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FROM THE EDITORS

ARTICLES

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FROM THE EDITORS

Prasanta S. Bandyopadhyay
MONTANA STATE UNIVERSITY

Matthew R. Dasti
BRIDGEWATER STATE UNIVERSITY

The topic of this newsletter is "Indian philosophy and culture," chosen to allow for a rich diversity of contributions that illustrate some of the major approaches or currents of philosophical investigation into Indian philosophy, Indian cultural production, and the status of Indian thinkers as legitimate interlocutors within the global philosophical community.

One of the most visible and influential of these currents has been the ongoing excavation of classical Indian philosophy, carried out by those with an eye for both philological accuracy and philosophical relevance. This is illustrated by our first five essays. Graham Priest provides a historical investigation into the question "How many truth values are there?" Leading answers to this question, as charted by Priest, include responses given by Madhyamaka and Jaina philosophers. In his essay, Stephen Phillips calls attention to the way that Indian philosophy tends to be categorized into hard divisions based on schools of thought (e.g., Vedānta, Nyāya, Sāṃkhya), but he seeks to "soften the categories" and offers a test case in the form of a reexamination of the standard view of the influential polymath Vācaspati Miśra (tenth century CE). Phillips argues that Vācaspati is not merely a scholastic, elucidating school-bound commentaries delimited by the resources of this or that tradition, but rather an original thinker who articulates common themes and positions that harmonize across his commentaries on the core texts of different schools. Shalini Sinha's essay is devoted to the concept of self within the venerable and influential Vaiśeṣika tradition of Indian realism. She illustrates the way in which the self, in Vaiśeṣika ontology, is the source of agency and normativity, reason and law, and the good itself, within nature. K. S. Prasad's paper provides an articulation of mind and cognition within Nyāya, a "sister school" to Vaiśeṣika, focusing on the relations between knower, thing known, and act of knowing, along with Nyāya's account of the "inner organ" or "mind" (*manas*) which governs cognitive functioning. The papers primarily devoted to classical Indian philosophy close, fittingly, with reflections on translation and interpretation. P. S. Bandyopadhyay, R. V. Raghavan, and D. Wallace Dcruz reflect on a famous Upanishadic story, where a single syllable uttered by the creator, Prajāpati, is taken in radically different ways by three sets of listeners. Bandyopadhyay, Raghavan, and Wallace Dcruz consider contemporary theories of meaning and argue that the work of Paul Grice provides the best resources to make sense of this story.

Another current of inquiry seeks to understand the way in which European receptions of Indian thinkers and, indeed, the very notion of Indian philosophy, have been determined by colonial and post-colonial contexts. This is illustrated in our next three essays. J. Barton Scott's paper examines the myriad—and often problematic—ways in which the concept of Indian philosophy has been intertwined with religion and religiosity in the eyes of both pioneering European Indologists and in the work of anti-colonial Indian philosophers themselves. Dan Flory's paper examines Western approaches to the notion of Indian philosophy as genuine philosophy, and argues that there are underappreciated reasons why Indian philosophy was denied such status during and after the Enlightenment. Focusing on Kant and Hegel, he argues that Enlightenment views of race and the limited capabilities of non-European races informed the dubious refusal to take Indian philosophy seriously. C. K. Raju's paper engages in both the classical excavations noted above and critical, historical examination of colonial attitudes and ways in which they led to distortions and denigrations of India's intellectual contributions. He contrasts the practical, empirical approach to mathematics in classical India with a more theoretical, "religious" approach in the Christian West, often taken by its own adherents to be clearly superior. Raju argues that this is far from the case.

We have received a large number of quality papers for this issue, and have consequently decided to divide it into two. Therefore, our fall 2015 newsletter will continue this theme, and will have a large portion of papers devoted to a third current of inquiry, investigating modern Indian philosophy and culture.

Finally, we would like to thank Nalini Bhushan, Jay Garfield, Leah Kalmanson, David H. Kim, and Erin C. Shepherd for suggestions, assistance, and guidance in the editing of this newsletter.

ARTICLES

Alethic Values

Graham Priest
THE GRADUATE CENTER, CUNY, AND THE UNIVERSITY OF MELBOURNE

The Asian philosophical traditions are rich and sophisticated. Most Western-trained philosophers, however, know very little of them. The situation is slowly changing as more Western philosophers are coming to read the Asian texts, and more Western philosophy departments are teaching Asian material. The present essay is a small contribution to this felicitous trend.

The question which will concern us here might be posed as, "How many truth values are there?" I will not be concerned to answer this question. Rather, the point is to survey some of the answers to the question advanced by some thinkers and traditions, both East and West. The Eastern traditions that will concern us here are both Indian in origin: Buddhism and Jainism.

It should be said straight away that we will be looking at some seminal texts, both East and West. Such texts are always subject to disputes of interpretation, and here is not the place to defend my interpretations. Those I shall give are the ones that strike me as most plausible, however.[1]

* * *

N=1

Let me start this exercise in the history of ideas by making the question more precise. We are concerned with truth as it applies to propositions, sentences, statements, beliefs, or whatnot (rather than, e.g., friends or coins). Which of these sorts of things are the primary bearers of truth—indeed, what such a claim might mean—is a knotty issue. However, nothing much here will depend on resolving it. So I shall just speak of truth-bearers, in a non-committal fashion.

Truth-bearers can be true; but according to most traditions, they can take other values: most notably falsity. As we shall see, they may be thought to take other values as well. To forestall any quibbles about whether values are really of a *kind* with truth, I will simply call them *alethic values*. Let N be the number of alethic values. Our question, then, is, "What is N?"

The simplest answer is that N=1: there is only one truth value, *the truth* (*t*): all truth-bearers are true; there is no such thing as falsity. The view was reputedly held by Antisthenes (445–365, BCE), and what may have been his arguments are rehearsed by Plato (429–347 BCE) in the *Euthydemus*, 283e–284c. A variation on the arguments is rehearsed in the *Theaetetus* (118d–189b), essentially: The false is what is not. What is not does not exist. So the false does not exist.

We do not need to scrutinize the reasoning. It suffices here to note that it puts the view that N=1 on the table. And however plausible it is, one cannot deny that it is the simplest of views![2]

N=2

For the next answer in ascending order, we remain in Ancient Greece, but turn to Aristotle (384–322 BCE): N=2. Aristotle adds a second alethic value: *falsity* (*f*). So there are now two values, *t* and *f*, and truth-bearers take exactly one of these. This picture is encapsulated in the Principles of Excluded Middle (*PEM*) and Non-Contradiction (*PNC*). The *PEM* says that a truth-bearer must have one of these values; the *PNC* says that they cannot have both.

Aristotle defends these principles in Book Γ of the *Metaphysics*. What, exactly, his arguments are, and how successful they were, may be disputed. The arguments for the *PNC* in Book 4, in particular, are a motley and opaque bunch. However, this need not concern us here.[3]

N=3

The next answer in ascending order is that N=3. And for this, we turn to Aristotle again.

In the somewhat notorious Book 9 of *De Interpretatione*, Aristotle argues that truth-bearers whose contents are contingent states of affairs about the future, such as that it will rain in Melbourne at some time on 1/1/3001, are *neither true nor false* (*n*). So now we have *t*, *f*, and *n*.

Aristotle argued that if such truth-bearers were either true or false, the consequence would be fatalism, which he rejects. How good Aristotle's arguments are, again, need not concern us. Perhaps of more concern is the relationship between the position in *De Interpretatione* and the defense of the *PEM* in the *Metaphysics*. Aristotle gives us no guide to this question in either of these places—or any other. In the end, I suspect, the two texts are just inconsistent with each other.

However, of more importance here is the fact that the endorsement of a third alethic value in *De Interpretatione* is clearly driven by metaphysical considerations, namely, the open and indeterminate nature of aspects of the future. The answer to our target question is, then, no mere bloodless dispute about the nature of logic. Logic is driven by metaphysics.

In truth, this should already have been visible to us when discussing the last answer. For Aristotle defends the view that N=2 in the *Metaphysics*, not the *Analytics*. Indeed, there, he points out that the logical validity of various syllogisms is independent of the *PNC* (*An. Post*. 77^{a}10-21). *Metaphysics* Γ announces itself at the start as a study of *being qua being*. The *PEM* and *PNC* are, thus, principles about the nature of *being*.[4]

***N*=4**

For the next answer, we leave Ancient Greece and move to Ancient India. Here we find *N*=4. This is embodied in a principle called the *catuṣkoṭi* (four corners). The four corners are four alethic possibilities. These add one to Aristotle's triad, *both true and false* (*b*), to give us *t* (true and true only), *f* (false and false only), *n* (neither true nor false), and *b* (both true and false).

The origin of the catuṣkoṭi in Indian philosophy is unknown. It is certainly in place by the time of the historical Buddha (Siddhārtha Gautama; according to one standard chronology: 563–483 BCE); for in the *Majjhima Nikāya* and other sūtras, we find the Buddha's disciples asking him difficult metaphysical questions, such as "What happens to the enlightened person after death?" They put the question by asking whether the person exists, not, both, or neither; and it is clear that they take themselves to be giving the Buddha four mutually exclusive and exhaustive possibilities to choose from. Instead of *tertium non datur*, we have *quintum non datur*.

In these sūtras the Buddha, in fact, refuses to endorse any of these answers. The reason often given (for example, in the *Cula-Malunkyovada Sūtra*) is that such metaphysical speculation is a waste of time, and irrelevant to achieving enlightenment. But in some of the sūtras, notably the *Majjhima Nikāya*, something else is hinted at: that none of these four possibilities "fits the case," though nothing further is made of the idea for a long time.[5]

***N*=5**

It seems to have lain dormant in Buddhist philosophy until taken up by Nāgārjuna (dates unknown, some time first or second century CE), who laid the philosophical ground for a later kind of Buddhism, Mahāyāna. And it is he who will give us our next answer: *N*=5.

The central metaphysical claim of Mahāyāna Buddhism is that all things are empty (*śūnya*). The claim is interpreted somewhat differently in different Mahāyāna schools. But in Madhyamaka (Nāgārjuna's school), to be empty is to be empty of intrinsic nature: everything is what it is in virtue of its relationships (and only in virtue of its relationships) to other things. Nāgārjuna's *Mulamadhyamakākrikā* is an extended argument to the conclusion that everything is empty. Frequently, he runs through the cases of the catuṣkoṭi in a four-pronged *reductio*.

But he also says (e.g., ch. 22) that sometimes none of the four applies—for example, with respect to the nature of the enlightened person after death. So we have a fifth possibility. Call this *e*, none of the above. So now we have *t*, *f*, *b*, *n*, and *e*. But what is this *e*?

To understand this, we have to delve into metaphysics again. According to Nāgārjuna—or at least one standard interpretation of him—any object has a dual reality (*satya*), conventional and ultimate (like the two sides of one and the same coin). Its ultimate reality can be grasped directly (if you work hard at it), without conceptual mediation. Its conventional reality is how it appears when seen through the grid of concepts and language which thought imposes on it.

And corresponding to the two sorts of reality, there are two sorts of truth: the truth about conventional reality, conventional truth; and the truth about ultimate reality, the ultimate truth.

The sorts of things that are conventional truths are obvious enough: I live in New York, cats are mammals, Caesar crossed the Rubicon. What of the sorts of things that are ultimate truths about an object? One cannot say. To do so would be to impose our conceptual/linguistic grid, and thus to describe its conventional reality. Ultimate reality is therefore ineffable. This is our fifth value, *e*, ineffability.

We now have to be a little careful about what truth-bearers are. It does not make much sense to suppose that a sentence is ineffable: to be ineffable is to be *in*expressible in language. So truth-bearers have to be propositions or states of affairs: something not, by definition, guaranteed of linguistic expression. But that is but a wrinkle.

As usual, this is not the place here to go into the truth of Nāgārjuna's view or the soundness of his arguments for it. It suffices that the view has taken us to *N*=5.[6]

***N*=6**

Which brings us to *N*=6. Sadly, I know no examples of this.[7]

***N*=7**

But *N*=7 is quite a different matter. For this, we stay in India, but move from Buddhism to Jainism. There, we find *N*=7.

The origins of Jainism are somewhat clouded, but it seems to arise in India about the same time as Buddhism (and so circa sixth century BCE). Its philosophical foundations were laid somewhat later, between about the second and fifthth centuries CE, by philosophers such as Siddenansena (fl. fifth century).

Before we get to seven, we have to go back to three. For the Jains, there were three *basic* alethic values, *t*, *f*, and a third. Let me call this *i*. The meaning of *i* is somewhat obscure (and modern commentators disagree about how it is to be interpreted). Sometimes it is glossed (or at least translated) as "non-assertible," which suggests *neither true nor false*. Sometimes it is glossed (or at least translated) as "assertable and deniable," which suggests *both true and false*. Given that ineffability is certainly in the air in both Buddhist and Hindu thought at this time, maybe it should be understood as *ineffable*. Maybe it is to do duty for all these. Anyway, we can leave scholars to argue about this.

To get from three to seven, we have to consider some core Jaina metaphysics. This is encapsulated in the principle of *anekānta vāda*—the principle of non-(one-sidedness)—as articulated, for example, by Siddhasena in his *Nyāyāvatāra*, v. 29. Reality is multi-faceted, like a polyhedron. Everyone

who has a view has a view of one of the facets. Their views are all equally correct and equally incomplete.

As far as alethic values goes, the result is spelled out by Vādideva Sūri (fl. twelfth century CE) in his *Pramāṇa Naya Tattvālokālamkāra* (ch. 4, vv. 15–21), with a view called the *saptabhaṇgī* (seven-fold division).

