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IS ANYONE THERE? AN INTERDISCIPLINARY EXPLORATION OF THE SELF

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Abstract

Belief in a personal afterlife is a central tenet of Christianity as well as other religions; but how do such convictions fare under the scrutiny of philosophical analysis and scientific inquiry? Adopting an interdisciplinary approach, this study explores current thinking about the nature of consciousness and what, if anything, constitutes the self. It examines the subjective quality of mental activity, together with other phenomena not readily accommodated within a physicalist belief-system, along with seminal early Christian expositions of afterlife, before concluding that personal consciousness and a sense of the self are neither accidental nor illusory, but genuine phenomena that supervene the electro-biochemical processes of the brain and could, in principle, be animated by other substrates - findings that resonate with Christian insights relating to afterlife as resurrection, as re-embodied, form-full, trans-physical being.

Keywords: afterlife, consciousness, dualism, physicalism, self

1. Framing the problem

'I believe in … the resurrection of the body and the life everlasting' (Apostles) … "We look for the resurrection of the dead, and the life of the world to come" (Nicene-Constantinopolitan). According to its great ecumenical creeds, belief in life after death is a central tenet of Christianity. Yet, despite the reassurance and hope it enshrines, many believers struggle to make sense of such an ambitious claim. It raises a number of seemingly intractable questions. For example, where would this afterlife take place, presumably nowhere in space-time (in the Universe, as we understanding it; 'Heaven' cannot be somewhere like Manchester, Machu Pichu or Mars) - is there anywhere else? And what form would it take, presumably not physical because that would chain us to the very contingent existence that inevitably ends in decay and annihilation? And who is the 'I' who survives, presumably not our physical bodies or brains which are unsustainable in their current configurations - are we anything else, a discrete,

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disembodied soul, perhaps? And how would that soul, that essential and irreducible 'I,' be sustained without a material body to animate and define us or a physical brain to undertake those quintessential mental activities of human being?

These are formidable questions that are rendered all the more forbidding, if not nonsensical, within the pervading western worldview of physicalism - the *a priori* axiom that the entire Universe, its constituents, interactions and manifestations, can be comprehensively accounted for in terms of matter. Within such a paradigm, the existence of a subjective 'I' is rendered problematic for a variety of reasons, with the prospect of that 'I' surviving the destruction or decomposition of our material bodies and brains inconceivable. The renowned Nobel scientist of DNA's double-helix fame, Francis Crick, succinctly articulates physicalism's creed when he states, '"You', your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behaviour of a vast assembly of nerve cells and their associated molecules". [1]

However, by no means all scientists or thinking people more generally are persuaded by such an assertion, not least because it calls into question the integrity of subjective experience and the authority of self-consciousness. Stated simply, is there anything more fundamental to personal identity or, for that matter, beyond reasonable doubt than our awareness of being 'someone' who thinks and wills, who experiences and perceives, who recognises and remembers? Theologian David Bentley Hart makes the point with characteristic rhetorical force: "… we have no plausible causal model for how consciousness could arise from mechanistic physical processes, and therefore no reason at all to presume some sort of necessary bond between mind and matter. And, truth be told, we have far better warrant for believing in mind than we do for believing in matter. Of the material world we have compelling evidence, of course, but all of it consists in mental impressions and conceptual paradigms produced by and inhabiting the prior reality of consciousness. Of consciousness itself, however, our knowledge is immediate and indubitable. I can doubt that the world really exists, but I cannot doubt that I have intentional consciousness, since doubt itself is a form of conscious intention." [2]

As a consequence, attempts to reduce this self-knowledge to an illusion (i.e. consciousness is only an appearance of being something in its own right) or an accident (i.e. consciousness is a side-effect of brain activity) appear to offer, at least in the court of common sense and lived experience, unsatisfactory accounts for this most quintessential of phenomena. After all, does an illusion not presuppose consciousness, as Hart implies - surely, there has to be some 'one' to be deluded? Or, again, whilst neuroscience and associated disciplines continue to make advances in understanding how the brain works, no one has yet been able to supply a convincing account of how (or, for that matter, why) physical matter and processes, which are open to scientific investigation, should give rise to subjective experience, a wholly different species of phenomena, which is not - what philosopher David Chalmers has coined as the 'hard problem

of consciousness'. "The hard problem of consciousness is the problem of *experience*. When we think and perceive, there is a whir of information-processing, but there is also a subjective aspect … there is *something it's like* to be a conscious organism. This subjective aspect is experience. When we see, for example, we *experience* visual sensations: the felt quality of redness, the experience of dark and light, the quality of depth in a visual field. Other experiences go along with perception in different modalities: the sound of a clarinet, the smell of mothballs. Then there are bodily sensations, from pains to orgasms; mental images that are conjured up internally; the felt quality of emotion, and the experience of a stream of conscious thought. What unites all of these states is that there is something it's like to be in them. All of them are states of experience. It is undeniable that some organisms are subjects of experience. But the question of how it is that these systems are subjects of experience is perplexing. Why is it that when our cognitive systems engage in visual and auditory information-processing, we have visual or auditory experience: the quality of deep blue, the sensation of middle C? How can we explain why there is something it is like to entertain a mental image, or to experience an emotion? It is widely agreed that experience arises from a physical basis, but we have no good explanation of why and how it so arises. Why should physical processing give rise to a rich inner life at all? It seems objectively unreasonable that it should, and yet it does." [3, 4]

