The Modern Discourse on Consciousness: Science Meets Vedantic Wisdom

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Abstract

This paper examines the major dimensions of the discourse among contemporary scientists and thinkers on the problem of *consciousness*, as well as the intensifying split between its orthodox conception by twentieth century science as an epiphenomenon of material organization and its various forms of revival as a fundamental property of the world and existence. The discussion shows that, as a 'reincarnation' of the traditional mind-body problem, the modern debate may have progressed in terms of the sophistication of the metaphors it employs, but has nonetheless come little closer to any meaningful conclusion. An ultimate solution, we argue, is in fact impossible given the limitations of language as an informational system.

In recent years, the word 'consciousness' has frequently been used by people who try to peer deeper into the nature of reality, or those who strive for insights into the mysteries of the cosmos and the self. Among contemporary seekers for meaningful answers to these questions, there seems to be a growing perception that consciousness is the primary *stuff* of the world and is thus more fundamental than matter. The reasons for the apparent ongoing shift from science's well-established materialist models of existence to a new set of more 'spiritual' ideas may be looked for in many places, such as the increasing permeation of Eastern thought in the West facilitated by modern media, the popularisation of disciplines like Yoga and Zen Buddhism around the world, the ontological shifts necessitated by quantum physics, the ever-growing research in areas such as near-death and out-of-body experiences, New Age narratives of the power of the mind and the eternity of the spirit, or the dissatisfaction of some people in rich countries with happiness being defined as the

mere accumulation of material goods.

These days, it is not unusual to see meditation sessions offered at Google's headquarters (see, for example, Young 2010 and Freeman 2012), or mind-centred techniques for prosperity peddled to ambitious businessmen, such as the so-called 'Law of Attraction'. There is even what has sometimes been dubbed an 'archaic revival'–the rising interest in ancient practices such as shamanism, with well-to-do people from around the world travelling to places like the Peruvian, Bolivian or Brazilian rainforest to take part in shamanic ceremonies and experience visions and alternative perceptions of reality.

What all these developments of the 'post-modern' world have in common is that, in one way or another, they place the self or consciousness at the centre of the human cosmos and the universe–now a place in which observer and observed are inseparable, just like time became inseparable from space after Einstein's theories. At the same time, the development of modern technology and artificial intelligence is likely to make questions regarding consciousness even more pertinent to our lives. 'Her', a 2013 American movie exploring the implications of 'dating' an operating system, is just one recent example of how such issues are already trickling into our social reality. In academia too, there has been 'a major resurgence of scientific and philosophical research into the nature and basis of consciousness', dating back to the 1980s and 90s (Van Gulick 2011). So, if consciousness is to be a re-emergent paradigm for explaining and relating to the world in the 21st century, rivalling established materialist views, we might well ask the question: What is it?

Memologist Susan Blackmore, who has written extensively on the subject and has interviewed some of the 'great minds of our time, major philosophers, and renowned scientists' (cf. Blackmore 2006), tells us that while at the start of this century 'consciousness studies is thriving', the 'mystery is as deep as ever' (Blackmore 2005, p. 1). According to her, there is no generally agreed definition of 'consciousness', but we can think of it as *what it's like to be something,* or in terms of *phenomenality* (the way things seem to the self, *subjectivity*) and *qualia*–the ineffable subjective qualities of experience, like the redness of red. Blackmore is of the opinion that even as many people have claimed to have solved the mystery of consciousness in terms of grand unifying theories, quantum mechanical theories, or spiritual theories, most of them 'simply ignore the yawning chasm between the physical and mental worlds' and that 'as long as they ignore this problem they are not really dealing with consciousness at all' (Blackmore 2005, p. 2). There are some important

assumptions made even just in the last two statements and one can start an arbitrarily long debate about them, but such is the ouroboric and tautological nature of the matter, the fact that consciousness is forced to investigate itself–a 'strange loop' par excellence in the terminology of Douglas Hofstadter (see discussion below). As philosopher Eric Schwitzgebel puts it, '*something* apparently preposterous, it seems, must be true of consciousness' (Schwitzgebel 2011, p. x), while physicist-turned-psychologist Daniel Wegner's spin on it is that 'you need somehow to be objective about subjectivity, which is the deepest conundrum we can think of' (Blackmore 2006, p. 246).