Every truth-bearer will have one of the three basic values in every facet. (The Jains use the word *syād* to mean something like "in some facet.") So to capture the whole picture we have to take into account the alethic value at every facet. So, for example, if the truth-bearer is *t* in some facets, *f* in others, and *i* in none, its total value will be {*t*,*f*}. Thus, the overall possible values of a truth-bearer will be any non-empty subset of {*t*,*i*,*f*}—non-empty, because reality has many facets, and so at least one. So $N=7=2^3-1$.[8]

* * *

So we have reached *N*=7. Let me end with a few final comments.

First, none of the philosophers we have met had any knowledge of modern formal logic. However, each of the above views can be turned into a rigorous such logic. The main logical technique to be deployed is—naturally—that of many-valued logic. Formally, many-valued logics allow for *N* to be of any size.

Next, I certainly do not claim that we have had an exhaustive tour of the terrain we have been crossing—even in ancient philosophy. I have chosen some philosophers whose views are important and distinctive. I am sure there are others. Despite this, and modern many-valued logics notwithstanding, I know of no natural suggestions for values of *N* greater than 7. With one exception: modern fuzzy logics allow for degrees of truth; so an alethic value is any real number between 0 and 1 inclusive. That is, *N* is 2 to the power of $\aleph_0$. As far as I know, nothing like this view is to be found in antiquity.

Third, since I expect that most readers of this article will know little of Asian philosophical traditions, and to forestall possible misconception, I should point out that there were certainly Indian philosophers who endorsed the claim that *N*=2, such as the Hindu Nyāya philosophers—a school going back to about the second century CE, but regenerated in the tenth century CE as Navya-Nyāya (new Nyāya)—and the Buddhist logicians Dignāga (fl. sixth century CE) and Dharmkīrti (fl. seventh century CE).[9]

Finally, as is clear, I have made no attempt to evaluate the various claims about the value of *N*, or the metaphysical views on which these are based. That would be an entirely different, and *much* lengthier, project. The point of this note has simply been to chart some history; and, in the process, I hope, to open people's eyes to some possibilities of which they may have been unaware.

NOTES

1. I will add a reference or two at the end of each section, for those who wish to take matters further.
2. For further discussions of Antisthenes and related matters, see Denyer, *Language, Thought, and Falsehood*.
3. On the arguments, see Dancy, *Sense and Contradiction in Aristotle*, and Priest, *Doubt Truth to Be a Liar*, chapter 1.
4. On the argument of *De. Int*. 9, see Haack, *Deviant Logic*, chapter 4), and Priest, *Introduction to Non-Classical Logic*, secs. 7.9 and 11a.7.
5. On the catuṣkoṭi, see Ruegg, "The Uses of the Four Positions of the Catuṣkoṭi," and Priest, "The Logic of the Catuṣkoṭi."
6. For further discussion of Nāgārjuna's use of the catuṣkoṭi, see Westerhoff, "Nāgārjuna's Catuṣkoṭi," and Priest, "The Logic of the Catuṣkoṭi."
7. So this is the null reference.
8. On Jaina logic, see Ganeri, "Jaina Logic and the Philosophical Basis of Pluralism," and Priest, "Janina Logic: A Contemporary Perspective."
9. For a discussion of many-valued logic, including fuzzy logic, see Priest, *Introduction to Non-Classical Logic*, chapters 7 and 11. For a general discussion of Indian logic, see the papers in Ganeri, *Indian Logic: A Reader*.

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Seeing From the Other's Point of View: Counter the Schismatic Interpretation of Vācaspati Miśra

Stephen Phillips

THE UNIVERSITY OF TEXAS AT AUSTIN

Textbook treatments of classical Indian philosophy typically identify three pairs of schools falling under the broader rubric of "Vedic" or "Hindu": Pūrva and Uttara Mīmāṃsā (or, Mīmāṃsā and Vedānta), Sāṃkhya and Yoga, and Nyāya and Vaiśeṣika. All six are classically tagged *āstika* as opposed to *nāstika*, the latter being non-Vedic, non-Hindu. These include Buddhist and Jaina schools but also materialist, anti-religious Cārvāka. It is also said that it is less doctrine than

cultural practice that unites the *āstika* schools—the Sanskrit word connotes more "orthopraxis" than "orthodoxy." The assumption is that there is no orthodox credo for early Hinduism. Although it is recognized that much is shared by a partner school with its sister, Yoga with Sāṃkhya, for instance, the six *āstika* schools often take sharply distinct and opposed positions, it is pointed out or assumed. Indeed, within Mīmāṃsā and Vedānta in particular there are important subschools, Advaita and Viśiṣṭâdvaita Vedānta, for example, and Bhāṭṭa and Prābhākara Mīmāṃsā, which take different positions on various issues and present sometimes pointed, barbed refutations of the theories of the rival subschool. The organization of the fifteen-century textbook by Mādhava, *Sarva-Darśana-Saṃgraha*, respects and reinforces these divisions, as does, like almost all modern treatments, the multi-volumed *Encyclopedia of Indian Philosophies* edited by Karl Potter. There the practice is to devote a volume to each separate school and in some cases subschool or later period (as with the three volumes on Nyāya).

Now my point in this short paper is not to overhaul our whole sense of the classical schools as units of organizational importance but rather to try to dislodge the idea that aside from the founders of the separate *darśana* classical writers tended not to think for themselves, not to innovate or correct, but only to elucidate, defend, and occasionally expand a bundle of inherited positions collected under the several banners of Mīmāṃsā, Nyāya, and so on. Innovation, on such a schismatic hermeneutics, is mainly a matter of someone coming up with a new line of defense and sometimes new lines of attack on the arguments or positions of the home school's detractors, not with fresh thinking through an issue. The commentarial nature of the philosophic literature proves the point, its genre suppositions taken to extend to non-commentarial treatises. However, while it is true that the commentary as a genre dominates the later literature, there are many important non-commentarial texts that are clearly in a different class, with different genre suppositions, showing on their face, moreover, a certain originality. Furthermore, despite what scholars regard as naturally a deep conservatism within the commentary genre, it is wrong to think that the several philosophic inheritances offer their students only rigidly fixed positions. With this question in mind, scrutiny of the commentarial writing of the great philosophic names—*a fortiori* in the case of non-commentarial treatises—shows influences from a host of sources, *āstika* and *nāstika*, and advocacy of positions inaugurated elsewhere than in the school or text being commented upon. There is philosophic progress over the centuries in my opinion, and often it appears to be sparked by close study of the literature of apparently rival schools.

In sum, my argument is not directed at any and all scholastic labeling but rather against the "hardening of the categories" that would take the barriers between the schools to be much less permeable than is the case and that would skew our interpretation and evaluation of the philosophic work of individuals.

The outstanding example of a classical philosopher who learns from multiple sources and crosses barriers—admittedly so subtly sometimes that the trespassing is easily missed—innovating and thinking for himself by way of commanding issues and a broad range of positions and arguments, is the tenth-century Vācaspati Miśra, who probably lived in Mithilā in what is now Bihar. Vācaspati does not boast of his accomplishments, giving credit to his predecessors for positions and arguments that are really his innovations.

But the going wisdom about Vācaspati is that he was the consummate academic, not a philosopher thinking for himself—except in the case, possibly, of his *Bhāmatī* commentary on the *Brahma-sūtra-bhāṣya* of *Śaṅkara* within Advaita Vedānta (and even there some say he is much indebted to Maṇḍana Miśra). Such academicism would apparently explain his having composed major treatises within a total of *five* distinct schools—Advaita Vedānta, Yoga, Sāṃkhya, Nyāya, and Mīmāṃsā—including long, detailed subcommentaries in Nyāya and Yoga. In other words, the philosopher was an academic specifically in his ability to change scholastic hats. Thus, for example, in his "Notes" on Uddyotakara's subcommentary on the *Nyāya-sūtra*, Vācaspati's point is not to tell what he himself thinks is the truth or final word on some issue or other but rather the truth from the Nyāya perspective; similarly for his Yoga treatise and so on.

S. Ranganath, for example, presenting all-told a solid study of our author showing his many innovations, sees him as making separate contributions to the several schools. At the end of a chapter devoted to his contribution to Sāṃkhya, Ranganath writes:

> Here again we find in Vācaspati Miśra a devoted exponent of the Sāṃkhya process of creation without any preconceived notions created by his knowledge of the Vedānta and other traditions. His defense of the Sāṃkhya system is in the true spirit of a commentator defending the position of the text he is commenting upon.[1]

Vācaspati is then an exponent of Sāṃkhya the way a modern academic can be an exponent of Plato, trying to make us see things the way Plato saw them, that is, with one exception, namely, unlike with Plato himself, *without advocacy*. Thus Vācaspati would be a professional intellectual with a certain expertise, indeed, as incredibly good at his craft, expositing positions and arguments according to the particular school whose literature he is expanding with his composition—all, of course, with the possible exception of the *Bhāmatī*, his Advaita Vedānta opus where it is commonly supposed (on slim evidence, I must say, given the attitude towards the non-Vedāntic treatises) that here he is telling us what he really believes, thus founding the so-called Bhāmatī subschool of Advaita.

In sum, the separate schools take distinct positions on a host of issues, and Vācaspati, like everyone else writing in the middle and later classical periods, is pretty tightly constrained by a doctrinal inheritance. The inheritance is elucidated by him and perhaps expanded but not rejected. This is true even for the *Bhāmatī*, his Advaita work where we may suppose (mainly on the evidence that this was the last

treatise he wrote) that he is actually asserting for himself the exposited views.

That Vācaspati is the consummate academic of classical thought is, I admit, one way of looking at him, an interpretation that cannot be proved wrong conclusively. On high-level hermeneutical questions rarely are there knock-down arguments. My hope, however, is that by showing a few convergences between or among the schools according to his treatises this paper will help us see Vācaspati—and others, of course—as philosophers whose resources are not restricted to any single textual, philosophic tradition, and whose positions as philosophers span traditions and schools.

The case is rather easy to make. Take first Vācaspati's Mīmāṃsā treatise, the *Tattva-bindu*. This is far from a commentary on the whole long *Mīmāṃsā-sūtra* but rather a treatment of a single issue, as the title may be taken to imply, "A *Drop* of Truth." The issue is sentence meaning and its relations to the meanings of individual words, which is an important issue, indeed at the center of theory of knowledge through testimony (*śabda-pramāṇa*) which in turn is at the center of Mīmāṃsā defense of Vedic ritualism. Vācaspati's reflection seems informed by thorough-going Mīmāṃsā study, especially of Kumārila, the eighth-century philosopher whose view *on this issue* Vācaspati defends and expands. Embracing one position hardly makes a Mīmāṃsaka. The deeper point, however, is that he finds—or carves out—convergence among Mīmāṃsā, Yoga, and Nyāya in this area of epistemology. The view is that we understand words as individually having reference while we understand a sentence by cognizing the referents in a certain relationship—call this the Bhāṭṭa theory, after Kumārila Bhaṭṭa. The issue of sentence meaning does not arise, as far as I can tell, in Vācaspati's *Bhāmatī*, his Advaita opus. The Bhāṭṭa theory is nevertheless *utilized by him* to make another point, not one endorsed by Kumārila, namely, that statements in the Upanishads about Brahman the Absolute are meaningful although they are not connected to action *pace* a deeply held Mīmāṃsaka supposition.[2] What the *Tattva-bindu* shows then is, along with Vācaspati's familiarity with Mīmāṃsaka literature (and Kumārila in particular), a full airing of the sentence-meaning issue (five distinct theories are scrutinized). In the end, the one known as the Bhāṭṭa or *abhihitânvaya-vāda* is defended. Now this theory of sentence meaning is then slid neatly into both his *Nyāya-vārṭika-tātparya-ṭīkā* (under *Nyāya-sūtra* 1.1.8 on knowledge through testimony) and his Yogic *Tattva-vaiśāradī* (under, surprisingly, the *siddhi* or "power" of coming to understand the language of animals, *Yoga-sūtra* 3.17).

Consider next Vācaspati's theism, plain from his extensive "notes" on *Nyāya-sūtra* 4.1.21 (Thakur 564ff, where Vācaspati tells us why it is the omniscient *īśvara* that must be supposed to be the agent inferred: "(That which is to be accounted for) is the simultaneity of production of effects throughout immeasurable and unlimited space at every place and location, effects perceptible and imperceptible in animals and plants and the organic world as a whole and so on"). Concerning God or *īśvara*, we find convergence where we should find sharp divergence if Vācaspati were merely changing hats: in Nyāya, Yoga, *and* Advaita Vedānta. In all three treatises, he puts forth and elucidates the same argument for the existence of God. This is that there is a single all-embracing intelligence responsible for the universe as is shown by the harmony among its parts. Although Advaita is sometimes thought to be non-theistic, Vācaspati's Advaita presentation of the argument is as theistic as the others, focusing on the notion of a conscious agent as instrumental cause.[3] Admittedly, the God that is proved by Vācaspati in the three treatises is not conceptualized in precisely the same ways. Nevertheless, there is a supreme being conceived similarly across the three works and schools whereas *īśvara* is not conceived so similarly by the three authors—Uddyotakara, Vyāsa, and Śaṅkara—whose texts he is elucidating. This in itself proves he is not just a commentator.

