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> '…if scientific analysis were conclusively to demonstrate certain claims in Buddhism to be false, then we must accept the findings of science and abandon those claims.'
>
> HH the Dalai Lama (2005), *The Universe in a Single Atom*, p. 3

Confessional Overture

I am not a Buddhist—something that I share with over 90% of people on Earth whose identities have been shaped by norms, beliefs, and practices outside the historical orbit of Buddhism. Neither is Evan Thompson, although in his case despite frequent exposure to Buddhist ideas and practices during his formative years while growing up at the Lindisfarne Association, an alternative educational community founded by his late father, the cultural historian Irwin Thompson, in the 1970s.[1] Like Thompson, I am a philosopher by training who thinks that Buddhism is host to a rich tradition of systematic reflection whose methods and insights have some- thing valuable to contribute. One such insight is that we are not and have never been selves in the Cartesian sense of the term: distinct and discrete entities that exist over and above their bodies and psychological states. But to be labeled a 'Buddhist' for endorsing this no-self view would be no different than being labeled a 'Stoic' for championing the idea that we ought to cultivate a sense of moral purpose that is in accordance with nature or a 'Platonist' for believing in the reality of abstract objects.

[1] Housed for many years at the Church of the Holy Communion and Buildings in Manhattan, the Lindisfarne Association (1972–2012) served as a gathering place for scientists, scholars, artists, and contemplatives seeking to foster a global culture rooted in spiritual awakening and ecological consciousness.

It is not for these sorts of philosophical reasons that Thompson (2019) eschews the label 'Buddhist' in his most recent book, *Why I Am Not a Buddhist*—not that finding reasons within Buddhism itself to remain skeptical of its claims would be untoward. One could well take issue with some of its metaphysical commitments (to momentariness,[2] for instance), find its spartan epistemology wanting, or consider the lack of normative commitments a serious shortcoming of its ethics. No, none of these matter in his case. Rather, the important intellectual achievements of Buddhism (controversial as some may be) are precisely the reason Thompson invokes for "being a good friend to Buddhism" (p. 2). It is as a friend, then, that he speaks *for* this intellectual tradition and *against* its distortion at the hands of 'Buddhist modernism'—a now widely shared belief that Buddhism is a kind of science of the mind whose methods and insights have been experimentally tested and confirmed over millennia through meditative practice.

Of course, Buddhism's encounter with modernity tells a complex and well-documented story of adaptation and change (Gombrich & Obeyesekere, 1988; Sharf, 1995; Hubbard & Swanson, 1997; Faure, 1998; Lopez, 2008; McMahan, 2008). But the global explosion of the mindfulness movement in recent decades, backed by certain members of the scientific and religious studies communities, means that large segments of the educated public now regard Buddhism as a tradition that in effect has got its principles and methods right. This new brand of recognizably Buddhist apologetics cloaked in a scientific aura is the main reason Thompson cites for resisting the label 'Buddhist'. Of course, as his collaborative work with Francisco Varela and Eleanor Rosch (*The Embodied Mind*, MIT Press, 1991) demonstrates, Thompson does not, in principle, reject the premise that the evolutionary and mind sciences corroborate some aspects of the Buddhist model of mind.[3] Nonetheless, our reliance on the scientific method as the most effective way for getting knowledge of facts needs to be balanced by the recognition that we also live by moral and ethical norms that are culturally specific, and he finds in Kwame Appiah's partial cosmopolitanism a most promising way to achieve this goal. If we can grant that our understanding of values is just *different* rather than *superior* to those of other cultures and traditions, 'this kind of learning can affect how we think about the ethics of science and its technological application' (p. 187).

[2] There is some debate in early Abhidharma about how best to account for change if the irreducible elements of existence and/or experience (*dharmas*) persist across time. The debate concerns the 'changing of that which endures' (Pāli *thitassa aññathatta*), that is, the ontological status of entities and processes between origination and dissolution. Specifically, the question is whether the passage from origination to dissolution is momentary (*kṣana*) or temporally extended and, if the latter, whether endurance is a property of aggregate empirical phenomena only or applies to the *dharmas* as well. For Vaibhāṣikas, the transience of empirical phenomena provides enough evidence for postulating a principle of momentariness, but the *dharmas* themselves must be regarded as eternally existing realities (which is in keeping with their "all is real view" (*sarvāstivāda*)). The Sautrāntikas, on the other hand, take the principle of momentariness (*kṣanikavāda*) to be all encompassing, and to apply to empirical phenomena and the *dharmas* alike (von Rospat, 1995, 23–31; Kim, 1999, 61–62; Ronkin, 2005, 61–65; Karunadasa, 2010, 32–40).

[3] Specifically, a view of the brain as consisting of highly cooperative, albeit not uniformly structured, networks that perform specific tasks is said to give some credence to the Buddhist model of personal identity, which renders agency in terms of a set of causally interdependent experiential formations (e.g., sensations, dispositions, discerning awareness) (Varela et al., 1991, Chapter 6).

As should be obvious, this brief overture is 'confessional' only in jest, for the reasons outlined in the foregoing reflect generally accepted norms of academic practice rather than personal belief. There is much that Thompson and I agree on about the ways in which Buddhism can be brought into dialog with contemporary thought. But since this article takes a critical look at Thompson's recent book, I will focus on those areas where, I think, some of our disagreements lie: (i) the suitability of evolutionary psychology as a framework of analysis for Buddhist moral psychological ideas; (ii) the issue of what counts as the core and main trajectory of the Buddhist intellectual tradition; (iii) the scope of naturalism in the relation between science and metaphysics, and (iv) whether a Madhyamaka-inspired anti-foundationalist stance can serve as an effective platform for debating the issue of progress in science. The main argument of this paper is that for Buddhism to enter into a fruitful dialog with the mind sciences, it must be shown to complement the empirical claims to knowledge for which scientific naturalism so far provides the most viable basis.

Buddhism and Evolutionary Psychology: Matching Partners or Incompatible Bedfellows?

Critics of Buddhist modernism have so far argued that the seemingly self-evident claims made about Buddhism—that it is not a religion but a practical guide to living, that it is a method of self-analysis compatible with modern psychology, that it is egalitarian and democratic, and that meditation is its core practice—are a modern construct (Sharf, 1995; Lopez, 2008; McMahan, 2008). Thompson's contribution to this critique has two primary targets: (i) the mindfulness movement, which is inspired by, and strongly endorses, neuroessentialism or the view that the best and most definitive way to explain human psychology is by reference to the brain and its activity; and (ii) the evolutionary psychology paradigm used to legitimize a naturalized version of Buddhism favored by many North Americans, as found, inter alia, in Robert Wright's best-selling *Why Buddhism is True* (Wright, 2017). I think, Thompson is spot on in his assessment of Buddhist modernism as an ideological expression of the mindfulness movement. But his critical stance on evolutionary psychology and the project of naturalizing Buddhism is less convincing. Indeed, much of Thompson's critique of Buddhist modernism turns on his rejection of some of the foundational premises of evolutionary psychology. And he takes issues with those who appeal to evolutionary psychology as the right framework for relating Buddhism to science. Is he right? Undoubtedly, as an enterprise that attempts to explain most mental traits as adaptations or functional products of natural selection, evolutionary psychology is not without controversy. But Thompson, I will argue, relies on some common misconceptions about the field and its overly critical reception, mainly among philosophers of biology.

