

# *Hinduism and Science: Contemporary Considerations*

with Varadaraja V. Raman, "Hinduism and Science: Some Reflections"; David L. Gosling, "Science and the Hindu Tradition: Compatibility or Conflict"; Thomas B. Ellis, "Growing Up Amid the Religion and Science Affair: A Perspective from Indology"; C. Mackenzie Brown, "Conciliation, Conflict, or Complementarity: Responses to Three Voices in the Hinduism and Science Discourse"; Jonathan B. Edelman, "The Role of Hindu Theology in the Religion and Science Dialogue"

## THE ROLE OF HINDU THEOLOGY IN THE RELIGION AND SCIENCE DIALOGUE

by Jonathan B. Edelman

*Abstract.* I respond to three articles about my book, *Hindu Theology and Biology*, from David Gosling, Thomas Ellis, and Varadaraja Raman. I attempt to clarify misconceptions about Hindu intellectual history and the science and religion dialogue. I discuss the role of Hindu theologies in the contemporary world in response to the three articles, each of which highlights important areas of future research. I suggest that Hindu theology should be a critical discipline in which Hindu authors are interpreted in their own terms and in conversation with contemporary authors. I argue that Hinduism and science can find an intellectual space between New Atheism (which denies the intellectual value of religion) and Neo-Hinduism (which neglects the critical discourse within the history of Hindu thought).

*Keywords:* Bhāgavata Purāna; dispassion in science and religion; Hindu theology, Indian intellectual history; Neo-Hinduism; New Atheism; nonphysical consciousness; reductionism and physicalism

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I wish to begin by thanking Willem B. Drees for organizing this book symposium, as well the three scholars who have kindly read and responded to my book along with C. Mackenzie Brown's. David Gosling and Thomas Ellis have raised interesting criticisms, although I hope to demonstrate they are for the most part mistaken and misinformed. Along the way and in the final portion I wish to describe what I propose as the role of Hindu theology

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in the ever-widening scope of the Religion and Science dialogue, at which time I will respond to Varadaraja Raman and his positive comments.

David Gosling has written about the interaction of science and religion in India as a sociologist and historian, whereas my approach is that of philosophy and theology; some of the disagreements we have will reflect those disciplinary distinctions, whereas others reflect what I will argue is an inadequate characterization of Indian intellectual history and a conception of Hinduism as a fossilized body of information. Gosling's criticisms (of my book and C. Mackenzie Brown's) center around the problem of "cherry picking"—that is, we selected those areas of Hindu thought most amenable to the sorts of discussions we had in mind. He writes:

Some of Edelman's "cherries" seem scientifically progressive, but then readers discover that if their own personal karma is bad, they will be boiled in oil for evermore!<sup>1</sup>

While I do mention the *Bhāgavata Purāna*'s<sup>2</sup> discussion of hell twice and the karma theory many times, it is true that neither was the focus of my study. Gosling says: "Edelman glosses over such embarrassments [i.e., the Purānic hells]." He has coupled this with another claim, one that suggests the Abrahamic traditions are better suited to deal with the natural sciences than Hinduism:

The Hebrew scriptures also contain deprecatory passages, but the Abrahamic religions are rooted in history in a manner which permits them to modify their understanding of God with time, whereas the Hindu scriptures are less clearly able to do this.

Therefore, we have two claims:

- (1) In responding to contemporary science, one must engage *all* aspects of a tradition's textual corpus and not "gloss over" embarrassing portions; and
- (2) unlike Abrahamic religions, there is no rationale within Hinduism for the modification of tradition.

I believe Gosling has connected these two claims because he realizes that it would be absurd to say that all Jews, Christians and Muslims must include within their dialogue with the sciences all the potentially embarrassing aspects of the Bible—for example, the *Book of Amos*, in which a wrathful God burns villages and squeezes the life out of people for their transgressions, or the pervasive demonology in the *Gospels*. Likewise, he must know that for hundreds of years scholars have argued for, say, Aristotle's virtue ethics or his political theory without also having to defend his views on slavery or the inferiority of women. Thus, his claim is that Hindus must accept the Hindu textual tradition wholesale, unlike other scholars who can select or highlight the relevant and irrelevant portions of their textual tradition. I will argue he is mistaken.

Many of the Abrahamic theologians I admired and worked with on the topic of religion and science articulated the foundational theological commitments and principles of their tradition, and then engaged them in thinking creatively about the sciences. Likewise, they were open to seeing what sorts of philosophical and theological contributions theories like Darwinism might have for their own theology. It was their training as theologians that allowed them to do that. They did not talk about the entire corpus of embarrassing information in the Bible (or in Darwin, for that matter), but we can assume that on Gosling's account this is not cherry picking because Abrahamic theologians have the agency to revise their tradition, since it is rooted in a historical development, but "Hindu scriptures are less clearly able to do this." Gosling does not explain or defend his claim, but whatever he had in mind, it cannot be correct.

First one must note "Hindu scriptures" cannot *do* anything, but Hindu theologians can, and, more importantly, Hindu theologians have. So the question is what can *Hindu theologians* do with Hindu scriptures, or, what *have* Hindu theologians done with Hindu scriptures. In constructing a response to Darwinism, I made a value judgment about what is essential to the *Bhāgavata's* theology and what is not based upon my reading of the Gauḍīya Vaiṣṇava commentarial tradition; I decided that being boiled in oil is not essential, no pun intended. This was not an intellectual practice I gathered from Abrahamic theologians, but from well-established norms in Hinduism's intellectual history, norms that Gosling should have been aware of, considering he has written on Advaita Vedānta, a nondualistic interpretation of Hindu scriptures. I say this because Advaita Vedānta (in its early period starting with Gauḍapāda, Śaṅkara, Sureśvara, etc.) is itself the consolidation of a vast textual corpus<sup>3</sup> to an essential theological principle, that of Advaita or nondualism.

