continue.

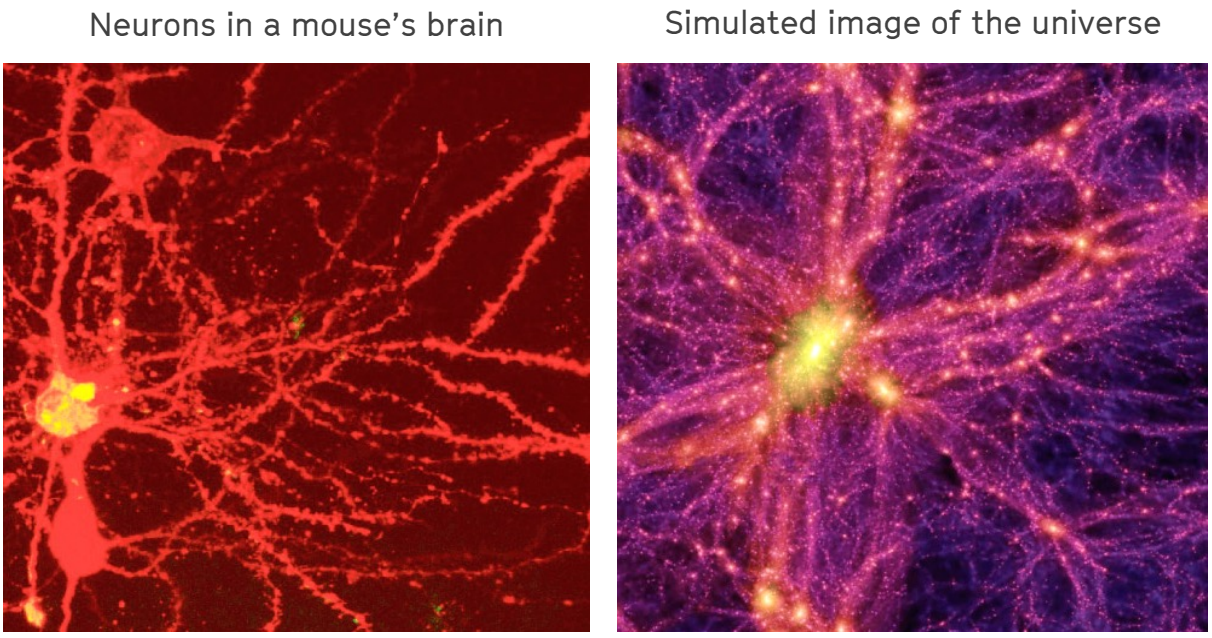

Figure 8. The similarity between the cosmic web and biological neuronal networks. Source: Mark Miller, Brandels University; Virgo Consortium for Cosmological Supercomputer Simulations; www.visualcomplexity.com; *The New York Times*, 18 August 2006.

At first sight, the answer to this third question would appear to contradict idealism: planets, moons and asteroids drifting about in space don't look much like neuronal networks. But the problem here is merely one of *scale*. If you could zoom all the way into one of the bazillions of synaptic connections that form our brain, you would see various types of neurotransmitter molecules drifting about in the synaptic cleft. That wouldn't look *so* different from astronomical bodies floating in space. The right approach, thus, is to compare the inanimate universe *as a whole*, at its largest scales, with whole neuronal networks. And, as it turns out, performing just such a comparison, under strictly scientific conditions, has been a fashionable thing to do in academia over the past decade or two. See Figure 8.

Research done at the University of California at San Diego, in 2012 [86], has shown that "The structure of the universe and the laws that govern its growth may be more similar than previously thought to the structure and growth of the human brain" [87].

There are no known reasons, under mainstream physicalism, for why this similarity should exist at all. None of the known laws of physics accounts for it. The best physicalists can say is that it is some kind of, well, cosmic coincidence (literally and figuratively).