Further, although Kumārila presents a barrage of *atheistic* arguments, our philosopher does not mention them or indeed *īśvara* at all in his Mīmāṃsā treatise. Nor is *īśvara* directly discussed in his *Sāṃkhya-kaumudi*. Causation is of course a dominant issue, thoroughly aired, and the Sāṃkhya theory of *sat-kārya-vāda* defended, i.e., the effect as anticipated in the cause. Since Nyāya holds to *asat-kārya-vāda*, the effect as something new, not anticipated in the cause, we may think that at least here we have direct opposition that should force Vācaspati to change hats. However, Vācaspati leaves room for the Nyāya view which distinguishes three kinds of causal relationship. That insisted upon by the *asat-kārya-vādin* and Vācaspati in this text where he does follow the Sāṃkhya (and Vedāntic) tradition of arguing *ex nihilo nihil fit* ("from nothing comes nothing") is, in the Nyāya schema, the "inherent" cause. The Nyāya philosopher can accept the *ex nihilo nihil fit* principle, viewing it, in line with Vaiśeṣika, as a matter of the continuity between, for example, a piece of cloth and the threads that make it up. The intricate subject of *instrumental* causality is not broached by Vācaspati in his *Sāṃkhya-kaumudi*. That to my ears is a deafening silence from one who has made (or will make) advances elsewhere in the conception of *īśvara* as an instrumental cause of "earth and the like," as the inferential subject in his theistic argument is conceptualized in his *Tātparya-ṭīkā* Nyāya treatise.

There is not space here to air many more convergences, although looking one finds them practically everywhere. Another important conflict may be taken to concern illusion, which is given a very different explanation and overall treatment in Nyāya as opposed to Advaita Vedānta. Or so it is commonly thought. But the truth is that on this centralmost topic—which may well be that on which classical Indian philosophy as a whole best proves its excellence both by a richness of theory and by tight and detailed analyses, a host of considerations being brought in—Vācaspati, in a long discussion in his *Advaita* treatise, seems to favor the Nyāya theory of *anyathā-khyāti* (illusion as "awareness of something as other than it is"). This is true despite *Śaṅkara*'s stressing not the role of the external object but rather internal "superimposition" (*adhyāsa*). The official Advaita view is *anirvacanīya-khyāti* ("awareness of something indeterminable" as real or unreal). In an introduction to their edition and translation of the first four

sūtras of the *Bhāmatī*, Suryanarayana Sastri and Kunhan Raja say the following, making my point though they too seem to presuppose the schismatic interpretation:

> The *anyathā-khyāti* view, though attributed to the Logicians [Nyāya], has some popularity with Advaitins too in the explanation of *sopādhika-bhrama*, delusion caused by the presence of an external adjunct. For example, the crystal seen as red is so seen because the redness of the flower in proximity to it is erroneously referred to it. And the white shell is seen to be yellow, because in the jaundiced person bile goes forth with rays of light from the eyes, and the yellowness of the bile is erroneously referred to the object apprehended by those rays of light. This view is so much to the fore in Vācaspati's account of superimposition that he seems to be a supporter of *anyathā-khyāti*. Amalānanda [a classical commentator] has to rescue him from this charge by pointing to the explanation of the mirage, where at least we have not a crossed reference but a pure creation which is not determinable as either real or unreal.[4]

Moreover, in Vācaspati's explanation of the *Yoga-sūtra*'s definition of *viparyaya*, "wrong cognition," under sūtra 1.8, he again advances the theory of *anyathā-khyāti*, having just previously, in long comments under *Yoga-sūtra* 1.7, presented the gist of the whole of his version of Nyāya epistemology (which emphasizes a defeater-defeated relationship among cognitions or beliefs as epistemically central).

There is also a striking example of Vācaspati's incorporation of a *nāstika* position. From studying Buddhist Yogācāra (as well as Kumārila, who also studied Yogācāra), Vācaspati innovates an understanding of perception within Nyāya that is not that of his Nyāya predecessors. He introduces into the system the notion of the type of perception that is "concept-free," *nirvikalpaka*, the unverbalizable, as a first stage of the process that leads to knowledge.[5] According to his Nyāya inheritance, in contrast, all perception is *savikalpaka*, "concept-laden."

Let me present now a different line of evidence for my thesis, to wit, Vācaspati's citing other compositions of his.[6] This shows that he expected his audience to read across divisions of school. In other words, often Vācaspati takes us already to know what his position is on an issue, or he assumes we can find out by consulting the work he explicitly references. There are also references to non-Nyāya texts in his Nyāya work and *mutatis mutandi* for his treatises flying other banners. Obviously Vācaspati does not assume his students to have strict loyalty to one school. His final view seems a composite and very complex in its indebtedness.

Well, then, what is his final view? What does he really believe? This is not for us I think precisely the right question. Let me close by saying a few words about Vācaspati as precursor of Gaṅgeśa and Navya Nyāya.

By running through numerous theories and arguments about an issue, the nature of the "internal organ," *manas*, for example, one gets not just the right view but a wide appreciation of the subject. Concerning *manas*, considerations are so complex that one senses that Gaṅgeśa is not entirely convinced of the view he endorses. Much the same may be said for his treatment of *upalakṣaṇa*, "indirect attribution," as well as for "analogy," *upamāna*, as a separate and unique knowledge source. The exploration is as important as the result. Similarly, by bringing us to see strengths and weakness of several positions and points of view, Vācaspati enriches his reader's sense of where the truth lies. We are able not only to see from the other's perspective but to incorporate it, or part of it, into our own view. This, to my mind, is the real significance of the epithet, *sarva-tantra-sva-tantra*, "Who has made all the systems his own system," commonly awarded Vācaspati (a title shared notably with Prabhākara, the renegade pupil of Kumārila, who innovates positions within Mīmāṃsā).

I have focused on Vācaspati because with him it is easy to see that this is not merely a commentator and academic capable of changing hats but rather a great mind exploring universal issues. In another venue, I plan to make the case for Raghunātha and other Naiyāyikas. With Advaita, the story is much the same since outside of a commitment to the reality of Brahman (variously understood) there is enormous variety within the camp. That Mīmāṃsā and theistic Vedānta are similarly porous is my sense, but let me desist out of fear of making too sweeping a statement. School loyalty is a trump in many instances, I admit. But often we find a classical author thinking outside a particular scholastic inheritance. It is my view that Vācaspati and many other classical authors are less like the modern academic capable of changing hats than like the analytic philosopher who incorporates a broad inheritance while forging her own position. (Think of Rawls studying previous social-contract theorists, or Chisholm studying Descartes, Hume, and Russell, et cetera, et cetera.) Unfortunately, the centuries rich with classical Indian philosophy have not yet been very well mined.

ACKNOWLEDGEMENTS

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NOTES

1. S. Ranganath, *Contribution of Vācaspati Miśra to Indian Philosophy*, 189.
2. S. S. Suryanarayana Sastri and C. Kunhan Raja, ed. and trans., *The Bhāmatī: Catussūtrī*, 217-18.
3. Ibid., 121-22.
4. Ibid., xxv-xxvi.
5. Anantalal Thakur, ed., *Nyāyavārttikatātparyaṭīkā of Vācaspatimiśra*, 109–12.
6. In the *Bhāmatī*, Sastri and Kunhan Raja 46 (Sāṃkhya), 154 (Nyāya), 181-82 (Nyāya), and so on, and even in the presumably earlier *Tattva-vaiśāradī*, he makes reference to two works of his that are lost, one Nyāya and one Vedānta, James Woods, trans., *The Yoga System of Patanjali*, 70.

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Self: Agency and the Good in Classical Vaiśesika

Shalini Sinha
UNIVERSITY OF READING

INTRODUCTION

The subject of this essay is the idea of self (*ātman*) in the Vaiśeṣika tradition of classical Indian philosophy. Among the major classical Indian schools, Vaiśeṣika is distinguished by a categorial metaphysics that attempts to give an account of everything there *is* in the world in a schema that include substances (*dravya*), their properties (*guṇa*) and motions (*karman*). I dub this fine-grained taxonomy *differential* (*vaiśeṣika*)[1] *naturalism*, a categorial structure that by incorporating nonphysical selves and physical substances[2] places the phenomena of selfhood, inclusive here of reason, values, and law, at the heart of natural order. In what follows, I look at what Vaiśeṣika philosophers mean by a self, what the nature of a self is, and the place self has in the natural world.

The key features of the Vaiśeṣika self are presented in the core text of the classical school, the *Padārthadharmasaṃgraha* (A Compendium of the Characteristics of the Categories) of Praśastapāda (c. 530 CE) and its commentarial literature. For the purposes of this essay, I refer to two classical commentaries on this text, Śrīdhara's *Nyāyakandalī* (tenth century CE) and Udayana's *Kiraṇāvalī* (late tenth century/early eleventh century CE), and an early modern commentary, Jagadīśa's *Sūkti* (seventeenth century CE).

The notion of self in Vaiśeṣika has a particularly wide philosophical scope. Self is the bearer of the first-personal states of consciousness (*caitanya*) and agency (*kartṛtva*), *and* the ethical states of compositional law (*adṛṣṭa*)[3] in the natural world.[4] The synonymity here of natural compositional law (*adṛṣṭa*) and moral law (*dharma*) means that metaphysics is infused with an ethics that places the values and laws (*dharma*, *adṛṣṭa*) of *sacrificial* reason, or in McDowell's terms (McDowell 1996, 1998, 2004), the *space of reasons* and the *realm of law*, in self itself *in* nature—or so I argue.

I first look at the idea of self in classical Vaiśeṣika and the various levels of reflexivity[5] and ownership (*svatva*, *svāmitva*) this involves. I then locate three aspects of self and selfhood—agentive, constructivist, and elemental—and consider how these explicate self as the source of reason, values, and law in the natural world.

1. THE IDEA OF SELF

Self, in Vaiśeṣika, is a substance whose unitary character and metaphysical distinctiveness ground personal identity and ethical identity, at a time and over time, in the categorial order of things. It is the subject of consciousness (*jñāna*) (*PDS* 1984: §§76-7) and the agent (*kartṛ*) of actions (*PDS* 1984: §78), the bearer, or owner, of mental states (*PDS* 1984: §79-80) and the willful controller (*prayatnavān adhiṣṭhātṛ*) of bodily behavior and biological processes (*PDS* 1984: §78). Self appears here as the locus of personal identity where this is inextricably bound to its ethical identity as the good (*niḥśreyasa*) itself that is the bearer of compositional law (*adṛṣṭa*, *dharma*).[6]

Śrīdhara and Udayana elucidate the inner or introspective aspects of selfhood. Self, they claim, is that which distinguishes *me* from that which is *not-me*. It is that which has the intrinsic capacity to experience its self-identity, or being-own (*sva*), "from the inside" so to speak, that is expressed as *I*. And that exhibits underivative ownership or own-ness (*svatva*) of all that it informs—its mental states and its body (*NK* 1984: 84, 20-22; *ATV* 1995: 346-7). Only a self, a unitary, intrinsically reflexive substance, can confer ownership of its properties and powers and uniquely attribute them to *me*, their owner or bearer (*PDS* 1994: §79). A self-substance is required as the unifier of these essentially reflexive mental and ethical states (*PDS* 1994: §77-78); and it is this substance that is designated by the first-person pronoun *I* (*PDS* 1994: §79).[7]

Praśastapāda defines self as substance in the following way: "Its [i.e., self's] qualities are, cognition (*jñāna*), pleasure (*sukha*), pain (*duhkha*), desire (*icchā*), aversion (*dveṣa*), will (*prayatna*), [the states of] virtue (*dharma*), non-virtue (*adharma*),[8] cognitive imprints (*saṃskāra*),[9] number (*saṃkhyā*),[10] spatial dimension (*dik*), metaphysical distinction (*pṛthaktva*),[11] conjunction (*saṃyoga*) and disjunction (*vibhāga*)" (*PDS* 1984: §80). Three distinct aspects of self are presented here: (i) the agentive self which is the bearer of the first-personal structures of agency: the properties of cognition, pleasure and pain, desire and aversion, and will (*PDS* 1984: § 79-80);[12] (ii) the constructivist self which as the good itself is the bearer of natural compositional law that is synonymous with the goodness or virtue (*dharma*) of self's actions; (iii) the elemental self which exists as bare self-substance devoid of all mental and moral structures and is the true nature (*svarūpa sthitaḥ*) of self (*PDS* 1994: §319). I consider these aspects of self in turn.

2. THE AGENTIVE SELF

As conscious agents, Praśastapāda argues (*PDS* 1974: §78), human beings are deliberative beings who stand in an evaluative attitude to their *own* condition. This is explicated in the structure of human actions in the following way: judgements (*jñāna*) about whether an object is a source

of pleasure (*sukha*) or pain (*duḥkha*), favorable (*hita*) or unfavorable (*ahita*) *for oneself*, induces desire (*icchā*) or aversion (*dveṣa*) towards it. Desire and aversion, in turn, motivate willful impulses (*prayatna*) which are executed by *manas*, self's instrument of execution and attention (see Chakrabarti 1999), as mental and bodily striving (*pravṛtti*) and restraint (*nivṛtti*) to acquire or avoid that object, respectively (*PDS* 1974: §78).[13] These sorts of rational tendencies are evident, our philosophers argue, in (i) intentional acts such as striving to eat a mango whose taste is considered pleasurable (*PDS* 1974: §78), but extends to (ii) subintentional and instinctual acts such as breathing and blinking (*PDS* 1974: §78),[14] or sneezing in a dusty environment to avoid harm (*NK*(J) 1982: 646), (iii) subpersonal processes that maintain bodily equilibrium and prevent the body from falling down (*PDS*(J) 1982: 563-4, 646), and (iv) biological processes of growth, healing and repair of the human organism (*PDS* 1974: §78).[15]

The core claim here is that *all* human mental and bodily activity, that is to say, cognitions, intentional, subintentional, and instinctual bodily behavior, subpersonal and biological processes, exhibit rational and normative structures and regularities that are characteristic of agency (*kartṛtva*) (*PDS* 1994: §§ 76-80). These activities exhibit normativity, *qua* self-concern, in striving for what is good or beneficial (*hita*) *for* oneself, and shunning what is unfavorable or harmful (*ahita*) *to* oneself. The rational structure of such activities distinguishes them from physical causal regularities, such as the wind blowing, since the latter fail to demonstrate reflexive values of self-concern—striving for what is good *for* itself.[16] Rather, physical regularities and random or accidental physical events follow an impact-model of causation (*NK* 1984: 84, 2-3; *Sū* 1983: 364). For this reason, two domains of causation, rational and physical, are distinguishable. The first, defined by the reflexive and rational structures of implicit or explicit ownership and self-referentiality that are characteristic of the rational order of agency. The second, by the impersonal structures of impact causation that characterize physical causal order.