Śaṅkara, for example, distinguished between the earlier interpretation of the Vedic corpus that focuses on ritual performance and sacrifice (much like, I might add, the early Jewish tradition focused on sacrifice) and the latter tradition that focuses on knowledge of a nondual reality called Brahman as the only path to salvation from the cycle of birth and death. In his commentary on *Vedānta-Sūtra* 1.1.1, he calls the ritualistic portion "Pūrva Mīmāṃsā" (literally the "previous exegesis") and the portion dealing with ultimate reality "Uttara Mīmāṃsā" (literally the "latter exegesis"). The temporal nature of the terms he uses indicates that this aspect of Hinduism is, in some sense, "rooted in history." For this and many other reasons discussed below, Gosling's understanding of Hinduism is refuted by the history of Hindu intellectual practice and should not be taken seriously by scholars.

To make his claim, Śaṅkara said there are certain key statements (*mahāvākya*) in the Upaniṣads that should be used to interpret the entire corpus. He did not feel obligated to write about and comment upon every

portion of the corpus, nor was it all given equal theological weight. These *mahāvākyas* were his foundational theological commitments I spoke about above, and it was these theological commitments he used to formulate his doctrine. He also used them to respond to other schools of thought such as Sāṃkhya, Buddhism and thinkers like Kumārila Bhaṭṭa. He did not, as far as I know, talk to them about *everything* in the Veda—for example, the number of times ghee should be poured on a fire and which mantras should be recited when doing so. For him there are essential and nonessential statements within an overall authoritative body of literature; he spent his time explaining them, not every bit of information in the Vedic corpus.

It is not the case that Hinduism was locked into Śaṅkara's nondualism either, since Śaṅkara's views become a “pūrva-pakṣa,” or the literally the “previous view,” which was addressed and ultimately rejected for a newer understanding, this time by Rāmānuja, Madhva and other dualist thinkers. The *Bhāgavata Purāṇa*, the text upon which I wrote, presents itself as part of a historical progression; first Vyāsa wrote the Veda Saṃitās, and after doing so he realized he had not adequately discussed devotion (*bhakti*) for the Lord, so he composed the *Bhāgavata* at the behest of his teacher, Nārada, later in his career. I am not suggesting these are historical facts about the formation of the *Bhāgavata*, only that the *Bhāgavata* is conceived of as a revised articulation of older conceptions of God and religious practice (Edelman 2012, 31), the very thing Gosling says Hindu scriptures “are less clearly able to do.” Sixteenth-century Hindu theologians such as Vallabha Ācārya, Rūpa Gosvāmin, Jīva Gosvāmin, and others took the *Bhāgavata*'s approach seriously, using it as a lens to reinterpret the entire Vedic corpus, rejecting even Śaṅkara's reading of the texts. The Vaiṣṇava school (the primary focus of my book) searches after the “essence” (*sāra*) of the Vedic corpus, and they do so by determining the goal (*prayojana*) of the corpus. Once the goal is determined, then what is essential and what is nonessential can be determined. Theologians in Vaiṣṇava school elaborated upon the essential features, using them to explain the real purpose of what is nonessential. Like Śaṅkara, they did not feel the need to comment upon or accept as equally authoritative every aspect the Vedic corpus.

One could cite countless examples of new interpretations of old text in the history of Hinduism, and sometimes the reasons for these innovations were conversations with other schools of thought such as Tantra, Buddhism, Jainism, and so on. Hindus even proposed metaphorical understandings of the hells about which Gosling is so concerned.<sup>4</sup> While the rationale for the modification of tradition is not the same as in the Abrahamic religions, Hindu theologians do provide their own reasons for doing so, a full explanation of which would be beyond the scope of this paper.

If Gosling had been sensitive to these basic features of Hindu intellectual history, he might have understood why I did not make the Purāṇic hells part of my response to modern science: they are not (in my view) the essential, theological commitment of the *Bhāgavata*. Later I will discuss why I think there is a difference between “cheery picking” and theology, yet another important distinction I think Gosling glossed over.

The argument of my book is that Hinduism is not a stagnate or dead tradition that is locked into a particular view of the world and God, but it is a living tradition capable of responding to and even assimilating the natural sciences in creative ways. In Chapter 5, section 3 of my book, I even summarize a dynamic period in the history of Purāṇic interpretation in which followers of the Purāṇas (many of them followers of the *Bhāgavata*) intentionally rethought and reinterpreted Purāṇic cosmology in the light of a more quantitative body of literature called the Siddhāntas; it is surprising Gosling did not notice that. I also discuss the Indian linguistic tradition, used by sixteenth-century interpreters of the *Bhāgavata* such as Jīva Gosvāmin in his *Sarva Saṃvādīnī*, which provides justification for the sort of creative reinterpretation of text about which I speak. Therefore, while the exact historical model of Abrahamic traditions may not be at play in the *Bhāgavata* tradition, it is egregiously wrong to say there are no theological mechanisms for change and modification in Hinduism.

