

Pure Consciousness and Quantum Field Theory

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Abstract In the first part I argue that Buddhism and Hinduism can be unified by a Pure Consciousness thesis, which says that the nature of ultimate reality is an unconditioned and pure consciousness and that the phenomenal world is a mere appearance of pure consciousness. In the second part I argue that the Pure Consciousness thesis can be supported by an argument from quantum physics. According to our best scientific theories, the fundamental nature of reality consists of quantum fields, and it seems that quantum fields have merely particle-like appearances—particles seem to be mere epiphenomena. This interpretation can be generalized. There appear to be individual entities, small and large, and their ontological reality is precisely what it appears to be—they are mere appearances.

Introduction

Most spiritual traditions make claims about an ultimate reality and the true nature of that reality. Commonly such claims are based on the sayings of spiritually enlightened sages or seers. Considered very broadly and generally, the most common claim of this kind says that, ultimately, spirit or pure consciousness is the true nature of all there is. This is, in essence, what I call the Pure Consciousness thesis. From a spiritual perspective, there is nothing wrong or problematic with accepting such a claim based on the reports of sages or seers. From the perspective of Western philosophy, however, this is clearly an inadmissible appeal to authority. My primary aim here is to show that the Pure Consciousness thesis can be supported by an argument based on contemporary quantum physics, in particular quantum field theory.

The Pure Consciousness thesis is most closely associated with Advaita Vedānta, the most important and influential philosophical school of Hinduism. In order to develop the Pure Consciousness in more detail, I could restrict my considerations to the traditional view of Advaita. But, before we turn to quantum physics, I will argue that the Pure Consciousness thesis supports a unification of Advaita and Buddhism. This, I submit, will be interesting and important for several reasons. First, it is generally

thought that Buddhism and Hinduism are divided by fundamental disagreements concerning the nature of ultimate reality. In particular, the currently most popular version of Buddhism is based on the Theravāda, which is based primarily on the scriptures of the Pāli canon. It is generally thought that this strand of Buddhism is incompatible with the core doctrines of Hinduism and Advaita in particular. I will argue that the Pure Consciousness thesis is compatible with and supported by core teachings and passages from the Buddhist Pāli canon. Second, in recent times Buddhism has gained followers and sympathizers worldwide, partly due to the popularity of mindfulness meditation. Given this, it is significant to see that it can be unified with a main school of Hinduism and that its ontology can be supported by an argument based on quantum physics. Third, a unification of Advaita and Buddhism by the Pure Consciousness thesis provides some support for that thesis. Generally, the more unified two spiritual traditions are, the more likely it seems that the sayings of their sages about the nature of reality are veridical. Or, put differently, if it is indeed possible to realize the nature of ultimate reality, and if the enlightened sages and seers of different traditions are speaking truthfully, it seems that they must be speaking about one and the same realization, albeit in different terms or vocabularies. So, if the Pure Consciousness thesis unifies the sayings of Hindu and Buddhist sages, then this unification supports the Pure Consciousness thesis as well as the claims of Hindu and Buddhist sages.

Pure Consciousness in Vedānta

Generally speaking, Vedānta is the most important philosophical tradition of Hinduism. It is based primarily on the Vedas, and in particular on the Upaniṣads. It is sub-divided into three main schools: Advaita, Viśiṣṭādvaita, and Dvaita Vedānta. The Vedas proclaim that Brahman is “one without a second” or, in other words, that Brahman alone is real. Based on this, all three schools are fully committed to the claim that Brahman is the ultimate or absolute reality. Strictly speaking, we cannot make any positive descriptive claims about Brahman. Brahman is that “wherfrom words turn back along with the mind” (*Taittirīya Upaniṣad* II.IX.1). All we can say about the absolute is “not this, not this” (*neti neti*). Brahman is said to be that which stands revealed as the absolute reality when all relative and finite conceptions have been negated and uprooted through spiritual practice. Despite this, we do find positive characterizations in the scriptures of Vedānta. Brahman is said to be *sat-cit-ānanda*:

being-consciousness-bliss. Following Hirst (2005: 149), we can reconcile this with the claim that nothing can be predicated about Brahman by reading it as a series of negations: Brahman is not non-existent, not unconscious, and it is entirely free from suffering and discontent. Note that it is even problematic to assert the existence of Brahman, as we usually assert existence of finite objects and beings. The reality of Brahman cannot be denied, but it cannot be said to exist as some object or entity. It is also problematic to simply assert that Brahman is conscious, because we usually ascribe consciousness to finite beings. Brahman is not unconscious in the sense that it is self-effulgent. Brahman, we may say, knows itself, but not as an object. This is why Brahman is also called *pure* consciousness, which indicates that it is not a subject that is conscious of itself as an object. Brahman is pure subjectivity, self-knowing, yet free from any subject-object duality. (See Deutsch 1973, Indich 1980, Hirst 2005, for instance.)