Given this intractable character of the central problem of consciousness, it is no wonder that it has been called 'the hard problem' by philosopher David Chalmers, i.e. the problem of the phenomenal world of subjective experience and qualia, as distinguished by 'easy problems', such as 'the ability to discriminate, categorize and react to environmental stimuli, the integration of information by a cognitive system, the focus and attention and the deliberate control of behaviour', among others (see Chalmers 1995).

Meanwhile, modern scientific conceptions of consciousness have inevitably been under the strong paradigmatic mould of the computer and computing in general, which has supplanted previous mechanistic models. As a comparatively early example, we might quote neuroscientist and consciousness explorer John Lilly, who thought of human beings as 'programmed biocomputers', stating that 'no one of us can escape our own nature as programmed entities. Each of us may be our programs, nothing more, nothing less' (Lilly 1967, p. 14). For him, 'in a well-organized biocomputer, there is a critical control metaprogram labelled "I" for acting on other metaprograms and labelled "me" when acted upon by other metaprograms' (ibid. p. 16).

Consciousness researcher and founder of the Santa Barbara Institute for Consciousness Studies B. Alan Wallace observes (while lamenting the pitfalls of the dominant intellectual paradigm of scientific materialism, calling it the 'ideology of modernity') that in most disciplines comprising the modern field of cognitive science–the neurosciences, artificial intelligence, philosophy of mind, psychology, linguistics, quantum theory, and evolutionary theory–'the computer has become the central mechanical model of the mind and cognition is identified with symbolic computations. Thus, cognitive science becomes the study of such cognitive symbolic systems, and the field of artificial intelligence takes this cognitivist hypothesis

literally. During the Scientific Revolution, some natural philosophers likened the mind to a hydraulic system, and an early twentieth-century metaphor for the mind was a telephone switchboard. Regardless of how fundamentally dissimilar the mind is to the latest products of technology, including the modern computer, scientific materialists have long been convinced that it must be similar to some kind of ingenious, material gadget. The most salient omission in this regard is consciousness itself, but it is now commonly presumed that consciousness really boils down to nothing more than information processing' (Wallace 2000, p. 125). And Wallace is most probably right that scientific materialism has usually, whether by conviction or ingrained habit, been the basis of the majority of modern scientists' thinking, more recently combined with concepts out of information processing and computing.

For instance, in their book, 'The Computational Brain', neurophilosopher Patricia Churchland and computer scientist Terry Sejnowski state that 'at this stage in the evolution of science, it appears highly probable that psychological processes are in fact processes of the physical brain' and that 'once we understand more about what sort of computers nervous systems are, and how they do whatever it is they do, we shall have an enlarged and deeper understanding of what it is to compute and represent' (Churchland & Sejnowski 1994, pp. 1&61), which even presupposes that nervous systems are 'computers' of some sort, even as Churchland herself confesses that 'the fact is that we've very little by way of a fundamental understanding of the brain. We don't know how neurons code information. That's a lot not to know' (Blackmore 2006, pp. 50-51).

Consider also the following type of reasoning by David Chalmers, which sounds slightly more dualistic than outright materialism but is revealing as to the firm intellectual grip of the latter: '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… 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' [emphasis added] (Chalmers 1995, p. 226). To be fair, the entrenchment of materialism can be overstated–sometimes it depends on which scientists we are talking about and can also be due to the inertia of the habitual language used to express one's views. This may slightly be the case in our last quotation because, according to Susan Blackmore, 'The confusion starts with the question itself and how best to word it. Dave [Chalmers] himself originally worded it

with the phrase "give rise to". He also talks about physical activity being "accompanied by" subjective experience; in fact he defends a version of property dualism. But this might be completely the wrong way of thinking about the relationship between brain and consciousness. Perhaps, as the Churchlands [i.e. philosophers Patricia and Paul Churchland] argue, brain activity just is experience, or perhaps, as [philosopher] John Searle argues, brains cause experiences' (Blackmore 2006, p. 4). Blackmore herself curiously makes no secret of the fact that she doesn't think dualism (i.e. the notion that consciousness and the physical world represent different realms or substances) is a good idea, despite having told us about the 'yawning chasm' between mind and matter that we must not ignore.