First, he argues that evolutionary psychologists operate with a skewed conception of evolution, which regards organisms 'as passive recipients or passive effects of natural selection.' A better alternative, he suggests, is to regard organisms as able to 'exert an influence over their own evolution by actively shaping their environments'—an idea favored by what evolutionary ecologists call 'niche construction

theory' (p. 65). But this way of framing the issue plays on a misconception that evolution and adaptive behavior or learning represent different explanations. To claim that some traits—for instance, the human fear of snakes—are evolved does not mean they are present at birth. Rather, it is to claim humans have an evolved learning mechanism that makes it more easily in their case to acquire a fear of snakes than of other things in the environment. Furthermore, learning itself is enabled by neurocognitive processes that are themselves the product of evolution. Take perception: in order to understand how perception works, one of the modalities by which we learn to navigate the environment, we must look to the causal processes that have configured our perceptual systems. While cats and small infants have similar perceptual systems, the difference between the way cats and small infants perceive is largely a function of their evolved brain-based mechanisms. Lastly, while evolution and learning seem to operate at different levels of explanation, they are in effect complementary.

In the middle of the last century, Mayr (1961) suggested that we understand biology as an enterprise in the pursuit of two sets of questions: (i) *proximate*, concerned with matter of structure and mechanism (that is, with the immediately preceding mechanisms that lead an organism to do what it does on a given occasion); and (ii) *ultimate*, concerned with why organisms are the way they are (that is, why organisms tend to have a system that responds that way). Mayr thought, the former were the province of functional biologists, while evolutionary biologists were mainly concerned with the latter, even though the study of adaptive functions of traits is central to evolutionary explanations. The confusion these notions created, led the ethologist Tinbergen (2010) to frame biology as actually concerned with four types of questions, now known as 'Tinbergen's four questions'. Two are about ontogeny (How does a specific trait develop in individuals?) and mechanism (What is the structure of the trait?). The other two are about phylogeny (What is the trait's evolutionary history?) and adaptive significance (How have trait variations influenced fitness?) (Nesse, 2019). Although these two sets of questions may lead to different explanations, they are not necessarily incompatible: to single out a specific trait as a product of evolution says nothing about how the organism exhibiting that trait will behave during its lifespan. For instance, in the case of some butterfly pupae turning brown rather than green, we can tell a story about how a shortened photoperiod leads to the release of a chemical that turns off the green pigment. But we can also say that butterflies have this system because butterflies that lack it would have produced green pupae in the winter, which would have resulted in higher rates of predation.[4]

Second, Thompson thinks that evolutionary psychologists unfairly privilege one period in our evolutionary history—the Pleistocene—'as the source of all our important psychological adaptations' (p. 65), downplaying the role that cultural transmission has played in human evolution. As an alternative proposal, he suggests that 'gene-culture coevolution theory' is better suited to show how 'changes in genes can lead to changes in culture, which can then influence genetic selection' (p. 65). On Thompson's view, making room for the 'cultural transmission of tools and concepts' and the 'inheritance of culturally shaped environments' (p. 66) gives

[4] I am indebted to my colleague Todd Grantham for this example.

this theory an added explanatory advantage. But this alternative proposal begs the question: if our ability to act in ways that go beyond our genetic heritage is not itself a product of evolution, then where does this ability come from? Tools and concepts have certainly served as proximal factors of cultural transmission, but our ability to fashion them and to adopt behaviors in keeping with their function must itself have been made possible by the forces of evolution. Of course, not all aspects of human behavior fit neatly the current approach favored by evolutionary psychologists. But progress in explaining a wide range of human behavior, from parenting (Lawson & Mace, 2009; Avinum & Knafo, 2013) and cooperation (Prader et al., 2009) to perception (Jackson & Cormack, 2008) and cross-cultural differences in social behavior (Fincher et al., 2008) mitigate against this wholesale dismissal of evolutionary psychology as a deeply flawed enterprise.

Third, Thompson targets the hypothesis—favored by many evolutionary psychologists—that the mind has a modular cognitive architecture composed of computational processes that are innate adaptations. He thinks there is no evidence from neuroscience in support of this hypothesis. Against the hypothesis that cognition is mostly domain-specific, Thompson proposes that we read the evidence from neuroscience as providing support for an alternative hypothesis, namely one that regards brain areas and networks as specialized for performing 'a variety of functions depending on context' (p. 67) and as exhibiting 'flexible tendencies to respond across a wide range of circumstances and tasks' (p. 68). Whereas the massive modularity hypothesis puts forward an image of the mind as modular through and through—including both low-level systems underlying perception and language, and high-level systems responsible for reasoning and decision-making—the alternative, emergentist hypothesis that Thompson favors understands cognition as a function of dynamic interactions between various modules, not as a result of their activation. In short, there are no 'dedicated, special-purpose cognitive modules instantiated in specific brain structures' (p. 69) of the sort evolutionary psychologists presumably assume to be the case.

But this way of framing the issue glosses over a rich history of debate in both cognitive science and philosophy of mind going back to Fodor's landmark book *The Modularity of Mind* (1983), which first introduced the term 'module' and its cognates. As that debate shows, the question of the modularity of the mind is far from settled. For advocates of the massive modularity hypothesis (Sperber, 1994, 2002; Cosmides & Tooby, 1992; Pinker, 1997; Barrett, 2005; Barrett & Kurzban, 2006), the advantage modular systems have over their alternative lies in their problem-solving capacity: that is, adaptive problems are said to be more readily and efficiently solved by modular, rather than non-modular systems, which in turn is used to explain why evolution might have favored this type of cognitive architecture (Carruthers, 2006, 25). Critics of the hypothesis single out things like neuroplasticity (Buller, 2005; Buller & Hardcastle, 2000), high-level cognitive capacities such as mind-reading (Currie & Sterelny, 2000), and positive correlations between ostensibly distinct cognitive abilities (Carroll, 1993; Rabaglia et al., 2011) as evidence against the view that the mind essentially consists of a collection of distinct and adaptively specialized modules for different cognitive tasks. But even critics often

concede that despite the ensuing debate, the modularity paradigm continues to have wide relevance in cognitive science and philosophy of mind.

Fourth and last, Thompson joins the chorus of critics who point out that the hypotheses of evolutionary psychology aren't confirmed by evolutionary biology. The problem, in this case, is said to lie in their approach. That is, 'evolutionary psychologists look for what they consider to be designs in the makeup of our psychological traits and then present a scenario involving natural selection that would have led to the formation of those traits' (p. 69). What makes this approach problematic according to critics is a series of mistaken assumptions: (i) that all traits have evolved by natural selection; (ii) that adaptations are properly defined as traits; and (iii) that certain cognitive traits can be shown to be widespread in human beings with the right experimental framework (p. 70). But this way of framing the debate, paints evolutionary psychologists as something they explicitly are not: genetic determinists (Cornwell et al., 2005). As evolutionary psychologists such as Leda Cosmides and John Tooby make quite clear, evolutionary psychology is not behavioral genetics: 'Behavior geneticists are interested in the extent to which *differences* between people in a given environment can be accounted for by *differences* in their genes. Evolutionary psychologists are interested in individual differences only insofar as these are the manifestation of an underlying architecture shared by all human beings' (Cosmides & Tooby, 1997). This underlying architecture is what mediates an organism's phenotypic expression, which in turn can be explained in terms of adaptations that were selected for, which are present because they are in turn causally coupled to traits. The question is not whether genes *or* the environment are more (or less) important in determining an organism's phenotype. Rather, as Cosmides and Tooby clarify, '*every aspect of an organism's phenotype is the joint product of its genes and its environment.* To ask which is more important is like asking, Which is more important in determining the area of a rectangle, the length or the width?... Genes *allow* the environment to influence the development of phenotypes' but 'what effect the environment will have on an organism depends critically on the details of its evolved cognitive architecture' (Cosmides & Tooby, 1997).