Here, the force of Descartes' *cogito ergo sum* seems decisive in the sense that we have no more direct or intimate access to anything than our own sense of being someone and, if that is fundamentally flawed, then there is no basis upon which to posit the independent existence of anything, let alone a physical universe. In fact, there is surely a self-defeating logic to any argument that relies on human intelligence, reason and free-thinking to disprove the existence of the same, especially when it does so on the basis of a physical universe of which we have no unmediated access. This is not to imply that we are beyond deception or delusion - self-evidently, we are not - but it is to assert that there is an 'I' to be deceived or deluded. "But there is I know not what being, who is possessed at once of the highest power and the deepest cunning, who is constantly employing all his ingenuity in deceiving me. Doubtless, then, I exist, since I am deceived; and, let him deceive me as he may, he can never bring it about that I am nothing, so long as I shall be conscious that I am something." [5]

Few scientific conundrums bring the priority of self-consciousness into greater focus than the so-called measurement problem. "To summarize the argument briefly, it has these five steps: (1) In quantum theory the fundamental theoretical description is in terms of multiple hypothetical possibilities and their relative probabilities. (2) To relate these hypothetical possibilities to the world of facts, measurements must be made by an 'observer'. (3) A measurement is complete at the point when the observer has made a judgment of fact, that is, when he comes to *know* that one of the hypothetical possibilities is a fact and the others are not. (4) What makes the observer an observer, therefore, is an act of the intellect. (5) This act cannot be completely described by the physical theory

without inconsistency, for the mathematics of the theory gives us only probabilities while the observations yield definite outcomes." [6]

In the macro-atomic world of the everyday, which is described by Newtonian physics, physical objects such as mountains, chairs and fires have a location within the three-dimensions of space. An object may move from one place to another, but its coordinates can be plotted from A to B. On the contrary, according to at least one of the leading descriptions of Quantum physics (the Copenhagen interpretation), at a sub-atomic level, particles such as electrons do not have a fixed position in a comparable way to a macro-atomic object. Instead, their position is best described by a wave function (the Schrödinger equation) which delineates their probable location at any point in time. However and somewhat paradoxically, it is only when measured (when, say, a scientist with the requisite apparatus carries out an experiment) that this probabilistic wave function collapses as an electron 'materialises', gaining position - the implication being that, prior to measurement, an electron isn't anywhere in particular, only coming into existence when 'observed'. Unsurprisingly, there is considerable debate over what constitutes a measurement, as well as over the ramifications of this theory for the nature of reality (apparently, Albert Einstein never accepted it), but what this phenomenon does seem to point towards is the priority of subjectivity over objectivity in the sense that, at least at a sub-atomic level, consciousness crystallises physicality rather than physicality giving rise to consciousness.

Yet this simply begs the age-old question of what constitutes subjective consciousness. If it cannot be equated with or reduced to the firing of synapses, together with the sum of electro-biochemical neuronal activity in the brain, then what is it? Despite the contemporary-sounding formulation, this is by no means a new question; rather, it is another permutation of the age-old dualism debate over whether there is non-physical component to human being, often termed in religious circles as 'soul' or elsewhere as 'self'. Allied to this is another enduring puzzle, namely, if there is an essential, non-physical component to subjective consciousness, then how does it relate to the physical - how does the mind relate to the brain or the soul interact with the body? [7, 8]

2. Does AI hold the key?

The development of computers over recent decades has led some to wonder whether they supply an analogue, namely whether the relation between the conscious self of subjective experience and the human brain consisting of billions of neurons can be likened to that of a programme running on a computer with predictable speculation over whether an afterlife may be possible in the form of our conscious selves being 'down-loaded' from our carbon-based processors only to be 'uploaded' onto some silicon-based alternative [9, 10]. Initially, this may sound compelling, not least because of our misleading use of metaphors which attribute agency to computers. We speak of them 'remembering', 'understanding', 'interpreting' - even 'playing chess' and

'composing music'. But there is no reason to believe that there is a discrete subject within a computer comparable to the conscious self, capable of performing these tasks independently. On the contrary, computers presuppose human consciousness, which is a prerequisite for creating the programme determining how semi-conductors (or whatever form the substrate takes) will manipulate data bit sets and so forth. As the name suggests, computers are designed to manipulate data according to prescribed rules.