Gosling’s use of the term “cherry picking” (probably borrowed from Richard Dawkins’s *God Delusion*) reflects a deficient understanding of theology in general. He writes: “His [Edelmann’s] choice of material is too narrow and sectarian to be representative of the Hindu tradition as a whole.” As an aside, I note that my chosen text, the *Bhāgavata Purāṇa*, is recognized by many as the most influential and widely used text in Hinduism, both in North and South India, as well as in popular Hinduism and theological traditions. To call it narrow, therefore, at least requires clarification and justification (which Gosling does not provide), since it is an inaccurate depiction the *Bhāgavata*’s role in Hindu intellectual history. The term *sectarian* also requires explanation, since scholars of Indian thought have noted that the so-called sectarian Purāṇic literature is sectarian in a very different way than Western religions are sectarian (Rocher 1986, 23). Gosling’s imprecise use of terms aside, as stated in my book, I gave myself the agency to select those portions of the *Bhāgavata* most relevant for a theological dialogue with the sciences because I was using a *single* Hindu tradition to respond to the sciences. I made no effort to or promise of representing Hinduism as a whole, nor do I think this is the only way to approach the subject. While I applaud those scholars who have discussed how Hindus throughout history have responded to scientific information, C. Mackenzie Brown being one of them, a person could not use the “Hindu tradition as a whole” for thinking *constructively* about a particular

issue because Hinduism is too vast and too diverse. We must distinguish between a history of Hinduism and a theology of Hinduism. I have no idea how one could produce a coherent *theological* response to Darwin or a contemporary figure from the perspective of the “Hindu tradition as a whole” given the diversity of theologies, philosophies, and so forth that fall under the term *Hinduism*. In conclusion, Gosling’s suggestion that one should respond from Hinduism as a whole is absurd and should not be taken seriously by scholars who might wish to work on Hindu theology and science, nor should his evaluation of Hinduism’s ability to modify its self-understanding.

Thomas Ellis, who has a background in the twentieth-century Indian thinker Jarava Lal Mehta and who has recently taken interest in psychology, is dismissive of *all* religion and theology, and sees the science and religion dialogue as meaningless when religion is given any credibility or autonomy. He concludes his article by saying, “The *Bhāgavata*’s theology is as dead as the Vishnu for which it searches,” but clearly he thinks all theology and religion is dead. His evaluation of my book reflects his metaphysical biases and has less to do with Indology or the sorts of comparisons I draw. The bulk of my response, therefore, is directed toward the philosophy of naturalism. The difficulty I have found in replying to Ellis is that he more often than not states his opinion as fact, which he then backs up with references to people who agree with him.

What is at stake here is how one wishes to interpret Hindu texts and religious text more broadly. I think that Hindu theology as a discipline today should seek to reconstruct Hindu texts from the perspective of the authors of those text *as best as we can*, while recognizing and seeking to overcome the many difficulties in doing so. As someone who has sought to develop the field of Hinduism and science, I have argued that Hindu theologies are autonomous and sophisticated traditions of knowledge with ancient roots, but as they encounter the natural sciences (and the many philosophical and theological interpretations of them given by Western thinkers), they should show an openness and willingness to rethink themselves. I have also argued that Hindu theologies can offer their own interpretations of the natural sciences, ones that are of benefit to the ever-growing science and religion dialogue. Ellis represents one tradition of “Europeanization” that seeks to completely absorb everything into a particular interpretation of science—that is, one often called *scientism*, a reductionistic and physicalistic worldview that sees the theories and methods of the natural sciences as the only way to truth. I reject this approach for a variety of reasons, and all of my responses to Ellis are reflective of this fundamentally different sensibility and vision about the future of Indology, Hindu theology, and Hinduism and Science.

Let me begin with discussing the dynamics of the science and religion dialogue in general by reiterating the “complexity thesis” of science and

religion; once informed by it, Ellis's dichotomies between the "scientific" and the "religious" will be seen as artificial constructs.<sup>5</sup> Historians have argued that many important figures in early modern to contemporary science framed their science in a theological conception of the world and that religion and theology motivated the production of their work, even for much of what we now consider "good science." Furthermore, the rigid distinctions between science and religion often collapse when one examines the writings these well-known figures—for example, Francis Bacon, Isaac Newton, Charles Darwin and contemporaries as well (Brooke 1991; Clayton and Schaal 2007; Numbers 2009). Ellis, on the other hand, paints us an elegant picture, wherein all sound-minded natural scientists agree on a naturalistic metaphysics. The scientific world is far more complicated than that. The simplistic view that science = materialism has been attacked by many people and it was never universally accepted (Koons and Bealer 2010; Livingstone 1987; McGrath 2004), yet Ellis in his zeal has not noted this. There are in fact a wide range of interpretations of the natural sciences and a tremendous amount of argumentation against naturalism from scholars in different disciplines. Saying that does not mean they are all *good* interpretations and arguments, but it does mean that there is a real conversation happening right now (in *Zygon*, for example) about how and in what ways the sciences can be understood. Theology has and will continue to have a role in generating those interpretations, and I hope that my book will help bring Hindu theology to that discourse. Ellis disregards those interpretations, calling them "childish" and "infantile," but this is little more than an *ad hominem*, a rhetorical technique common to the New Atheists. Ellis is apt to reference people who agree with his naturalistic interpretation of science as evidence that *everyone* should accept the said metaphysical position, but this is little more than an *ad populum*.