At any rate, if presented with an orthodox modern scientist, one's bet would be that he or she or it (if we take the computer metaphor quite literally) would be, consciously or not, under the sway of scientific materialism to no small degree and that they would most probably treat consciousness as an epiphenomenon, i.e. a phenomenon emerging from certain complex structures such as the brain.

All good and well so far, except that we still cannot quite put our finger on what consciousness is supposed to be. Talking about *subjectivity, phenomenality, qualia* or *awareness* is, after all, just using vaguely synonymous words, which themselves need explaining. (Not that we can ultimately do it otherwise).

Help isn't exactly forthcoming. In his article 'Consciousness' in the Stanford Encyclopedia of Philosophy, Robert Van Gulick writes that the words *conscious* and *consciousness* are 'umbrella terms that cover a wide variety of mental phenomena' (Van Gulick 2011), which he then proceeds to systematically explain. Unfortunately, a reading of this and likely many other reputable encyclopedia entries on the subject may well leave the reader with the feeling that they understand less about the concept for having read them, even though we are dealing with a concept that is otherwise somehow intuitively grasped by the lay person. Van Gulick diligently launches into summaries of diverse explanatory projects and tells us that what we may have thought of as one question of consciousness is actually three: the *descriptive* (what?), the *explanatory* (how?) and the *functional* (what for?) questions; we are invited to consider various *kinds* of consciousness, such as sentience, wakefulness, self-consciousness, transitive consciousness, narrative consciousness and access consciousness among others. One almost gets the feeling that the hope here is that, (just like many scientists think that consciousness itself arises), the answer will somehow come out of complexity–the complexity of our knowledge

about it, quote: 'consciousness is a complex feature of the world, and understanding it will require a diversity of conceptual tools for dealing with its many differing aspects' (Van Gulick 2011).

At the same time, even though the article in question states that 'as phenomenologists have known for more than a century, discovering the structure of conscious experience demands a rigorous inner-directed stance that is quite unlike our everyday form of self-awareness' and that 'skilled observation of the needed sort requires training, effort and the ability to adopt alternative perspectives on one's experience', the author fails to make a single mention of Hindu philosophy or Yoga– ancient disciplines devoted to the study and evolution of consciousness by 'rigorous and inner-directed practices', nowadays generally referred to as meditation. The reason for that may be a fundamental rift: for Western philosophers and scientists, consciousness is first and foremost an aspect of the *mind*, which is basically thought of by most as a computing brain with a nervous system, whereas in Hindu thought and Zen Buddhism, mind is the first thing to be got rid of in order to get to 'pure consciousness', which is seen as the 'ground of all being'.

The rift between Western philosophical notions on one hand, and Eastern yogic and Vedantic (i.e. based on the teachings of the Upanishads) conceptions of consciousness on the other, is also probably due in no small part to the different languages that formal modern science and traditional Indian thought use. One would be very surprised to be able to rise to a prominent role or perhaps even just get a degree in mainstream psychology or physics if he or she reasons using terms like *bráhman*–'the unchanging reality amidst and beyond the world' (in one translation, see Puligandla 1997, p. 222), which is also said to be indefinable, and *ātman*–'the soul', or '*bráhman* in a pot [i.e. the body]' (cf. White 1996, p. 18). This clash of both worldviews and disparate language (even in translation) is unfortunate because, for example, if we do not readily dismiss it for its religious overtones, *bráhman* and its conception as 'non-dual' and 'transcendental' reality (cf. Indich 2000, pp. 2-3) is not really unscientific. If we have learned anything at all from computing, it should be that the smallest and irreducible unit of information is the binary digit (bit) and that therefore the simplest possible basis for any system of logic or communication is based on an arbitrary duality (e.g. *zeros* and *ones*, *on* and *off*, *yin* and *yang* and so on). Seen in this light, a supposed non-duality must necessarily be *undefinable* and therefore *transcend* our logical and conceptual systems.