But what of Artificial Intelligence (AI), especially the prospect of Artificial General Intelligence (AGI, aka Strong AI) where computers will be able to perform any intellectual task that a human being can undertake. Putting to one side the question of whether AGI is achievable, it is difficult to conceive of how AI more generally would be able to escape its predetermined programming parameters that, however extensive, could never be exhaustive, in a way that human intelligence need not be. As has already been demonstrated, AI can outperform humans within those parameters (e.g. IBM *Deep Blue's* victory over chess grandmaster Garry Kasparov in 1997), but will it ever be able to operate beyond them? Drawing on logician Kurt Gödel's Theorem which sought to prove that in certain conditions, a computer can always be outwitted by a human who knows the parameters of the programme it is running, philosopher John R. Lucas and mathematician Roger Penrose have demonstrated that if human beings were essentially computers they would be able to know their own programme parameters and, as a consequence, outwit themselves. Physicist Stephen Barr offers the following helpful analogy: "Imagine someone wandering inside a complicated maze, and unable to find the exit. It may be, in fact, because of the way the maze is designed, that the exit cannot be reached from where the person is inside it. However, from inside the maze, this fact may not be apparent. (It may even be impossible to prove by wandering about inside the maze, if the maze is infinitely large.) However, to someone who can look down on the maze from above, and see where the exit is, where the person is, and how the maze is constructed, it might be obvious that the person in the maze cannot reach the exit from where he is no matter what he does … The analogy is this: The man in the maze is the computer. The paths of the maze are the rules of the computer program, which guide the steps of the computer. Just as the paths of the maze take the man from one place to another, so the rules of the program take the computer from one statement or string of symbols to another. The statement 'the man cannot reach the exit from where he is by following the maze' … This statement may not be provable by the man (or disprovable by him) no matter how much he wanders in the maze. It is 'undecidable' by merely wandering in the maze. But it is nevertheless true, and can be seen to be true by someone who understands how the maze is put together. There are certain things that a consistent program cannot prove, because it is trapped within its own rules, as the man is trapped in the maze. But a mind that is not so trapped can examine the program from outside, as it were. And in that way it can gain insights that enable it to reach conclusions unavailable to the program itself." [6, p. 221-222]

AI achieving comparable outcomes in a restricted register of human mental activity, however genuinely innovative those outcomes may be, does not of itself demonstrate the existence of consciousness or even that those outcomes emerged from analogous processes. Nor is such an equivalence of competence a satisfactory account of the interiority of human conscious experience which also entails emotion, intuition, sensibility and so forth. In the light of this, perhaps the seminal question capable of making this distinction visible is, to human and AGI alike, 'Describe your personal experience of consciousness'. At the time of writing, therefore, there are no convincing grounds for maintaining that increasing the competence of AI in relation to human intelligence can be equated with consciousness or will of itself generate consciousness, although the latter cannot be ruled out. Harari explores how severing the tie between intelligence and consciousness, already evident in AI, opens up new possibilities for the former to continue to evolve without the constraints of the latter, thereby rendering homo sapiens increasingly redundant and no longer the primary driving force in determining the future of the planet [10, p. 409-462].

3. Contributions from parapsychology and paranormal studies

Picking up the line of argument developed earlier which attempted to demonstrate that consciousness is not illusory, but a genuine phenomenon, we need to explore further the relationship between this phenomenon and the substance of the brain. This seems an apposite juncture to introduce a growing body of data that sits uneasily within the pervading physicalist paradigm to which AI belongs. For example, the testimony of people who survived after being close to death or whose life-sustaining processes ceased for a period before they subsequently revived or were resuscitated. Building on the pioneering work of Raymond Moody [11, 12], who popularised the phrase 'near-death experience (NDE)', fellow consultant physiatrist, Bruce Greyson, and others have developed an analytical framework ('Near-Death Experience Scale') for investigating such phenomena [13] and founded the International Association for Near Death Studies (IANDS) for the pursuit of the same, publishing a peer-reviewed, *Journal of Near-Death Studies* [https://iands.org]. One characteristic of NDEs is pertinent here, namely, an awareness of occupying a centre of consciousness outside of one's body (OBEs). In such cases, persons claim to be aware of being able to perceive their bodies from a different locus. Often, they speak of 'looking down' on themselves from an elevated vantage point. Given the nature of the circumstances associated with NDEs, the challenges of replicating them in a laboratory setting are formidable. Attempts have been made using visual targets, randomly selected and positioned where they could only be viewed from an 'out-of-body' perspective, but none to date has yielded conclusive results [14-17], although Greyson, one of the experimenters, highlights an important objection brought to his attention by some of those claiming to have experienced OBEs: "Why, they argued, would patients whose hearts had just stopped and who are being resuscitated - patients who were

stunned by their unexpected separation from their bodies - go looking around the hospital room for a hidden image that has no relevance to them, but that some researcher has designated as the 'target'?" [18]

However, amidst a growing body of testimonial literature can be found more critically aware accounts. The most comprehensive database of NDEs is the one curated by the Near-Death Experience Research Foundation established in 1998 by consultant oncologist Jeffrey Long and Washington Attorney Jody Long, which currently curates in excess of 3,500 entries (www.nderf.org). See also J. Long's *Evidence of the Afterlife: The Science of Near-Death Experiences* [19]. For example, studies have been made of intensive care patients who recall undergoing OBEs, some of whom were able to describe extensively their own resuscitations following cardiac arrest, including unusual details, claiming to be observing the procedures from outside their bodies. What is particularly striking is that when other intensive care patients who did not undergo OBEs were asked to imagine what happened during their resuscitations, their attempts tended to be vague, generalising and, not infrequently, wrong on significant details [20, 21]. Here we have what approximates to controlled experimental conditions yielding results that have led some to question whether consciousness can be satisfactorily explained in terms of brain activity [J. Long, *Evidence for Survival of Consciousness in Near-Death Experiences: Decades of Science and New Insights*, 2021, https://www.bigelowinstitute.org/wp-content/uploads/2022/10/long-survival-consciousness.pdf]. But these results, some of which have been challenged [22], remain inconclusive and fall short of veridical proof