Another problem is that Ellis (again, much like the New Atheists) elides the distinction between science and philosophy. They conflate the *data* of science with a *philosophical interpretation* of those data. At times, the conflation is so tight that the difference is difficult—but not impossible—to tease out of the language itself. Ellis writes: "The worldview currently enjoying scientific support and consensus is naturalism." Naturalism is *not* enjoying scientific support, but naturalism may be the philosophical *interpretation* of science that is enjoying support. This latter claim is something for pollsters to conclude and again amounts to little more than an appeal to the most popular view. It should go without saying that the most popular is not necessarily true. Ellis almost seems aware he is eliding science and philosophy, so he says we have *no choice* but to accept naturalism: "It would seem to force itself upon the mature thinker as the result of abductive reasoning." Thus, we agree the debate is about the philosophical implications of a scientific theory. Ellis is wrong to think

naturalism is a near necessary abduction from scientific data, and I shall say more about this when I respond to his discussion of Chapter 2 of my book, *Hindu Theology and Biology*.

He makes yet another logical fallacy, the genetic fallacy,<sup>6</sup> this time from the cognitive science of religion (CSR), which states that many religious beliefs are solely “the result of wish-fulfillment,” from which he concludes they are false. Perhaps scholars trained in CSR say it more sophisticatedly, but he writes: “I believe Hindu traditions are routinely guilty of motivated perception and confirmation bias.” That may be so, but it does not follow that Hindu traditions (or religion in general) are false, but it only tells us the genesis of the ideas is suspicious. Furthermore, if one takes wish-fulfillment and confirmation-bias as heuristic concepts, one could argue that they are precisely why Ellis is so inclined toward a naturalistic interpretation of science. For a person who states on his university website, “I do not entertain supernatural explanations for religious behaviors, beliefs, and experiences,” it is not surprising that such biases would cause him to conclude in his article that “consciousness appears to be a property of a very complex, physical system.” It appears to me that he uses science to confirm his metaphysical biases in much the same way he accuses religious people of using religion to confirm their metaphysical biases. If it is science that acts to confirm his belief that there are no supernatural forces, then by his own (genetic) logic such a belief is false.

Implicit in his argument is that religious people want religion to be true because it would satisfy their wishes. A point never discussed by Ellis is that there is a real sense in which the basic Sāṃkhya-Yoga ontology (even as it is used in a Vaiṣṇava context) is not something one would want to be true. It denies the ultimate reality one’s family relationships, friends, society, and so on, and the specifics of one’s own personality. If one could construct reality as one would like it, I cannot imagine why this would be the first, second or even third choice.

My last general comment is on his article’s subtitle, “A Perspective from Indology,” which is misleading because he has little to say about Indology, and what is said is Indologically impoverished. Rather than Indology, Ellis frames his response in a neo-Freudian view of religion that is fortified by his understanding of CSR and a handful of philosophers and religious studies scholars who agree with his interpretation of scientific theory. He argues that all Indologists ought to adopt his interpretation of science, and that “appeals to take seriously indigenous philosophy and theology” should not be taken seriously by Indologists, or anyone else. It appears Ellis thinks we know enough about India, such that we no longer need to understand it in its own terms, when he says: “I propose that Indology must move beyond sympathetic translations . . . and pursue an explanation of the dharma traditions that is consilient with the rest of the natural and human sciences.” Thus, whatever Indian thinkers said about



reality must be “constrained by the conceptual and causal frameworks of the natural and social sciences.” As noted, for Ellis these frameworks are entirely materialistic since science = naturalism. Thus, Ellis is not giving us a perspective “*from* Indology,” but “a non-Indological perspective *on* Indology.”

Regarding the specific points, Ellis disagrees most with arguments found in my Chapter 2, “Ontology of Body, Mind and Consciousness,” and Chapter 5, “Seeing Truth, Hearing Truth.” In Chapter 2, I attempt to clarify two understandings of consciousness, that of the *Bhāgavata Purāna*’s (which is close but not identical to Sāṃkhya-Yoga) and contemporary biology’s (which is not, in my view, necessarily naturalistic). I demonstrate that even if one assumes Darwinian evolution is true and that the work done on the neural correlates of consciousness is true, when one adopts the *Bhāgavata*’s ontology, the conclusion of naturalism can be avoided. In brief, the *Bhāgavata* argues that there are three aspects to the human person: a nonphysical self that is eternal and real (*puruṣa*); a subtle body consisting of a mind, false ego and intelligence; and a physical body. The latter two are not-self and temporary. My argument is that “the *Bhāgavata*’s ontology can be used to *reinterpret* the findings of contemporary biology in different terms than the standard ones used by physicalists of various sorts” (Edelmann 2012, 61). I argue that the correlations between mind and brain discovered in neuroscience, and the correlations between brain size and cognition noted by evolutionists are, from a *Bhāgavata* ontological point of view, relationships between two types of matter—that is, the subtle and physical bodies. The self observes and identifies with these two bodies, thus considering the correlations to be real. Ellis seems to agree that my argument is valid, but not sound. He states: “There is no reason or evidence to believe that substance dualism is true. . . . There is no evidence or reason to posit the ontologically gratuitous three categories of the Vaishnava system.”<sup>7</sup>

Ellis is right to note that I did not argue for the existence of a nonphysical self (*puruṣa*) in my book. I merely mapped out the relationships between two systems of thought. A fault in my book is that I did not provide a rationale for believing in a nonphysical self so defined, a fault I admitted (Edelmann 2012, 92). I did articulate some of the arguments the Vaiṣṇava tradition makes in support of nonphysical consciousness, but I was not using them as evidence. But Ellis’s statement that the nonphysical self does not exist because there is no evidence for it is another logical fallacy—that is, lack of evidence is evidence of lack (*ad ignorantiam*). The only arguments I can find in support of naturalism are his affirmations that experiments done in CSR explain away any belief in a soul, but we are again asked to take his word for it. Whatever the case, I do not know enough about CSR to respond in any great detail, nor do I think such a new discipline warrants such unreserved authority, as if it is the solution to all problems.