Sure, the Advaita (i.e. 'non-dual') Vedanta vision of *bráhman* as the ultimate

reality is itself an unprovable conjecture[1], but conjectures are hardly unscientific either. For instance, one of the great physicists of the 20th century, John Wheeler, conjectured that 'black holes have no hair', which is the physicist's colloquial way of saying that 'the collapsed state of any nonrotating massive star could be described by Schwartzschild's solution' (Hawking 2001, p. 112). The language divide between Vedantic thought and Western positivist and materialist science is not simply due to *foreign-sounding* Sanskrit words, which are most probably less alien to the non-expert than the term 'Schwartzschild's solution', but is also a consequence of their perceived religiosity and the frequent use within Vedanta (in its English rendering) of words we do know and have feelings about, like *spirit* and *bliss*, or 'equations' such as *existence is consciousness* (cf. Indich 2000, p. 4). This despite the fact that nowadays 'Consciousness causes collapse of the wave function' is one of the well-known, if controversial, interpretations of the quantum measurement problem–that a conscious observer is necessary to determine what reality is in the first place, thus in effect saying that, in a certain sense, consciousness *is* existence. At the same time, fundamental physics derives many of its modern truths from the very different linguistic medium of higher mathematics, truths that few can 'understand' or relate to conceptually, including physicists–hence the various competing interpretations of quantum theory.

So, let us take a closer look at the traditional Hindu view of reality and consciousness, and how it has influenced some modern thinkers and scientists. Michael Talbot, one of the early popularisers of the holographic model of the universe, gives us a succinct summary: 'The Hindus call the implicate [i.e. fundamental] level of reality Brahman. Brahman is formless but it is the birthplace of all forms in visible reality, which appear out of it and then enfold back into it in endless flux. Like [physicist David] Bohm, who says that the implicate order can just as easily be called spirit, the Hindus sometimes personify this level of reality and say that it is composed of pure consciousness. Thus, consciousness is not only a subtler form of matter, but it is more fundamental than matter, and in the Hindu cosmogony it is matter that has emerged from consciousness, and not the other way around. Or as the Vedas put it, the physical world is brought into being through both the "veiling" and "projecting" powers of consciousness' (Talbot 1996, p. 288).

Physician and holistic health-guru Deepak Chopra, deeply influenced by

[1] Strictly speaking it is little more than giving a name to such an imagined ultimate reality.

traditional Vedanta teachings and always eager to re-express them in modern terms, presents a similar sweeping view of consciousness: 'Consciousness is not a by-product of evolution as has been suggested… consciousness is the common ground of existence that ultimately differentiates into space, time, energy, information and matter. And the same consciousness is responsible for our thoughts, for our emotions and feelings, for our behaviours, for our personal relationships, for our social interactions, for the environments that we find ourselves in, and for our biology. In other words, consciousness is the common ground that differentiates into everything that we call reality, including the observer and the objects of our observation' (Chopra 2007). He also states, in opposition to a large body of scientific thought: 'Consciousness is not an epiphenomenon. Consciousness is the phenomenon and everything else is the epiphenomenon' (Chopra 2005). This is allegedly because 'Before infinite consciousness observes itself, there is neither space, nor time, nor matter. Nor is there causality… Interacting with itself, infinite consciousness first creates the mind, then it creates the body, then it creates the physical world. Everything we call physical is a translation of different vibratory frequencies of consciousness in the mind. And the mind, in turn, is an interpretation of consciousness unto itself' (Chopra 2011, Ch. 8). Chopra is convinced that Chalmers' hard problem 'becomes much easier when we give consciousness a primary role instead of making it secondary to the brain' (Chopra 2013, p. 270).