The disagreements between the three schools of Vedānta concern primarily the nature of the phenomenal world and the individual self. According to all three school, Brahman appears as or manifests as the world. According to Advaita, the world appearance is false and illusory (*mithyā*). We see multiplicity and real division where there is none, because we are under a spell of ignorance (*avidyā* or *māyā*). According to Viśiṣṭādvaita and Dvaita Vedānta, the world is not a mere appearance, but a real creation. Ultimately, all is Brahman, but sentient beings have real individuality and the apparent diversity of objects is a real multiplicity.

Below I will argue that there is a formulation of the Pure Consciousness thesis that unifies Advaita Vedānta and Buddhism. I focus on Advaita for this unification, because it is generally agreed that Advaita is by far the most important of the three schools, at least from a philosophical and scholarly point of view. Further, we will see that the view of Advaita lends itself more readily to a unification with Buddhism, and my argument from quantum physics will make use of the Advaitic claim that the phenomenal world is a mere appearance of pure consciousness.

Pure Consciousness in Buddhism

Buddhism appears to be a diverse and heterogenous complex of various traditions and schools. One may even argue that there is no such thing as “Buddhism”, if we mean by that a unified spiritual teaching. However, this apparent difficulty in speaking of

Buddhism can be resolved, or sidestepped, if we restrict ourselves to the teachings and scriptures of the Pāli canon. For all the major schools of Buddhism accept the authority of the Pāli canon. It is, at least, generally acknowledged that the acceptance of the Pāli canon unifies the main schools of the Hinayana and Mahāyāna, including the Theravāda, Madhyamaka, and Yogācāra. In what follows, my main arguments will be based on the Pāli canon only.

Generally speaking, we find two different approaches to Buddhist metaphysics. One common claim is that Buddhism does not have a positive metaphysical theory and that the only metaphysical principle concerning the nature of reality is the principle of dependent arising (*paṭiccasamuppāda*). According to the second approach, the Buddhist view on the nature of ultimate reality is provided by its view of Nirvana (*nibbāna*), as the nature of Nirvana is the nature of ultimate reality.

These two approaches are not mutually exclusive, and one may pursue and hold both. However, I will now argue that it is a mistake to view Buddhist metaphysics through the principle of dependent arising. According to this approach, the nature of reality is process: reality is an everchanging flux of processes in which everything arises in dependence on causes and conditions. On this view, dependent arising is a metaphysical principle of causation, and the causal processes that arise dependently constitute reality. This common view, however, becomes rather questionable when we consider that the Buddha often explained dependent arising through the twelvefold chain (the twelve *nidānas*). As Gethin (1998: 149) points out, the twelvefold chain is the Buddha's "elaboration of the teaching of dependent arising". The teaching of the twelvefold chain spells out how, exactly, dependent arising works and how it unfolds. So, in order to understand dependent arising as taught by the Buddha, we should look to the twelvefold chain. In order to see that dependent arising is not a metaphysical principle of reality or of real causation, it will suffice to consider the first four links of dependent arising (see SN 12.2 or SN 22.5, for instance):

1. Ignorance (*avijjā*)
2. Tendencies, formations (*saṅkhāra*)
3. Discriminating consciousness (*viññāṇa*)
4. Name-and-form (*nāmarūpa*)

The most important point to note is that the entire chain is rooted in ignorance. This alone, I think, is sufficient to undermine the notion that dependent arising is a