Ellis notes that Buddhists “argue for the absence of permanent consciousness and identity” and the ancient Indian materialist school of Cārvāka proposes that consciousness is “merely an epiphenomenon of insentient matter,” much like some contemporary scientists argue. When Ellis says there is “there is no reason or evidence to believe” in a nonphysical sense, substance dualism, and so on, I am still puzzled what he means. If he means there is no evidence from the Indian tradition, then as an Indologist one must also note that the Hindu tradition has numerous criticism of Buddhist and Cārvāka views. In the *Nyāya Sūtra* and its early commentaries starting with Vātsyayana, and up to later texts, such as Viśvanātha Nyāya-pañcānana’s *Bhāṣāpariccheda* with the *Siddhānta Muktvāli*, there are detailed arguments against Buddhist views of no-self and in defense of a nonphysical self. In the Yoga school the commentaries of Vyāsa, Vācaspati Miśra, Vijñānabhikṣu and others (each in the own way) do very much the same (e.g., *Yoga Sūtra* 1.32). The *Sarva-darśana-saṃgraha* of Mādhava (a nondualist) responds to Cārvāka, and Rāmakaṇṭha (a Śaiva) defends the self as eternal and unchanging cognition against Buddhist no-self doctrines (Watson 2006). Each of these thinkers had their own views of the self, the elaboration of which would go beyond this paper, but for an Indologist to say there is no evidence for a nonphysical self without engaging these authors (and many others) circumvents a long and distinguished tradition of philosophy that sought to establish its existence in light of arguments that denied it. If he means there is no evidence from contemporary science and philosophy, I have already noted (here and in my book) that there are disputations from scientists and philosophers against naturalism.

I am not citing these books to say the problem was solved in India or in the contemporary West, only that Ellis’s dogmatic assertions have their opponents in the East and West, and it seems like bad scholarship to disregard them. But of course, he might say, CSR explains it all away, so there is no need to engage with Indology. Perhaps it is here we disagree most. I do agree that a fault of my book is that I did not *argue* for a nonphysical view of consciousness and that I only focused on clarifying the relationships between the *Bhāgavata* and contemporary science, even if I did argue that the *Bhāgavata*’s ontology provides an alternative, nonphysicalistic way of understanding science. Perhaps a direction for further research might be the extent to which classical Hindu arguments against Buddhist no-selfism and Cārvāka epiphenomenalism are relevant in responding to contemporary versions of physicalism.

In Chapter 5, I argued that there are specific intellectual practices shared by both the Hindu theological tradition following the *Bhāgavata Purāṇa* and that of modern science. Those practices are, among others, a dispassionate search for knowledge, the use of testimony in doing so, and the aim of personal experience.<sup>8</sup> Ellis is firstly critical of the existence

of these intellectual virtues in the Indian tradition (and religion more broadly), and secondly critical that they are similar to the natural sciences. We are again asked to take his word that CSR explains them away.

I will begin with dispassion. I argue that the yoga of devotion for God (*bhakti*) requires the yogic discipline of dispassion, much like sciences require objectivity of their practitioners, to which Ellis responds: “While it is true that dispassion is often counseled in the Hindu traditions, this should not be taken to mean, as Edelmann seemingly presents it, that the devotees are bereft of personal investment in their practices.” He is certainly correct that devotees are not bereft of personal investment, but it is equally true—and this is something Ellis seems of yet unaware—that neither are scientists bereft of personal investment in their practices. Scientists and yogīs alike seek with great personal investment particular goals and particular states of knowledge. Scientists are of course human beings too, and the scientific work that they undertake is motivated by a wide range of personal, human concerns (Brooke 1996). There is a tendency, embodied in Ellis’s article, to deify scientists, to believe they transcend humanness when in fact they are part a particular culture and governed by an array of personal motives (Bloor 1991).

Ellis has another statement on the dispassionate search for knowledge in religion. He writes: “Religious practitioners are not engaging in their practices to find out what reality is in itself, but rather precisely for how it relates to their particular predicaments and ultimately their so-called enlightenment.” That may be true in many cases, but it is presumptuous for Ellis to tell us the reason why all religious people do what they do, especially when the said motive is in many cases different from what religious people themselves state, but what makes his analysis superficial is that scientists are working to solve predicaments as well. As I demonstrate in *Hindu Theology and Biology*, many noteworthy scientists also seek enlightenment in and through scientific practice (Edelmann 2012, 201–11). Is he suggesting that this invalidates their science? I do think that Ellis’s own passionate commitment to physicalism hampers his ability to write about science and religion in an objective manner, and he needs to give greater attention to the quality studies on the interpenetration of so-called scientific and religious sensibilities.