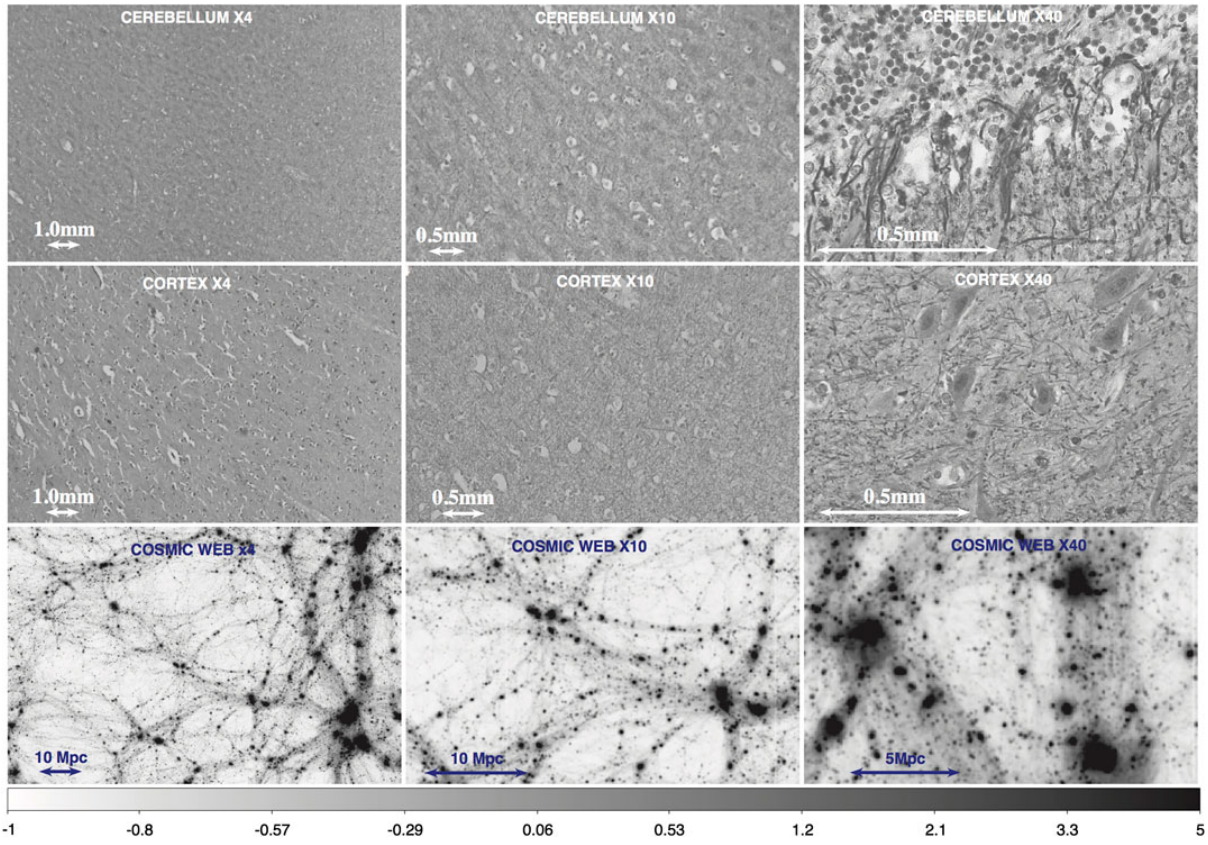

Figure 9. Maps of density contrast for slices of the cerebellum (top row), brain cortex (middle row) and of the dark matter distribution of the cosmic web (lower row). Source: *Front. Phys.* 8:525731 (2020). Reproduced here under the Creative Commons CC-BY version 4.0 license.

More recent research, based on the broad arsenal of tools of information theory, has shown that the similarities go even deeper than thought back in 2012: the idiosyncrasies of the network topology of both the universe at large and biological nervous systems are surprisingly similar [88, 89]. See Figure 9. In the words of the researchers,

> It is truly a remarkable fact that the cosmic web is more similar to the human brain than it is to the interior of a galaxy ... the human neuronal network and

> the cosmic web of galaxies, when considered with the tools of information theory, are strikingly similar. [89]

So much for form; how about function? Is there anything about how the inanimate universe *works* that resembles the operation of neuronal networks? Surprisingly enough, in a very recent paper, a team of renowned physicists have shown that the operation of the laws of physics, computationally wise, could be regarded as a neuronal network undergoing a learning process. In other words, the universe could be said to be spontaneously learning—just as minds spontaneously learn—how to behave [90].

So there you have it: surprising as it may seem to many, we *do* have rather significant empirical reasons to answer the third question in the affirmative as well. Obvious differences in scale and medium aside, there is an important sense in which biological brains and the universe at large *are* similar, in terms of their respective network structures and first-principles of operation. And there is nothing under mainstream physicalism—or physics, for that matter—that could account for these correspondences. In conclusion, the empirical implications of idealism—with dissociation as the mechanism of mental decomposition—do hold up under empirical scrutiny.