What is more, neurologist Olaf Blanke and colleagues have demonstrated that applying stimulation (transcranial magnetic stimulation, TMS) to a particular region, the temporoparietal junction (TPJ) of the right hemisphere, of the brains of conscious, healthy patients consistently produced experiences comparable with OBEs [23-26]. Although some consider these findings to supply a satisfactory explanation for all manifestations of the phenomenon in question [27, 28], at least two cautionary notes would suggest this conclusion to be premature. For one, deep brain stimulation has also demonstrated how artificial interventions of this kind can produce experiences of, for example, touch, sight and sound in recipient brains [29-31] - yet few, I suspect, would claim that all sensory experiences can be accounted for in this way, thereby rendering organs such as hands, eyes and ears, not to mention the outside world, redundant. A capacity to simulate particular kinds of sensory experience within a specific region of the brain does not, of itself, supply a sufficient account for all such experiences, some of which may be generated by other means [7, p. 131-151]. Furthermore, we are still left with Chalmer's 'hard problem' of consciousness. Susan Blackmore, for one, is persuaded that the temporoparietal junction is the region of the brain is responsible not only for OBEs, but also for consciousness and subjective experience more broadly: "This body schema [i.e. the constantly updated model of the body with its posture actions and position in space] is combined, at the TPJ [temporoparietal junction], not only with hearing, sight, taste and smell, but with thoughts, imaginings and memories sustained in

other parts of the temporal and parietal lobes, and with intentions and control functions handled in the frontal lobes to create a rich sense of self that goes beyond just the body, providing the sense that you are an integral human being, in this position, carrying out these actions, having these intentions and thinking these thoughts right now" [27, p. 131].

In drawing such inferences, Blackmore may have correctly identified the regions of the brain associated with conscious experience, in a comparable way to generally established associations between the occipital lobe and vision or the temporal cortex and hearing. However, it does not follow that consciousness and subjective experience can be equated with or reduced to the measurable electro-biochemical activity of the TPJ, any more that the electro-biochemical activity of the occipital lobe is a sufficient cause for the experience of seeing a physical object, such as a car. In the case of the latter, the occipital lobe functions more like a receiver of sensory data before the experience of seeing a car can emerge within the brain; perhaps the same is true of the TPJ?

A second cautionary note relates to the observation that the artificial generation of OBE-like experiences required additional stimulation over and above normal brain activity. As we have already noted, however, most of the testimonial accounts of OBEs belong to persons whose hearts had temporarily stopped pumping, thereby reducing blood flow throughout the body resulting in, according to EEG traces, a cessation of brain activity. Given this radical reduction, does Blanke's stimulation theory provide a convincing aetiology?

Another anomaly for the physicalist paradigm is the lack of correlation between brain size and normal brain function. On the one hand, there are documented cases of patients who suffered from hydrocephaly (fluid on the brain) as children who, in adulthood, demonstrated normal mental capacities whilst in some cases possessing no more than 5% of the brain tissue of a normal adult. Noteworthy is a former student from the University of Sheffield with an IQ of 126 and a first-class honours degree in mathematics whose skull was almost entirely full of cerebrospinal fluid surrounded by a thin layer of brain tissue roughly one millimetre thick. This is an extreme example, but by no means unique, causing one eminent medical academic to ponder: "The drastic reduction in brain mass in the hydrocephalic cases seems to demand *unimaginable* levels of redundancy and/or plasticity - *superplasticity*. How much brain must be absent before we … admit that the standard model, however incarnated, will not work?" [32]

Or again, unlike computing and conventional hardcopy storage devices where there is a direct correlation between quantity of information stored and size of storage facility, whether a hard disk or a filing cabinet, in the case of human memory no such relationship appears to exist. Research involving savants with extraordinary capacities for retaining and recalling information reveals that they tend to possess average-sized brains or, occasionally, reduced cranial capacity (microcephaly), suggesting once again either massive underutilisation of brain capacity in most humans or alternative explanations for how brains remember, if indeed that is what they do. Such findings, when taken

along with those relating to hydrocephalics mentioned previously, are leading specialists to consider the previously unthinkable possibility of some form of remote storage (cf. cloud computing) with the brain serving more as a receiver and transmitter than a repository [33, 34].

These findings from NDEs, hydrocephalics and savants are not conclusive evidence that consciousness cannot be satisfactorily accounted for in terms of brain function, but they do add to the growing body of considerations that point in this direction. There are already examples of where physical reality appears to be affected by factors that transcend physicality. Consider the so-called laws of nature. Although these have been formulated within time (e.g. Newton's law of universal gravitational attraction or the first law of Thermodynamics), they have presumably held sway since its onset, shaping the expansion of the Universe from 'Big Bang' onwards. As such, although the physical universe makes them visible, so to speak, these formulations (or however they should be described) must be discrete and, at least logically, antecedent. Or again, the phenomenon of morphogenesis, the development of, say, a human being from a fertilised ovum, isn't determined by physical factors alone. The once popular metaphor of DNA as the morphogenetic programme determining every aspect of development is no longer sustainable because in certain areas it evidentially does not carry the requisite data. Skeletal formation is a case in point. Cells in a femur and a humerus are genetically identical and yet, during the process of morphogenesis, some of them form into thigh bones and others into upper arm bones, suggesting that additional non-physical sources of information or constraints may be at play [35].