My argument was that what makes a person a (good) scientists or (good) yogī is that he or she is able to seek particular goals and particular states of knowledge in a *dispassionate* manner—that is, with an openness and objectivity. Ellis opens his essay by stating: “We ought to beware of allowing what we would like to be the case to inform what we believe is actually the case.” Amen. As someone working in Hinduism I can unreservedly agree with this epistemological virtue. I can also agree that as human beings we would like certain things to be true that are in fact false. Yet in this regard we are not talking about a problem for religion or a problem for science, but

a *human* defect that precludes one from gaining objective knowledge about reality. There are of course many examples of scientists fudging data so as to produce the desired result, and I do not doubt that confirmation-bias infects people's thinking about religion too. However, it is the disciplines (taking the word literally here) of science and theology that allow one to restrain (perhaps *nirodha* is appropriate) this human defect. Good scientists and good yogis are able to live with two contradictory forces, one that requires a dispassionate disposition in the search for truth *and* one that requires a passionate commitment to a search for truth. What I find so unhelpful, naive, and just bad scholarship about Ellis's response—and it is one that typifies the New Atheism of Richard Dawkins, Sam Harris, and so on—is the need to point a finger at religion and theology as somehow uniquely and hopelessly contaminated by confirmation biases, without the least acknowledgment that science too is rooted in the same human condition, one that requires a personal investment in the dispassionate search for truth.

Ellis is very concerned that I did not give greater attention to whether or not Hindu theology is falsifiable: “Equally problematic is the fact that at no point in Edelmann's presentation of the similarities between Hindu theology and biology do we ever get the sense of what would falsify yogic perception.” That is simply not the case. It should first be noted that I highlight the concern that Vedāntic thinkers such as Rāmānuja and Śaṅkara have with yogic perception—that is, that it should not contradict scripture. Nevertheless, there are ways that the tradition allows for scripture to be interpreted in light of yogic perception (Edelmann 2012, 122–3), but I shall not discuss that here, although it does lead into another issue: in what sense is scientific information (like personal experience) significant enough that it can be used to “falsify” claims in Hindu scriptures (*śāstras*)? I affirm, “if the scientific evidence is compelling, then the older testimonial view in the *Bhāgavata* should be modified or rejected, but one must also be aware that scientific evidence is often intimately intertwined with particular metaphysics, theologies, and methodologies, and that it is possible that today's scientific truths will be discarded in the future” (*ibid*: 176). I show that some followers of the Purāṇas were willing to discard older interpretations of the Purāṇas in light of the Siddhāntas (*ibid*: 177–82), and I show that there is a linguistic tradition at hand in Vaiṣṇavism for reinterpreting scripture when it does not make sense in light of a particular physical theory (*ibid*: 182–5). In the concluding sections of my book I discuss a way that Hindu theologians<sup>9</sup> might use scientific knowledge (i.e., science that has been scrutinized and shown to be true over time) to reinterpret scripture, thus falsifying previous interpretations. I suppose that Ellis missed these parts.

Despite all of this, I think Ellis takes falsification far more seriously than philosophers and scientists take it. When Karl Popper first proposed

falsification as the demarcating feature of science, it was critiqued by historians like Thomas Kuhn and philosophers like W. V. O. Quine, as I note in my book. Since Philip Kitcher's (1982) problematization of falsification, much of the discussion about it as a demarcating feature of science has decreased in favor of a more nuanced discussion of the philosophical features of particular sciences. Many philosophers recognize that falsification is but an amateur's knee-jerk reaction to questions like "What is science?" But even if we take falsification very seriously, who said that Hindu theology needs to be judged by the epistemological standards of science? Why would it be a fault of Hindu theology or yogic perception if it is unfalsifiable? While some neo-Hindus have *equated* Hinduism and science (I do not), all the Hindu intellectual traditions have their own rigorous discussion on what constitutes a reliable instrument of knowledge (*pramāṇa*). Rather than suggesting that Hindu theology or yogic perception is deficient because it cannot be falsified, one might say the sciences are deficient because they do not meet the criteria for knowledge in the Indian epistemological traditions. My point is that Hinduisms have their own epistemological standards and criteria, and it is these standards one might use in judging the sciences, rather than merely using scientific epistemological standards to judge Hinduism. Equally problematic is what might falsify Ellis's neo-Freudian belief system, especially given that he is not even willing to "entertain" a phenomenon that might potentially falsify it.

There is one criticism of my book that I think does prompt further research. He sees no likeness between the peer review process in the natural sciences (which I characterize as a wholistic and communal process for the assimilation into, guidance within and evaluation of people in the sciences, resulting in the production of reliable testimony) and the role of the "sanga" (which I characterize as communities of adepts who assimilate one into a Hindu tradition, give guidance within that tradition and evaluate people in that tradition, resulting in the production of reliable testimony about it). I agree with Ellis that the extent to which peer review was and is relevant in the construction of the Hindu commentarial tradition requires further justification. Work is still needed to show how Hindu thinkers were educated and evaluated in ancient India, what systems led to someone becoming an authority and receiving titles such as Upādhyāya, Mahopādhyāya, Tirtha, Ācārya, Śāstrī, and so on, and what systems were involved in determining good from bad scholarship, and so on. Having said that, I think the reasons for which Ellis rejects peer review in yoga are weak.

He writes that there "is simply no guarantee that the yogic consensus is not manufactured *post hoc*. . . . We simply cannot be sure that what one yogī's experiences is the same as that of another." A reason offered for this is that unlike science, which deals with "external, mind-independent

realities,” yogic perception is “mind-dependent, internally generated, and wholly private.” Thus, it seems he is suggesting that the ground upon which Hindu thought is founded is insubstantial; thus any amount of peer review in this regard is meaningless and leads nowhere.