It is not by mere chance that the idealist hypothesis is empirically consistent along all three independent lines of enquiry we have just discussed. It is not by mere chance that (a) the inanimate universe, at its largest scales, follows the structure of neuronal networks, *and* (b) the laws of physics can be modelled as learning neuronal networks, *and* (c) dissociative processes have extrinsic appearances, *and* (d) alters can experience the same dream from different points of view, while co-consciously interacting with one another. Each of these empirical facts is, in and of itself, startling enough. But when taken together, the notion that they are unrelated and serendipitous seems to stretch credulity; the correspondences are too specific and detailed. I thus submit to you that all four facts are true because the idealist hypothesis is true; that's the only overarching theoretical framework that makes satisfying sense of all four facts together. As I repeat often in this essay, if you pay

attention, you will see that multiple, independent lines of evidence come together in a manner that cannot be dismissed.

We originally set out to find out if there is a more coherent, empirically substantiated alternative to mainstream physicalism that could account for (a) the empirical fact that physical realism is false, (b) the empirical fact that, ordinarily, brain activity correlates with inner experience and (c) the empirical fact that, extraordinarily, some impairments or reductions of normal brain activity correlate with enriched, more intense inner experience. We have found that idealism—with dissociation as the mechanism of mental decomposition—is a much more plausible ontology that avoids internal contradictions. We have also found that it can straightforwardly account for empirical facts (a) and (b) above. What remains to be seen is whether it can also account for empirical fact (c). I shall now attempt to show precisely that.

The weakening and end of dissociation

We have seen that the living body—with the brain as the locus of endogenous mentation—is the extrinsic appearance of dissociative processes in a spatially unbound field of subjectivity; a whirlpool in the stream of universal consciousness, so to speak. Ordinary brain activity is part of what an alter of universal consciousness looks like, when observed from across its dissociative boundary.

We can divide the mental processes of the alter into two categories: the *dissociative process itself* and the *mental contents* trapped within the dissociation. The dissociative process itself is what prevents me from knowing your thoughts and what is going on in the galaxy of Andromeda. The contents of my dissociation, on the other hand, are my personal memories, thoughts, insights, etc.—i.e., my private conscious inner life. *Both categories should have extrinsic appearances*—i.e., both categories should, at least in principle, appear to external observation as patterns of brain activity. Any other expectation would be arbitrary.

Therefore, suppression or disruption of brain activity should, in principle, have two types of effect, depending on what type of activity is actually suppressed: it may quell mental contents of the alter or weaken the dissociative process itself. In the

first case, we will experience the effect as cognitive deficit, brain fog or amnesia. In the second case, it stands to reason that we should experience an *expansion of awareness*, for weakened dissociative boundaries become more porous, more permeable, and mental processes unfolding *outside* the boundary should become cognizable. Indeed, since dissociation is—by its very nature—a process of cognitive restriction, the weakening of dissociation should have the opposite effect: cognitive expansion or enrichment, the recovery of previously inaccessible memories, feelings and insights, a broadening of experience and identity in general.

We do not yet know with precision—though the technical literature provides some tantalizing clues in this regard—what kinds of brain activity correspond to the dissociative process itself or to the contents of the dissociation. But it stands to reason that *some* suppressions of brain activity should impair the dissociation itself, while others—perhaps most of them—should impair the contents of the dissociation. The first should lead to an expansion of consciousness while the latter to some form of cognitive deficit. Is this what we observe empirically?

As discussed earlier, this is *precisely* what we observe empirically. While most impairments of brain function lead to cognitive deficit, psychedelics, certain forms of trance, brain hypoxia caused by partial strangulation, cardiac arrest, GLOC, hyperventilation or physiological stress, brain damage associated with acquired savant, feelings of self-transcendence or mystical experience, etc., cause an *enrichment* of experience and a *broadened* sense of identity.