As the locus of conscious agency, the agentive self is a reflexive being that demonstrates the capacity to know the good, to determine *its* good, and strives to achieve this by its actions. We might say, in this case, that self is the source of those powers and properties that incorporate the force of *ought*:[17] reflexive and relational powers and properties that necessarily refer to the good for *someone*, by way of reasons and values that are self-referring and exhibit ownership (*svatva*, *svāmitva*). But the force of *ought* arises here from the possessive or appropriative ownership (*svāmitva*) of mental states, that is, from their association with the "I-object" (*ahaṃkāra*) as *I* (*aham*) and *mine* (*aham*)—the laying claim to oneself as an owner and an agent, that instigates intentional actions (*NK* (J) 1982: 597).[18] Further, the domain of *ought*, as of reflexivity and ownership, is not limited to conscious and deliberative agency but extends to an integrated spectrum of more primitive forms of agency and life[19] that are *owned* and self-referring, and so mark the presence of a self (*PDS* 1974: §78).[20]

3. THE CONSTRUCTIVIST SELF AND THE GOODNESS OF ACTION

It is the goodness (*dharma*) of action that is the source of the constructive and constructivist[21] activities of the self. Active goodness (*dharma*)[22] is explicated in self's actions and its life as the virtuous (*dharma*) or non-virtuous (*adharma*) relationship in which it stands, *qua* agent, to all other elements of the world. It concerns self's propensity to *own* and appropriate objects as *me* and *mine* by its I-forming (*ahamkāra*) or I-objectifying capacities—since acting is the positing of "I" as the *I-form* (*ahaṃkāra*) or *I-object* that lays claim to self as an owner (*svāmī*) of its mental states and an agent (*kartṛ*) of its actions.

The notions of the good and the goodness of an action refer here, at least implicitly, to a sacrificial conception of rationality. Sacrificial rationality (see Chakrabarti 1999: 260-61)[23] consists in *giving-up* the false cognition of self as the *I-object* (*ahaṃkāra*). For this is the source of non-virtuous (*adharma*) passions and interests that motivate actions which claim the world of objects as *me* or *mine*. Non-virtuous interests must be replaced by virtuous considerations, considerations that seek the good (*dharma*) and ultimately the highest good (*niḥśreyasa*), the true or elemental self, which is arrived at by reflective analysis and meditative attention (see *NK*(J) 1982: 596; *ATV* 1995: 378 ;).[24] It is by the degree to which an action accords with this fundamental sacrificial norm of giving-up of the *I-object* (*ahaṃkāra*) that its moral quality is judged (*NK*(J) 1982: 596-98, 608). Concordance, or not, with this sacrificial ethics determines the compositional characteristics of the psychophysical self and its world. These explicate a perceptual, affective, and physical order that appears to be based in the reciprocal norms that structure causation (*PDS* 1994: §31).[25]

The idea is that the goodness of a self's actions, historically,[26] determines the sorts of objects (*artha*) it *can* experience and enjoy (*bhoga*) as sources of pleasurable and painful experience. But this requires a body *fit* to provide the necessary causal basis (*ādhāra*) for experiencing the morally appropriate range of affective pleasures and pains (*PDS* 1994: §§31, 359). It also requires a world of objects that can *afford* this range of affective experiences. Objects, in this view, are inherently sources of value that elicit affective and volitional concern from selves, *qua* agents; and their modes of appropriation as *me* or *mine* in intentional actions has virtuous or non-virtuous consequences for the self (*NK*(J) 1982: 42). This means that both self's body and its world explicate the historical or genealogical goodness of its actions in its past lives (*PDS* 1994: § 31, §59, §80), and arise as ontological constructs that are equally moral constructs in virtue of their concordance with sacrificial norms.

Self appears here as that which composes and recomposes its embodiment, as body and world, by its own efforts. It does so as the source of agential values and norms and the ethical powers of intentional practices that *is* compositional law (*adṛṣṭa*).[27] It is the synonymity of the norms and regularities of law (*adṛṣṭa*) with the goodness (*dharma*, *adharma*) of actions that grants to self compositional powers that structure *nature as* an ethical order that is

irreducible to mere matter (*bhūta*). Because natural order incorporates the realm of agential values and reasons *and* the domain of sacrificial norms that underpin compositional law and order.[28]

4. EMBODIED AGENCY AND THE ELEMENTAL SELF

The agentive and constructivist self is an embodied self because only the bodied self is minded, a locus of consciousness (*caitanya*) and agency (*kartṛtva*).[29] Further, it is only the bodied self that is a locus of goodness (*dharma*) or compositional law (*adṛṣṭa*).[30] The liberated self which is disembodied is unminded; it is a de-composed self, an elementary substance that is devoid of mental and bodily properties and the phenomena of ownership and reflexivity. This elemental self exists as bare substance, a structural dimension, much like spatiality (*dik*) and temporality (*kāla*), devoid of self's distinguishing (*viśeṣa*) properties of consciousness, agency, and law. It appears as the metaphysical infrastructure of the agential and ethical self, a bare metaphysical individual (*viśeṣa*) that is the condition of possibility of mental causation *and* natural causal order, much as space and time are the condition of possibility of physical causation and order (*PDS* 1994: §319; *NK* 1984: 287, 15-16). This is the true form (*svarūpa*) of the self, its existence as a bare metaphysical singularity (*kevala*).

CONCLUSION

We see above that the assimilation of an ethics of action and composition into a metaphysics of self in classical Vaiśeṣika structures an ontology in which self is the source of agency and normativity, reason, and law, and the good itself, in nature. Such a self is *sui generis* a relational and reflexive substance, on which account, it *is* the good itself which can *have* a good, and *act* for its *own* good, as the condition of possibility of rational agency *and* natural order and causation.

NOTES

1. The term *differential* (*vaiśeṣika*) owes to the concept of a *differentiator* or *distinguisher* (*viśeṣa*) that individuates elementary substances—a concept that is unique to classical Vaiśeṣika—as well as Vaiśeṣika's fine-grained differentiation of the constituents of the world.
2. This is a non-Cartesian substance dualism (NCSD) somewhat in the tradition of NCSDs such as E. J. Lowe's emergent substance dualism. See E. J. Lowe, *Personal Agency* (Oxford: Oxford University Press, 2008).
3. *Adṛṣṭa* literally means *non-visible, unobserved*, or *unseen*. It refers to those natural forces or laws that are unobservable, non-visible, or simply unknown. See Anantlal Thakur, *Origin and Development of the Vaiśeṣika System. History of Science, Philosophy and Culture in Indian Civilization*, ii/4 (Delhi: Centre for Studies in Civilizations, 2003), 15. These forces and laws are regulative principles that deal with the laws of composition by which the elementary constituents of the world come to constitute a world of composite objects. *Adṛṣṭa* underpins physical causal regularities as their condition of possibility but remains distinct from these. It also includes those forces that govern physical causal relations that lie beyond a defined domain of physical causal regularities, such as magnetism, etc. Physical regularities refer to things such as the wind blowing horizontally, etc. (see, ibid.). I term this compositional and constructivist, as well as regulative, power "law" or "compositional law."
4. Note that for the purposes of this essay, *nature*, *natural order*, and *natural world* refer specifically to the domain of natural causal law (*adṛṣṭa*), *qua* moral law (*dharma*), which integrates all aspects of the universe, physical, mental, and moral, as their condition of possibility.
5. *Reflexive* is used here in the sense of something that is directed back on itself. Thus, *I*, for example, is a reflexive pronoun. Reflexivity does not refer to the reflexivity of consciousness, that is, the idea that consciousness is *immediately* aware of itself in each cognitive act, which Vaiśeṣika does not acknowledge. For Vaiśeṣika, self cannot be both aware of itself and of another object in the same cognitive act. Rather, self can be cognitively grasped only in a succeeding cognition which has the first cognition as its object. Note that cognition of the true self is considered the ultimate good here.
6. Note, it is the "true" self, or the elemental self, that is the highest good. The vitalistic conception of self espoused here owes much to Upaniṣadic claims of a self that is the *essence* of life *and* the world (*Bṛhadāraṇyaka Upaniṣad*, in *Upaniṣads*, edited and translated by Patrick Olivelle, §§2.4.12, 4.5.12-4 [Oxford and New York: Oxford University Press, 1996]; *Kaṭha Upaniṣad*, in *Upaniṣads*, edited and translated by Patrick Olivelle, §§5.10-1 [Oxford and New York: Oxford University Press, 1996]; as well as to the Upaniṣadic notion of an agentive self (ibid., §§ 1.1; 3.3-4).
7. The claim here is that a self must be the referent of the first-person pronoun *I*, given its unique usage, which distinguishes it from other words. The unique nature of *I* seems to refer to its reflexivity and to the demand that this requires a unique sort of referent, a self (*PDS* 1994: §79). But this may be debatable.
8. *Dharma* and *adharma* are the inherited moral dispositions and capacities of the individual self, derived from the moral quality of its previous intentional actions, which are often translated as merit and demerit, respectively. They are the source of self's pleasurable and painful experiences in its current embodiment but also underwrite mental and bodily life and natural order. See Praśastapāda, *Word Index to the Praśastapādabhaṣya*, eds. J. Bronkhorst and Y. Ramseier (Delhi: Motilal Banarsidass, 1994), §§31, 80.
9. These are imprints of cognitive experiences, affections, and actions, and include the learning of theoretical and practical skills acquired in a self's current embodiment. Cognitive imprints are retained and accessed as memories, dispositions, character traits, and theoretical and practical skills.
10. Number (*saṃkhyā*) is the property of there being one or more (selves).
11. *Pṛthaktva* refers to the quality of intrinsic metaphysical distinctiveness that is responsible for the numerical identity and individuality of a substance.
12. "They (pleasure, pain, desire, aversion) are always expressed [sententially] with [reference to] the 'I-object' (*ahaṃkāra*) (ibid., §79).
13. "Just as a charioteer is inferred by the motion of the chariot, so a willful controller (*prayatnavan adhiṣṭhātṛ*) [of the living body] is inferred by such activity (*pravṛtti*) as is fit for obtaining what is advantageous (*hita*) and such restraint (*nivṛtti*) as is fit for avoiding what is disadvantageous (*ahita*), both being located in the body (*vigraha*)" (ibid., §78).
14. "[The self is also inferred] from such processes as breathing in and breathing out. How so? From observing the changing (*vikṛta*) movement of the air contained in the body, [we infer a willful controller who is] like one who pumps the bellows. On account of the regular activity of opening and shutting the eyes, [we infer a controller who is] like a puppeteer [directing] a wooden puppet" (ibid., §78).
15. "From the growth of the body, the healing of its wounds and fractures, etc., [we infer a controller] like a house-owner [who extends and repairs his house]."
16. "[Self is inferred from these] two [types of movement, bodily striving and restraint, insofar as] they enable that [—the acquisition or avoidance of desired and undesired objects, respectively]. The movement of wind, etc., on the other hand, does not have the capacity of bringing about and averting what is favourable and unfavourable, respectively, for the wind, etc." Jagadīśa, *Sūkti*, in Gopinath Kaviraj and Panditraj Dhundhiraj Shastri, eds. *Praśastapādabhāṣyam of Mahaṣikalpa - Praśastadevācārya, with Commentaries (up to Dravya), Sūktī by Jagadīśa Tarkālaṅkāra, Setu by Padmanābha Miśra and Vyomavatī by Vyomaśivācārya*, (Varanasi: Chowkhambā Amarabhāratī Prakaśana, 1983), 364.

The thrust of Praśastapāda's argument (Praśastapāda. *op. cit.*, 76–80), and those of his commentators, is that reflexivity and ownership of this sort, whether self-conscious and deliberative, or primitive, requires a substance that is *sui generis* a self, that is to say, a substance that is *sui generis* self-referring. But this must be a non-physical substance because of the atomic and composite ontology of the physical (ibid., §77), and the fact that physical properties lack reflexive and relational features, i.e., they lack intentional contents or telic goals that refer back to their owner or bearer. See also Jagadīśa *op cit.*, 364.

17. See Christine Korsgaard, *Moral Animals, Lecture One: The Origin of the Good and Our Animal Nature*, people.fas.harvard.edu/~korsgaar/CMK.MA3.pdf.

18. "From these notions of *I* and *mine* follow an affection for the pleasant and aversion for the unpleasant; these affections and aversions give rise to activity and restraint of activity; thence follow *dharma* and *adharma* . . .' See Śrīdhara, *Padārthadharmasaṃgraha of Praśastapāda With the Nyāyakandalī of Śrīdhara*, ed., and trans., G. Jha (Varanasi: Chaukhambha Orientalia, Reprint, 1982), 597. As opposed to appropriative epistemic ownership of mental states, their non-appropriative ownership lies merely in their metaphysical basis in a substantive self, on which account, they are phenomenally and perspectivally uniquely my *own* (*sva*).

19. See also Christine Korsgaard, *op. cit.*

20. The conception of self as bearer of the reflexivity of consciousness and the reflexive structures of life and the good lie, I suggest, in early Indian philosophy. Self arises in the Upaniṣads as the living essence of human life and the natural world as the vital force or breath that re-enters itself, goes back into itself, following its emergence as, and in, a world of objects. See Brian Smith, *Reflections on Resemblance, Ritual, and Religion* (New York: Oxford University Press, 1989), 58.

21. Constructive refers to constructing or composing something in a telic manner. Constructivist or constructivism refers here to the construction or composition of one's own psychophysical self and world through the ethical powers associated with one's intentional actions.