The distinction between an external and internal reality is flat-footed. First, there is a long tradition of Western philosophical literature about the “theory-ladenness” of all perception—we construct reality by the theoretical framework we have educated into. Surely we can critique and evaluate that theory, but we cannot escape a particular theoretical model or “paradigm” when interpreting scientific information. The manner in which we understand reality thus depends upon “mind-dependent, internally generated, and wholly private” thoughts. I would be curious as to how Ellis could get around this, since that contradicts his external/internal distinction. In Indian philosophical literature, the relationship between thought and perception was also discussed in great detail—for example, Kumāriḷa Bhaṭṭa’s response to Dharmakīrti and Maṇḁana Mīśra (Taber 2005). Indians were aware of this problem and proposed various solutions, but many of them involved the recognition that the mind plays a nontrivial and necessary role in perception.

Second, I do not think that the terms discussed under the category of “yogic perception” (Ellis did not really tell us what he means by that) can be “wholly private” because yogīs over long periods of time and in different areas of the world were and are able to talk about (in meaningful ways) a subtle, perhaps mental reality. As I noted in my book, Indian “mystics” took great pains to make so-called private experiences open to linguistic, philosophical, and theological analysis (Matilal 1977). I prefer the term “intersubjective” (Edelman 2012, 111) rather than “mystical” because it conveys the sense that they believed they were talking about an internal reality, but it was one shared and experienced by many people over time. Science is also intersubjective in this sense, because it provides a theoretical (i.e., a network subjective ideas) structure for understanding the world that is shared among any people. The contents of yogic perception are often described in great detail and in nonmetaphorical language so that people having the same sorts of experiences could discuss them. If Ellis wants to say all of this vast commentarial literature makes no sense, he must engage with the actual details of that tradition, rather than disregarding them for possessing faults the commentators were aware of and sought to overcome. Even the belief that all yogic perception was considered subjective is false. Matthew Dasti (2010) notes that Rūpa Gosvāmin, the sixteenth-century Gauḁīya Vaiṣṇava thinker, argued that some people might think they are experiencing *bhava*, or an intense feeling of love for God, but if they are not displaying external signs (e.g., hair standing on end, etc.), then that *bhava* is not really being experienced. Thus, there was a way that thinkers

wanted to evaluate internal experiences via external indicators, not unlike the “trait effects” discussed in studies on mysticism.

Ellis’s objective/subjective point also leads him into a contradiction. In his critique of the phenomenological study of religion, Ellis claims *he* can understand what the *Yoga Sūtra* means by terms like *puruṣa* (spirit, consciousness, and soul), and I assume the same would hold for terms like mind, intellect, and ego as they are used in the *Yoga Sūtra*: “I believe I can thoroughly comprehend the dualistic philosophy of Sāṃkhya-Yoga without having to practice yoga or have some yogic experience.” Now he has contradicted himself. If all discussion of the terms in yoga are “wholly private” (meaning that we cannot ever be sure that what one person says is the same as another), how could he “thoroughly comprehend” Sāṃkhya-Yoga? Is Sāṃkhya-Yoga (which talks about the content of yogic perception) wholly private and thus incomprehensible, or can he “thoroughly comprehend” the doctrines? It cannot be both, as Ellis would like to have it. Furthermore, the Freudian psychology espoused by Ellis (and all forms of psychology) would also have to be rejected for the reasons he rejects yogic perception, for they too are discussions of a subtle, mental reality. How do we know Person A’s first-person reports about their own (wholly subjective) psychological states are the same as Person B’s?

I think Ellis needs to consider the implications and consistency of his views, and he needs to examine more carefully the yoga tradition’s conception(s) of perception before attempting to read them solely in Freudian and/or CSR terms. I used the terms “knowledge of” and “knowledge about” to distinguish between two levels of understanding (Edelmann 2012, 113), and I still think they are helpful. Surely Ellis and anyone else can gain knowledge of the *Yoga Sūtras*, the *Bhāgavata Purāna*, or any other religious text, but it is different to say one can gain knowledge about the objects those texts claim to be discussing. For example, it is one thing to know of the *puruṣa* as an eternal, self-luminous entity as discussed in the *Bhāgavata*; it is different to know that *puruṣa* as a direct object of one’s own experience, if that could ever be the case. This is the distinction between perception and yogic perception I intended to draw.

In conclusion, I will say that I appreciate the kind words Varadaraja Raman has to say about my book. As his article outlines, there are many distinguished traditions of learning in Hinduism that suggest many avenues that could be taken if one wishes to think creatively about Hinduism and science. My own approach to comparing Hinduism with other topics is *tradition specific*. Thus, my book is not about Hinduism in general, but about one school of thought in Hinduism. The tradition specific approach also reflects Indian intellectual history. The learned theological works of Hinduism all have particular starting points and particular theological

commitments—for example, Advaita, Dvaita, Śaiva Siddhānta, Mīmāṃsā, Sāṅkhya-Yoga, Gauḍīya Vaiṣṇava, Śākta, Prācīna-Nyāya, and so on. I know of no Sanskrit author who present a “view from everywhere”—that is, a smattering of perspectives on a particular issue. The term *Hinduism* is an abstraction and a helpful one at times (Nicholson 2010), but one must not let it cloud the fact that there are diverse and distinct traditions that fall under the umbrella term *Hinduism* and that Hindu theologians spoke from discrete philosophical and theological positions. Even the well-known doxographies like Mādhava’s *Sarva-darśana-saṃgraha*, Haribhadra’s *Ṣaḍ-darśana-saṃgraha*, Śrīnivāsa’s *Yatīndra-mata-dīpikā*, and so on, begin and end with particular theological points of view. Scholarship in the Hindu tradition was driven by a *vāda*—that is, a particular school of thought to which one belonged (in some sense) and out of which one argued (often with great diversity of views within a particular school). Of course, scholars would change schools or simply create their own; Madhva was trained in Advaita but created Dvaita Vedānta. Scholars may have pushed the limits of their school, and they may even reject it, but they always had a disciplinary tradition out of which they worked. Furthermore, Hindu texts such as the Veda, the Upaniṣads, *Bhagavad Gītā*, and so on did not stand alone in the Hindu theological traditions but were read and interpreted within particular schools of thought.