The reduction or impairment of normal brain activity associated with psychedelics, trance, hypoxia, trauma, etc. is what a disruption of the *dissociative process itself* looks like, when represented on the screen of perception (the dashboard of dials). The end result is a more porous dissociative boundary and a transpersonal reintegration of previously dissociated mental contents. This is why psychedelics lead to some of the richest and most intense experiences of one's life, at once alien and familiar; why cardiac arrest can lead to life-changing NDEs; why teenagers worldwide choose to run the fatal risks of partial strangulation in order to have a 'high'; why pilots undergoing GLOC report "memorable dreams" when they were thought to be unconscious; etc. These things aren't unrelated or merely coincidental.

Instead, they constitute even more independent lines of empirical evidence coming nicely together to substantiate idealism. Empirical facts hitherto considered mysterious, counterintuitive, anomalous or even outright impossible under mainstream physicalism become entirely natural and intuitive under idealism.

Now, if the *living* body is the image of dissociation, then death—the end of the living body—is the *end of dissociation*. And here we finally address the question of postmortem survival head on: death is not the end of consciousness, but merely the end of a *particular state* or *configuration* of consciousness—namely, a dissociative configuration. The end of this configuration is what the end of metabolism is an appearance of on the dashboard of dials. Just as life is, quite literally, a state of mind, death is a transition to another state of mind; one that does not correlate with the localized appearance we call a living body, merely because it is no longer a dissociative state.[13]

To understand this properly we need to inquire into our sense of identity. While many of us conceptually identify with particular contents of consciousness—i.e., a particular narrative of individual selfhood, such as a place and date of birth, profession, political views, tastes, etc.—what analytic philosophy calls 'core subjectivity' [91] is what we, when push comes to shove, *really* feel ourselves to be. Core subjectivity is "ipseity, or I-ness, by which is meant an implicit sense of self which serves as the dative … of experience, namely, as that to whom things are given, or disclosed, from a perspective" [91, p. 426]. You can visualize core subjectivity as what would be left of your conscious inner life if you suddenly became completely amnesic in a perfectly dark, quiet room, before the first new thought arose in your mind. It is what would remain the same if tomorrow you were to magically acquire someone else's memories and character traits, without discontinuity in your consciousness. It is that pure sense of I-ness, empty subjectivity, unencumbered by particular narratives or thoughts. And it is the same in you, me and every living

[13] Remember: under the logic of idealism, the body is what a *dissociative* process looks like. Without dissociation, there is no body (a dead body is just an echo of something nature was previously doing but no longer is). Without dissociation there is just the inanimate universe, which we could say is the 'body' of the non-dissociative, transpersonal processes underlying non-biological nature.

being, precisely because it is not differentiated. There is an important sense in which core subjectivity *is* universal consciousness.

Core subjectivity is independent of dissociation and any other particular configuration of consciousness, for it is what underlies them all. It is what is always there, unperturbed, as the context within which particular experiences arise. I am *not* saying this from a spiritual perspective—which is not my field anyway—but from a purely analytic one. This follows from the same logic that accounts for the multiple independent lines of empirical evidence discussed in detail in this essay.

Therefore, both the beginning and end of dissociation do not affect core subjectivity, for both are just particular configurations of consciousness. If idealism is true, death, by its very nature, leaves core subjectivity untouched and uninterrupted. From a first-person perspective, death is thus *witnessed*. And this is the first sense—arguably the only relevant one—in which, under idealism, postmortem survival is certain.

Yet, many of us conceptually identify not with our core subjectivity, but with particular contents of consciousness. We think of ourselves as the person who was born then and there, who does this or that for a living, who is married to this or that other person, who has this or that political view, taste, disposition, etc. Is this idiosyncratic narrative of self lost upon death—i.e., upon the end of dissociation?

Well, any narrative of personal selfhood is largely based on memory, in the sense that it *is* a personal history. One could say that tastes and personality traits are parts of our personal identity but do not depend on memory. Yet, is this *really* true? Although most people don't like Brussels sprouts, I happen to absolutely love them. If a person who hates them were to magically acquire my memories—including the memory of my boundless pleasure munching on Brussels sprouts with gusto—would they *still* dislike them?[14] Moreover, many of my character traits have changed with time and maturity. My personality test results from 25 years ago were quite different from today's. Yet, I feel like I am still the same person. My character traits seem to be more a part of my history—my memories—than an intrinsic part of my self. I can very easily

[14] If you think they would, perhaps you are assuming that the memories transferred from me to the other person aren't complete, in the sense that they comprise the memory of the flavor of Brussels sprouts but *not* the memory of my *felt enjoyment*.

imagine myself having totally different character traits while still being myself. For people who score high in empathy, this is so self-evident as to be trivial. There is a sense in which character traits are as incidental as a bad hair day.