22. The notion of the *good* or *active goodness* (*dharma*) is a development of the Vedic conception of *ṛta*. The Vedas propose an aesthetic, harmonic and ethical principle, *ṛta*, a principle of "active, creative truth" or "active realization of the truth" (Michael Witzel, "Vedas and Upaniṣads," Gavin Flood, ed., *The Blackwell Companion to Hinduism* [Oxford: Blackwell Publishing, 2003], 70), which is later termed *dharma*. This principle maintains a cohesive and differentiated order of objects and actions across the physical, moral, and divine realms, biological and social phenomena. Moreover, as we see below, just as sacrificial actions institute or *realize ṛta* in the Vedic sacrifice, so do intentional actions institute *dharma* in classical Vaiśeṣika in a more generalized manner.

23. The notion of rationality here is one of "sacrificing" or giving-up the false sense of self, *qua* the "I-object" (*ahaṃkāra*), in thought and action. This accords with Chakrabarti's thesis that sacrifice is the "human rational activity *par excellence*" in Indian philosophy. A human being has the capacity to rise above narrow self-interest and perform sacrifices both in the literal and ritualistic sense for the sake of "unseen" results in the future. Further, "[o]nly humans are capable of *dharma* considerations of piety and morality, right or wrong conduct" and reflective analysis (*vicāra*), and aware of what causes what (*karaṇājña*) while consciously seeking pleasure. Arindam Chakrabarti, "Rationality in Indian Philosophy," E. Deutsch and R. Bontekoe, eds., *A Companion to World Philosophies* (Oxford: Wiley-Blackwell, 1999), 260-61.

24. Śrīdhara explains that ethical practices, epistemic and behavioral, must lead to the attainment of "wisdom" of the form: "I am not, nothing is mine and [there is] no I" (*Sāmkhya Kārika* 64, quoted in Śrīdhara. *op cit.*, 596, revised trans.), and this is true self-knowledge. Or as Udayana explains, the ethical self is that which has overcome narrow passions, interests, and limitations: "[It] is not affected by . . . [the] passions; for one who has discarded all limitations has no attachment to progeny or riches because he is not benefited by these. . . . This false cognition [of self] is dissipated by right knowledge. As to this right knowledge, it arises gradually through listening to scriptural statements, then meditation on these and so on. The cause (of desires and aversions) being thus eliminated, the effect [that is, desire and aversion] is also eliminated." Udayana, *Ātmatattvaviveka of Udayanācārya with Translation, Explanation and Analytical-Critical Survey*, N. S. Dravid, ed. and trans. (Shimla: Indian Institute of Advanced Studies, 1995), 378, revised trans.

25. "The virtuous (*dharma*) and non-virtuous (*adharma*) actions of beings . . . act on atoms to form bodies as a means of experiencing pain and pleasure that is consistent with the quality of their past actions. Gods and sages thus obtain bodies that result from the action of meritorious deeds on atomic matter, whereas insect-bodies are appropriate to experiencing punishments that accord with the past deeds of these beings" (*PDS* 1994: §31). Note the parallel with early Brahmanical thought, which construes self as something that is *self-distributing* and returns to in-form itself as self (ātman). See Brian Smith, *Reflections on Resemblance, Ritual and Religion* (New York: Oxford University Press, 1989), 58.

26. Historical actions refer to self's actions in past lives whose moral quality, or moral genealogy, is recorded as accrued virtue (*dharma*) and non-virtue (*adharma*). Accrued virtue and non-virtue influence the range of possible experiences of pleasure and pain that a self can enjoy in this life and the sort of body it can have—a body that *affords* the possibility of such experiences.

27. The influence of early Brahmanical thought is evident here. *Ātman* refers in these early philosophies to "body, self, and socio-ontological identity." It is constructed and perfected in the Vedic sacrifice. Self is made (*saṃskurute*) fit, whole, and perfect, by the sacrificial activity *qua* self-perfection (ātma-saṃskṛti) as a "work of art" (śilpa). Sacrificial activity thus "expresses and regenerates the sacrificer's ātman," his psychophysical and socio-ontological being. Brian Smith, *Reflections on Resemblance*, 101.

    Human beings depend on ritual or sacrificial actions (*karman*) for creating an "ontologically viable self" and the world that self inhabits. So that both self and world emerge as "constructs" of sacrificial action: a human being takes birth, is embodied, in a world whose construction is *measured* by his sacrificial actions. Sacrifice is the "constitution" of being itself, human and cosmic, through a process of ritual construction (ibid., 101-2). As in Vedism, in classical Vaiśeṣika, human life is a process of "constructing and refining a self," an ātman, by sacrificial activity where sacrifice refers to giving-up of the *I-object* rather than ritual sacrifice, and refers to all actions rather than merely ritual action.

28. Nature, if we are to use the term, pertains not merely to the material since matter (*bhūta*) is considered dead or inactive in Vaiśeṣika in the absence of its activation, i.e., the activation of its properties and powers, by self's vital powers of *dharma* which institute compositional law (Praśastapāda. *op cit.*, §§57-58).

29. This is an important non-Cartesian aspect of Vaiśeṣika's substance metaphysics.

30. In the *PDS*, the post-mortem self that is the bearer of *adṛṣṭa* possesses a *subtle* body (ibid., §§358-59).

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Mind and Cognition: The Nyāya Perspective

K. S. Prasad
UNIVERSITY OF HYDERABAD

All of us engage in various cognitive episodes throughout our life. Whether it is reading a book, talking to a friend, watching a movie, or simply listening to music, we are attending to, making sense of, and sometimes remembering what we saw or heard. While all these cognitive episodes are routine, seemingly simple, and often effortless, the process involved in them is more sophisticated than is apparent. Analysis of cognition leads to the conclusion that it is specified by a certain type of connection between the cognizing person and the object cognized. If I assert that I cognize something about something else, this implies the following: firstly, that my cognition relates to some object; secondly, that this cognition belongs to me, that it is me who implements the process of cognition; and thirdly, I claim to express an actual state of things. A complete account of the cognitive system must explain how it takes information in and retains as well as how it transmits. Among classical Indian thinkers, reflection on cognition and its epistemic status was initiated by Gautama in his Nyāya-sutras. Indian philosophers in general and the Naiyāyikas in particular have addressed issues on cognition within the framework of their discussion on *pramāṇas* (methods of valid cognition). An effort is made in this paper to present the Nyāya theory of cognition. I begin with a note on translation of the term *buddhi*, which is an approximate equivalent of the term "cognition" followed by the nature of *buddhi* as understood in the Nyāya system. Next, I consider the cognitive apparatus, which includes various components involved in cognition, and, finally, the role of mind in cognitive process.

I

According to the Naiyāyikas, *buddhi* is taken to mean the same as *jñāna* (cognition), *upalabdhi* (apprehension), *bodha* (understanding), *pratyaya* (cognizance), and *adhyavasāya* (ascertainment). In other words, they treat these three words almost as synonyms.[1] Gautama has devoted fifty six sutras in *Nyāya-sūtras* on cognition (*buddhi*).[2] Two important issues were raised and discussed in this connection. They are as follows: 1) What is cognition as a fact of reality? 2) Is cognition enduring or ephemeral? Cognition, according to Nyāya, consists in the manifestation of objects (*arthaprakaśo buddhih*). Things are made manifest or revealed to us only when they become objects of cognition. According to Nyāya, cognition is a quality. Vātsyayana states, "of what then is the quality? It is the quality of the Cognitive Agent, as it is he who is the controller. As a matter of fact, the controller is the cognizer and that which is controlled is the instrument."[3] It cannot be quality of any material substance, for, unlike that, it does not admit of external perception. Physical qualities are perceived by the external senses, but cognition is not so perceived. Being thus fundamentally different from all physical qualities, cognition is to be regarded as the quality of the immaterial substance called self. To quote:

"By reason of Elimination—The quality of cognition being denied in reference to the Body, the Sense-organs and the Mind,[4] there being no other Substance left to which the said quality could belong, and the Soul[5] being the only likely Substance left—Cognition is regarded as being the quality of the Soul."[6] Further, cognition is not an essential quality of the self. The self has acquired this property in its bodily setting and, hence, cognition is ephemeral.

II

In a simple cognitive process like perception we have four entities and three connections. The four entities are self, object, sense-organ, and mind. The three connections are sense-object, sense-mind, and mind-self.

The presence of self is an indubitable fact in the process of cognition. Even those schools of Indian philosophy that are skeptical about the existence of self also recognize the importance of a cognizer in cognition though there are differences among them with regard to the essential nature of the cognizer. Self (*ātman*) is the first in Gautama's list of objects of cognition. According to Gautama, the marks of the self are desire, aversion, effort, pleasure, pain, and cognition.[7] It is on the basis of these marks that we can infer the existence of self. Uddyotakara, while commenting on this, explicitly states, "because Desire and the rest have the same object as Recognition, they prove that all cognitions appearing in the Recognition must have a common agent; it is a well-known fact that no 'recognition' of cognitions is possible, (a) when these cognitions have different agents, or (b) when their objects are not the same, or (c) when they are brought about by different instruments."[8] We find, for instance, a cognizer can remember and recognize what (s)he has perceived and not what remained unperceived for him/her or what others might have perceived. Desire to acquire a thing or aversion towards a thing originates only from the remembrance of previous cognitions. This is possible only when all the cognitive events are registered as attributes of the cognizer. Thus, self is the substratum of cognitions.

Proper cognition presupposes an inventory of objects of cognition that are discussed under the caption of *prameyas* in Nyāya philosophy.[9] These *prameyas* constitute the basic types of cognitive reality that exist independent of cognitions. We can as well bring them under two varieties. They are entities that are directly related to the senses, such as table, etc., and the other entities that are indirectly related to the sense-organs, such as color of the table, etc. We cannot withhold the acceptance of the evidential value of our experience that guarantees the reality of these objects of the world. A detailed Nyāya discussion on the cognition of different kinds of objects is beyond the scope of this paper. I rather confine myself to the point that the Naiyāyikas being committed to realism believe in the reality of the external world consisting of objects, and a proper understanding of these objects alone will show the way to the attainment of the highest good.

The next entity in the cognitive process is the sense-organ. According to Gautama, the sense-organs are third in the list of objects of cognition (*prameyas*). There are six sense-organs. Of these, five are external senses and one is internal sense.[10] Gautama establishes the reality of the five external sense-organs in two stages. To begin with, he rejects the view that there is only one external sense, the cutaneous sense-organ, and the other sense-organs are simply the special parts of it. He then proceeds to explain the reality of all the five external sense-organs. Vātsyāyana, while commenting on Nyāya-sūtra 3.1.54, explains that the existence of five sense-organs is inferred from five distinct varieties of sense experiences, namely, touch, color, smell, taste, and sound. These five distinct types of sense experiences require five distinct sense-organs for their cognition. For instance, color is cognized by the visual sense-organ (eye) but does not apprehend smell. Similarly, we infer the existence of the olfactory sense, which serves the purpose of apprehending smell. Likewise, the existence of other sense-organs also can be inferred.[11] Thus, from the five kinds of apprehensions, visual, auditory, olfactory, gustatory, and cutaneous, we can validly infer the existence of the five different sense-organs. Further, the multiplicity of the sense-organs is also inferred from the diversity of their locations. These sense-organs are responsible for receiving the sensations. Sensations are those which make the object intelligible to the cognizer through mind. It is imperative that the sense-organs should function and be in contact with the mind before sensations of objects can have some meaning to the cognizer. This takes us to the concept of mind in the cognitive process.

III

The concept of mind has a long history in Indian philosophical scenario. However, my task here is not to present an elaborate analysis of the development of this concept but rather to situate its role in the cognitive process. Mind is considered both as object of cognition and also a material means for cognition in Nyāya literature. It is sixth in the list of objects of cognition enumerated in the Nyāya-sūtras.[12] Gautama establishes the existence of mind on the basis of the non-simultaneity of cognitions by different sense-organs.[13]

It is a matter of common observation that even though several sensible objects are in contact with their respective sense-organs at one and the same time, there is no simultaneous cognition of these objects. From this we conclude that there is some instrumental cause other than the five sense-organs that is responsible for all our cognitions, and that instrumental cause is none other than the mind. If merely the sense-object contact were able to bring the cognitions, independently of mind-sense contact, then we should have simultaneous cognitions, which is not the case. Hence we have to admit the existence of mind as an instrument that connects the sensations with the cognizer. An example of our everyday behavior may serve to contradict this view. Imagine that we are watching a program on television. Apart from cognizing the visual images, we are also cognizing auditory sensations simultaneously. This apprehension of simultaneity among cognitions, according to Nyāya, is due to the fact that mind comes in contact with different senses in such a rapid succession; it looks like apprehension of a circle of fire-brand.[14] When a fire-brand moves rapidly in a circle, there is a succession among several cognitions of the fire; but because it moves with extreme rapidity, we perceive continuity in the circle of fire as if it is a single

continuous circle of fire. The fact of non-simultaneity of cognitions also suggests that there is only one mind in a body. To quote Vātsyāyana, "If there were several minds, it would be possible for several sense-organs to be in contact with several minds simultaneously; whereby there should be several cognitions appearing (through these contacts) at one and the same time—but this never happens—hence the conclusion is that, inasmuch as cognitions of things appear only one after another—and never simultaneously—there is a single mind (in one body)."[15] Another argument to demonstrate the existence of mind is based on internal perceptions of our cognitions. It is a fact that cognitions of pleasure, pain, aversion and the like are different from the objects of the external senses; still, they are objects of cognition and hence they need an instrument for the manifestations of such cognitions. Such an instrument is none other than the mind.[16] The fact that our feelings are also successive and not simultaneous supports the idea that there is only one mind in one body. Even our efforts that are based on our feelings appear only one after the other.