metaphysical principle of real causation. Dependent arising is the principle that connects the links of the twelvefold chain. Given that the root condition is ignorance, dependent arising seems to be a principle that governs the unfolding of ignorance. Consideration of the links that follow supports this. The second link, *saṅkhāra*, is translated as “tendencies”, “formations”, or “volitions”. They are not what we would usually call the volitions of an individual, as it is sometimes suggested. Rather, they are the totality of karmic tendencies inherited from past actions that have given rise to one’s current life circumstances, including one’s current body and mind with all their tendencies (Bhikkhu Bodhi 2000: 45, Pine 2004: 63–64). They are also translated as “fabrications” for good reason. They are rooted in ignorance and they contain the seeds for all the fabricating tendencies of the individual mind through which the phenomenal world is falsely perceived as a mind-independent and objective reality. Importantly, there is no obvious and good reason to assume that this process of fabrication, which unfolds from the second link onwards, has an underlying physical base or objective foundation. In Buddhism, the world of objects and sentient beings is the world of named forms (*nāmarūpa*). Named forms, such as tables, chairs, cats, dogs, and so on, emerge only at the fourth stage of the process. In particular, and incredibly, they emerge in dependence and *only* in dependence on discriminative consciousness, the sprouting of karmic tendencies, and ignorance. It should be clear, then, that the world of *nāmarūpa* is *not* what we would call “the world”—a world that we presume to have mind-independent and material existence. In connection with that it should also be noted that it is a mistake to translate *rūpa* as “body” or “material form”. As Pine (2004: 59) points out, *rūpa* “does not actually refer to a concrete object but to the appearance of an object”. It is “not an objective category but a subjective one”. Moreover, it is inherently deceptive or illusory, because it falsely presents a “presumed outside to a presumed inside”. Further, *rūpa* is conditioned by naming, which is why the term commonly occurs in the compound *nāmarūpa*, and the arising of *nāmarūpa* is rooted in ignorance. So, whatever the meaning or correct translation of *rūpa*, it cannot be what we mean by “body” or “material form”. My suggestion would be to use the most literal translation, which is “form”. Form is phenomenal. It is the appearance of a bodily form, which is categorically different from a body, construed as a material entity.

All of this raises difficult questions concerning the interpretation of the twelvefold chain—questions that I will not try to answer here. For the most important point for us

is that, given that the twelvefold chain is the unfoldment of dependent arising, there is simply no good reason to think that dependent arising is a metaphysical principle of reality. Given, rather, that it underlies the unfoldment of ignorance and fabrication, it is a principle of fabrication, not of metaphysically real causation.

Let us turn then to the second approach to Buddhist metaphysics. The nature of Nirvana is often characterized merely negatively as a complete “blowing out” of all of the “fetters”—the cessation of craving, aversion, self-view, and so on (MN 64, CDB 56, for instance). However, there are some more positive characterizations in the Pāli canon. According to the most commonly mentioned, Nirvana is characterized as unconditioned and permanent, birthless and deathless, unconditional bliss and peace (MN 26, Ud 8:1, Ud 8:4). Like Brahman, Nirvana cannot be said to exist in the way in which objects or beings exist, but its existence cannot be denied either. Hence, it is said to be unconditioned and permanent, rather than existent. Likewise, Brahman is sometimes called birthless and deathless, as it never came into being and as it not liable to change or destruction. Like Nirvana, Brahman is said to be unconditional bliss and peace. When we take the characterization of Brahman as sat-cit-ānanda, we can see that Nirvana shares at least two out of the three characterizations: sat and ānanda. As mentioned, sat is not the existence of an object, but the permanent and immutable reality of the absolute or ultimate reality. To say that Brahman has absolute existence means that its reality is non-relative and non-finite. In that sense, Nirvana is clearly absolute as well. Given this, the remaining question is whether there is any good reason to think that Nirvana can also be characterized as a kind of consciousness. Consider the following two passages from the Pāli canon:

Freed, dissociated, & released from form, the Tathāgata dwells with unrestricted awareness. Freed, dissociated, & released from feeling... perception... fabrications... consciousness... birth... aging... death... suffering & stress... defilement, the Tathāgata dwells with unrestricted awareness. (AN 10.81, Ṭhānissaro Bhikkhu 2017: 1854)

Consciousness without surface, without end, luminous all around: here water, earth, fire, & wind have no footing. With the cessation of [conditioned] consciousness, each is here brought to an end. (DN 11, Ṭhānissaro Bhikkhu 2017: 86)

It seems perfectly clear that the Buddha's attainment of Nirvana is characterized here as the realization of an unconditioned and pure consciousness. The suggestion that Buddhism shares with Hinduism the Pure Consciousness thesis may seem so obviously wrong, at first, because it is commonly taught that, according to Buddhism, consciousness is a conditioned phenomenon. Given this, it seems that consciousness in Buddhism cannot possibly be what consciousness is in Hinduism. But the quoted passages make it plain that this apparent incompatibility can be resolved easily. As both passages make clear, enlightenment entails the cessation or dissolution of *conditioned* consciousness. Likewise, the twelvefold chain tells us that the cessation of ignorance entails the cessation of the discriminating consciousness (*viññāṇa*). However, as the quoted passages make equally clear, what remains is not just emptiness (*suññatā*). Rather, what remains and what is realized is an unrestricted awareness or unconditioned consciousness. As this is the consciousness of the Tathāgata, it seems only appropriate to call it pure consciousness.