Under idealism, insofar as our individuality *is* our memories, it isn't lost upon death either: the end of dissociation just makes our memories available—through re-association—to a broader, transpersonal, experiential web of cognition; it doesn't eliminate them. As a matter of fact, *all* mental contents of the alter are released into this broader cognitive context upon the dissolution of the dissociative boundary, which had hitherto corralled them together; they 'get out of jail,' so to speak.

An analogy may help at this point. Ordinary dreams are subtle forms of dissociation: during a dream, we identify only with our dream avatar, not with the rest of the dream. We become dissociated from the parts of our mind that are generating the rest of the dream, for we don't think we are doing the streets, cars, buildings, trees or even the other people in the dream. We think we *are* our dream avatar—a mere part of what our mind is actually doing—which is immersed in the imagery of the dream.

When we wake up, however, the dissociation ends. We realize we were doing the whole dream and our dream avatar, as a differentiated and semi-autonomous agent within our mind, dies; quite literally. Our dream avatar is toast, gone at the very moment we wake up. Yet we don't mourn the death of our dream avatar, do we? Why not? Because the only two things we instinctively care about remain: our core-subjectivity is intact—it is the same whether we are dreaming or awake—*and* we can still remember the dream, at least in principle, from the first-person perspective of our avatar. In other words, even our avatar's narrative of personal selfhood is preserved, although we no longer identify with it. We remember that our dream avatar was us, not us our dream avatar, so nothing is lost about either of them.

We have no reason to believe that the end of dissociation impairs memory; if anything, the opposite is more plausible through cognitive re-associations. DID patients who reintegrate their alters have, at least in principle, the memories of all reintegrated alters. They remember what it was like to 'be' each dissociative alter, just as we remember what it was like to 'be' a dream avatar. Former DID patients don't mourn the death of their alters either, for everything that was relevant about

them—core subjectivity and memories—remains. This is the second sense in which, under idealism, postmortem survival is certain.

It is important to realize that these considerations are purely analytic, not spiritual or intuitive. They are derived from reasoning and evidence, not direct experience. Therefore, we can take their underlying reasoning apart so as to dig into its implications more explicitly than would otherwise be possible.

For instance, although idealism implies postmortem survival, it *doesn't* imply that our dead self is going to some 'otherworld.' In fact, under idealism we stay *right here*, in *this* world, *as it is in itself*. This is very important to realize. Idealism postulates no other world. The only difference death makes is this: instead of *observing* this world through the intermediation of the dashboard of dials we call physicality—the dashboard being part of the survival kit of the alter—we *reintegrate into* this world as it is in itself. We *'become'*—in scare quotes because we, of course, never cease to be what we really are—the very world we merely *inhabited* during life. In other words, our point of view—along with our memories—just moves to the other side of the dashboard from the one we occupied during life. Upon death, we can experience *this* world *directly*, without the intermediation of dials. That's all there is to it.

Allow me to belabor this point, since it differs rather significantly from vulgar religious expectations. Upon death, people go *nowhere*. We all stay in *this* world, but on the other side of the instrument panel we call physicality. It's the difference between (a) sitting inside the cockpit and looking at the dashboard and (b) flying outside the metal skin of the airplane and feeling the air, clouds, rain and lightning *directly*. In both cases the world is the same, just experienced differently.

Upon death we no longer appear as discrete, discernible entities because we are no longer dissociated (discrete organisms are the appearance of dissociation, so they cannot remain when the respective dissociation ends, for the same reason that flames cannot remain once combustion ends). But everything that ever mattered about us—our core subjectivity, our memories, the entire history and quality of our lives as experienced from our first-person perspective—is still in *this* world, as the world is in and of itself.

You might then ask: shouldn't the living then still be able to discern the presence of the dead, since the latter are still in *this* world together with the living? Not necessarily, because of a cognitive dynamic akin to physical dilution. While a single drop of dye is clearly discernible when trapped in a dropper, it isn't so in the ocean, even though the entire substance of the drop is still there and nothing has disappeared. Similarly, the mental processes that constitute the inner life of a person, when circumscribed by a dissociative boundary, are clearly discernible on the dashboard of perception. But upon the end of dissociation, when the dissociative boundary unravels, they become dispersed in the broader cognitive space of transpersonal associations that constitutes the world-in-itself. Everything about the dead is still in the world, *this* world, but no longer discernible as a discrete entity, just as a drop of dye is not discernible in the ocean. This is analogous to what in quantum physics is called 'decoherence.'