This may sound ambitious, but Chopra is certainly not alone. The primacy of 'pure' consciousness has had many high-profile advocates, from musician George Harrison to actor Jim Carrey to comedian Russell Brand. Filmmaker and long-time practitioner of Transcendental Meditation David Lynch offers the following view: 'Consciousness is such an abstraction. We all have it. We don't think that much about it, but it's the "I am"-ness, being, our ability to understand, our awareness, our wakefulness, our inner happiness. And there's a great, giant ocean of pure consciousness within every human being' (Lynch 2005). The official website for the Transcendental Meditation™ movement, of which David Lynch is part, states that 'the technique allows your mind to settle inward beyond thought to experience the source of thought–pure awareness, also known as transcendental consciousness. This is the most silent and peaceful level of consciousness–your innermost Self' (cf. URL under References).

A number of quantum physicists, too, have weighed in with their sophisticated metaphors and elaborate the 'consciousness-as-primary' and related ideas, which are,

in the colourful phrase of one of them, 'not yet a bandwagon by any means, but neither a lonely cart' (Goswami 1995, p. 169). One of the greatest physicists of the 20th century, Erwin Schrödinger, wrote in the 1940s: 'Consciousness is never experienced in the plural, only in the singular… there is only one thing and that what seems to be a plurality is merely a series of different personality aspects of this one thing, produced by a deception (the Indian MAJA)… What is this "I"? If you analyse it closely you will, I think, find that it is… little more than a collection of single data (experiences and memories), namely the canvas upon which they are collected. And you will, on close introspection, find that what you really mean by "I" is that ground-stuff upon which they are collected' (Schrödinger 1944, pp. 88-89). In the last decade of the previous century, Fred Alan Wolf–aka Dr. Quantum–unequivocally stated that 'there's just one basic being, one basic consciousness, of which we're all parts in some mysterious way… I mean, everything is basically consciousness' (Wolf #S450). And, more recently: 'Unity consciousness, because it's so unthinkable is nevertheless the fundamental ground of being out of which everything arises. And this is evident to me not only from spirituality but it's also evident to me from the quantum physical understanding of how the universe comes into being. It can't just come into being through mechanical means. We've tried, believe me, physicists are looking for all the mechanical ways they could possibly seek, to find a mechanical means by which "God" could be left out of the equation. And we haven't been able to do it. Somewhere along the line, a miracle has to happen. And it's disturbing, because science doesn't want miracles–science wants to have everything explained in terms of objective fact. There is something un-objective, or subjective, about the nature of reality' (Wolf 2010). Perhaps it was statements like these that prompted American psychiatrist Brian Weiss to remark that 'physicists have become the mystics of our own age, bridging miracles and science' (Weiss 2012, p. 215).

Quantum physicist Amit Goswami is adamant that 'when we introduce consciousness as the ground of being, as transcendent, as one, as self-referent in us–which is what the spiritual teachers of the world have taught–then the quantum debate can be settled and the paradoxes resolved' (Goswami 2006, p. 16), with one of the major paradoxes in question being the so called *observer effect*, or 'how do the quantum possibilities become an actuality of experience simply through the interaction of our consciousness, by simply us observing them?' (Goswami 2008, p. 21). Goswami espouses monistic idealism as the solution and, naturally, supports the view

that it is consciousness that collapses the wave function and 'by the process of observation chooses one of the many facets of the superposition. … According to monistic idealism objects are already in consciousness as primordial, transcendent, archetypal possibility forms. The collapse consists not of doing something to objects via observing but of choosing and of recognizing the result of that choice' (Goswami 1995, p. 84). However, if consciousness is already primary and omnipresent, then what does 'observing' and 'recognizing' have to do with choosing quantum states? Goswami's answer is not really satisfactory: 'The measurement is not complete without the inclusion of the immanent awareness… We have to make a distinction between consciousness with awareness and without awareness. The collapse of the wave function takes place in the former case but not in the latter' (Goswami 1995, pp. 97-98).