The Pure Consciousness thesis

According to both Buddhism and Vedānta the highest aim and good is spiritual enlightenment (*bodhi* or *mokṣa*), which is the cessation of suffering (*dukkha*, *duḥkha*), or the end of *saṃsāra*, attained through the direct realization of the nature of ultimate reality. As we have seen, in both traditions ultimate reality can be characterized as permanent, birthless, deathless, bliss or peace, and as an unconditioned and pure consciousness. This alone establishes a very substantial unity between Buddhism and Vedānta.

Advaita Vedānta holds the further major claim that the phenomenal world is a mere appearance in pure consciousness, or of pure consciousness, and that it is illusory insofar as it appears to us as a mind-independent and objective world, consisting of a real multiplicity of material objects and beings. It may seem relatively easy to establish a unity between this Advaitic claim and some Mahāyāna schools, such as Yogācāra and Dzogchen. But we have already seen that even the teachings of the Pāli canon are much closer to Advaita than commonly thought. The twelvefold chain is a core teaching of the Pāli canon. We have seen that the most obvious and literal interpretation of this teaching suggests that dependent arising is not metaphysical principle of reality, but of fabrication. The twelvefold chain suggests, clearly, that the phenomenal world is false

and illusory, because it says that the perception (*viññāṇa*) of the world of named forms (*nāmarūpa*) arises from the tendencies of karmic formations and fabrications (*saṅkhāra*), which are rooted in ignorance (*avijjā*). It is crucial to note that the teaching does not say that ignorance and the karmic tendencies merely distort our perception of the world. It says that the experience and appearance of the phenomenal world arises from the karmic tendencies and ignorance.

Given this, the Pāli canon is actually perfectly aligned with Advaita in the claim that the phenomenal world is false and illusory. What is missing is the claim that the appearance is a mere appearance of pure consciousness. However, given what we have established so far, it seems only natural and plausible to add this claim to the proposed interpretation of Buddhism. Based on passages from the Pāli canon, we have already committed to the view that the nature of ultimate reality is an unconditioned and pure consciousness. Generally speaking, ultimate reality is that which underlies all non-ultimate realities that may be perceived or posited. That is how Advaita views the relationship between pure consciousness and the world appearance. Pure consciousness is the substratum that underlies the appearance. It seems only plausible to interpret the relationship between the ultimate and the phenomenal world in Buddhism in the same way. According to the proposed interpretation of the Pāli canon, the phenomenal world is false and illusory, and the ultimate is an unconditioned and pure consciousness. It is only plausible to assume that this unconditioned and pure consciousness enables the appearance, which includes the apparent operation of the conditioned consciousness. After all, it seems that any illusion requires a substrate and some kind of mind or consciousness. It seems, that is, that the appearance of an illusion requires something real that appears as the illusion. Further, it requires some kind of mind or consciousness, for we assume that it is possible to see through the illusion and to realize or know that it is an illusion. The attainment of enlightenment contains such a realization or knowledge, and so it seems that the underlying substrate of the illusion must be something that can realize or know that it is an illusion—some kind of mind or consciousness. This, we may add, is part of the reason why later Buddhist traditions see no problem with equating enlightenment with the realization of the true nature of the mind, or Buddha Mind, as the true nature of all there is. As it says, for instance, in the *Laṅkāvatāra Sūtra*:

As long as mentation goes on, there is materialism; when there is no rising of discrimination [with enlightenment], the world is seen as of Mind only. (Suzuki 1932: 157)

Bringing all of this together, the Pure Consciousness thesis that unifies Advaita Vedānta and Buddhism consists of the following three main claims:

- Pure consciousness alone is real.
- Pure consciousness appears as the world.
- The apparent multiplicity of material objects and beings is false and illusory.

Before we turn to quantum physics, let me mention one significant advantage of the proposed reading of Buddhism. The Heart Sūtra does not belong to the Pāli canon, but it is one of the best known and most revered Buddhist scriptures. It tells us that “form is emptiness, and emptiness is form” (Pine 2004, for instance). The first part of this saying is relatively easy to comprehend. According to the common and mainstream definition, emptiness (*suññatā*, *śūnyatā*) is the absence of an intrinsic self-nature due to dependent arising: all things are empty of an intrinsic self-nature because they arise only in dependence on causes and conditions. Given this, the first part of the saying (“form is emptiness”) seems to provide simply a statement of the Buddhist doctrine that all things are empty. However, if we assume this standard definition, the second part of the saying remains mysterious. If emptiness is the absence of an intrinsic self-nature, then what could it possibly mean to say that “emptiness is form”?

