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Book Review

Pumping Dust

A review of (1) Daniel C. Dennett, *Intuition Pumps and Other Tools for Thinking*. W.W. Norton and Company: New York, 2013, 512 pp., US\$19.64, ISBN # 0393082067 (hardcover), and (2) Nicholas Humphrey, *Soul Dust: The Magic of Consciousness*. Princeton University Press: New Jersey, 2011, 256 pp., US\$12.88, ISBN # 0691156379 (paperback).

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Daniel C. Dennett is co-director for the Center for Cognitive Studies and the Austin B. Fletcher Professor of Philosophy at Tufts University, his academic home for 40 years. His work on philosophy of mind, free will, evolution, meaning, religion, and philosophy of science has animated philosophy, cognitive science, and popular non-fiction for decades. Dennett's most recent book, *Intuition Pumps and Other Tools for Thinking*, is a catalog of thought experiments, organized by topic. The book includes exercises for developing understanding and skepticism in the teeth of philosophical argument, and it is in this spirit that we here dissect a recent philosophical work, Nicholas Humphrey's *Soul Dust* (2011), at once test-driving Dennett's thinking workshop and critiquing Humphrey's novel philosophy of evolved consciousness.

Nicholas Humphrey, emeritus professor of psychology at the London School of Economics, is renowned in psychology, philosophy, and cognitive science for the discovery of blindsight (1970), for contributing to the philosophical foundations of modern evolutionary psychology (1976), and as a popular non-fiction author on subjects ranging from philosophy of mind, to evolutionary theory, to religion. His 2011 book, *Soul Dust*, is his latest attempt to tackle what is often called the *hard* problem of consciousness: A reductive explanation of *qualia*, the raw phenomenological character of sensation and cognition in waking life. Humphrey spent several years working closely with Dennett in the late 1980s on the study of multiple personality disorder (among other topics) as a window into conscious experience. The authors make frequent reference to each other in their respective books, yet their views on the human mind differ in interesting and important ways.

In the third chapter, Dennett provides a valuable lesson in philosophical martial arts: Rapoport's rules. These are the rules of engagement for scholarly debate, which will inform the structure of this review. The first step is to express the opposing position with sufficient vigor and clarity to demonstrate that one understands the position at least as well as the opposition does. Secondly and thirdly, highlight any agreements one has with the opponent and express clearly what one has learned from their position. Finally, do everything possible to demonstrate that their position is false—fire at will. After giving Humphrey's argument a generous review, we unveil Dennett's thinking tools and "turn the dials," as Dennett encourages us, testing the stability of Humphrey's conclusions.

The "Soul Niche"

The study of consciousness has taken many forms over the millennia. A diversity of thinkers, from priests and philosophers to psychologists and computer scientists, have faced the initial difficulty of defining consciousness in non-circular terms; calling it experience, sensation, or qualia puts you right back where you started. Humphrey hesitantly offers Thomas Nagel's famous definition of consciousness as "what it's like to be . . ." a human, a frog, a bat, etc. Humphrey elaborates that this description captures the apparent immateriality of conscious experience, in that "being like" something leaves open the possibility that it is not identical to it, that there is a distinction between the facts of a brain state and the qualities of a mental state. He argues that the use of "what it's like" to describe consciousness is comfortable because it segregates the actual, objective, physical states of neural activity from their subjective, phenomenological character. In this way, Humphrey entertains an *intuition* for dualism: Subjective experience *resembles* but is not identical to objective reality—that is, it is not wholly captured by an exhaustive list of facts about the brain. Humphrey proposes that this dualism intuition tells us something about the nature of consciousness; it tells us that there must be an adaptive value to being inescapably confused about how experience fits into physics and biology. This confusion, which he refers to as an illusion or a "magical mystery show," is the result of a dynamic feedback loop called an *attractor state*, instantiated in neural computations. This activity serves to "fool" the faculties of the brain into re-weighting things such that particular brain processes are granted an inflated "subjective" value, above and beyond their function (warmth of the sun, coolness of the river). In his words, "You respond to sensory input by creating, as a personal response, a seemingly otherworldly object . . . which you present to yourself in your inner theater" (p. 40). This "otherworldly object" is what the stimulus is like; it is a private state that your brain fabricates as a trophy or a motivational carrot.