Moreover, what the dead bring with them upon death—the memories and insights of a lifetime—*changes* the whole world at some level, quite *literally*, even though this change—given the relative scale of the universe in relation to a person—is far from being even remotely discernible on the screen of perception. This, under idealism, is what death means.

Now, I am not a counselor, and my argument aims not at comfort but at truth. That said, it would be naïve of me to think that comfort and reassurance aren't important motivations for interest in postmortem survival. This is only human and, as someone who has also lost loved ones, I empathize with it. So I will share now, for what it is worth, my *personal* way of living according to the ideas I am arguing for in this essay.

Just as a fully diluted drop of dye is spread *everywhere* in the ocean, to me our ancestors are 'behind' every rock, every cloud, every molecule of air I inhale; just "on the other side of them from me," as Owen Barfield put it [92, p. 42]. I touch them when I step barefoot on the ground or run my fingers along the side of a mountain. I see them when I look up to the sky on a clear night. I am immersed in them when I dive into the sea. They touch my skin at all times, for they *are* the world that envelops me; *literally*. And their whole lives, as they have experienced them, are also the world I inhabit. I may not live their stories, but I live *in* their stories. Their past is the

scaffolding of my present. The questions they've left unanswered are the air from which I draw my life's energy. And I, too, one day, will be an integral part of the world in which future generations will live; *literally*. The questions I leave unanswered will be the air they breathe, the ones I did answer the ground on which they take their steps. And so nature goes, on and on, dynamically, ever changing, but never losing a single bit of itself.

What about psi?

Reports of telepathic, mediumistic communication with the dead, as well as of reincarnation—insofar as they carry credibility—seem to suggest that the dead continue to exist not only as core subjectivity and memories, but also as *differentiated, individual agents*. Can idealism accommodate this evidence while denying that individual agency—i.e., dissociation—persists upon bodily death?

First of all, let me acknowledge that, stimulating to the popular imagination as they are, many anecdotal reports of psi phenomena can be dismissed for a variety of trivial reasons. I also acknowledge, however, that the same cannot be said of much of the scientific study of psi. As a matter of fact, good psi research—I think of Dean Radin's work at IONS and the work done at the Department of Perceptual Studies at the University of Virginia, for instance—tends to be far superior, in terms of methodological rigor, experimental design and execution, as well as the rather conservative character of the accompanying statistical analyses, to most mainstream scientific research [93]. This happens because, since psi seems to contradict mainstream physicalism, these studies are designed and executed so as to withstand particularly severe scrutiny.

Yet, precisely because they contradict the mainstream paradigm, psi phenomena are *still* dismissed even when the research that indicates their existence is more rigorous and reliable than most mainstream research. Why? The reason is well-known to history: *never* is a reigning paradigm abandoned because of 'mere' empirical evidence that contradicts it; it is only ever *replaced* with another paradigm—another hypothesis about what nature is—that happens to accommodate the evidence better [53]. As such, for as long as there is no widely recognized alternative to mainstream

physicalism—and by alternative I don't mean a religious worldview, but an analytic, scientific one—'mere' evidence won't defeat it.

And here is where idealism, particularly the *analytic* idealism I have been arguing for in this essay, can play a decisive role in our views regarding postmortem survival. Not only is it backed by several independent lines of mainstream evidence, but it also *makes sense* of otherwise anomalous psi evidence; it provides natural space in a rational, coherent theoretical framework to accommodate the observations in question.

So the relationship between idealism and the evidence for psi phenomena is synergistic: while idealism provides a framework to accommodate the evidence and prevent it from being dismissed on merely theoretical grounds, evidence for psi also provides substantiation for idealism insofar as the latter predicts its existence. The question thus is: *can* idealism accommodate psi? Does it *predict* the existence of psi phenomena while denying that personal agency—i.e., dissociation—persists after death?