Medical symptoms and conditions together with their ameliorations or remedies which used to be referred to, sometimes pejoratively, as 'psychosomatic' demonstrate how non-physical factors can affect human bodies detrimentally or beneficially. In the case of the former, standard textbooks such as the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) [36] list under 'somatization disorders' a broad range of symptoms that patients experience where no biological or organic cause has been identified, including pain (head, abdomen, back, joints, extremities, chest, and rectum), nausea, vomiting, diarrhea, intolerance of food, excessive menstrual bleeding, urinary retention, sexual dysfunctions, paralysis, blindness, deafness, seizures, amnesia, fainting, difficulty swallowing, a lump in the throat, and hallucinations. Equally, recent research into the placebo response demonstrates beyond reasonable doubt the therapeutically-effective contribution made by non-physical factors such as trust, expectation and symbolic intervention, when exercised within certain relationships and frameworks of meaning, to the treatment of a broad range of medical conditions - affecting not simply the patient's subjective experience of their symptoms, but the measurable physical status of their condition [37-40].

4. Three defining questions

All this suggests that the relationship between consciousness and the electro-biochemical activities of the brain may not be linear in the sense that the former can be comprehensively accounted for by the latter, something we shall return to latter. Before doing so, however, we should emphasise an important distinction, brought into focus by Susan Blackmore previously, between two inter-related phenomena, namely, consciousness and what philosopher Galen Strawson calls the 'sense of the self' which he goes on to describe in these terms: "By the 'sense of the self' I mean - at least - the sense that people have of themselves as being, specifically, a mental presence, a mental someone, a mental locus of awareness, conscious mental subject that is distinct from all its particular experiences, thoughts, hopes, wishes, feelings, and so on" [41].

This is an important distinction because although consciousness is subjective in nature, it does not imply a self. There is no reason in principle why moments of conscious experience, even if experienced by the same organism, would amount to anything beyond a stream of disconnected incidents of passive awareness. The coalescing of these moments and their interpretation from a particular perspective, the emotional reaction they engender and the response they elicit, the recollection of lived experience through time, the capacity for self-reflection, decision-making and intentional thought, all these and more would appear to be constituted from consciousness and yet to transcend it. A recognition that raises at least three salient questions:

- Is consciousness a property of all matter?
- Is the sense of the self a product of consciousness?
- Is the sense of the self-dependent upon matter, particularly, the brain?

Let us consider each in turn, briefly although hopefully not superficially. In the case of the first question, as we have already intimated, there appears to be only two fundamental options, albeit with a number of permutations - monism or dualism. Either consciousness arises from matter or it is a discrete phenomenon that interacts with matter in some way. Both of these have their problems, but applying Occam's Razor requires us to examine the first before inferring an additional trans-physical element. This has led some physicalists and others to adopt panpsychism, the belief that all matter, from the smallest sub-atomic particle to the vastest structures within the universe, is conscious to some degree [42, 43]. Although this may initially sound implausible and beyond verification, it bears closer scrutiny. It all depends on how we define being conscious. For example, panpsychism would appear to be incompatible with Thomas Nagel's widely adopted definition, "An organism is conscious if there is something that it is like to be that organism" [44]. Clearly, it would be absurd to maintain that an electron or a single-celled organism possessed many of the characteristics of consciousness experienced by humans, yet they are nonetheless demonstrably responsive, albeit in an involuntary and unintentional way, to their surroundings and react accordingly, whether interacting with other sub-atomic particles or external stimuli. It is conceivable in principle that with increased evolutionary

complexity, permitting specialisation of cell type and the formation of organs to perform particular functions within an organism (e.g. nervous system, brain, etc.), consciousness would itself evolve - suggesting that the relationship between an Amoeba and a high-specialized human brain neuron could be comparable to the relationship between the consciousness of an electron and that of a human being.

Whether a phenomenon such as consciousness is determined by similar evolutionary constraints as physical matter, however, is yet to be demonstrated, along with whether a plausible set of constraints could be identified to account for the qualitatively different manifestations of consciousness from Higgs boson to homo sapiens. By way of comparison, whilst most of the functions performed by specialized organs within complex animals such as humans are also carried out to some measure within single-celled organisms (e.g. reproduction, energy processing, waste disposal, sensory interaction), the same cannot be said of consciousness. Conscious subjective experience does not appear to be the specialization of an existing, observable function - the gulf between insentient, reflexive interaction and sentient, volitionary response is qualitative, not simply quantitative - but the emergence of an innovative phenomenon with qualities that cannot readily be accounted for in terms of the physical processes with which they are, in some sense, associated. David Chalmers draws the helpful distinction between strong and weak emergence with subjective consciousness representing possibly the only known case of the former: "We can say that a high-level phenomenon is *strongly emergent* with respect to a low-level domain when the high-level phenomenon arises from the low-level domain, but truths concerning that phenomenon are not *deducible* even in principle from truths in the low-level domain … We can say that a high-level phenomenon is *weakly emergent* with respect to a low-level domain when the high-level phenomenon arises from the low-level domain, but truths concerning that phenomenon are *unexpected* given the principles governing the low-level domain." [45]