As for the view that evolutionary hypotheses are mainly post-hoc storytelling or 'just-so' stories—a seemingly unscientific process of noticing something special about human behavior, concocting a convenient (read *evolutionary*) explanation about it, and defending the explanation without further experimental work—the response from evolutionary psychologists is quite categorical: this is nothing but a widespread misconception. While it is true that generating a hypothesis without deriving or testing any new predictions based on it might open one to the charge of just-so storytelling, as I noted in the foregoing, evolutionary psychologists have made progress in explaining a wide range of human behavior (see also Lewis et al., 2017; Al-Shawaf et al., 2018). Part of the problem is that critics assume scientific enterprises such as evolutionary psychology that have a historical component somehow trade in unfalsifiable hypotheses. But if that were the case, the hypotheses of all scientific disciplines with a historical component—e.g., astrophysics, cosmology, geology—would amount to nothing more than just-so storytelling. The crucial point is to generate novel predictions about previously unobserved phenomena 'that can be tested in the present day' (Al-Shawaf et al., 2018, 9). Science, as we all know, is

an open-ended enterprise whose hypotheses are subject to revision in light of new findings and better theorizing.

Regardless of Thompson's critical stance on the viability of evolutionary psychology as a scientific enterprise, it is a further question whether evolutionary psychology is an appropriate framework for relating Buddhism to science. Consider, for instance, Wright's view (informed by evolutionary psychology) that natural selection has built into our brains precisely the tendencies that pre-scientific era Buddhists rather astonishingly managed to size up. On this view, the many illusions that Buddhists claim we tend to cling to—that we are the subject, owner, and agent of our thoughts and deeds—are said to find corroboration in what the available science tells us about our psychological make-up: in other words, the massive modularity of the mind hypothesis works to corroborate the aggregate model of our cognitive architecture that Buddhists favor. The same goes for the Four Noble Truths: the unsatisfactoriness Buddhists speak about as a fundamental truth of human (and animal) existence is rooted in our evolutionary history: we are designed by natural selection to react to our environments in ways that minimize the causes of suffering. And the sources of this discontent—identified as 'craving' or 'desire'—'make sense only against the backdrop of evolution' (Wright, 2017, 271).

A similar naturalist stance centered on the modularity of the mind hypothesis is adopted and adapted to the Buddhist context by Jonardon Ganeri in his recent book *Attention, Not Self* (2017), a project aimed at demonstrating that attention is what actually does the work traditionally attributed to the self. Eschewing egological accounts of the mental (in keeping with the no-self doctrine), Ganeri argues that mental activity is best understood as a sort of turning or 'bending' onto the world, something akin to the 'modulation of conscious intentionality' involving a variety of cognitive modules. When seen through this modularity lens, mental activity, then, can be said to consist 'in "tasking" the mind through the activation of a variety of cognitive psychological modules (*mano–dhātu*). Such activities include subliminal orienting, constructing a sensory field, perceptually processing a stimulus to identify spatial boundaries and object category, late attentional gatekeeping and the running (*javana*) of working memory' (Ganeri, 2017, 22).

Is it plausible to claim that the main takeaway of modern, naturalistic Buddhism is that it can be made consistent with evolutionary psychology? And relatedly, is the modularity of the mind hypothesis a useful framework for unpacking the bundle theory of mind? Thompson thinks that it is not and sums up such proposals in terms of four critical questions: 'First, is evolutionary psychology the right scientific approach for understanding the human mind? Second, is evolutionary psychology the right framework for relating science to Buddhism? Third, is naturalistic Buddhism compelling? Fourth, is the question "Is Buddhism true?" the right one to ask anyway?' (pp. 62–63). Not surprisingly, Thompson's answer to these questions is: 'no, no, no, and no'. But given Thompson's stance on evolutionary psychology and (as we shall shortly see) naturalism, it should be obvious by now why his categorical answers, at least to the first three questions, fail to capture the complexity of the phenomena at hand. I am, however, in broad agreement with Thompson that the fourth question is ill-conceived.

Fine-Tuning Naturalism

Is evolutionary psychology the right framework for a rapprochement of Buddhism and science? The correct answer is: it *depends* on what aspects of Buddhist and evolutionary psychology are brought under consideration. The bundle theory of mind, a focus on latent disposition as subpersonal or subconscious conduits to conscious cognition, and the paramount importance of causal rather than justificatory accounts of reasoning, certainly speak in favor of this corroboration. Does that mean there is no room for competing approaches, specifically for the embodied and enactive cognitive science that Thompson favors? Certainly not. I myself have argued in favor of the usefulness of the latter in accounting for certain aspects of the Buddhist epistemological accounts of perception, attention, and reasoning (Coseru, 2009, 2012, 2017, 2019). Does that make naturalistic Buddhism compelling? Again, the correct answer is: it *depends* on whatever conception of naturalism is in play.

'Naturalism' is a term with multiple and often imprecise meanings. It can denote both a specific philosophical attitude and a methodological approach. In the first sense, it reflects a growing conviction, strengthened by advances in the empirical sciences, that reality is exhausted by nature. The second hints at the idea that scientific naturalism provides a robust basis for advancing empirical claims to knowledge, and according to some (Kitcher, 1992; Stroud, 1996) the only such viable basis. And yet, however capacious and enticing naturalism might be in its many (and often conflicting) guises, there is no shortage of objections to its adoption as a methodology for philosophy. I will mention only three.

First, Wittgenstein's (1922) claim that philosophy aims at 'the logical clarification of thoughts' (*Tractatus* 4.112) and 'is not one of the natural sciences' (*Tractatus* 4.111). Second, Bouwsma's rather glib dismissal of naturalism for its belief (bordering on faith) in the 'universal applicability of the experimental method' and its ignorance of the role that mathematics plays in experimental science (Bouwsma, 1948, 13-14). And third, Husserl's stance that what makes philosophy, especially after the phenomenological turn, immune to naturalization is that it conceives of itself as a form of transcendental inquiry that seeks to reflect on the conditions of possibility for experience and cognition (Husserl, 1970; see also Zahavi, 2013; Moran, 2013). Of course, this last conception of the task of philosophy, which actually goes back to Kant, does not rule out the possibility that empirical studies might one day vindicate some version of naturalism fine-tuned to accommodate mental phenomena. Indeed, Varela's neurophenomenological project (1996)—first sketched in Laughlin et al. (1992)—speaks to this vision of cognition as embodied, embedded, extended, and enactive, and thus as seemingly continuous with the environment of which it is a part, a vision that Thompson has assiduously defended in his work (Lutz & Thompson 2002, 2007a, b).

So, at the very least, Thompson ought to find compelling a conception of naturalism that aligns Abhidharma Reductionism with the neurophenomenological enterprise. And, as his summation of the enactive approach testifies, it seems that he

indeed does: 'cognition is embodied sense-making; it is the enactment or bringing forth of a lived world of meaning and relevance in and through embodied action… Instead of applying a scientific framework to Buddhism from the outside, we engage in a two-way exchange with Buddhism, including developing a version of embodied cognitive science that incorporates ideas from Buddhist philosophy' (pp. 71–72). In light of these remarks, Thompson's answer to the third question in the foregoing can seem rather disingenuous if the only difference between the approach of evolutionary psychology favored by champions of 'naturalistic Buddhism' and his enactivism is that the latter allows for a back and forth circulation of ideas between Buddhism and science. For Thompson does not mean to suggest that such circulation of ideas would allow for Buddhist beliefs, for instance, in karma and rebirth to inform research protocols in enactive cognitive science. Rather, he clearly means to restrict this circulation of ideas only to concepts and theoretical frameworks that could profitably inform a scientific understanding of the mind—in short, only to those concepts that could be naturalized. But if that is the case, he would seem to be arguing in favor of precisely the premise *Why I Am Not a Buddhist* sets out to reject: that at its core Buddhism is built on a sound theoretical and empirical foundation (sound enough that its concepts reflect precisely the sort of naturalist epistemic attitudes, which warrant bringing it in dialog with cognitive science).