The proposed reading of Buddhism suggests a very different interpretation of emptiness that helps us to make sense of this. According to the proposed view, the most obvious interpretation is that emptiness is simply the emptiness of pure consciousness. Pure consciousness is empty in the sense that it is devoid of anything other than itself. As it says in the Vedas, it is “one without a second”. In particular, it is empty of a real multiplicity of mind-independent and material entities. The phenomenal world is a mere appearance, and this appearance is not something other than consciousness: it is a mere appearance of pure consciousness itself. Given this construal of emptiness, we get a straightforward interpretation of the second part of the saying. “Emptiness is form” in the sense that pure consciousness *appears as* form. This interpretation of emptiness is supported by some Vedānta scriptures as well. The *Yoga Vāsiṣṭha*, for instance, says about Brahman that “some call it the void, others pure consciousness” (Swami Venkatesananda 1993: 478). Further, there is explicit support for this interpretation in

some of the later Buddhist traditions. The great Dzogchen sage Longchen Rabjam, for instance, says that emptiness or the “empty, fundamental nature [...] is the ineffable and inconceivable nature of awareness”, and he characterizes enlightenment as the “recognition of bare and simple awareness, empty and luminous” (Padmakara Translation Group 2018: 232).

Quantum field theory

According to a very common assumption or perception, physics fully supports the view that the world consists of a vast number of macro-entities that are composed or made up of micro-entities, and that this composition of material entities bottoms out at a fundamental level of elementary particles. Let us call this view Material Realism, which is not only the prevalent and dominant worldview, but which has become part of common sense and is widely taken for granted as a non-negotiable foundation of all theorizing and practice. However, the view that physics vindicates Material Realism is by now not only problematic, but simply false. Here is the physicist Art Hobson from the introduction to his *Tales of the Quantum*:

What is the stuff of reality and how does it behave? One popular answer, that it’s made of atoms, is outdated and incorrect. We’ve known for a few decades that most of the universe is actually not made of the chemical atoms. However, atoms and everything else are made of things more fundamental and even more intriguing than atoms, namely “fields”. (Hobson 2017: xiii)

According to Hobson (2013 and 2017), there is a widespread consensus within physics that the fundamental entities of reality are quantum fields, not particles, and he says that fundamental quantum physics is now “entirely about fields” (2017: 93). Similarly, Raymer (2017: 20) says in a recent general introduction to quantum physics that “all the known types of matter and the known types of forces are described as quantum fields”. (See also Wilczek 2008, Brooks 2010, Rovelli 2014, Carroll 2016, for instance.)

We face two obvious questions. What are quantum fields and how are they related to particles? According to a common presentation, quantum fields are construed in analogy with a harmonic oscillator that fills up all of space, or that makes up all of space, depending on how one thinks about space. Following Raymer’s (2017: 260–61) non-mathematical formulation, a quantum field can be defined as an infinite number of “disembodied” points that tend to oscillate in concert in a wave-like motion. Each point

can take on a “superposition” of values at once, and the values at each point represent only probabilities—the probabilities that certain detection events may occur under a certain measurement protocol.

Where are the particles?

According to quantum field theory, the fundamental nature of reality consists of quantum fields. Does that mean that there are no fundamental particles? Are there any particles at all? As many physicists point out, the word “particle” is still in wide use primarily out of convenience (Auyang 1995, Wilczek 2008, Brooks 2010, Carroll 2016, Raymer 2017, Hobson 2017). When physicists talk about “particles”, they mean *quanta*. Particles are quanta, but quanta do not behave in any way as we would expect material particles to behave. For instance, when detected, and only when detected, quanta seem to manifest in a particle-like manner at a point. After detection they immediately seem to spread out over large areas as probability distributions—mere possibilities to be detected here or there. Equally puzzling is the fact that quanta tend to become entangled and then change in synchrony immediately at any distance. There is simply no good reason to hold on to the preconception that quanta are what we would take particles to be—they are not tiny material objects. Hobson (2017) makes this point forcefully:

Quantum physics is entirely about fields. It also makes the word *particle* superfluous and hugely misleading. There’s a simpler and far more accurate word: *quantum*. (93)

Particle is exactly the wrong word to describe such an object. It promotes a serious misconception about our most fundamental scientific theory. (105)