It is conceivable, of course, that this is the wrong way of approaching the question. Rather than assuming consciousness emerges from physical processes in some manner yet to be understood and, taking a lead from the implications of the measurement problem discussed earlier, could it be that consciousness actually antecedes matter and that what we observe within the material world is how increased complexity, especially in living organisms, facilitates increased participation in consciousness and its potentialities. Perhaps consciousness is analogous in certain respects to the Earth's atmosphere which both precedes and sustains all aerobic forms of life. If we were to examine human lung tissue, for example, we wouldn't discover the means of generating oxygen, but an evolutionarily sophisticated and effective means of harnessing its capacities. Equally, examining a unicellular organism would reveal a significantly less specialized process of absorbing oxygen, able to sustain a much smaller and simpler embodiment of vitality. In both cases, oxygen supplies the medium within which aerobic life forms emerge. Similarly, if consciousness antecedes matter and supplies the medium within which it emerges, then all matter would

indeed interact with it to varying degrees of evolutionary complexity, as panpsychism claims.

Turning to our second question - what, then, of the sense of the self, is it a product of consciousness? The answer here must be both yes and no. Yes, because a sense of the self is sustained by consciousness; no, because it doesn't appear to be an integral characteristic of consciousness - it is quite possible to envisage consciousness without a sense of the self. That instances of consciousness should cohere and create a subject with access to a past, capable of imagining the future and intentionally moving towards it in the present is genuinely innovative and, perhaps to an even a greater extent than consciousness itself, defies explanation in terms of physical processes and yet it remains in certain respects dependent upon those processes. This is evident, for example, from the way in which a sense of the self can be affected by brain damage or disease, as well as by various pharmaceutical products and medical procedures. For example, injury to the medial prefrontal cortex (mPFC) or the onset of dementia or prolonged use of narcotics or the administration of electroconvulsive therapy (ECT) can radically alter a person's subjective experience, access to memory and sense of who they are. The split-brain phenomenon, where the corpus callosum, the region of the brain associated with integrating the right and left hemispheres, is either damaged or intentionally severed, may supply further evidence, suggesting that a sense of the self is dependent upon the brain in some way, although the nature of that dependence remains unclear [42, p. 47-62; 46].

Building on insights gained from the study of hydrocephalics and, to a lesser extent, microcephalic savants noted above, where no discernible correlation between mental activity and brain tissue volume could be established, it is possible that brain tissue and its associated electro-biochemical activity communicate, rather than generate, consciousness and, by implication, a sense of the self. Perhaps a television set offers a partial analogy. We would look in vain for evidence of a TV programme within its components; but what we would discover is the means of receiving, decoding, converting and displaying the digital signals transmitting that programme. Pursuing the analogy a little further, perceived changes in a sense of the self, rather than being intrinsic to subjective consciousness could result from extrinsic factors affecting its communication. If a programme was not displaying correctly on a TV screen or if the relay of its soundtrack was distorted, we wouldn't tend to conclude that the programme per se had been compromised; instead, we would call out an engineer to fix the fault in our set.

Which moves us on to our third, inter-related question, namely, is the sense of the self dependent upon matter, particularly, the brain? From what has been said so far, we are unlikely to be looking at a relationship of direct causation where the means by which the former is generated by the latter can be identified and replicated in laboratory conditions. As we have seen, the sense of the self is an essentially subjective phenomenon, which cannot be equated with the workings of a physical organ, nor is it obvious how that organ could give rise

to something so wholly other. Whilst Science has been able to identify the processes by which a single-celled organism evolved through time into a complex organism with specialised organs, circulatory systems and anatomy to facilitate self-preservation and reproduction, the same cannot be claimed for the sense of the self. That said, the prospect of the brain as a transmitter of consciousness mentioned in the previous paragraph opens up the possibility of alternative models of correlation.

Self-evidently, we are struggling with the limits of language and conceptualisation. Nonetheless, let us attempt a thought experiment that might throw a little light in our direction. As at least some of us are able to testify, melodies can spontaneously emerge within consciousness. Occasionally, it may be possible to identify antecedents drawn from previous experience, including one's own musical accomplishments and exposure to the music of others. However, at the point of emergence, the melody belongs to the consciousness of a particular person who subsequently may choose to translate it into musical notation, perform it by means of an instrument or develop it into a more ambitious composition. He or she may also choose to share the melody with others who, in turn, may remember it, incorporate it within one of their play lists, perform it themselves or develop it musically in one way or another. Now what is the relationship between the melody and the brain? Neuroscientists would be able to explain the electro-biochemistry associated with various mental states without being able to demonstrate how such activity generated the subjective character of the experience of a melody crystallising into consciousness - a phenomenon that emerges from processes within brain tissue yet supervenes them. Furthermore, once crystallised, a melody is not dependent upon the recipient brain or any other brain for that matter. Melodies can migrate from one brain to another without diminishment; in fact, it is highly questionable whether they require brains at all, unless we wish to maintain that they cease to exist with the cessation of brain activity. What would be lost is not the melody, but the means by which that tune could be embodied and communicated.