Is Thompson undermining his own stance? Or is he simply offering an alternative proposal for elevating the status of Buddhism as a worthy partner of scientific dialog in ways that distort neither Buddhism nor science? I am inclined to think the latter is the case. But in order to find out whether the proposal he puts forward is a viable one, we must consider two things: first, whether the school of thought Thompson turns to—that of Madhyamaka (Middle Way), associated with the Indian Buddhist philosopher Nāgārjuna (ca. 150–250 C.E.)—does indeed capture Buddhism's core teachings; and second, whether that school of thought also provides a framework for advancing positive knowledge claims about cognition and the mind.

A Scientific Metaphysics?

Madhyamaka is best known for the idea that all things are 'empty' in the sense that they lack an intrinsic nature and are instead brought about by multiple causes and conditions. Does the doctrine of emptiness reach to the very core of Buddhism? Well, it *depends* on whom you ask. Madhyamaka is just one of three major traditions of thought to have come out of India—the others are the closely related Yogācāra ('Practice of Yoga'—effectively an Abhidharma school) and Pramāṇa ('Reliable Cognition') traditions. Yogācāra thinkers such as Vasubandhu (ca. 4th to fifth C.E.) insist that the doctrine of emptiness makes no sense without their own doctrine of three natures: as a category, 'emptiness' (or the *ultimate* nature) simply denotes the absence of that which appears (a *mentally confabulated* nature) in what there is (the *dependent* nature of the causal web). And Buddhist epistemologists following in the footsteps of Dharmakīrti (ca. 600–660 C.E.) think that causal efficacy rather than emptiness is the true mark of the real. In short—and frustrating as it may

sound—Madhyamaka only reaches as far as whatever Mādhyamikas (both classical and contemporary) think counts as the core of Buddhist teachings.[5]

As for the second question—does Madhyamaka offer a viable enough framework for advancing better or more reliable knowledge claims?—the answer depends on whether the antirealist epistemic attitude that Madhyamaka puts forward is better suited to account for the success of science. I will argue that it is not, and that the success of science makes a compelling case for adopting the epistemic attitude of scientific realism. Since at the least the Enlightenment, the notion that systematic methods of inquiry can lead to the discovery and justification of new truths—including truths about unobservable phenomena—has promoted a favorable attitude toward scientific realism (despite ensuing debates about whether successive scientific theories get us closer to the truth or simply enhance our problem-solving capacity (Psillos, 1999; Kitcher, 2001)). The main motivation for upholding this Enlightenment conception of the scope of human inquiry, then as now, is the recognition that systematic knowledge built on careful observation and the power of reasoning serves as the most authoritative guide in practical life.

Of course, given the ongoing debates about the merits of scientific realism vis-à-vis antirealist epistemologies of science, talk of science *compelling* us to adopt any epistemic attitude whatsoever might seem wholly misplaced. But I do not mean to suggest that somehow science unquestionably provides knowledge of a full range of phenomena (synapses, DNA, quarks, quantum fields, etc.). Rather, I simply note that science commands authority because of its success in making accurate and novel predictions about observable (and unobservable) phenomena (Musgrave, 1988; Leplin, 1997; Psillos, 1999). Whether the success of science is a motivation for realism (whether of the *traditional*, *entity*, or *structural* kind) depends, in large measure, on whether realists provide better explanations for its success than anti-realists. Since Putnam (1978) and Boyd (1983), it has become common to offer abductive arguments from the success of science to the approximate truth of our best scientific theories. At the same time, critics of the realism/antirealism debate have argued that 'there are no scientific practice arguments on the table that support either side of the debate' (Kukla, 1994, 955), and that we need not 'add extra-scientific standards of justification to our repertoire' (Maddy, 2001, 47–48). Unfortunately, this deflationary approach ignores the real-life implications of this debate, especially for science policy.[6]

It is not difficult to fathom what a resolution to this debate might look like if we consider the two principal ways of advancing science: (i) gathering *better* data

[5] Buddhist doxographic traditions typically address the problem of doctrinal differences and disputes by ordering them in a hierarchy modeled on the hermeneutical principle that some views are provisory while others are ultimate, with the hierarchy itself reflecting doctrinal allegiance to a given tradition. When Buddhist thinkers are found to endorse more than one doctrinal position, as is the case, for instance, with Śāntarakṣita (c. 725–788) and Kamalaśīla (c. 740—795), their views are designated using various hybrid categories such as Yogācāra-Madhyamaka or Yogācāra-Svatantrika-Madhyamaka.

[6] If different disciplines, say, computer science and neuroscience, studying the same domain, say human and mammalian brains, are taken to operate with differing ontological commitments (Shaw, 2018), they could be making competing cases for the viability of their respective approaches if success is not a factor in delivering results. By invoking the success of science, particularly in the case of accounting for unobservable entities, I simply mean to suggest that assuming realism is both a coherent position and better suited to unify knowledge about a specific domain (Saatsi, 2020; Wray, 2020).

or better *gathering* and *modeling* of data, including new data, and (ii) coming up with new theories and concepts, including concepts about scientific progress, or revising current ones (Kitcher, 1993; Bird, 2007). The latter also entails formulating new and better hypotheses about those things that we cannot yet observe but that we must postulate in order to make sense of the way observable things behave. And it is here that attitudes begin to diverge, for talk of unobservable entities and processes—as described by our best theories—is generally considered to be the province of metaphysics. Hence, to believe such entities are real (in the sense of having a mind-independent existence) is to adopt a particular metaphysical stance: *realism*. The opposite stance, *antirealism*, takes the view that those entities our best theories describe simply reflect our epistemological commitments. To take an antirealist stance, then, is to argue that the foundation of scientific theories is metaphysical insofar as its basic entities are determined a priori. And yet, while most metaphysicians think 'properties' and 'causation' are metaphysical things, the overwhelming majority of scientists and philosophers of science regard them as real entities and processes. Are things like genes metaphysical entities? By most counts, the answer will have to be no. But what if understanding genes depends on the reasonableness of one's understanding of causal relations? In that case, we have a slippery slope.

Can naturalism escape the slippery slope? Or is it the case that, like all other epistemic attitudes, it too must ultimately and inescapably be grounded in metaphysical theorizing? Certainly, the causal and other relations in virtue of which observable things are known do act as supports for the reasonableness of our knowledge claims, and, as many philosophers of science would admit, 'to furnish a defensible account of these supports is to do what everyone would agree is metaphysics' (Chakravartty, 2013, 28). But defenders of scientific realism think this approach is problematic. Why? Because it is regressive: it rests on the assumption that knowing or giving a reasonable account of these supports (causes and relations) ultimately amounts to doing metaphysics.

Is the slippery slope to metaphysics avoidable and, if so, how? For most theoretical scientists and philosophers of science the answer is: yes, by theorizing in the vicinity of scientific inquiry. That is, even if we grant that the epistemic attitude of scientific realism does indeed depend on an account of how information is transmitted to consciousness, it does not follow that there is no cogent picture of the (external) world to be had. But cognitive science poses a particular problem for realism because the subject matter of cognitive science includes mental states and processes that are not mind-independent. Pains, decisions, and color experiences are clearly not mind-independent. Nonetheless, these conscious mental states and processes correlate with neural computations, and one can certainly be a realist about the latter. And to extend that realist stance to the former is to assume that mental and non-mental phenomena alike bear some reductive relation. To say, for instance, that seeing a patch of blue *is* nothing but a neural computation of some kind or that it is *realized* or *grounded* in a neural computation is to adopt respectively an *identity*, *realization* or *grounding* conception of how mental phenomena may be reductively understood. It is the prospect of naturalizing the mind, then, that makes realism a tenable stance in cognitive science.