Here is Humphrey's evolutionary angle, the adaptive value of an illusory subjective perspective pushing the individual to cherish mere experience. We are to view consciousness as a Darwinian, cognitive invention that coats sensation in implicit value, imbedding every moment with infinite worth. The fitness benefit lies in the illusion of newfound importance to remain alive, remain active, and seek novel stimuli. Couched between samples of poetry, Humphrey imagines, "...the difference between your *wanting* to exist and simply having some kind of life instinct is that, when you *want* something, you will tend to engage in rational actions—flexible, intelligent behavior—to achieve it. You

will do things that are not rewarding in themselves but are calculated (on some level) to deliver the goal” (p. 86; emphasis in original, here and elsewhere in this review). By “life instinct,” Humphrey is referring to the ordinary sense in which organisms navigate the world by means of sensation, conditioning, motivation, goal-generation, emotion, etc. He equates the function of sexual pleasure as a motivator for sexual behavior to the function of a subjectively rich life as a motivator for staying alive. It follows that beauty, joy, rage, fear, and romance can be *most* behaviorally meaningful to a creature that has fooled itself into devoting undue attention to them, dazzling itself into action by maintaining the illusion of a grander purpose than to eat, sleep, and reproduce.

This is Humphrey’s “soul niche,” the condition of recursive self-enthrallment, a landscape in which fitness is a positive function of the ability to generate *reasons* to continue solving problems and pursuing experiences. These reasons derive from a tacit core belief in a personal, immaterial witness, an observer from somewhere outside of reality to whom it *matters* whether the sun is warm or the river is cool. Humphrey refers to this as the observation of something impossible, something that must exist and could not possibly exist: the soul. By his definition, every conscious creature incorrectly believes, at some level, that it is pulling sensory information from the physical world into “soul land,” where “you join hands in sharing—sharing, paradoxically, each in yourself—the beauties of the world you have enchanted” (p. 159). Humphrey continues, “I could go on in this vein, but I do not need to. You live there. You know” (p. 159).

Priming the Pumps

Ever since Descartes, philosophers of mind have been near-unanimous in the notion that, at rock bottom, consciousness exists. Whether we are in the matrix, the universe is a cold, dead shooting gallery, or God made us in His image, it cannot be denied that, for at least this moment, for you reading this review, experience is happening. The tricky part is deciding what experience *is*, exactly. Humphrey echoes the view that it is an illusion, presented to **you**, to keep **you** from staying in bed all day. But here we have what Dennett calls the “Cartesian theater,” where an interior observer, a black box (**you**) is fed data from the brain and compiles it into conscious experience. Opening the black box to try and locate where the data went, or how the data became experienced, we would again need to invoke an observer (**you**) for whom the data was felt, for whom the river was *cool* instead of just 40 degrees Fahrenheit. But what’s going on in *that* black box, and so on? This is Dennett’s notion of “cascading of homunculi,” the futility of positing a consciousness finish-line on the stream of neural data. Humphrey’s finish-line is somewhere just outside of the attractor state, an unexplained locus of experience that integrates the incalculability, the apparent impossibility of the attractor state into the perceptual stream, frosting every percept with ineffability. The next question for Humphrey is: For whom do these percepts appear ineffable? If his response is “you,” then the finish-line has moved another step forward and we remain no closer than before.

Among the first general tools of the trade offered by Dennett is “the crowbar of rational inquiry,” *reductio ad absurdum*. This is the tool deployed when one accepts the claims of an argument and demonstrates how the propositions lead to contradictions or

impossibilities. The power of this technique is in using the argument's own elements against it, demonstrating that *any* conclusions drawn by logical moves from these propositions may be as false as the conclusions pried loose by the technique. For example, it follows from Humphrey's argument that the internal perception of an attractor state is sufficient to produce a conscious state, that any system that achieves this pattern and has a method of reflecting upon it will be conscious. We have a ready example of such a system, provided by Humphrey himself. The illustration of an attractor state (on p. 58 of *Soul Dust*) was produced by a computer. The task of simulating, analyzing, and rendering this state required that the computer engage in multiple evaluations from multiple angles, some subset of which could have accessed Humphrey's conscious position. Depending on what one finds absurd, the possibility that a computer analyzing an attractor state is briefly conscious might not be an issue. In fact, Dennett points out that brain tissue is arbitrary as a staging ground for consciousness. There is no such thing as "wonder tissue"; the wet, organic structure of animal biology is not the only hardware medium that could house conscious states. Humphrey never denies the possibility of inorganic consciousness, but he stresses the peculiarity of animal consciousness. We expect he would find the prospect of a conscious hurricane, whirled into the appropriate recursion, unpalatable, but this is possible according to his theory.