Having established the existence of mind, we need to look at the nature of mind. According to Nyāya, mind is a non-physical substance. It is a substance because it has qualities such as conjunction, and it is non-physical because it is not constituted by any of the physical elements of earth, water, etc. Further, it is atomic in magnitude. If the mind is something non-atomic in magnitude, then it is quite possible for the mind to come in contact with several sense-organs at one and the same time through its different parts, giving rise to simultaneous cognitions. The fact that our cognitions are always successive and not simultaneous establishes that the mind is atomic in magnitude.[17]

With regard to the location of the mind, Upaniṣads consider the heart as the seat of the mind,[18] whereas the Naiyāyikas are more general in stating that the mind lies within the body.[19] Here the term "lies" should not be taken literally in the sense of a container and contained. Uddyotakara while commenting on this explicitly states that "all that is meant by the mind lying within the body is that the mind never functions except through the body."[20] Of course, the functioning of the mind has meaning only when it is connected with the self. Thus, according to the Nyāya, mind is an instrumental cause of cognition through which all cognitions, both external and internal objects, get actualized. If we take self to be the cognizer of cognitions, then mind is the material means of communicating to the self the impressions as well as sensations brought through sense-object contact.

A simple cognitive process such as perception leading to a definite cognition involves, to begin with, the contact of the sense-organ with the object. Of the five external senses, the sense of sight and sense of touch can give us perception of substances, while the sense of smell, sense of sound, and sense of taste can give us perception of qualities. These sense-organs are capable of receiving sensations of their respective objects only when they are in contact with their respective objects. This contact between a sense-organ and its object is termed as *samyoga*. Among the different sensory inputs received, the mind comes into contact with only one sensory input at a time depending on the selective attention of the cognizer so that only one sensation reaches the cognizer at one time. The sensation so received from the mind is an apprehension of the object as something indefinite and uncharacterized. It is a simple apprehension of the existence and attributes of an object without any corresponding judgment of it. According to Nyāya this cognition is termed in as *nirvikalpaka*. It is a conscious state but not a self-conscious state. To be self-conscious is to cognize cognition explicitly as cognition of this or that object. In the case of a perceptual judgment, "this is an apple," the first step is the contact of the sense with the object, which immediately leads to a simple apprehension of the apple as something as indefinite. The apprehension of an indefinite object being associated with a certain class name in our past experience revives the word-image answering to that name. With this we remember the class-name of the perceived object and call it by that name. It is here that we have determinate perceptual cognition of the object expressed as "this is an apple." In Nyāya terminology this is known as *savikalpaka* cognition.[21] This does not add anything that is not contained in the object; rather, it brings a change in the perceptive consciousness of the object. There is a development from the feeling of something there to an articulated expression of the feeling of a definite cognition of an object.

Indian thinkers in general have recognized the importance of mind in this cognitive process since time immemorial. In *Brhadāraṇyaka Upaniṣad*, we have the following verse: "My mind was elsewhere; I did not see it. My mind was elsewhere, I did not hear it. It is through the mind that one sees and hears."[22] Commenting on this, Śankaracārya says,

> There is a mind apart from the external organs such as the ear. For it is well-known fact that even when there is a connection between the external organ, the object and the self, a man does not perceive that object, which may be just in front, and when asked, 'Have you seen this form?' he says, 'My mind was elsewhere—I was absent minded, I did not see it.' Similarly when asked, 'have you heard what I have said' he says, 'I was absent-minded, I did not hear it.' Therefore it is understood that something else, viz. the internal organ called mind, which joins itself to the objects of all the organs, exists, in the absence of which the eye and other organs fail to perceive their respective objects.[23]

This clearly indicates the importance of mind in the cognitive process. There can be no cognition unless the mind responds to the influences of the surrounding world. At any moment of inattention or absent-mindedness we do not perceive sounds or things other than those in which we are engrossed, although the sounds or things may be acting on our sense. Thus, in a cognitive process such as perception, mind must be in contact with the object through the medium of the sense-organs on the one hand, and with the self on the other, and in this sense mind seems to be a liaison between the objects and sense organs on one hand and with the self on the other. However, cognitions such as pleasure and the like are directly apprehended by the self

through the instrumentality of mind. In either case, the role of the mind is indispensable.

NOTES

1. *Buddhi upalabdhijñānamityanararthantaram*, *Nyāya-sūtra*. 1.1.15, trans. M. M. Satish Chandra Vidyabhusana (Delhi: Motilal Banarsidas, 1981), 7. *Nyāya-bhāsya*, 3.2.3, trans. Ganganath Jha, *The Nyāya-sūtras of Gautama with the Bhāṣya of Vātsyāyana and the Vārṭika of Uddyotakara*, Vol. III (Delhi: Motilal Banarsidas, 1984), 1269.
2. *Nyāya-sūtra*. 1.1.15 & 3.2.1-55, trans. Vidyabhusana, 7. & 105–27.
3. *Nyāya-bhāṣya*. 3.2.19, trans. Jha, 1332.
4. "Mind" is a translation for the Sanskrit term *manas*, which is regarded as inner sense in classical Indian tradition.
5. "Soul" is a synonym for "self."
6. *Nyāya-vārṭika*. 3.2.39. Ibid., 1370.
7. *Ichcha dveṣa prayatna sukha duhkha jñānani ātmanolingam iti*. *Nyāya-sūtra*. 1.1.10, trans. Vidyabhusana, 6.
8. *Nyāya-vārṭika*. 1.1.10, trans. Jha, 220.
9. *Ātmaśarīrendriyārthabuddhimanah pravṛttidoṣapretyabhāvaphala duhkhapavargāstu prameyam*. *Nyāya-sūtra*. 1.1.9, trans. Vidyabhusana, 5.
10. It is interesting to note that in *Nyāya-sūtras* 3.1.54-55, we find only five sense-organs listed on the basis of their corresponding objects. Mind, which is considered an organ of internal perception in *sūtra* 3.1.16, is not mentioned along with these sense-organs. However, Gangesopadhyaya, in his *Tattvacintamani*, enumerates six senses: the five external and the one internal. S. C. Vidyabhusana, *History of Indian Logic* (Delhi: Motilal Banarsidas, 1978), 411.
11. *Nyāya-bhāṣya*. 3.1.54, trans. Jha, 1232.
12. *Nyāya-sūtra*. 1.1.9, trans. Vidyabhusana, 5.
13. *Jñānāyaugapadyat ekam manah*. *Nyāya-sūtras*. 3.2.56. Ibid., 127.
14. *Alātchakradarśanavat tadupalabdhirāśusañcārat*. *Nyāya-sūtras*. 3.2.58. Ibid., 128.
15. *Nyāya-bhāṣya*. 3.2.56, trans. Jha, 1396.
16. *manograham sukham duhkhamiccha dveṣo matih kṛtih*, Viswanatha Nyaypancanana, *Bhāsaparicceda* 57, & *Sākṣātkare sukhādīnam karaṇam manocchate*, Ibid., 85. Trans. Swami Madhavananda (Calcutta: Advaita Ashrama, 1977), 85 & 175. *Sukhādyupalabdhisādhanamindriyam manah tacca pratyātmāniyatatvātanantam paramāṇurūpam nityam ca*. Annambhatta, *Tarkasamgraha*, Section II. 9, trans. Swami Virupakshananada (Madras: Sri Ramakrishna Math, 1994), 52.
17. *Nyāya-bhāṣya*. 3.2.59, trans. Jha, 1399.
18. *Aitareya Upaniṣad*. III.i.2, trans. Swami Gambhirananda, *Eight Upaniṣads*, Vol. II (Calcutta: Advaita Ashrama, 1992), 63.
19. *Nantah śarīravṛttitvānmanasah*, *Nyāya-sūtras*. 3.2.26, trans. Vidyabhusana, 114.
20. *Nyāya-vārṭika*. 3.2.26, trans. Jha, 1344.
21. We do not find explicit reference to the distinction of *nirvikalpaka* and *savikalpa* states of perception in *Nyāya-sūtras*, *Nyāya-bhāsya*, and *Nyāya-vārṭika*. Vācaspatimiśra, in his *Nyāya-vārṭika tātparyatīka*, interprets the words *avyapadaśya* and *vyavasāyatmakam* present in the *Nyāya-sūtra* definition of perception to mean *nirvikalpaka* and *savikalpaka*, respectively. Later Naiyāyikas, following Vācaspati, distinguished between *nirvikalpaka* and *savikalpaka* as two stages of the same perceptual process. *Indriyārthsannikarṣajanyamjñānam pratyakṣam. Taddvividham nirvikalpam savikalpam cheti. Tatra niṣprakārakam jñānam nirvikalpakam yathedamkincit saprakārakam jñānam savikalpakam yathā ditthoyam brāhmaṇoyam syāmoyam pācakoyamiti*. Annambhatta, *Tarkasamgraha*. Section IV, 32, transl. Swami Virupakshananada (Madras: Sri Ramakrishna Math, 1994), 79.
22. *Bṛhadāraṇyaka Upaniṣad* (with the commentary of Sankaracarya), I.v.3, trans. Swami Madhavananda (Calcutta: Advaita Ashrama, 1988), 147.
23. Ibid., 148.

Lost in Translation? The Upaniṣadic Story about "Da" and Interpretational Issues in Analytic Philosophy

Prasanta S. Bandyopadhyay
MONTANA STATE UNIVERSITY

R. Venkata Raghavan
UNIVERSITY OF HYDERABAD

Don Wallace Freeman Dcruz
UNIVERSITY OF HYDERABAD

OVERVIEW

In the *Bṛhadāraṇyaka Upaniṣad*, one of the principal *Upaniṣads*, we find a venerable and famous story where the god *Prajāpati* separately instructs three groups of people (gods, humans, and demons) simply by uttering the syllable "Da." What is remarkable about this passage is the way this single syllable is interpreted in different ways, *dattā*, *dāmyatā* and *dayadhvam*, by the three groups, with each interpretation considered correct by the speaker, *Prajāpati*. This story, which was largely known only to Indian readers of the *Upaniṣads*, became a feature of the European imagination of India in 1922 when it was referenced in the section "What the Thunder said" in T. S. Eliot's *The Waste Land*.[1]

In this paper, our concern is not with ethics but theories of meaning and interpretation: How can all divergent interpretations of a single expression be correct, and, indeed, endorsed by the speaker? As an exercise in cross-cultural philosophical reflection, we will consider some of the leading modern theories of meaning—those of Grice, Quine, and Davidson—in order to see if the *Upaniṣadic* story receives a natural home in any of them. The structure of our paper will be as follows. We will first narrate the story from the *Bṛhadāraṇyaka Upaniṣad* (section 1). We will then discuss Paul Grice's (1957) account of meaning, followed by Quine's (1960), which challenges the former account. In this connection, we will also address Donald Davidson's work, which, in turn, contrary to Quine, pleads for the possibility of "radical interpretation" (Davidson, 1984) (section 2). Then, we will compare the views of Grice, Quine, and Davidson with the *Upaniṣadic* story to see whether the story can be analyzed in terms of any of their accounts (section 3). Finally, we conclude that the story is best understood through Grice's theory of meaning rather than Quine's or Davidson's.

1. THE UPANISHADIC STORY

Prajāpati is one of the creator figures in the Vedic literature. The story in *Bṛhadāraṇyaka Upaniṣad* is about *Prajāpati* and his three children—gods, human beings, and demons.[2] After completing their study under him as vedic students, it was time to say a respectful goodbye to their father.

Each posed a question to *Prajāpati*. Gods asked him, "The Venerable Lord, please instruct us." *Prajāpati* replied by uttering the syllable, "Da," and asked, "Have you understood me?" "Da" is not a word in any language, including Sanskrit (in which the story was written). Gods replied, "Yes Sir, we did. You told us to practice restraint (*dāmyatā*)." *Prajāpati* replied, "Yes, you have understood me perfectly well." The gods are said to be naturally self-indulgent and so *Prajāpati* instructs them to practice restraint.[3] Then it was the turn of the humans. They asked, "The Venerable Lord, please instruct us." *Prajāpati* replied by uttering the same syllable, "Da," and asked, "Have you understood me?" Humans replied, "Yes, Sir, we have understood you. You asked us to practice charity (*dattā*)." *Prajāpati* replied, "Yes, you have understood me perfectly well." Men are naturally avaricious and so they are instructed to distribute their wealth to the best of their ability.[4] Demons repeated the same question to their spiritual father. *Prajāpati* replied to them by uttering the same syllable, "Da," and asked, "Have you understood me?" Demons replied, "Yes, Sir, we have understood you. You asked us to practice compassion (*dayadhvam*)." *Prajāpati* replied, "Yes, you have understood me perfectly well." Since the demons are by nature cruel and prone to inflict injury on others, they are instructed to be compassionate and kind to all.[5] What we notice in this story is a general theme of how word-play and fanciful etymology is a larger part of *Upaniṣadic* literature.

2. MEANING, TRANSLATION, AND RADICAL INTERPRETATION IN ANALYTIC TRADITION

The role of meaning in its different shades, along with other issues, dominated ordinary language philosophy, an influential movement in the middle of twentieth century. To develop his version of ordinary language philosophy, Grice begins by distinguishing what he calls "natural meanings" (as in "those spots mean measles") from what he calls "non-natural meaning" (as "Those three rings on the bell mean that the bus is full"). Since we are concerned with "non-natural meaning," we will begin with his definition of non-natural meaning: "A meant something by x" is roughly the same as "A uttered x with the intention of inducing a belief by means of the recognition of this intention."[6] Here, "A" is a variable ranging over speakers and "x" is a variable ranging over utterances. For him, non-natural meanings expressed through sentences do not involve a contradiction when those sentences are denied (for example, "Those three rings on the bell mean that the bus is full, but the bus isn't full" is not self-contradictory), whereas natural meanings expressed through sentences do (for example, "Those spots mean measles, but he hasn't and got measles" is self-contradictory). He contends that "speaker's meaning" (what a speaker intends to communicate) is more fundamental than sentence meaning. Sentences mean what they do because of what speakers intend to communicate with the help of them rather than what speakers mean in some non-intentional account of sentence meaning.