According to Hobson, quanta are “waves” or “disturbances” in the field (30). According to other common formulations they are “excitations” or “vibrations” in quantum fields (Teller 1995, Huggett 2000, Wilczek 2008, Brooks 2010, Zee 2010, Rovelli 2014, Carroll 2016, Raymer 2017, Hobson 2013). To get clearer on this, we need to know more about quantum fields—what is their physical nature? There is widespread agreement that fields are not composed of particles (Robinson 1996, Luper 2010, Kuhlmann 2015). Indeed, the question of what they are made of seems misguided, given that they are fundamental—not made of anything more fundamental. Sometimes it is asserted that they are “space-filling entities” (Wilczek 2008, Brooks 2010). But that cannot be literally true. A quantum field, as Raymer points out, “does not represent any

actualized physical reality” (2017: 272). Rather, their formal definition as fields of probabilities suggests an interpretation of their nature as mere possibilities or potentialities. For all we know, quantum fields are nothing but fields of possibilities or potentialities—the potential to appear particle-like under measurement (see Luper 2010, de Bianchi 2013, Raymer 2017, Hobson 2017).

This clearly threatens to undermine Material Realism together with our commonsense worldview in its entirety. Not only are particles not fundamental, but it seems altogether impossible to recover any substantial notion of material constituents, which we presume as the building blocks of the material universe. For particles or quanta to be real material entities, they would have to be the excitations or vibrations *of some physical substrate*. For how else could an excitation or vibration manifest as a material entity? But, for all we know, there is no such substrate. Particles are quanta, and quanta are the excited waves of the field, or in the field. But the field itself is nothing but the potential for those vibrations. It seems that there is nothing there, no physical substrate, that vibrates. Given this, claims such as “particles are manifestations of the field” (Rovelli 2014) seem untenable, or at least misleading, because they falsely suggest that there is something, some physical entity, that manifests as something. As Raymer says of the ontological status of an electron: “a moving wave appears to be associated with the electron, but what is ‘waving’? Quantum *possibilities* are ‘waving’. A *quantum possibility wave* does not involve a physical medium” (2017: 115). Generally, “particle-like entities are merely aspects of the quantum field; they are not separate ‘things’ in nature” (262).

The argument for the Pure Consciousness thesis

My argument for the Pure Consciousness thesis has two components. According to the first, quantum field theory undermines Material Realism. According to the second, the Pure Consciousness provides an alternative ontology that allows us to make sense of what quantum field theory seems to imply about the nature of reality.

Currently, our best scientific theories are quantum field theories. Their predictive accuracy is unparalleled, and we have good reason to believe that field theories are on the right track in uncovering the true nature of reality. As we have seen, quantum field theories say that the fundamental nature of reality consists of quantum fields, and they make it very difficult to see how we can preserve the notion that the world consists of

material macro-entities that are made up of elementary micro-entities. For all one can tell, fields are not physical substrates that vibrate or wave when particles emerge. When there is no material substrate that vibrates, how can material particles possibly emerge from such “vibrations”? The notion of elementary particles has simply become untenable with quantum field theory. But if material micro-entities are untenable, so are material macro-entities! Quantum field theory renders Material Realism untenable.

As we have seen, the most obvious and natural interpretation of quantum field theory is in terms of the actuality or manifestation of potentialities. Quantum fields are mere potentialities to manifest as quanta under measurement. As pointed out, it seems impossible to recover a material actuality from this pure potentiality. The Pure Consciousness thesis provides an alternative ontology. It says that the phenomenal world is mere appearance—it is nothing but a manifestation in pure consciousness and of pure consciousness. In parallel with the suggested interpretation of quantum field theories, it seems only natural to construe pure consciousness as a mere potentiality as well. On this interpretation, pure consciousness is the pure potentiality to manifest as appearance, or to appear as the phenomenal world. Consider the traditional mirror analogy. The capacity of a mirror to reflect images is its potentiality to appear as visual form. Likewise, the capacity of pure consciousness to appear as the various phenomena that constitute the appearances and experiences of world are its potentiality to appear as such. This notion is in line with what some physicists have said about the reality of particles. According to Weinberg (1977), for instance, particles are “mere epiphenomena”, or Hobson (2013) says that quantum fields have “particle-like appearances”. If we construe this through the Pure Consciousness thesis, we can generalize the parallel. There appear to be individual entities, small and large, and their ontological reality is what it appears to be: they are all mere appearances.

I propose then the following view in accord with the Pure Consciousness thesis: the structure captured by quantum field theories is the structure of the potentiality of pure consciousness to manifest as appearance. Note, the view does not say that quantum fields are pure consciousness, and it does not say that the structure of quantum fields is the structure of pure consciousness—rather, it is the structure *of its potentiality* to appear as a multitude of forms. Nevertheless, on this view, pure consciousness is the ultimate substratum or ground of the appearance.