Another familiar thinking scheme is Occam's razor, a rule of thumb reminding us that the simplest sufficient explanation for a phenomenon is the best explanation and probably the only explanation. The degree of complexity involved in the attractor state, the fact that it would require near constant engagement to maintain consciousness, and the heavy lifting required from an evolutionary perspective to build such a device by degrees, raises red flags. We are to accept that the motivational output of an "enchanted life" uniquely enables intelligent animals to survive and reproduce, above and beyond the well-worn methods of conditioning, learning, and attention. Unfortunately, every adaptive advantage that Humphrey offers (consisting mostly of sampled poetry, admiring the joys of experience) is consistent with a pre-existing understanding of motivational neurobiology. Animal behavior is not *better* explained by the insertion of illusory impressions than it is by adaptively-weighted electrochemical signaling. Towards the end of *Soul Dust*, Humphrey explores the idea that his formulation of consciousness protects the human psyche from the horror of death by delighting the organism in the present, forming seemingly immortal connections with cultural entities, and promising an afterlife. He admits that the relaxation of death anxiety seems at odds with the proposed function of making life more immediate and precious. Regardless, we are then invited to consider the true story of a terminally ill young man whose dying wish was to lose his virginity. Humphrey emphasizes that the man, driven by consciousness, sought *novel* stimuli, to extract as much sensory experience from his life as possible. Yet, keeping evolutionary theory in sight, we should not have to invoke subtle fitness gains of mere experience to explain a male's desire to copulate once before death. Throughout *Soul Dust* we are encouraged to forget the customary, robust explanations for intelligent behavior in favor of a loosely defined set of experiential goals. Consequently, Humphrey's hypothesis obfuscates more biology than it illuminates.

Humphrey takes a number of shortcuts in his account of consciousness, exposing the reader to several techniques of distraction identified in *Intuition Pumps*. The first is the

casual suggestion of a false dichotomy with the “rather” clause and the second is the rhetorical question; these techniques can be combined, as in (referring to consciousness) “What if its role is not to *enable* you to do something you could not do otherwise but rather to *encourage* you to do something you would not do otherwise?” (p. 72). Note the implication that a behavior does not need to be enabled, it does not need to be possible, before it can be successfully encouraged. Also, we are meant to agree that consciousness has some effect on what an organism does even before we have the chance to assess the spurious distinction between something it *could* do and something it *would* do. This smacks of compatibilism (the notion that, in a deterministic universe, free will can and does exist. That all we want to mean when we invoke free will is ordinary, unforced decision-making, never mind the willful ability to affect the trajectory of physics. This is the position defended by Dennett in the final section of his book.), yet another hefty proposition quietly assumed in this brisk rhetorical question, of which there are seven more on the same page and many more elsewhere. A third smoke grenade of philosophy is the “surely” operator, as in “The survival benefits of delighting in ‘existence’ are obvious” (p. 87). Unfortunately, a list of survival benefits does not follow this introductory statement. Instead, we are simply reminded that being conscious means that, “*being alive as such* will become a goal” (p. 88). Near the beginning of the book, Humphrey decides that, with regard to consciousness, “we can take for granted that—like every other specialized feature of living organisms—it has evolved because it confers selective advantage” (p. 14). Then it is a good thing Humphrey wastes no time defending this essential proposition. Here is another, referring to the soul niche: “There can be no question that this is the niche to which the human species is *biologically* adapted...” (p. 159). If only this were true, Humphrey would have had no reason to write this book.

David Chalmers’s “philosophical zombie” is a crucial thought experiment in both *Intuition Pumps* and *Soul Dust*. Both authors spend time dismantling the prospect of a humanoid agent, behaviorally indistinguishable from an ordinary human, who lacks consciousness. Dennett defends the claim that while *logically* possible, this proposition should not convince anyone that consciousness is *therefore* a condition of life that is merely *additional* to the biology of intelligent behavior. Humphrey agrees (though he claims that such a state is logically impossible) before proposing what he calls a “psychological zombie,” or a humanoid agent whose relevant attractor-state circuitry has been disrupted, thereby lacking consciousness but retaining all else. These zombies would, by Humphrey’s approximation, fail to “revel in being phenomenally conscious,” “love the world,” or “esteem their selves” (p. 75), yet they would be able to do everything else that humans can do, including communicate, plan, infer, emote, perceive, etc. In fact, this *is* the sense of the philosophical zombie that Dennett recommends we ignore; it is only qualitatively different from Chalmers’s zombie because the consciousness-inducing attractor states are *additional to* (as opposed to *identical to*) the underlying mental computations. The intermittent protagonist of *Soul Dust*, a scientist from Andromeda who studies human consciousness, is just such a zombie, but “this would not stop her from having an exceptionally brilliant analytic mind” (p. 214). Humphrey deploys the intuition pump of an unconscious alien studying consciousness to help sketch his arguments, but in his final assessment he decides that the Andromedan would be too apathetic, too sullen to explore the universe, for lack of