Let us first consider telepathy. Under idealism, reality consists of excitations of a spatially unbound field of subjectivity—i.e., *one universal mind*. Therefore, what needs to be explicitly accounted for is why we can't read other people's thoughts *all the time*; after all, we are all—*ex hypothesi*—part of the same mind. Idealism accounts for this by inferring that dissociative processes spontaneously arise in the universal mind. But no process in nature is perfect or ideal. Combustion never burns everything there is to burn. Rain fall never precipitates all air humidity. And so it is not only conceivable, but *expectable*, that dissociation won't prevent all cognitive traffic from crossing dissociative boundaries. That telepathy should occur now and then, especially under conditions related to impaired metabolism (i.e., weakened dissociation), is indeed a prediction of idealism. As such, reliable empirical evidence for telepathy can be legitimately construed as evidence for idealism. And without idealism to couch it in a theoretical framework, the evidence is neutered.

Let us now consider evidence of reincarnation [94], which seems to most directly contradict the idealist notion that death is the end of individual agency. Here is a brief thought experiment: imagine that you are a particularly apt telepath and can

access all my memories, episodic and otherwise. As a matter of fact, you can do a full download of my memories for your own private use. This would mean that you can recall all my knowledge and experiences from *my first-person perspective*, as if you had been me. If a researcher would then ask you questions about knowledge that only I could possibly have had, you would be able to answer all questions not only accurately, but also from *my* point of view. Assuming that I am already dead at that point, the researcher would be liable to interpret your answers as a case of reincarnation; never mind the fact that no individual agent transferred itself from me to you, only my memories did.

As we've seen above, when a person dies the contents of their dissociation are released into the broader, transpersonal web of cognitive activity that constitutes the world as it is in itself. It is conceivable that newly emerging alters, with dissociative boundaries not yet sealed, could incorporate those contents in the process of their development. From a first-person perspective, this would literally mean having some of a dead person's memories. Yet, there would be no differentiated agent reincarnating in the new alter; only a form of memory osmosis. I submit that, empirically, so-called reincarnation cases are indistinguishable from what I am proposing here.

I understand that many cases of seeming reincarnation are associated with sudden, even violent death on the part of the supposedly reincarnated agent. This means that the dead person's last memories have particularly high emotional charge. We know from clinical psychology that emotionally charged mental contents are more 'reactive,' in the sense that they are prone to forming complexes through cognitive associations and attaching themselves to other mental contents. In plain language, psychological trauma translates into paranoia, compulsive brooding, fantasizing and memory revisionism, evokes all kinds of other emotions and generally permeates all facets of an individual's mental life. Under idealism, it is thus entirely reasonable that, when the emotionally charged memories of a violent death are freshly released into the transpersonal cognitive context that constitutes our surrounding environment, they should also be more 'reactive' and attach themselves to new alters in development—i.e., fetuses, babies and toddlers. Even cases of inherited scars can, in principle, be made sense of in this manner: as we've seen earlier, under idealism

the *entire body* is the extrinsic appearance of an alter's mental contents. Thus, it stands to reason that memories trapped within a forming alter's dissociative boundary should also be capable of presenting themselves somatically. As a matter of fact, I submit that the idealist notion of the body as an appearance of mental contents is the *only* hypothesis that explains birthmarks in the context of alleged reincarnation; for how could a non-physical agent that merely *inhabits* a body not only carry over, but also imprint bodily characteristics?

For all intents and purposes, I believe 'reincarnation' does happen. But the underlying mechanism is not quite what the word suggests. For 'reincarnation' presupposes a certain hypothesis about the cause of the phenomenon; namely, that some form of non-physical, individual agency moves from one body to another, like a Hermit crab from one shell to another. There is, however, a simpler way to account for the evidence in a theoretically coherent manner: felt and embodied memories are indeed transferred, not agency.

A third well-known psi phenomenon is that of mediumship. It entails what is ordinarily described as communication between a living medium and a dead person. I confess to having severe prejudice against claims of mediumship, but I shall try to remain objective. The argument for the reality of mediumship is that the medium sometimes knows things that only the dead could have known. Therefore—or so the argument goes—the dead must still exist as individual agents in the afterlife, and from there communicate the corresponding information to the living medium.

Just as in the case of reincarnation, I submit that there is a simpler explanation for veridical mediumistic reports: the medium—someone with a naturally porous dissociative boundary, or who has learned how to deliberately influence the boundary through trance [61]—picks up, from the immediate cognitive surroundings that constitute our world as it is in itself, felt memories released into it by the dead.