It could be argued that this hypothetical scenario finds its correlate in the phenomenon of memory. Although how information is maintained and retrieved within the brain (or elsewhere) remains elusive - to the best of my knowledge, no memory traces (the preferred physicalist hypothesis) have been isolated [35, p. 187-211] - memories evidently subsist in some form outside of consciousness, ready to be crystallised back into consciousness under the right conditions. What is more, in their latent 'unconscious' (non-physical?) condition, remembered information is discrete in the sense that it maintains form and does not merge into a morass of amorphous data.

I wonder if this is analogous to some measure to the relationship between the brain and a sense of the self? A sense of the self is contingent upon the brain whilst supervening its electro-biochemical processes (cf. Chamber's 'strong emergence'), suggesting a measure of ontological independence - although this would be difficult to demonstrate because without a brain, a sense of the self

would lack the means of interacting within space-time [47, 48]. Whether it could inhabit or be hosted by another substrate remains an open question.

5. Insights from ancient Israelite and early Christian traditions

Significantly and mindful of our point of departure, Christianity's contribution to speculation over what form afterlife will take resides here. Whilst belief in the existence of an immortal soul, constituting the essential self, can be traced back to Plato and beyond (*Phaedo* 80-82, *Phaedros* 235c-247c, *Meno* 81a-e) [7, p. 6-29; 49], resurrection affirms the importance of embodiment - or, to use current nomenclature, of substrate dependence. It should be noted that the contemporary understanding of soul and spirit as incorporeal phenomena, in contrast to the physicality of the body, is not necessary replicated in the ancient world where they could be understood as constituent parts of the person, every bit as real as flesh and blood [50]. It should also be noted that the Israelite-Jewish worldview from which the Jesus movement emerged, although not unequivocal on this matter, tended to view death not as personal annihilation, but as the limits of God's covenantal faithfulness, with a much-diminished residual self, subsisting in a kind of limbo-state (Sheol), exiled from Yahweh, the source of life. However, by the first century CE, the conviction that God's covenantal faithfulness could extend beyond physical death found expression in various beliefs among many Jews, although not all [51, 52]. One of those beliefs conceived of God resurrecting the dead to a new dispensation of embodied existence which, from the outset, defines the Christian perspective as its earliest exponent, the apostle Paul, himself a Jew, demonstrates, especially in his detailed exposition in 1 Corinthians, chapter 15. (The question of whether belief in the afterlife as resurrection, as embodied being, predates Christianity and, if so, whether it emerges within an Israelite-Jewish or Graeco-Roman matrix continues to be contested [53, 54].)

Addressing the question 'How are the dead raised?', he employs agricultural metaphors before distinguishing between the mortal body (*sôma psychikon*) of earthly existence and the body constituted by spirit (*sôma pneumatikon*) characterising resurrection life (1 Corinthians 15.44). Clearly, body (*sôma*) in this context cannot be equated with physicality (cf. "flesh and blood cannot inherit the kingdom of God" 15.50) - neither *psychikon* nor *pneumatikon* denote the substance, but the animating principle of the respective bodies (i.e. the body characterising earthly existence and the body characterising life in the spirit); rather, *sôma* refers to the form or medium of the self in different modes of being. New Testament and hermeneutics specialist, Anthony Thiselton, captures Paul's sense when he comments: "Hence it would be appropriate to conceive of the raised body as a form or mode of existence of the whole person including every level of intersubjective communicative experience that guarantees both the continuity of personal identity and an enhanced experience of community which facilitates intimate union with God in Christ and with differentiated 'others' who also share this union" [55].

According to the New Testament Gospels, belief in Jesus' resurrection among his earliest disciples emerged not from encountering an ephemeral ghost (cf. Luke 24.37) nor, for that matter, his resuscitated/resurrected corporeal body (e.g. Luke 24.16, 41; John 20.14-15), but from instantiations of his presence mediated by practices and experiences which characterized their time together pre-crucifixion [51, p. 19-102]. For example, Jesus is encountered when bread is blessed, broken and shared (e.g. Luke 24.30-35, also John 21.9-14), when scripture is interpreted and understood (e.g. Luke 24.27, 45-47), when forgiveness is experienced personally (e.g. John 21.15-17), when memory enlightens and energizes contemporary discipleship (e.g. Luke 24.6-8, 44-48; John 2.17-22, 12.16; also Luke 22.19; 1 Corinthians 11.24) or when a profound sense of peace and reassurance envelopes the distress and fearfulness of grief (e.g. Matthew 28.9-10, John 20.16-21). What is striking here is the way in which Jesus' presence has become dislocated from His physical body (and brain) and relocated within alternative embodiments or reformations associated with His life. This phenomenon of translocation even embraces others human beings as the apostle Paul, quite possibly reflecting on his own resurrection encounter whilst persecuting followers of Jesus (Acts 9.4, 22.7, 26.14), identifies the community of faith as the body of Jesus Christ (*sôma Christou*), animated by His spirit (*pneuma*) [56], bestowing upon members characteristic qualities and capacities - enabling them to embody His presence and continue His ministry. "Now there are varieties of gifts, but the same Spirit; and there are varieties of services, but the same Lord; and there are varieties of activities, but it is the same God who activates all of them in everyone. To each is given the manifestation of the Spirit for the common good. To one is given through the Spirit the utterance of wisdom, and to another the utterance of knowledge according to the same Spirit, to another faith by the same Spirit, to another gifts of healing by the one Spirit, to another the working of miracles, to another prophecy, to another the discernment of spirits, to another various kinds of tongues, to another the interpretation of tongues. All these are activated by one and the same Spirit, who allots to each one individually just as the Spirit chooses. For just as the body is one and has many members, and all the members of the body, though many, are one body, so it is with Christ … Now you are the body of Christ and individually members of it. " (1 Corinthians 12.4-12, 27, NRSV; also Romans 12.3-8)