consciousness. She does not live in the “soul niche.” But, to “turn a dial,” suppose this Andromedan had a voracious chemical addiction to the acquisition of knowledge, that she acted in such a way so as to maximize the activation of hypothetical discovery-reward circuits. Consider this the non-conscious Andromedan-adapted solution to the problem of getting intelligent life out of bed in the morning. Our scientist is then all but indistinguishable from a human, becoming excited, motivated, and prideful as her studies of consciousness progress. So, because she lacks consciousness, philosophical zombies are not only logically possible, but physically possible in the *Soul Dust* universe. Humphrey’s inconsistency belies a misunderstanding of Dennett’s critique of Chalmers’s zombies: Conscious states are not external to brain states; they are perfect concomitants, such that consciousness is what the brain does. Otherwise, the dualistic intuition of consciousness is not the illusion that Humphrey makes it out to be; if consciousness and brain activity are extricable, dualism is true. This aspect of the Andromedan scientist thought experiment is what Dennett calls a “boom crutch,” or an intuition pump that misrepresents the crux of a disagreement, distracting both sides in the details of the fiction.

Leaving the Workshop

More than anything, *Intuition Pumps* emphasizes the practice of analysis. Dennett is determined to get the reader to engage with topics in philosophy, remembering that the first tool in the kit is “making mistakes.” To embrace this ethos and bring Dennett’s tools out of the workshop, we will argue that the metaphor of consciousness as an illusion is deeply misleading. An illusion presupposes a gullible witness, which leads to a cascade of homunculi. The alternative is that consciousness is the primary and ultimate witness (rather than something observed *by* you, consciousness *is* you), yet what could we mean by illusion in this case? Consciousness could not logically be *wrong* about itself. For consciousness to be an incorrect portrayal of a physical reality, it would need to represent information that does not exist. If this is possible, consciousness fails to correspond with a physical reality, a conclusion from which any monist should recoil. But if instead we read Humphrey to mean that consciousness is merely an incorrect portrayal of its internal and external *environment*, then we can explore where this rogue data could come from. Humphrey suggests that the attractor state oscillates in and out of potentially infinite dimensions, leading Humphrey to ask, “. . . is this not exactly the kind of thing we’ve been looking for? . . . objects in the brain that when ‘seen’ by an internal observer, would give rise to the illusion of something with extraordinary, otherworldly properties” (p. 58-59). Granting this “internal observer” as the ultimate witness, consider the nature of the output from the attractor state. Either the output is possible, but scrambled in such a way as to misrepresent an external reality, or the output is impossible, containing divisions by zero, prime numbers ending in zero, rooted negatives, etc. Assuming it is readable, and this latter case is not the sense of “impossible” Humphrey intends, we can agree that perhaps consciousness is informed by a neural system that systematically alters certain kinds of data, flagging it with nuance. We may well expect an evolutionary logic for the sort of data that becomes altered in this way. But isn’t this equivalent to a description of the neural confabulations of attention, memory, or reward, a description of the ordinary method of

motivational computations, promoting or demoting particular goals and relevant behaviors? To call these functional, survival computations “illusions” is to say that sex doesn’t intrinsically feel good; it’s merely an adaptive illusion serving reproductive functions. That is, unless he is committed to an absurd conclusion (cascade of homunculi, dualism, or impossible data), Humphrey’s foundational argument that consciousness is an illusion is an example of what Dennett calls “deepity,” a banality packaged as innovation. It is, at best, an empty slogan, something we already know. More often, it is the germ of a deep confusion over how to think about consciousness.

Elevating Consciousness

As often happens, we have jumped the gun on Humphrey, firing upon his arguments before saluting their merits. Returning to Rapoport’s rules two and three, *Soul Dust* is a largely agreeable work, written with inspired exuberance and style. The book is dense with insights; every page is crowded with poets, philosophers, scientists, and artists of all kinds. The result is a readable and relentlessly thought-provoking work that delights even as it frustrates. Humphrey, like Dennett, dispels the more romantic notions of consciousness as the gift of a spirit, but he cleverly reappropriates the terminology of spirituality to align with a scientific vision of consciousness. Both he and Dennett employ tactical vocabularies, wishing to make their arguments more appetizing to a general audience and, in Dennett’s case for compatibilism, *safe* for consumption. Most importantly, *Soul Dust* and *Intuition Pumps* work to collapse the irresistible assumption that we live in a phenomenological reality outside of our biology, while simultaneously celebrating and elevating its significance. Dennett masterfully excavates a host of exhausted intuitions on evolution, consciousness, and free will, and replaces them with tools for discovering better conclusions. Although much of the text is lifted from previous works, *Intuition Pumps* provides a one-stop shop for Dennett’s best lessons in thinking clearly. With these lessons learned, it becomes much easier to precisely address the insights and errors of any work of philosophy. Although *Soul Dust* is unstable under examination, the practice of analysis has proven invaluable to our understanding of the topic; in a way, it is good that Humphrey left the mystery of consciousness unsolved. It is such good food for thought.

References

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