One might reasonably object that this sort of reductive understanding is still the province of metaphysics because *identity*, *realization,* and *grounding* are

metaphysical categories. Hence, to claim that neural computations are mind-independent is simply to adopt a particular metaphysical stance: realism. Can theorizing in the vicinity of neuroscience, then, help us adjudicate the viability of a particular metaphysical stance on the neural computation paradigm? Clearly, perceiving color either *is* or is *realized by* or *grounded in* a neural computation. But this way of framing the issue means that neural computations cannot be mind-independent. Does this puzzle mean that realism about mental phenomena is untenable and that we should concede with the anti-realist that explanations in terms of neural computations do not amount to giving an account of mental phenomena in non-mental terms?[7]

Consider, for instance, what would mean to concede to the anti-realist that there is no evidence for a reductive support for mental phenomena in cognitive neuroscience: in short, neural computations are not mind-independent. But if neural computations are not mind-independent, what about the phenomena underlying those computations? At least some of the atomic and quantum level phenomena realize or ground the neural computations that in turn realize or ground mental states and processes. Are atomic and quantum level phenomena mind dependent too? Should we be anti-realists about atomic and quantum level phenomena? Sure, an account of how the world at the most fundamental level furnishes consciousness with its content involves models and theories that, in turn, depend on more basic notions such as entity, property, structure, etc. But just because the entities described by our best science can be understood as 'collections of properties cohering at locations in space-time', it does not mean that 'a cogent picture of such coherence' is beyond our grasp (Chakravartty, 2013, 29). In short, scientific realism is precisely the construct designed to stave off the slippery slope.

Analytic metaphysicians might retort that this kind of theorizing in the vicinity of scientific inquiry is still metaphysics, though of a rather superficial, surface sort. Real metaphysics, the story goes, is the kind of deep metaphysics that tries to conceptualize what is most fundamental, e.g., being, time, causation, and even consciousness. But champions of the project of naturalization do not leave out these bedrock phenomena. Rather, they argue that the fundamental ontology of such naturalized metaphysics will have to be in line with fundamental physics,[8] because fundamental physics constrains all other sciences, including the kind of physics that is

[7] Sprevak offers a solution to the puzzle by differentiating between mind dependence of the reductive base *as a whole* (including neural computations, mechanisms, networks, dynamic relations, etc.) and *individual parts and relations*, which need not be mind-dependent: "there is nothing contradictory in supposing that a part or relation of the reductive base can occur individually without any specific condition involving mental agents being met" (Sprevak, 2020, 366).

[8] This demand need not collapse naturalistic metaphysics into a narrow conception of *physicalism*—essentially, the metaphysical position that everything that exists is physical or supervenes on the physical. Much of the problem with that narrow view lies in the very notion of 'physical' (an essential features that all physical things have, but which nonphysical things lack), which, as some have argued, is too vague to serve as a foundation for a complete theory of what there is (Chomsky, 2006; Dowell, 2006). Deferring to physics for a definition of 'physical' faces the well-known Hempel dilemma: if defined in terms of current physics, well, that is an incomplete science; and if defined in terms of a future, perhaps ideal physics, well, that is too vague to provide useful explanations (Hempel, 1969, 1980). But a fundamental ontology that is in line with fundamental physics need not assume that if something is physical it must be exclusively non-mental (Howell, 2009, 87f, 2013, 19f). Indeed, realist monists who take experiential phenomena to be physical phenomena (because of the impossibility of radical emergence) argue that in principle physicalism ought to be compatible with certain forms of panexperientialism (Strawson, 2008, 54, 71).

not fundamental. Indeed, if metaphysics pursues objective knowledge, then integrating it with science becomes in some sense inescapable. Unlike the metaphysics of yore, which sought to make the world intelligible (and comfortable) by appealing to human intuitions, the champion of naturalized metaphysics, as Ladyman and Ross make explicit in their prospect for a naturalized metaphysics, 'is optimistic about the possibility of bringing metaphysical hypotheses into closer conformity with objective reality to the extent that these hypotheses non-trivially unify bodies of established scientific knowledge' (Ladyman & Ross, 2013, 109). Furthermore, a great deal of theorizing in science is not empirical. Evolutionary biology, for instance, does not make point predictions, although it does make probabilistic predictions that seek to unify point prediction and uncertainty modeling. Likewise, cosmology does not manipulate things. A naturalized metaphysics, therefore, is not removed from science. Most importantly, good science is receptive to metaphysical assumptions and recognizes that by providing context and supplying basic concepts (atom, entity, corpuscles of light, etc.) metaphysics plays a stabilizing role for scientific inquiry (Chakravartty, 2013, 35f; Chakravartty, 2007).

Recall my observation in the foregoing about the main motivation for upholding the Enlightenment ideal that *systematic knowledge built on careful observation and the power of reasoning serves as the most authoritative guide in practical life*. Naturalized metaphysics—this endeavor to synthesize scientific knowledge into a unified project—reflects a similar motivation. As such, it helps to extend the Enlightenment Project, which arguably serves as the most reliable path to a general worldview. For if science was just another metaphysical enterprise, it could not lay claim to providing an effective and all-encompassing worldview. Worse still, alternative, unscientific pictures of the world would thrive with possibly hazardous consequences for personal decision making and public policy. Where does Madhyamaka fit in this debate?

Madhyamaka and the Real World

Madhyamaka metaphysics, as Thompson correctly recognizes, is anti-foundationalist: 'Mādhyamikas argue that knowable phenomena are concept-dependent in this technical sense. This implies that it doesn't make sense to think of knowledge as grasping how the world is in itself apart from the mind' (p. 74). To think of human experience in Madhyamaka terms, then, is to think of its various cognitive, affective, and behavioral aspects as lacking any ultimate ground or foundation whatsoever: 'Cognition as enaction means that cognition has no ground or foundation beyond its own history, which amounts to a kind of "groundless ground"' (p. 74). That's all fine and good as a statement about metaphysical grounding. But Thompson does not understand his two-way exchange between science and Buddhism as a project in metaphysics *simpliciter*. Rather, the goal is to advance cognitive science in ways that can better account for human experience as exemplified, for instance, by the neurophenomenology research program. So, the question is: can Madhyamaka deliver? That is, does Madhyamaka provide the sort of stabilizing framework that would allow for various theoretical perspectives (from physics, biology, psychology, etc.) to be integrated into a unified worldview?

The answer in this case is a categorical no. Let me explain. As a knowledge enterprise, science is predicated on a reliable method (the scientific method) and on open-ended modes of inquiry that allow for its hypotheses to be falsified. Furthermore, the advancement of science has meant the diversification of explanatory frameworks to accommodate ever-expanding classes of observable phenomena. Biology alone now branches out into some two dozen subfields, including biophysics, genetics, evolution, and most consequentially for our times virology. Each one of these domains contributes to a burgeoning conceptual vocabulary that in many cases is domain specific. Can an anti-foundationalist metaphysics contribute the kind of hypotheses that would be required to ground scientific inquiry across various domains?