According to the suggested interpretation of quantum field theory, there is an obvious sense in which particles or quanta are empty of matter. This supports the interpretation of emptiness suggested above, for the emptiness of particles generalizes, under the assumption that macro-entities are nothing over and above aggregates of particles. In fact, it becomes untenable to speak even of empty “things”, as they are mere phenomena. This entails that the apparent composition of macro-entities by micro-entities is also a mere appearance. Macro-entities seem to be made of micro-entities because they seem to decompose into parts under certain interventions. The Pure Consciousness thesis is committed to the claim that this is a mere appearance, as there are no separately existing and material macro-entities that are made up of micro-entities. In other words, material composition is an illusion, according to this view.

Clarifications, objections, and replies

I have taken on two very ambitious tasks and the proposed view and argument raise many questions and objections. In this final section I offer a few more clarifications and responses to some of the most obvious issues.

One may object—and I suspect that many would object—that the Pure Consciousness is simply utterly implausible and counterintuitive. Concerning this kind of objection, or reaction, it is important to note that something may seem implausible or counterintuitive either in the sense that it is contradicted by commonsense *belief*, or in the sense that it is contradicted by common and direct *experience*. The Pure Consciousness thesis clearly contradicts commonsense belief. But it is not contradicted by direct experience. In fact, it should be clear that nothing in our direct experience can possibly falsify the Pure Consciousness thesis, because in direct experience we only ever encounter experience or the appearance of objects, never material objects as such. It may help to note that if the Pure Consciousness thesis was contradicted by experience, then it should be possible to discard idealism simply by reference to direct experience. But it is generally agreed that idealism cannot be discarded in this way. No individual entity or material object is ever directly given, as such, in our experience. All there ever is, in direct experience, is the appearance of objects. There is no way to go beyond this, and “only the vulgar”, as Hume put it, “confound perceptions and objects” (1739/1978: I, IV, ii). Not only is the Pure Consciousness not contradicted by direct experiences. But direct experience supports the thesis insofar as direct experience is always non-dual, as many

have pointed out (Ram-Prasad 2002, Spira 2008, Timalina 2009, Goode 2012, for instance). This is easier to see for some of the sense modalities than for others. For auditory experience, for instance, it is rather straightforward. When you hear a sound, ask yourself whether the appearance of the sound can be separated from the hearing of it. Experience should confirm that they cannot be pulled apart. The appearance of the sound and the hearing of it are not two (non-dual). Then ask yourself whether in your direct experience there is anything else to hearing a sound than the appearing of it. In particular, are you aware of any separation and interaction between a subject and an object? Experience should confirm that there is nothing else to it. The appearance of the sound is all there is to hearing it. There is no direct experience of an interaction between a subject and an object, and there is no indication of a subject separate from the object. In other words, in your direct experience, auditory experience is non-dual. This supports the Pure Consciousness thesis, because the thesis entails the non-duality of subject and object, as explained in Advaita Vedānta and in the non-dual Buddhist traditions such as Yogācāra and Dzogchen.

Another way to see this is presented by the dream analogy. Most of the great sages of Buddhism and Vedānta have said that the phenomenal world is like a dream (and like a mirage, a magical illusion, castles in the sky, and so on). Of course, we have to be careful how to construe the analogy. Here we can use it to establish the non-duality of experience. First see that dream experience is non-dual. In a dream, it seems to you that you are a subject who encounters a world of objects. But this apparent duality is false. Who are you in this? You are not actually the subject who encounters a world, because you are the mind who dreams up both—you dream up the encounter in its entirety. So, the dream is non-dual in that both the apparent subject and the apparent world appear to one and the same mind. This means, also, that the subject is not really a subject, because the subject appears to your mind—the subject is an object of your experience. Using this as our analogy, we can see that the ordinary waking experience is exactly like that. What seems to be subject, your body and mind, consists of objects of experience, and as with auditory experience, the experience of those objects cannot be distinguished from their appearance. How do you know your body and your mind? They appear in experience, and their appearance and experience cannot be separated. This means that your ordinary waking experience is in fact non-dual.

A related objection stems from the apparent coordination of sense perception. Sense experiences in the different modalities, such as touch and vision, are highly coordinated, which seems to suggest that they are caused by external entities. It has to be admitted that this is not conclusive proof—otherwise idealism could be rejected easily with reference to this observation. It is not proof, but an inference to the best explanation. This means that it can be countered by an alternative explanation. In reply I merely point out that the Pure Consciousness thesis provides a very parsimonious alternative: sense experiences appear to be caused and unified by individual mind-independent entities simply because they appear in and are manifestations of one and the same pure consciousness.