Solipsism, or the idea that only the self is certain to exist, is obviously related to the philosophy of the Upanishads and has been entertained in the West. At the age of 26, Wittgenstein wrote in his notebook: 'The limits of my language stand for the limits of my world. There really is only one world soul, which I for preference call my soul and as which alone I conceive what I call the souls of others. The above remark gives the key for deciding the way in which solipsism is a truth' (Wittgenstein 1961, p. 49e). John Lennon, also at 26, wrote the lyrics to the Beatles song 'I Am The Walrus', beginning with the following cryptic sentence: *I am he as you are he as you are me and we are all together*. Of the two, Lennon's quote is perhaps closer in style to traditional Vedantic thought than Wittgenstein's and also to the truth according to Goswami, who, in resolving the paradox of Wigner's friend (a version of the fabled Schrödinger's cat thought experiment; cf. Goswami 1995, pp. 84-86) from his idealist monist standpoint, says that the paradox arises only when one makes 'the unwarranted dualist assumption that his consciousness is separate from his friend's' and 'disappears if there is only one subject, not separate subjects as we normally understand them', later clarifying that, 'When I observe, what I see is the whole world of manifestation, but this is not solipsism, because there is no individual I that sees as opposed to other I's' (ibid. p. 86). In our mind, however, both Wittgenstein's note and Lennon's line are more or less different takes on a fundamentally equivalent theoretical situation. The realisation that there is no individual 'I' but only universal consciousness is still something that has arisen in Goswami's mind, whose supposed existence is a figment in ours, as all this is currently in yours, our esteemed reader. It could be a matter of taste, epistemological affinity, preferred narrative, or

degree of egocentrism.

As a slight side note, and going back to Lennon's enigmatic quote, although its author deliberately set out, by his own admission, to write the most confusing lyrics he could in that particular song, 'the first line was written on one acid trip one weekend' (Sheff 2000, p. 184). This was, after all, the sixties, but throughout the 20th century mainstream science did not, or could not, come to a mature view regarding the relationship between perturbation of consciousness and reality. Honest and open accounts from serious researchers of consciousness are rare, save for a few notable exceptions such as the above-mentioned John Lilly, or the philosopher Terence McKenna (see, for example, McKenna 1993 and McKenna 1994). Here is one more recent example from mathematician and psycho-physiologist Stephen LaBerge from his interview with Susan Blackmore: 'I learned one important lesson from LSD: under its influence I saw living, breathing hieroglyphics superimposed on a blank wall, and thought, "Ah, so this is what the world is *really* like, overflowing with meaning, beauty and complexity. How could I not have seen it before!" But then the next day, "Ah, wait a minute, *this* is what it's like, *that* was just an illusion." And finally to realize, no, it's neither like this nor like that, those are just my mind's understanding of what the world is, and the world remains a mystery' (Blackmore 2006, p. 138). Perturbing one's normal state of mind along with focusing attention on attention (meditation) presumably must have an important role to play in working out what consciousness and reality are (especially given possible changes in the political and cultural climate surrounding some of these things). As LaBerge argues: 'We need scientists who understand the brain but also have their own experiences' (Blackmore 2006, p. 147). McKenna, incidentally, frequently referred to psychedelic substances as 'boundary-dissolving'. Could it be that they potentially provide cognitive access to a higher level of organisation, a self that is in the normally 'inviolate' level (in Hofstadter's sense–see below) of an individual ego and thus allow the subject to identify with fellow human beings and the rest of nature as parts of a whole, as seems to have happened in Lennon's case? It is certainly ironic that insights gained through altered states of consciousness are so often dismissed as confused ramblings and hallucinations by respectable 20th-century scientists, even as some of the best in their midst have called the self a 'hallucination' (Hofstadter 2008, p. 315), which is produced by a 'deception' (see Schrödinger's quote above).