This is a remarkable claim, namely, that Jesus becomes reincarnated within the lives of those who place their trust in Him and are committed to emulating His pattern of life. In this respect, the apostle appears to be drawing on personal experience of Jesus as a species of *alter ego* enabling believers to share in His relationship with the divine and so become Christ-like in every respect. (We encounter a similar understanding of divine spirit as Jesus' *alter ego* in the Farewell Discourses of the Fourth Gospel where the Paraclete (*paraklêtos*) mediates His presence within the lives of believers and, through doing so, incorporates them within the eternal, loving communion shared between Father and Son which is God (e.g. John 14.15-20, 26; 16.7, 12-15)

[57].) "Anyone who does not have the Spirit of Christ does not belong to him … If the Spirit of him who raised Jesus from the dead dwells in you, he who raised Christ from the dead will give life to your mortal bodies also through his Spirit that dwells in you … For all who are led by the Spirit of God are children of God. For you did not receive a spirit of slavery to fall back into fear, but you have received a spirit of adoption. When we cry, 'Abba! Father!' it is that very Spirit bearing witness with our spirit that we are children of God … Likewise the Spirit helps us in our weakness; for we do not know how to pray as we ought, but that very Spirit intercedes with sighs too deep for words." (Romans 8.9-26, NRSV)

Paul's contention here is not that believers are transformed into Christ-clones, but rather that, as a consequence of resurrection, Jesus' presence has become non-local, universally immanent and capable of re-embodiment through faith - a conviction that resonates with the so-called measurement problem of sub-atomic physics mentioned previously where particles such as electrons only become present at a particular location when measured in some way. Further, as the apostle considers him to be "the first fruits of those who have died" (1 Corinthians 15.20), it seems reasonable to conclude that Jesus supplies the precedent upon which his teaching on the post-mortem condition of believers discussed above is based.

6. Provisional conclusions

Drawing the threads of our investigations together, what can we say about the possibility of the continuation of personal consciousness and a sense of the self beyond the cessation of bodily functions and, in particular, the activity of the brain?

Firstly, for all the scientific and philosophical attention it has received, consciousness (together with a sense of the self) remains mysterious - especially with respect to what David Chalmers has coined as the hard problem of consciousness - namely, how physical matter, including its many and complex interactions, can give rise to subjective experience, which appears to be of a wholly different order of phenomena. In certain respects, this is not dissimilar to the question of life itself, namely, why it is that the same species of atoms and molecules that constitute inert materials such as rocks can also, in different configurations, constitute living organisms of varying degrees of complexity.

Secondly, no attempt to account for consciousness and a sense of the self exclusively in terms of the electro-biochemical activity of the cells comprising a human brain is entirely convincing. Self-evidently, anyone who believes there is nothing to human being or, indeed, to the entire universe, apart from matter must explain consciousness in these terms. And no doubt a committed physicalist would maintain that a solution will be forthcoming; however, the immediacy of subjective experience - its incontrovertible, irrepressible 'thatness' - seemingly of a wholly different order of phenomena to the physical interactions of cerebral tissue, when considered along with various anomalies discussed above, raises

questions over the adequacy of the physicalist paradigm for supplying a comprehensive account.

Thirdly, personal consciousness and the sense of the self are genuine phenomena, rather than accidents or side-effects of physical processes, possessing their own integrity. As we have seen, dependence upon the brain and its electro-biochemical activity does not of itself imply equivalence, thereby raising the question of alternative configurations. For example, the brain could be a transmitter of personal consciousness rather than its source. Or, again, personal consciousness could be contingent upon the brain, whilst supervening its processes, suggesting some kind of symbiotic relationship in which each enlivens the other.

Fourthly, although a strong case can be made for their integrity and supervenience in relation to the brain, it is difficult to conceive of how personal consciousness and a sense of the self could emerge from potentiality without its processes or those of an alternative substrate. However, with respect to whether they could subsist in a dormant modality following the demise of a sustaining brain, we seem to possess a partial analogy with memory, as previously noted.

Fifthly and finally, the Christian belief in the afterlife as resurrection, building on Israelite-Jewish and/or Graeco-Roman speculations about a residual self surviving death in a much diminished state, are congruent with the findings outlined in the previous two paragraphs, namely that personal consciousness and a sense of the self are substrate dependent in order to emerge from potentiality and participate in space-time or alternative frames of reference - recognising that resurrection as embodiment need not imply physicality, but rather denotes a form of the self in a different mode of being.

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