Contemporary articulations of Hinduism are often different from the learned Sanskrit works of the past in the above senses. One reason for that is, I believe, that it is not the trained Hindu theologians who are talking about contemporary issues, partly because many of them know very little about Western thought. But at this point I think the field of Hinduism and science requires scholars trained in a particular Hindu school of thought to reflect on a science more than it needs a scholar trained in a particular science to reflect on Hinduism.

Raman rightly acknowledges the fact that within the larger world of Hinduism there is a multiplicity of religious practices and conceptions of divinity. There is such a massive volume of complex literature under the heading “Hinduism,” one could indeed spend many life times reading it, so to speak. But it would be inaccurate to say that individual Hindu scholars believed all paths are equal. Śaṅkara, for example, argues that it is only through nondual knowledge of *brahman* (ultimate reality) that salvation is obtained; it cannot be obtained from ritual action or devotion for a God. Śaṅkara recognized ritual action (*karma*) and devotion (*bhakti*) as preparatory and supplementary, but not ultimate. The same type of approach is true throughout Hindu theological traditions. Raman says: “This is the doctrine of *polydosisism* or *bahumārga*: the possibility of finding spiritual fulfillment through many paths. This view is perhaps the greatest contribution of the Hindu world to the religious quest, especially in the



confrontational context in which humanity finds itself today.” While it is true that there are many paths in Hinduism, it is not true that Hindu theologians (Śaṅkara, Rāmānuja, Abhinavagupta, Vallabha, etc.) accepted each path as ultimately salvific.

I worry that articulations of polyodism are too easily interpreted as a type of epistemological, ontological, and theological relativism that does not reflect the vast majority of Hindu thinkers. If we can speak of excesses, the New Atheists want to disregard the entirety of our religious intellectual history without giving it much consideration *in its own terms*, and some Neo-Hindus want to accept all aspects of Hinduism without giving it the critical evaluation to which the Hindu theologians subjected it. There are losses to be had on both sides. I would like to see the Hinduism and science dialogue become more *theological* and *philosophical*. A *dialogue* can recognize and live with conflict (and there is much, as noted by Ellis and Brown), and it can recognize and live with similarity (and there is much, as noted Raman), but it can also construct new relationships. This type of dialogue can and should build off the historical studies of the interaction between Hinduism and science, like C. Mackenzie Brown’s fine study (2012). But Hinduism, as a living religion with a living theology, can also continue to produce new understandings of itself in dialogue with the sciences. To be consistent with its past in its most fundamental sense, however, it must be tradition specific (i.e., arising out of *sampradāya*), wherein scholars working out of one of the many dozens of schools in Hinduism use that tradition to think constructively about a particular science, philosophy, theology, and so on. Furthermore, I would like to see it become critically evaluative, wherein the said scholars produce thoughtful engagements with tradition in ways that are appropriate to and responsive to the modern world.

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#### NOTES

1. Gosling characterizes hell as “evermore,” perhaps because he understands the term in an Abrahamic sense, but this is factually wrong, since Hindu texts do not say hell is eternal.

2. Gosling writes: “The title of Edelman’s book is misleading. Edelman is writing about one particular and late theology within a much wider tradition, most of which is not theistic at all. A more accurate title might have been *Bhāgavata (or Krishna) Theology and Biology*.” The primary title on its own might be misleading, but I would ask Gosling to read the subtitle, *The Bhāgavata Purāna and Contemporary Theory*, since it clearly restricts the scope of my book to the *Bhāgavata Purāna*.

3. Vedānta thinkers focus on the three foundational texts (*prasthāna-trayī*): the Upaniṣadic literature, the *Bhagavad Gītā* and the *Vedānta Sūtra*.

4. Kedārnātha Datta (Bhaktivinoda Thākura), *Śrī Kṛṣṇa Saṁhitā*. Furthermore, the *Bhāgavata* (3.30.29) itself says that heaven and hell are here (on earth), *atraiva narakāḥ svarga iti mātāḥ pracakṣate*. I thank Satyanaraya Das for pointing this out to me.
5. See Edelmann (2012, 11–7) for a further discussion of the complexity theory. As noted, this is developed from Brooke (1991), who did not use the term “complexity thesis,” but is interpreted as such by Wilson (2002).
6. “The speaker is committing the genetic fallacy by paying too much attention to the genesis of the idea rather than to the reasons offered for it” (Dowden 2010).
7. Ellis misread me as using the work of Jan Gonda, a noteworthy Indologist, as evidence that Indologists have some special experience of nonphysical entities due to their study of Indian texts, but was not my intention. I had quoted Gonda solely as an Indologist who has worked on this topic in Vedic texts, not as someone who had a personal experience of nonphysical reality.
8. Ellis has entirely misunderstood me as saying that the Indian notion of “seeing” is unique to India; the sole purpose of Chapter 5 was to show that “seeing” is a sensibility shared with Western scientists, hence its title “Seeing Truth” and the comparative East-West analysis that followed.
9. For a definition and discussion of this term, see Edelmann (forthcoming).

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