This is even more plausible if one takes into account that telepathy—a psi phenomenon so common as to be banal—involves the penetration of *two* dissociative boundaries, for there are always at least two people involved. But to pick up on what is available in our transpersonal cognitive surroundings, a skilled medium only needs to weaken his or her own dissociative boundary. As a matter of fact, this

suggests a reason for why mediums don't seem as capable of reading the minds of the living as they are the dead's.

Because—unlike mainstream physicalism—idealism *can* accommodate and make sense of telepathy, 'reincarnation' and mediumship, insofar as such psi phenomena are rigorously verified the corresponding empirical evidence *further* substantiates idealism. In return, idealism provides a coherent theoretical framework to explain the evidence, thereby facilitating its acceptance.

Conclusions

That the death of the body implies, *prima facie*, the end of consciousness surreptitiously presupposes the theoretical assumptions of mainstream physicalism. Those assumptions do not have an empirical basis if one judiciously eliminates question-begging from one's interpretation of the facts. Therefore, postmortem survival, objectively speaking, isn't an extraordinary hypothesis that requires extraordinary evidence; it is instead a perfectly plausible and rational conjecture.

Indeed, decades of progressively refined and repeatedly replicated experimental results in foundations of physics have refuted physical realism: physical entities have no standalone existence and, as such, are merely a superficial appearance of a deeper, fundamental but nonphysical layer of reality. This alone refutes mainstream physicalism and its implications regarding postmortem survival.

Moreover, short of fanciful—if fashionable—flights of conceptual abstraction, once matter is proven to be derivative only mind can be fundamental in nature. Indeed, mind is the only type of existent—*Oussia*—we are directly acquainted with; everything else is theory. Therefore, it is eminently reasonable—arguably even logically inevitable—to suppose that the deeper layer of reality underlying physicality is *mental* in essence. An objective world constituted of transpersonal mental processes circumvents the so-called 'hard problem of consciousness' altogether, allowing us to make progress in our understanding of the nature of reality.

In addition, further independent lines of mainstream evidence prove that the physical world we perceive is but an internal, encoded cognitive representation; a dashboard of indicators that provides us with useful information *about* the world, but which *isn't* the world. Because these internal representations are encoded, living organisms can place an upper bound on the dispersion of their inner states and thereby maintain their structural integrity. Moreover, if these internal representations weren't encoded, we now know that evolution by natural selection would have driven us swiftly to extinction. All this, although entirely independent from the reasoning underlying the refutation of physical realism, leads nonetheless to the same conclusion: what we call the physical world is not what the world is in and of itself; instead, it is merely a superficial, encoded representation thereof. The world in itself is *not* physical; it can only be *mental*.

As if all this weren't enough, multiple independent lines of evidence in neuroscience of consciousness show repeatable correlations between certain impairments or reductions of normal brain activity and enrichment or intensification of experience. This cannot be accounted for under mainstream physicalism; it can only be accounted for by the idealist hypothesis that our conscious inner lives—our very minds—are dissociative processes in a spatially unbound field of subjectivity. Certain disruptions or reductions of brain activity are simply what an abating of the dissociation looks like when represented on our internal dashboard of dials. Suggestive evidence regarding dissociative dream states, as well as the structural and functional similarities between the physical universe and neuronal networks, provide even more empirical corroboration to the idealist account of the facts. Idealism not only makes sense of otherwise inexplicable evidence, if also dovetails perfectly with the experimental refutation of physical realism: the universal field of subjectivity wherein dissociation takes place *is* the fundamental level of reality underlying physicality, and of which physicality is the mere appearance upon measurement.

Vast amounts of empirical data considered anomalous and confounding under mainstream physicalism, but nonetheless accepted by mainstream science, can be elegantly—and exclusively—accounted for under an idealist ontology whereby dissociation is the mechanism of mental decomposition. A direct implication of this

view—and therefore of the data itself—is that the death of the body represents merely the end of a dissociative process, not the end of consciousness. Everything that matters about who we are—our core subjectivity and our personal memories—is left untouched by bodily death. Instead of disappearing, our conscious inner lives are reintegrated into a broader, transpersonal cognitive context, thereby effectively expanding.

It is thus no exaggeration to claim that the postmortem survival of human consciousness is all but confirmed by mainstream experimental science, provided that one is rational and objective enough to acknowledge the logical implications of the evidence. Coming to terms with this fact is one of the greatest challenges our culture will face in the decades to come.

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