Before I venture an answer, I need to clarify one important aspect of Madhyamaka, specifically its two truths doctrine. The general idea is that there is an ordinary, conventional way of seeing things, and an ultimate, correct way, which takes those things to be empty, in the specific sense that they lack an intrinsic nature and are instead just causal continua of momentary phenomena. This way of mapping out the epistemic domain recalls Wilfrid Sellars' conception of philosophy as the cultivation of a 'stereoscopic vision' that takes in at once both the manifest and the scientific images of the world (Sellars, 1962). But the Madhyamaka two truths framework is far more radical than it may seem at first blush. Conventionally speaking, there are tables and chairs and people. Ultimately, there are no such things, not because what we ordinarily call a chair is just some material (e.g., wood, petrochemicals) arranged chairwise as a result of multiple causes and conditions, but because no phenomena in effect come into being. As Nāgārjuna famously declares in the *Foundation of the Middle Way Verses* (*Mūlamadhyamaka-kārikā*), to think of something 'as produced by causes and conditions' is to think of it as a 'product' (15.1 cd). But something that is a product could not be a stable, intrinsically existent thing, for if it were, it would not be a product. Nor could its existence be due to extrinsic factors, 'for an extrinsic nature is said to be the intrinsic nature of another existent' (15.3 cd). And since 'an existent is established given the existence of either intrinsic nature or extrinsic nature' (15.4 cd) it follows that, absent these two singular ways to establish what exists, there can be no existent.[9] That is, no phenomena either come into being or go out of existence. And if that wasn't radical enough, consider the notion that commitment to 'it exists' or 'it does not exist' (15.7ab) with regard to any entity whatsoever is a slippery slope to either eternalism or nihilism, positions that a Mādhyamika strives to avoid by following the middle way (Siderits & Katsura, 2013, 154–160).

Hence, from a Madhyamaka standpoint, there is no fundamental explanatory framework to account for the way different things (e.g., atoms, molecules, enzymes, honey bees) appear or function the way they do. If the ultimate truth is that no phenomena come into being as ordinarily conceived, then this is not something that can

[9] As Siderits has convincingly argued, the claim that everything originates in dependence on causes and conditions cannot be used to prove that nothing has intrinsic nature. Indeed, Abhidharma thinkers held both that things originate in dependence on causes and conditions and that they have intrinsic natures, since possessing an intrinsic nature says nothing about how that nature was realized: 'consequently, its coming into existence in dependence on causes and conditions is not by itself incompatible with its having an intrinsic nature' (Siderits, 2011, 170).

be conveyed in language. In short, the Madhyamaka standpoint—to the extent that 'standpoint' can be coherently applied in this case—is that reality has an inarticulable structure. Although this quietist interpretation of Madhyamaka is one among many (including positions as varied as monism, acosmism, nihilism, skepticism, irrationalism, and paraconsistency), it shares with them a common view about the scope of its method. Specifically, Nāgārjuna thinks that the conceptual schema implicit in the common-sense view of the world presupposes the existence of a world of stable, self-sustaining objects and processes. Hence, his method consists in demonstrating that existential presuppositions about a world of such stable and self-sustaining objects and processes are never true. To see things from the standpoint of ultimate truth is to call into question the conventions of our everyday world (including the conventional understanding of 'causation' as a relation that links objects and events) and ultimately to show them to be misleading (Westerhoff, 2009, 99; Hayes, 2019).

This notion that ordinary objects and events, and the conventions we employ to assess their ontological status, are not as they seem when subjected to rigorous analysis should strike most readers as sensible enough. But as some have argued, in lacking a commitment to revising and reforming the conventional ways of seeing things, Madhyamaka falls short of allowing for sophisticated theoretical ideas and explanations of a scientific nature.[10] Tom Tillemans makes this point quite clear while reflecting on an influential Mādhyamika philosopher's efforts to rescue conventional truth: 'Saying, as does Candrakīrti repeatedly in debates with Sāṃkhya and his fellow Buddhists, that rice just leads to rice rather than barley, may well be a very good answer to the various metaphysicians who think either that the effect must really be present in the cause to ensure that causality is not haphazard or that cause and effect must be completely separate real entities. It is of course, however, a bad answer to a plant scientist inquiring about genetic features in rice that explain its growth, yield, color, form, resistance to disease, and so on' (Tillemans, 2011, 160). In short, oversimplified conventional truth of the sort Madhyamaka trades in was not terribly attractive even to many fellow Buddhist thinkers, let alone their historical rivals. And it is even harder to imagine what would make it appeal to scientifically informed and philosophically savvy modern audiences.[11]

[10] In his ambitious and far ranging book *The Non-Existence of the Real World*, Jan Westerhoff attempts to show that certain developments in contemporary analytic philosophy and cognitive neuroscience can be read as actually endorsing precisely the sort of radical anti-foundationalist stance that is at work in Madhyamaka (Westerhoff, 2020). For a critical response that considers whether the empirical findings and theories Westerhoff marshals in defense of key Madhyamaka claims do actually support irrealism, see Coseru (2021).

[11] Other interpreters of Madhyamaka, most notably Jay Garfield, have argued that it would be a mistake to think that Madhyamaka, at least as articulated by Nāgārjuna, Candrakīrti, and Tsongkhapa "eschews reliance on or an account of epistemic authority" (Garfield, 2011, 29). But as Garfield himself acknowledges, Madhyamaka rejects an "account of epistemic instruments…according to which the *instruments* are taken to be *foundational* to all knowledge" because such a position "would undermine his account of emptiness" (ibid., 26–27). However, an account of epistemic instruments that works to demonstrate the thesis of emptiness is not exactly a neutral way to advance knowledge claims. The possibility that a revised and reformed account of epistemic authority could end up invalidating the thesis of emptiness might be precisely why Mādhyamikas resist this approach. For to forgo the thesis of emptiness is to concede (with the Ābhidharmika) that epistemic instruments can under certain conditions ground our knowledge of particulars and relations.

Given this unsophisticated conception of the 'conventional' and a view of the 'ultimate' as explanatorily inarticulable, what hope is there for a fruitful dialog with science? Specifically, what can Mādhyamikas contribute to debates about the best and most effective ways of mapping out the building blocks of reality and the complex architecture of the mind when the evidence from science is that reality is structured differently at different levels of organization? The problem for Madhyamaka is not just the inadequacy of its two truths framework. Rather, the dialectical progression leading up from conventional to ultimate truth itself is fraught since we cannot overcome the pure conventionalism of the first dialectical step without some epistemology (Siderits, 2011, 178).[12] That is largely why some Mādhyamikas felt compelled to recognize the importance of getting a good grip on ordinary experience (as did, for instance, Tsongkhapa, by adopting Dharmakīrti's epistemological framework). In short, claiming, as Mādhyamika philosophers often do, that the conventional level of truth and/or reality is empty will not do, since such an assertion can only be made from the standpoint of the truth that defines the quality of being empty, and this assertion presupposes that one first gets the conventional right. If the question what counts as an oasis is not settled first, how is one to understand the difference between it and a mere mirage? And Madhyamaka offers no resources (of a conceptual or any other sort) for achieving a sophisticated understanding of natural kinds and the complexity of our cognitive architecture. Indeed, as Eviatar Shulman noted recently, 'Nāgārjuna's critique of any notion of existence is unrelenting: all *bhāva*, existence, must go…This leaves him with very few positive things to say, aside from likening reality, or different aspects of reality, to illusions' (Shulman, 2015, 187).

As should be obvious by now, it is unclear what, if anything, Madhyamaka can contribute to a scientific investigation of the mind. If the 'Buddhism' that Thompson has in mind for the two-way exchange with cognitive science stands primarily for Madhyamaka, it is even harder to see how that could serve as a better alternative to prevailing attempts to corroborate Abhidharma and scientific naturalism. Thompson claims that Buddhists who embrace scientific realism must contend with 'the force of Buddhist philosophical critiques of scientific realism and how these critiques call into question the kind of scientific naturalism that they're presupposing' (p. 77). His point is that 'the deepest and most radical insights of the Buddhist intellectual tradition undermine these ideas' (p. 77), a statement that flies in the face of centuries of Abhidharma efforts to do just that.