Consciousness conceived as the ground of all being is a worldview away from that of most modern scientists who assume we live in a world featuring a difficult to

resolve conscious/unconscious dichotomy, or as mathematician and cosmologist Roger Penrose puts it: 'there's nothing in our physical theory of what the universe is like which says anything about why some things should be conscious and other things not' (Blackmore 2006, p. 173). The working assumption usually seems to be that consciousness somehow arises out of complexity. Renowned cognitive scientist Douglas Hofstadter expresses the point thus: 'The key point here is that there is some level of complexity at which a creature starts applying some of its categories to itself, starts building mental structures that represent itself, starts placing itself in some kind of "intellectual perspective" in relationship to the rest of the world' (Hofstadter 2008, p. 82). This view is certainly very reasonable because we can all intuitively feel a continuum of increasing intelligence from, say, a rock to an ant to a dog to a human. However, in the process, we have made an 'unconscious' jump: we have started to use apparent intelligence as a yardstick for consciousness. Some, like neuroscientist Vilayanur Ramachandran, hold a strong view on the subject: 'I think animals don't have consciousness or qualia… animals in general, even higher primates, excluding humans, have only a raw background awareness. But they're lacking extra stuff which I have called meta-awareness' (Blackmore 2006, p. 188).

Ramachandran shares with Hofstadter the view that self-reflexivity is central to consciousness. In the words of the latter, people are 'self-perceiving, self-inventing, locked-in mirages that are little miracles of self-reference' (Hofstadter 2008, p. 363). Ramachandran expresses the point thus: 'In a sense you have to know that you know, otherwise you don't know. That's the crux of the matter, and that's why you need the sense of self, which knows that it knows' (Blackmore 2006, p. 190).

Hofstadter likens selves to 'certain special swirly, twisty, vortex-like, and meaningful patterns that arise only in particular types of systems of meaningless symbols' (Hofstadter 1999, p. *xx*). He treats inanimate molecules and meaningless symbols as analogous (given the right configuration out of the former arise animate beings and out the latter–meaning) and holds the notion of these vortex-like patterns that he calls 'strange loops', or 'tangled hierarchies', as the 'key to unravelling the mystery that we conscious beings call "being" or "consciousness" ' (ibid. p. *xx*). His formal definition of a tangled hierarchy is as follows: 'What I mean by "strange loop" is not a physical circuit but an abstract loop in which, in the series of stages that constitute the cycling-around, there is a shift from one level of abstraction (or structure) to another, which feels like an upwards movement in a hierarchy, and yet somehow the successive "upward" shifts turn out to give rise to a

closed cycle. That is, despite one's sense of departing ever further from one's origin, one winds up, to one's shock, exactly where one had started out. In short, a strange loop is a paradoxical level-crossing feedback loop' (Hofstadter 2008, p. 101). A classic example of such a tangled hierarchy is the famous M. C. Escher lithograph 'Drawing Hands', where two hands are seen paradoxically drawing each other. The paradox is only resolved if one steps 'out of the picture' and realises that the artist draws it all and the whole thing is thus revealed to be an illusion from this 'inviolate' (invisible) level. Hofstadter hopefully holds, however, that 'fortunately, there do exist strange loops that are not illusions' (Hofstadter 2008, p. 103), saying 'fortunately' because his central thesis is that we ourselves are strange loops.

Thus for Hofstadter, contrary to Chopra and Goswami, consciousness is an epiphenomenon: 'Consciousness is the dance of symbols inside the cranium. Or, to make it even more pithy, consciousness is thinking. As Descartes said, *Cogito ergo sum*' (Hofstadter 2008, pp. 275-276). This is obviously far from consciousness seen as the ground of being; on the contrary, it emerges out of complexity: 'Like Gödel's strange loop, which arises automatically in any sufficiently powerful formal system of number theory, the strange loop of selfhood will automatically arise in any sufficiently sophisticated repertoire of categories, and once you've got self, you've got consciousness' (ibid. p. 325).

Still, remarkably, Goswami sees a place for Hofstadter's strange loops: 'I suspect that the situation in the brain-mind, with consciousness collapsing the wave function but only when awareness is present, is a tangled hierarchy and that our immanent self-reference is of tangled hierarchical origin. An observation by a self-referential system is where the [quantum superposition] chain stops' (Goswami 1995, pp. 99).