The question remains why the world appears as if consisting of individual and separate objects and beings? The suggestion that the appearance just happens to be such that it appears as a multitude may seem very unsatisfactory. Here I note that it is not the view of Advaita and Buddhism that we have to accept it as a brute fact that the appearance is an appearance of a multitude. According to both traditions, we are under a pervasive spell of ignorance (*avijjā*, *avidyā*). At the core of this is the illusion of the individual self and the conceptualizing fabrications of the mind, which create and sustain the illusion of an external world populated by independently existing entities (see Deutsch 1973, Loy 1988, King 1995, for instance). However, the underlying and true nature of reality can be realized. Enlightenment or liberation (*bodhi* or *mokṣa*) would lift the veil of illusion and reveal the oneness of all as a mere appearance of pure consciousness. It is important to note that the appeal to the sayings of enlightened sages is not part of the argument here. Rather, the appeal to ignorance and its possible dissolution is part of the view. It explains the manner of the appearance and does not serve as a reason or argument for the view. Further, the nature of the error is not as counterintuitive or esoteric as it may seem. The ignorance at the core of the illusion involves mistaking the body-mind for a subject, contrary to direct experience. In direct experience, we know the mind and the body only ever as an object, never as a subject. The Pure Consciousness thesis implies that direct experience reveals the truth: the body-mind is a mere appearance in experience, not the subject of experience. Pure consciousness itself is the subject of experience—a pure subject free from the subject-object duality. So, once again, while the view contradicts commonsense belief, it is not contradicted by direct experience.

Another objection says that the Pure Consciousness thesis is incompatible with a scientific worldview and scientific knowledge. My reply here is that the Pure Consciousness thesis is compatible with a version of structural realism. Very roughly, according to structural realism, reality consists of patterns: “it’s real patterns all the way down” (Ladyman & Ross 2007: 228). One problem for the common versions of this view is that objects and sentient beings do not seem to be mere patterns. Structuralism faces the burden of having to explain away appearances, and it faces the objection that talk of structure is incoherent unless it is the structure *of* something—of some substrate that *has* the structure. The Pure Consciousness thesis sides with structural realism in its rejection of the ontology of individual entities. But unlike the standard versions, it has no problem in explaining appearances, because it holds that the world of appearances is just that: a world of appearances. Further, the view does not have to deny the very plausible claim that a structure must be a structure of something. It agrees that science, and in particular physics, captures only structure, and it can add that this is indeed the structure of something: the structure of what appears and of the underlying potentiality to appear. This view can therefore agree with van Fraassen’s (1980) dictum that the aim of science is to “save the phenomena”. But it departs from the standard reading of this phrase by taking it very literally: the phenomena really are mere phenomena.

It has been suggested that consciousness plays a role in the collapse of the wave function, and some have proposed views that give *individual conscious minds* a fundamental role in the interpretation of quantum physics (Goswami 1993, Rosenblum & Kuttner 2006). This view is rejected by most by physicists (see Hobson 2017, Raymer 2017). Let me stress, therefore, that the position proposed here is very different from such collapse theories. It is not in any way suggested here that conscious observation by individual conscious minds plays a role in the collapse of the wave function.

Finally, concerning the argument from quantum physics, one may object that current quantum field theories identify several fundamental fields, whereas the Pure Consciousness thesis says that there is only that one pure consciousness. A first thing to note here is that the history of field theories is a history of unification (Goenner 2004) and that the aspiration of a “grand unification” is “alive and well today in the vision of a unified quantum field theory of everything” (Hobson 2017: 30). So, while currently several quantum fields are treated as fundamental “most physicists think they are all

simply different aspects of a single yet-undiscovered unified field” (Hobson 2017: 78; see also Hagelin 1987, Sapogin 2015). More importantly, the proposed view does not require the unification of fields. Most of science describes the structure and the patterns within the appearance. Quantum field theory reduces the structure of the world appearance to the unifying structures of a few fields, and it uncovers thereby the underlying potentialities to appear. It is not a problem for the proposed view that these potentialities are associated with a multitude of fields, just as it is not a problem for the view that there appears to be a multitude of entities. Pure consciousness is assumed to be the one unified ground of being. The structure captured by science is the structure of its manifestations and, at the fundamental scientific level, of its potentialities to manifest as appearance.

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