One could, however, raise an objection that all interpretations or utterances in this category are just subjective and any interpretation is as good as any other. But, it would be much more radical for someone to deny fixed meanings of words in ordinary natural language when used in a perfectly ordinary and literal way. However, this is what Quine is trying to do. Quine sets out his argument by first assuming the possibility of a "radical translation" situation in which neither speaker knows a word of the other's language. As idealized field linguists, we are interested in understanding what native speakers' utterances mean. Suppose the native speakers utter, "gavagai." We observe the speakers, hear what they utter and observe conditions under which they utter a word or sentence, watch what they are looking at or pointing out when they utter and the features of their surroundings when they make such utterances. Armed with such information, let's assume we make a hypothesis that "gavagai" means "rabbit". This hypothesis, according to Quine, is an analytic hypothesis because "gavagai," according to that hypothesis, is, by definition, equivalent to "rabbit." We do not know whether the hypothesis is correct given the evidence we have.

Nonetheless, it does not deter us from further investigation. Like empirical scientists, we could explore whether the hypothesis about the native's language is true and, consequently, ask the speakers themselves about it by recording their assent and dissent to and from it. Hoping to receive a confirmation from the speakers about the correctness of our hypothesis, we ask them, "Does 'gavagai' mean 'rabbit'?" This will take us further away from any empirical evidence with which we have embarked on our journey on translation in the first-place. In the same way, another group of translators having the same evidence as we have might be tempted to translate "gavagai" as "undetached rabbit part" and would wish to adopt the same empirical procedure as ours to investigate whether their hypothesis about them is correct. Based on this thought experiment, Quine concludes that radical translation is not possible, as meaning is indeterminate. It is not possible to know whether the translation of "gavagai" as "rabbit" or "undetached rabbit part" is the correct analytic hypothesis.[7]

Quine thinks that the "translation manual" which each translator puts together on the basis of (verbal) behavior in a particular (sensory) environment is under-determined by the totality of the behavioral/environmental evidence we are able to gather, i.e., each of us might be wrong about what the other "means" when he/she utters particular sounds. This is a corollary of, but is also intended to provide additional support for, Quine's more sweeping thesis that all hypotheses/theories are under-determined by the evidence for them.

Davidson, picking up on an argument of Quine's, argued that the possibility of "different translation manuals" isn't coherent; it presupposes the possibility that we could discover that the person whose language we are translating has a very different set of beliefs about the world (including beliefs concerning what there is) when in fact the only way in which we can make sense of what the other person is saying is to attribute to him/her many of our own beliefs. To say that another person has a different set of beliefs, hence, on every occasion, "means" something different from what we think he/she means, is (a) incapable of being confirmed by empirical evidence and (b) tantamount to admitting that we cannot make sense of his/her behavior. So we can "radically translate," i.e., understand another in

a situation of "radical translation," but only if we assume a "principle of charity," i.e., attribute to the other person many of our own basic beliefs about the world and how they operate.

The most important of these beliefs so far as "radical translation" is concerned involves "rationality." To make sense of the other person's behavior, we must begin to construe that person's behavior as rational (in our meaning of the concept). This comes to saying that if they desire X and believe that doing Y will bring about X, then, other things being equal, they will do Y. For Davidson, speech is (for the most part, and in contrast to Quine) thoroughly intentional. Unless we can construe the other's (verbal) behavior as intentional, i.e., "rational" (which just means that beliefs and desires fit together in the right way), we can't begin to understand (interpret) it.

In traditional vocabulary, rationality is an *a priori* (and hence normative) concept; it is presupposed by all successful communication. Davidson begins with what he takes to be an unquestionable fact—that we do (but not always) understand each other (in the base case, we understand ourselves when we speak, although, again, not always). He then asks what are the (*a priori*) conditions of successful communication? The general answer is "application of the Principle of Charity," viz., attribution of many of our beliefs to the other person. The preliminary answer is "attribution of *our* concept of rationality to the other."

3. A COMPARATIVE STUDY OF TRANSLATIONAL ISSUES IN TWO TRADITIONS

The conventions of a natural language establish relatively fixed meanings for words—the meanings one can find in a dictionary. But the interpretation of *Prajāpati*'s "da" is not governed by such conventions. The problem of interpreting *Prajāpati*'s "da" is that of interpreting a clue or hint as it is not actually an existing word in any existing language with a fixed, regular use. "Da" has meaning on each of the occasions on which it is used, but in response to different requests it is readily interpreted differently assuming a background of the discussion in the Vedic studies that have taken place. Metaphor provides another example of such meanings. For starters, Grice provides a better tool in analyzing the situation. Grice's account of non-natural meaning, in which the speaker's intention is given more importance than the sentence meaning, plays a pivotal role in understanding what *Prajāpati* says in each context to representatives of the three groups. One could even adopt Grice's criterion to identify whether an expression conveys a non-natural meaning in the case of *Prajāpati*'s utterance of "da." In one context, "da" means "practice restraint." However, denying that it is the case ("da" means "practice restraint," but they are not practicing restrain) does not entail flat-out contradiction. So, Grice's theory of non-natural meaning is readily adaptable to this case in which the speaker's intention is the glue that connects each set of hearers to the speaker, *Prajāpati*.

Consider Quine's account. One plausible way to understand translations in the *Upaniṣadic* context and the indeterminacy thesis is to compare the gavagai example with the *Upaniṣadic* story. "Gavagai" means "rabbit" for a group of translators. It also means "undetached rabbit-part" for another group of translators, and there are infinite ways "gavagai" could be translated with infinitely many analytic hypotheses, at least according to Quine. In a similar vein, one could argue that "da" could be interpreted in infinitely many ways. Each group, with their distinctive background knowledge about themselves and *Prajāpati*, helps propose, in a Quinean sense, the analytic hypothesis about *Prajāpati*'s intention. Like the gavagai example, it seems that there is no fact of the matter regarding the correct translation of "da" in the *Upaniṣadic* context.

However, there are seemingly far more differences between the *Upaniṣadic* story and Quine's indeterminacy of translation than their alleged similarity. For Quine's radical translation, the translator assumes nothing about the speaker's language and utterances except her assent and dissent. In contrast, in the *Upaniṣadic* example, *Prajāpati*, gods, humans, and demons belong to the same linguistic community. In the case of Quine, the translator posits her analytic hypothesis about the meaning of the speaker's utterances and intends to examine whether her hypothesis is correct by asking the speaker whether her translation is correct. As we already know by now, this investigation further exacerbates complexities for radical translation. Our way of contrasting the Quine's account with the *Upaniṣadic* story, however, tells a different tale. When gods, human beings, or demons ask *Prajāpati* whether "da" means "x," depending on who the speakers are, *Prajāpati* replies, "Yes, you have understood what 'da' meant." However, the complication that *Prajāpati*'s seemingly unequivocal responses generate is that we don't know whether he really meant anything or nothing, or all of them together, for the meaning of "da."

In Davidson's radical translation, like Quine's, speakers and hearers do not speak the same language, and the hearers are interested in translating what the speakers say in a specific situation under specific conditions. There is no such Davidsonian radical translation occurring in the *Upaniṣadic* story as there is no problem of understanding each other's language via the principle of charity. All four in the story speak the same language. This, however, might not close the door of seeking a connection between the story and Davidson's account. One might contend that even within particular linguistic communities, we must employ the principle of charity. On this basis, if we continue to apply Davidson's framework onto the *Upaniṣadic* world, then we need to consider whether the conditions under which the speakers utter "da" are the same conditions under which, for example, the hearer replies "*dayadhvam*," and whether the converse is also the case. Here, for the sake of discussion, we assume that "da" is a one-word sentence and so is its "semantic correlate" "*dayadhvam*." In one sense, truth-conditions for both sentences are the same. The same is also true for the rest for the translations of "da" into two other one-worded sentences. Although all four—*Prajāpati*, gods, human beings, and demons—belong to the same linguistic community, the principle

of charity need not be trivially true since even within the same linguistic community we do misunderstand each other from time to time. But the possibility of identifying such misunderstanding rests on our assumption that we understand each other the majority of the time. It is indeed correct that, in the story, each translation is different from the other. For example, "da" is interpreted as "practice restraint" and also as "practice generosity." But we can disambiguate the response (which is the crux of Davidson's concern) in each case by noting that it is directed to gods, humans, and demons, whose respective modes of behavior require different correctives. One needs to remind oneself that the issue is not whether the three groups along with *Prajāpati* belong to the same linguistic community. This is why the *Upaniṣadic* story does not fit in the Davidsonian framework. The single most important issue to remember is that unlike "gavagai," "da" is not even a word in any language.

So far, we have investigated whether western theories of meaning can shed light on these iconic *Upaniṣadic* passages. Our findings are five-fold: First, like Grice's account of non-linguistic meaning, *Prajāpati's* story about "da" exploits the idea of the speaker's meaning where the intention of the speaker plays the most significant role. Hence, Grice's theory is readily adaptable to the *Upaniṣadic* story. Second, unlike the *Upaniṣadic* story, the conventions of natural language presuppose relatively fixed meanings with which both Quine and Davidson are operating, although Quine contests whether we could ever read the speaker's intention correctly. Third, unlike Quine, the *Upaniṣadic* story presupposes speakers and hearers as belonging to the same linguistic community. However, the problem of a comparison between Quine and the story lies in the fact that "da" is not a word in any language. Fourth, contrary to Quine, in the case of this story, there is a way to check whether the hearers have in fact understood *Prajāpati*. A pertinent question could be, "How does *Prajāpati* know that his students have understood him"? The only way to know this is to see whether they answer what he wants them to say. This is not necessarily the *only* way to know whether his students answer the question correctly because it might require some reflection on our part to realize that the students have in fact provided a correct response to the question. For example, if we say, "Name one famous author who was born in Missouri," some might reply, "Maya Angelou." We might realize that this is a correct response only after some reflection because we might have mistakenly thought that Mark Twain was the only correct answer. For Davidson, "understanding the other" is always problematic, even when "the other" is the speaker herself. We have to interpret even our own utterances to make sense of them. In this respect, it is possible to map the *Upaniṣadic* story to the context of radical interpretation. Fifth, based on this consideration, if we are motivated to endorse Davidsonian radical interpretation to be at work in the *Upaniṣadic* story, because the truth-conditions for the one-word sentence "Da" are the same as the two-worded sentence "practice charity," then we would be forced to endorse radical interpretation relativized to a specific linguistic community, where "da" is disambiguated in different ways by their characteristic modes of behavior.

So, if we think that Davidson's account might be of help in unlocking the issues regarding the possibility of radical translation in the *Upaniṣadic* story, then we would be tempted to overlook the other significant difference between the two. Davidson assumes a convention in natural language where words have relatively fixed meanings—meanings one could find in a dictionary. However, in the *Upaniṣadic* story, "da" is not a word in any existing language because of which we have to abandon the assumption that words in natural languages have fixed meanings. In this respect, as we have already argued, Grice's theory of non-natural meaning is a better tool to understand the *Upaniṣadic* story.

CONCLUSION

Our cross-cultural exploration into the philosophical works of Western and Eastern traditions by analyzing whether well-known Western theories of meaning could shed light on the *Upaniṣadic* story have revealed that they help understand each other. Our findings are not always straightforward as the story and theories used to interpret the story involve different shades of complexity. We discussed the *Upaniṣadic* story about "da," and how that word has been translated differently by the three sets of children of *Prajāpati*. We also discussed Grice, Quine, and Davidson's take on translation by drawing an analogy between the gavagai example and the story in question. We pointed out that there are prospects and problems for this sort of comparative study. Grice's theory of non-natural meaning was seen to be the most useful account when trying to situate the *Upaniṣadic* story in the tradition of analytic philosophy. We argued further that if we care to find a resemblance between the gavagai example and the *Upaniṣadic* story, then we need to be circumspect about the convention that word meanings of a language are relatively fixed. This convention is either assumed or contested depending on whether we deal with Davidson or Quine, respectively. If we grant that the *Upaniṣadic* story reads more like a parable, Quine would be unsure whether we have got the meaning of the parable right. It is possible, for all we know, that we have mistaken it. Davidson, however, begins with the assumption that we have it right and then looks for the conditions that must obtain for this to be possible. Davidson concedes that this assumption is often (but not too often) mistaken, but then our identifying a mistake depends on successfully translating the rest of the parable (e.g., we have to assume that "gods," "humans," and "demons" mean the same thing as the *Upaniṣadic* story that they do for us who hear/read them). If they don't, the word "da" could not be disambiguated in the way that we do, and the whole point of the parable would consequently be lost.

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NOTES

1. See Eliot and North, *The Waste Land: Authoritative Text, Context, Criticism*, for the critical edition of *The Waste Land*.

2. Some translations of the Upanisadic passages are due to us.
3. Radhakrishnan, *The Principal Upanishads*, 289–91.
4. Ibid.
5. Ibid.
6. H. P. Grice, "Meaning," 384.
7. Hacking, *Why Does Language Matter to Philosophy?*, 146.

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Philosophy and Anticolonialism

J. Barton Scott

MONTANA STATE UNIVERSITY AND UNIVERSITY OF TORONTO

The theme of "Indian Philosophy and Culture" begs an important question: What is the relationship between "philosophy" and "culture," anyway? One stock answer would deny connection: culture is located in historical and geographical particulars; philosophy is what pushes past those particulars toward timeless, universal truths.