Invoking the well-known illusionism that besets so much Mahāyāna Buddhist thought, therefore, is not an effective strategy for refuting naturalist hypotheses. For the illusionist stance at the heart of Mahāyāna Buddhism, particularly as articulated in the *Perfection of Wisdom* literature, is comprehensive: it underpins a vast cosmology of innumerable world systems endowed with reality by the yogic power of a buddha or buddhas for the purpose of leading sentient beings to salvation. Thus, rather than relegating our surroundings to the status of mere appearance as a way of

[12] This point is obscured, for instance, by Candrakīrti's relentless critique of any epistemological endeavor (e.g., Dignāga's) operating with the premise that perception grounds our cognitive lives in ways that invite constant revision of the dependency relation between cognition and its object (Arnold, 2005, 462–463).

uncovering some ultimate truth or reality, the central message of Mahāyāna Buddhist thought is that the world in its entirety is illusory in nature (Westerhoff, 2018, 102). Indeed, even the path itself and the process of bringing sentient beings to enlightenment is likened to a magical show. Of course, this illusionist stance is not unique to Mahāyāna Buddhist metaphysics. Rather, it reflects ancient Brahmanical conceptions of the gods as endowed with the magic power to make human beings believe what in the end turns out to be nothing but an illusion (the key concept here is *māyā*—'illusion' or 'magic'—a powerful force, which is said to create the cosmic illusion that the phenomenal world is real).

If the radical insights of the Buddhist intellectual tradition that Thompson has in mind do involve this illusionist stance—which provides inspiration for a genre of texts best described as 'Mahāyāna space fiction' (Robinson, 1977, 109)—then it is hard to see how their challenge to scientific realism can avoid the charge of 'just-so' storytelling of precisely the sort he levels against evolutionary psychologists. Indeed, Thompson appears to endorse the claim that 'the mind is not findable under analysis' and that 'it can't be grasped—either within, without, or between the two' (p. 77). And he takes issue with the tendency of 'naturalistic Buddhism' to 'proceed as if the mind can be grasped, as if it can be pinned down and identified as essentially the "biological reality" of the brain' (p. 78). The real question for Thompson is not 'whether Buddhism can be made consistent with scientific naturalism' but rather 'whether it's possible for science to be mindful of the mind's ungraspability and what that would mean for scientific thinking and practice' (p. 78).

Such unconditional surrender to epistemological pessimism is nothing short of puzzling coming from one of the leading champions of a paradigm in cognitive science that takes embodiment seriously. What might explain this seemingly cognitively dissonant stance? What are we to make of a conception of cognition as 'sense-making through embodied action' (p. 8) that at the same time lacks any 'ground or foundation beyond its own history'? (p. 74). One is tempted to ask: is that cognition's own *evolutionary* history? But in that case, we are owed an explanation why the evidence from, say, behavioral epigenetics cannot provide grounding beyond cognition's own history. For instance, we know that while environmental factors penetrate the genome at its core such that both genetic and nongenetic factors work together in producing our traits (Moore, 2015, 9, 217), nonetheless 'there are no traits that do not have a genetic basis' (Jablonka & Lamb, 2005, 72). Given that *Why I Am Not a Buddhist* is part philosophical memoir, part scholarly study, I hope that Thompson will fill in the missing links in his intellectual journey from enactivism to Madhyamaka-style anti-foundationalism or at least provide an account of why he thinks these two enterprises are compatible.

In Defense of Epistemological Optimism

In light of the personal note on which this essay began, it is only fit that I should come clean about my own commitments: I am an epistemological optimist, and I think that, on the whole, the Indian Buddhist intellectual tradition shares this positive attitude about the possibility of knowledge. Of course, some of its claims will

(and do) inevitably fail to stand up to rigorous philosophical and scientific scrutiny. But the degree of sophistication and technicality of its methods of reasoning and psychological analysis means that Buddhism *can* enter a fruitful dialog with the mind sciences. Furthermore, the centrality of Abhidharma Reductionism means that Buddhism is actually friendly to naturalism, at least in a prescientific sense that reflects commitment to empiricism. Elsewhere, I have argued that in advancing a conception of causation that includes consciousness and cognition as efficient causal categories, Abhidharma presents us with a metaphysics of experience: the *dharmas*—these constituent mental and physical events—are not essences or substances; rather, they are activities, properties, and patterns of connectedness (Coseru, 2019, 116).[13] But the Abhidharma project may also be understood as a kind of naturalized phenomenology (Roy et al., 1999; Coseru, 2012), that is, as a method for bringing into focus, capturing, and categorizing variable mental operations and contents that are normally difficult to attend to, while also submitting to empirical scrutiny about their causal and conditioning factors.

Thompson and I agree that neurophysicalism, with its mind-brain identity theory, is a problematic way of advancing the project of naturalization because it forces Abhidharma Reductionism down too narrow a path for its rich account of consciousness, cognition, and causality to have any explanatory purchase. And he is right to single out the problem of the 'unity of consciousness'—specifically how the various qualities we experience are bound together so that our experience seems unified—as an issue that Buddhists in the end failed to address satisfactorily (p. 101). But Thompson's alternative picture of the contents of consciousness and its operations as 'dependent' and 'relational' presupposes that the dependency relation is grounded (in the operations of the brain, body, environment, etc.). And successful grounding demands the sort of positive epistemic attitude toward our best theories and models that is typically associated with scientific realism—the very attitude that Thompson thinks Mahāyāna Buddhism calls into question.

If Madhyamaka's contribution to this cosmopolitan engagement with contemporary philosophy of mind and cognitive science is the view that the mind is 'not findable under analysis…and that it can't be grasped' (p. 77), it is hard to see what the latter stand to benefit by embracing this paradoxical stance. For to say that the *grasping mind* is itself *ungraspable* is not merely to urge resisting

[13] Early Abhidharma does distinguish between two layers of basic entities—the singular atom (*dravya-paramāṇu*) (consisting of the four elements) and the collective atom (*saṃghata-paramāṇu*) (the minimally functional collection of atoms required for the emergence of sensible properties)—but their ontological status is not ascertained on the basis of a mind-independent external world model. Rather it is ascertained on the basis of derived material elements (*upādāna-rūpa*) that function as causal conditions (*paccaya*). The atomism that finds clear articulation in works such as Dharmaśrī's *Abhidharmahṛdaya* and the *Dhammasaṅgaṇi* is phenomenal and relies on a conception of material phenomena as present to cognitive awareness. The Vaibhāṣika version of phenomenal atomism takes both the basic and the derived entities to be real, whereas the Sautrāntika version is more parsimonious: only the basic entities are real; macro-level manifest phenomena are mere (conceptual) constructs. Thus, Abhidharma atomism does not fit the metaphysics of substance model of the Vaiśeṣika, the Greek materialists, and Aristotle. Rather it aligns more closely with the *flux* or *mutual transformation* ontology of Heraclitus, process philosophers such as Whitehead, and the American pragmatists (Collins, 1982: 225–233; Cox, 1995: 133–158; Ronkin, 2005, 34–76).