To make his model work, however, Goswami has to use a linguistic, one might say, sleight of hand–he distinguishes between the 'consciousness' that is the ground of all being and the 'awareness' that an individual mind possesses in order to bring the probability field of quantum indeterminacy to a 'real' outcome. This is all very fine, provided that he is consistent with his terms (and it's also true that sometimes we perceive things subconsciously, i.e. outside the focus of our awareness, and that with special techniques it may be possible to retrieve such information), but nevertheless, referring to one's *not-yet-aware* ground of being as 'consciousness' seems quite wishfully arbitrary. Similarly, Hofstadter cannot do without linguistic sleights of hand either, as evidenced by phrases like 'meaningless symbols'. Of course, both of them are all too aware that 'what mathematician Kurt Gödel proved

is that any attempt to produce a paradox-free… system of reasonable richness is doomed to be incomplete. The system can be either complete but inconsistent or consistent but incomplete' (Goswami 1995, p. 183).

Given this penetrating insight, whatever consciousness may turn out to be, we cannot be too hopeful in expecting to be able to explain ourselves to ourselves, especially if we insist on doing it scientifically, that is using some kind of (formal) language. Language, being a system of 'reasonable richness' is one big Strange Loop. In the words of Hofstadter: 'language does create strange loops when it talks about itself, whether directly or indirectly. Here, something in the system jumps out and acts on the system, as if it were outside the system.' (Hofstadter 1999, p. 691). Or, in the words of theologian Stephen Faller: 'Does it ever seem strange that the entire dictionary is self-referential? We look up a word we don't know the meaning of, and what do we find? More words. The dictionary is nothing more than circular logic' (Faller 2004, p. 72).

Stripped down to its bones-and-yolk, the modern chicken-or-egg question, the 'ages-new' paradigm clash that will most probably yet again fail to resolve itself in this century is the Hofstadter versus the Goswami type of worldview, that is the materialist-at-its-core idea that (material) form gives rise to mind through particular self-reflexive types of organisation, against the idea that an out-of-bounds transcendent mind gives rise to all things on our dualistic observer level. It is a 'modern incarnation of the famous mind-body problem' (Blackmore 2005, p. 2) and it is like the seemingly never-ending Evolution vs. Intelligent Design debates of late, while trying to keep things presumably scientific (although not less zealous in all cases). We shouldn't expect either side to ultimately win. We human beings may be *like* computational machines that have reached a critical threshold of representational universality (cf. Hofstadter 2008, Chapter 17), but Hofstadter cannot gloss over the fact that computers had an *already conscious* designer. Likewise, Goswami will forever have to live with the fact that on our own observer level we have no clue whether a *transcendent unitive* reality can be meaningfully described as consciousness, because 'conscious' is still a word/concept and derives its meaning from the circular system of differences that is language and also presupposes an 'unconscious' state in order to work.

Whichever view we feel like subscribing to on any particular day, in 'all' likelihood there will be plenty of subscribers both ways and thus the nature of the problem of consciousness will remain dualistic even as we keep hearing that

'Dualism does not work. Almost all contemporary scientists and philosophers agree on this' (Blackmore 2011, p. 14). In fact, given the fundamentally binary nature of language, information and logic, dualism seems inevitable. Dualisms at higher levels of discourse may even be seen as fractal re-expressions of the basic dichotomy in the makeup of Nature or Māya (whichever way you wish to see the world) at larger scales. Whatever we put at the bottom-most level of the Self or the Universe, be it *yin, zeros, good, light, consciousness, matter, Big Bang,* etc., as a linguistic and cognitive object it will depend on things like *yang, ones, evil, dark, unconsciousness, vacuum, little lull* (or whatever the complementary opposite of the Big Bang might be) in order to exist. Thus, the pendulum of epistemology will most likely continue to go back and forth between mind and matter and this undecidedness will be the only thing that holds real sway, no pun pending.

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