the tendency to reify mental and physical phenomena or to advance a positive theory of the nature of things. Rather, it is also to endorse dialetheism, and hence commitment to paradoxes, whether of the ontological sort that say 'things have no nature, and that is their ultimate nature' or semantic kind such as 'there are no ultimate truths and it is ultimately true that everything is empty' (Deguchi et al., 2013, 426; Garfield & Priest, 2003; Garfield & Dreyfus, forthcoming). If dialetheism lacks commitment to any given conception of truth (Graham Priest, 2006, Ch. 2), and Madhyamaka can be read in some respects as endorsing dialetheist positions, then Madhyamaka's contribution to understanding the mind would amount to a commitment to the existence of inconsistent objects and states of affairs, those that make the contradictions true (Berto, 2006): specifically, that the world of rocks, trees, people, and brains is somehow both *consistent* and *inconsistent*. But to ascribe such properties to the world itself or any part thereof is to commit a category mistake, for world is not such that some parts of it *contradict* some other parts.[14]

Thankfully, the cost of abandoning this Madhyamaka skepticism and its possibly dialetheist consequences is minimal, and doing so would be in keeping with the development and trajectory of Buddhist thought. It is after all common knowledge that Nāgārjuna's writings and his concerted effort to discredit some of the fundamental concepts of Abhidharma had relatively little impact on the subsequent development of Buddhist thought in India (Abhidharma continued to flourish well into the latter part of the first millennium with no perceived need on the part of Abhidharma thinkers to defend their theories against his criticism[15]). Nor did Nāgārjuna's radical critique of the very possibility of grounding knowledge in reliable sources have any impact on the epistemological agenda of Dignāga and Dharmakīrti, which dominated Indian Buddhist intellectual circles and was engaged by Brahmanical philosophers well into the early modern period. Indeed, as Richard Hayes noted some time ago, 'aside from a few commentators on Nāgārjuna who identified themselves as Mādhyamikas, Indian Buddhist intellectual life continued almost as if Nāgārjuna had never existed' (Hayes, 1994, 299).

Thompson is just as committed to a scientifically informed cross-cultural philosophy of mind as I am. We also share the view that findings from psychology and neuroscience should motivate us to revise and refine our phenomenological descriptions

[14] Of course, dialetheists often talk about inconsistent objects and states of affairs, though it's an open question whether actual worlds can contain such objects.

[15] Where references to Madhyamaka tenets (such as the view that all *dharmas* are devoid of intrinsic nature) do appear, as in, for instance, Vasubandhu's *Abhidharmakośabhāṣya*, Saṃghabhadra's *Nyāyānusāra* and Vasumitra's *Abhidharmadīpa*, these are for the most part dismissed as distortions and heresy, and their proponents as 'upholders of destruction' (*vainā́śika*). Even when these tenets do get discussed in some detail, as Harivarman does in the *Satyasiddhiśāstra*, the notion that all dharmas are non-existent as they appear at the conventional level is likened to a congenially blind person denying the existence of colors simply because he does not see them (cf. Sastri, 1975, 374). Goran Kardaš has recently argued that much of the source for this negative and dismissive attitude toward Madhyamaka might not be Nāgārjuna himself, but Āryadeva, whose *Catuḥśatakaśāstra* places less emphasis on the conventional grounding of the doctrine of emptiness, thus giving opponents the impression that for the Mādhyamika "does not exist ultimately" essentially means "does not exist at all (*abhāvavāda*)" (Kardaš, 2016, 362, fn. 22).

where appropriate.[16] But we differ, it seems, in our commitment to naturalizing Buddhism. Thompson thinks the Buddhist idea of causation 'is…inseparable from the ideas of karma and rebirth' and that it is 'bound up with thinking that the cause-effect relation is inherently moral' (p. 57). In his view, 'the idea of causation has a religious meaning in Buddhism that it does not have in science' (p. 57)—the implication here being that any attempt to naturalize Buddhism is necessarily fraught. And he takes the radical Madhyamaka idea of emptiness to undercut the sort of naturalism, which says that biological reality serves as the bedrock and the ultimate ground of cognition. But if Madhyamaka serves as an antidote to naturalism, and naturalism is the most effective framework for relating Buddhism to science, then Madhyamaka cannot be a good fit for advancing the scientifically-informed cosmopolitan project that Thompson has in mind.

Let me conclude with a final observation about what I see as the main disagreement that seems to underscore our respective positions: while the antirealist relies on the conventions of common sense, the naturalist relies on the revisable testimony of perception and inferential reasoning. Not surprisingly, the kind of evidence gathered by these means is regarded by naturalists as more normative than the conceptual schema embedded in our common-sense view of the world. The entire Abhidharma Reductionist project is predicated on the reliability of this second kind of evidence. For the epistemological optimist, who does not share the Buddhist modernist's distorted view of Buddhism as a meditation-based 'mind science', the challenge is to preserve the evidential role these open-ended modes of inquiry provide without overlooking their normative aspects.

A Madhyamaka-type antirealist might object that no matter how good the theory, it is likely to be underdetermined even by the best observational data, given the latter's episodic, fragmentary, and limited reach. But this sort of fallibilism, which asserts that our knowledge claims are but inferences to the best explanation, is less problematic for traditions in epistemology that emphasize causal and genetic questions over questions of justification. And it is precisely the former type of questions, central to naturalistic epistemology (Goldman, 1967; Quine, 1969; Kornblith, 1999), that most Buddhist thinkers (at least in India) tried to work out. Indeed, for these thinkers (e.g., Dignāga, Dharmakīrti, Prajñākāragupta, Jñānaśrīmitra, Ratnakīrti) perception and reasoning are anchored in causal and pragmatic (rather than merely epistemic) situations. This is knowledge as skill acquisition of the sort that says careful observation of an effect (say, breathing or visual awareness) can within limits be conducive to better ascertainment of the causal totality of its source (a living

[16] For instance, where the neural correlates of a unified perceptual experience indicate that areas which correlate with episodic memory are also activated it may be proper to revisit the phenomenological analysis and make sure we did not unwittingly overlook or fail to notice the presence of some structural elements of episodic memory in that experience. Of course, this is a two-way process, as better phenomenological analysis can also establish important structural feature of experience whose neural correlates may be difficult to discern or narrow down. In the case of blindsight, for instance, an individual's ability to reach an object despite any discerning awareness of it, might point to subtle behavioral and sensorimotor cues that regulate a basic level of sensorimotor intentionality (Milner & Goodale, 1995; Carey et al., 1996). Drawing on such evidence, I have argued that taking perception to involve a direct kind of sensorimotor awareness speaks in favor of regarding cognition as a form of embodied action (Coseru, 2012, 116–117; Coseru, 2017).

body or functional eyesight) (Coseru, 2017). Pace Thompson, not all thinking about causality in Buddhism is imbued with the sort of Madhyamaka-style conventionalism that strips knowledge of its ability to function as a norm for rational inquiry. Indeed, to argue in favor of a pragmatically efficacious account of cognition is to put forward the view that the underlying nature of causation is not indeterminate.

These points of criticism aside, *Why I Am Not A Buddhist* is an invaluable and timely corrective to the ideological excesses of Buddhist modernism. As I see it, the book's most important contribution lies in the rather unique vantage point of its author. Thompson has been involved with the Mind and Life Institute (one of the organizations responsible for spearheading the rapprochement between Buddhism and science) from its inception, which puts him in a privileged position to reflect critically both on its successes and its excesses. Over three decades, the Mind and Life symposia have hosted large cohorts of scientists, philosophers, Buddhist scholars, and Tibetan contemplatives, all under the watchful eye of the Dalai Lama. Thompson's own reportage on these intellectually stimulating but often ideologically motivated ventures is that of an insider concerned about having unwittingly participated in an enterprise aimed at remaking Buddhism in the image of modern science. If the book comes across as a sort of mea culpa it is only because Thompson's prodigious and important work promotes a way of thinking that embodies the very best of cosmopolitan philosophy.

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