Whether or not anybody would actually endorse an unqualified version of that claim, I don't know. But there is a way in which the very phrase "Indian Philosophy" rhetorically presumes it: by identifying its referent as specifically "Indian," it argues for Indian philosophy's inclusion in the philosophical canon, while also simultaneously marking it as different from philosophy per se. Indian philosophy, it suggests, is shaped by Indian culture to an extent that U.S. or British philosophy is not. The rhetorical move at play here will be very familiar to readers of postcolonial theory: by preserving a marker of national difference, the category "Indian philosophy" enacts an argument for India's parity with metropolitan structures of academic production while also and at the same time reinforcing the barriers separating India from full inclusion in those structures. To make itself visible, Indian philosophy has to flag its Indian-ness, thus allowing it only qualified inclusion in the ostensibly universal realm of pure thought.

I am not competent to comment on how such markers of national difference function in academic philosophy departments. Instead, as a scholar with interests in postcolonial theory, cultural studies, and the history of religion in modern India, I want to dwell on an adjacent question. In what ways has the category "philosophy" played a role in marking Indian cultural specificity since the late nineteenth century? In this short essay, I consider this question in general terms by outlining the history of Orientalist and anticolonial uses of Indian philosophy during the long nineteenth century. As cultural critic Ashis Nandy pointed out many years ago, M. K. Gandhi's public image was a carefully cultivated appropriation of colonial stereotypes about the "mystic" Indian. In laying claim to the ideologically laden trope of the "spiritual East," Gandhi also inverted and challenged this trope.[1] My aim here is to elaborate on this now-classic argument by considering related nineteenth- and twentieth-century figures. I am particularly interested in how the apparent "religiosity" of Indian thought served to trouble its status as "philosophy."

ANTICOLONIAL METAPHYSICS

By the turn of the twentieth century, philosophy had (however surprisingly) become a principal idiom of nationalist politics. Indian revolutionaries tried to revive key ideas from the six classical systems of thought schematized by Sanskritic tradition. They also read widely in contemporary Western philosophy, reinterpreting these texts for their own ends. Whether in Lala Har Dayal's adaptation of Spencer, Brajendranath Seal's invocations of Hegel, or Muhammad Iqbal's turns Bergson, what literary critic Leela Gandhi has dubbed "anticolonial metaphysics" was the order of the day.[2]

To understand why this was the case, we need to step back in time to an earlier moment in the history of British colonialism in the subcontinent. In the early nineteenth century, there were two competing schools of thought about how the British should rule its colony. On the one hand were Orientalists like William Jones, who celebrated classical Indian languages and cultures and advocated for their importance to world history. On the other were the Anglicizers, who (in the now-infamous words of Thomas Macaulay) thought that "a single shelf of a good European library was worth the whole native literature of India and Arabia."[3]

If English education is what ultimately allowed Indian elites ready access to Western philosophy, it was Orientalism that made philosophy pertinent to empire. Orientalist art had long abstracted "the East" from history to render it the seemingly timeless object of Western contemplation. This was especially true of the trope of "mystic India." The subcontinent, it was said, was philosophical to a fault, its denizens lost in a mist of airily metaphysical speculation about the fundamental unreality of the phenomenal world.[4] It was perhaps fitting, then, that this Orientalist stereotype should endear India to the Germans—it being, in Marx's formulation, precisely Germany's historical backwardness that made it philosophically great ("We are the philosophical contemporaries of the present day without being its historical contemporaries," he wrote).[5] German Romantics were early and avid advocates for Sanskrit literature. Goethe praised Kalidasa's *Shakuntala and the Ring of Recollection* in the highest terms, and at least one tortured young poetess decided to end her life in a way that she understood to be modeled on the figure of the "suttee."[6] The Germans' enthusiasm eventually spread to other

corners of the globe, along with early English translations of Sanskrit classics like the *Bhagavad Gita*. It was Charles Wilkins' 1785 *Bhagavat Geeta or the Dialogues of Kreeshna and Arjoon* that would end up in the hands of Ralph Waldo Emerson and become the subject of a painting by William Blake.[7] Writing in his journal, Emerson called Wilkins' *Geeta* "the first of books; it was as if an empire spake to us."[8] In a literal sense, of course, this was a true statement: Emerson's transcendentalist enthusiasm for Indian philosophy was enabled by the cultural crosscurrents of British imperialism.

Although seemingly celebratory, Romanticist enthusiasm for India had a double edge. For many imperial ideologues, India's mystical prowess disbarred the subcontinent from full membership in the modern world. Until India learned to excel at properly "material" endeavors like politics, economic, and science, the argument went, it could not rule itself; instead, it would have to study at the feet of Britain, a nation famed for its scientists and shopkeepers. Even when it wasn't explicitly stated, this narrative (or at least some version of it) was the cultural commonsense of empire.

As such, it opened itself to creative inversion. By the end of the nineteenth century, a series of figures on at least three continents had turned this commonsense on its head. India, they granted, was uniquely spiritual. Its spirituality, however, was precisely what made it superior to Britain. I would point to two religious reformers who are characteristic of this turn: Helena Petrovna Blavatsky (1831–1891) and Swami Vivekananda (1863–1902). Blavatsky was a Russian émigrée who co-founded the Theosophical Society while living in New York in the 1870s. The Theosophists held that the "East" (a relatively undifferentiated zone stretching from Egypt to Tibet) is the repository of ancient spiritual wisdom that is hidden in coded texts written in obscure languages and preserved by a cabal of clandestine beings with supernatural powers. This "divine wisdom" is older than and superior to modern Christianity. When the Theosophists moved to Bombay in 1879, the political implications of this latter claim became clear. Whether or not they officially joined the society, Indian elites found its inversion of the colonial cultural hierarchy to be a powerful ideological tool. Theosophists were important to the nationalist movement, and especially the Congress, from the 1880s through the early decades of the twentieth century.

Swami Vivekananda, meanwhile, rose to global acclaim in the 1890s as a living icon of the "spiritual East." If it was Blavatsky's move from the United States to India that turned her into an anticolonial figure, it was Vivekananda's trip in the opposite direction, from Calcutta to Chicago, that catapulted him to political significance. Lecturing at the 1893 World's Parliament of Religions, Vivekananda presented Hinduism as not only the "mother of religions," but also the paragon of a value that many Americans probably presumed was the special property of the modern, secular West: "tolerance and universal acceptance." Part of the Columbian Exposition of that year, the Parliament of Religions had been designed as a counterbalance to the "materialist" displays of the White City—a celebration of economic and technological prowess that, at least to some U.S. Protestants, indicated a corresponding decline in Americans' spiritual or religious commitments. Vivekananda's lectures confirmed India's association with this endangered world of "spirit," while also appealing to the neo-Romantic sensibility that sought to use spirit to critique the values of industrial capitalism.

By 1910, then, when Aurobindo Ghosh renounced his bomb-throwing revolutionary past to become a Hindu guru in the French colonial outpost of Pondicherry, the basic contours of the "mystic East" were already fully articulated. Aurobindo would embody India's difference from Britain by dedicating himself to "spirit" and attracting Western followers to his cause. To an extent unusual in the previous century, however, Aurobindo engaged directly with contemporary European thought. In his voluminous writings, and especially in the central works of his oeuvre like *The Life Divine* (1939), one finds the intermingled traces of two civilizations: Samkhya and classical Indian philosophy on the one hand, and modern Western philosophy on the other.[9]

Stating the matter thusly, of course, directs attention away from an important and perhaps intractable problem: because it has been so often entangled with religion, Indian thought's claim to be to properly "philosophical" has been frequently challenged. Before we can properly address the theme of "Indian philosophy," then, it would seem we first have to address the question of "Indian religion."

POSTSECULARISM IN THE COLONY

What is the relationship between philosophy and religion? In colonial India, this question was both inescapable and inescapably fraught. In the context of modern secular modes of thought, to read Indian philosophy as religious is to read it as parochial, compromised by its loyalty to ancient tradition and to mystic irrationalism. At the same time, however, in the context of Indian philosophy, religion is hard to avoid. This is partly due to the structure of philosophy in ancient India, where scriptural texts often provided thinkers with their critical vocabulary. Just as important, however, is the modern history of the word *religion* itself.

As several decades of scholarship have shown, our modern category "religion" is of relatively recent provenance. Especially insofar as it implies a sharp analytic distinction among clearly differentiated social fields (i.e., politics, religion, culture, economy), it cannot be said to have existed prior to around the seventeenth century; indeed, it probably took on much of its current character even later than this.[10] Britain, for example, was still very much in the process of redefining itself as a secular nation during the nineteenth century (a process, one might add, that is still incomplete: the Queen, after all, is the head of the Church of England). What is more, the British state was usually more secular in India than it was back home; strategies of secular rule developed in the colony were transplanted to the British Isles only later.[11] One might suggest that the trope of the "mystic East" allowed the British to disavow religion by projecting it onto its Orientalized colony. Regardless, it is clear that the colonial state was only able to conceive of itself as standing above religion insofar as it could use religion to rule its Indian subjects. Starting in the

late eighteenth century, it reconstituted Hindu and Muslim legal codes as bureaucratic tools of the modern state—ensuring that, in their relations with the state, Indians would always be Hindus or Muslims first. Partly because religion mediated colonial politics in this way, anticolonial thinkers had to reckon with it as an inescapable dimension of Indian identity. Separating it out from philosophy would be difficult, if not impossible.

In this difficulty, of course, India is not alone. As recent scholarship in the critical humanities has insisted, religion, politics, and culture remain mutually intertwined worldwide in ways that we often fail to appreciate. In part, this recent body of work is simply an elaboration of Carl Schmitt's now-classic claim that all fundamental political concepts of the modern state are secularized theological concepts. It also builds on work by Karl Marx, Matthew Arnold, and others that demonstrates the religious effects of "culture." Thus, it is not just that the term *religion* divides the world up in a way that produces a fundamental misrecognition of, say, Native American cultural forms.[12] It is also that it leads us to misrecognize our own society by implying that "religion" is easily separable from everything else. By some accounts, this misrecognition has helped fuel the global resurgence of public or political religion since the 1970s. The so-called "return of religion" is not an atavistic eruption of the pre-modern past into the fabric of contemporary life; rather, it is very much the product of modernity itself. Indeed, by at least one influential account, modern religious actors are in an important sense "secular" in that they can imagine a world without the transcendent; for secular moderns (including religiously active secular moderns), religious belief is simply one option among others.[13]

The emergent field of critical secular studies or postsecular theory should, in short, make us much more amenable to how Indian anticolonial thinkers blur the line between religion and philosophy. Far from a breach of secular norms, such transgressions increasingly seem an entirely routine part of modern life. Even so, anticolonial thought's frequent recurrence to religion cannot help but compound the problem that I posed at the beginning of this essay. If Indian thought can only find voice from within religion, it weakens its claim to the title "philosophy."

Victorian scholars of comparative religion routinely distinguished between what they called "ethnic" and what they called "universal" faiths. The former addressed themselves only to a particular group of people; the latter addressed all humanity. In the nineteenth century, this distinction was entangled with religious polemic and downright racism. Judaism provided the paradigm for an "ethnic" religion; Christianity was the paradigm for the "universal." It was usually strongly implied that Christianity was at the apex of the social evolutionary ladder.[14] This is not, however, the full story. For many late-nineteenth century thinkers, it was science and not Christianity that could lay claim to the status of universal thought (one thinks here of E. B. Tylor and J. G. Frazer, among others). Only once cleared of its religious encumbrances, they imply, can the West claim to speak to and for humanity as a whole.

But here the classic difficulty recurs. Majority and dominant groups can pass their particularities off as universal traits; minority and dominated groups, meanwhile, have to champion their particularity in order to prevent its erasure, even while arguing for their access to the idiom of universal discourse. Perhaps this was precisely the appeal of religion to the anticolonial thinkers discussed above. At the turn of the twentieth century, religion seemed to speak the universal and the particular in the same breath. It addressed all humanity in a voice redolent with locally situated tradition. By blending religion and philosophy, then, the anticolonial thinker has it both ways—he gestures to a truth that locates him as "Indian" even as it asserts his place in the canon of global thought.

NOTES

1. Ashis Nandy, *The Intimate Enemy* (New Delhi: Oxford University Press, 1982).
2. Leela Gandhi, *The Common Cause: Postcolonial Ethics and the Practice of Democracy* (Chicago and London: University of Chicago Press, 2014), x; J. Daniel Elam, "Echoes of Ghadr: Lala Har Dayal and the Time of Anticolonialism," *Comparative Studies in South Asia, Africa, and the Middle East* 34 (2014): 9–23; Andrew Sartori, "Beyond Culture Contact and Colonial Discourse: 'Germanism' in Colonial Bengal," *Modern Intellectual History* 4 (2007): 77–93; Iqbal Singh Sevea, *The Political Philosophy of Muhammad Iqbal: Islam and Nationalism in Colonial India* (Cambridge: Cambridge University Press, 2012).
3. David Kopf, *British Orientalism and the Bengal Renaissance* (Berkeley: University of California Press, 1969).
4. Edward Said, *Orientalism* (New York: Vintage, 1994); Richard King, *Orientalism and Religion: Postcolonial Theory, India, and the "Mystic East"* (London: Routledge, 1999).
5. Karl Marx, "Contribution to the Critique of Hegel's *Philosophy of Right*: Introduction" in Robert C. Tucker, ed., *The Marx-Engels Reader*, 2nd ed. (New York: Norton, 1978), 59.
6. Dorothy M. Figueira, "Die Flambierte Frau: Sati in European Culture," in John Stratton Hawley, ed., *Sati: The Blessing and the Curse* (Oxford and New York: Oxford University Press, 1994), 55–71.
7. Mishka Sinha, "Corrigibility, Allegory, Universality: A History of the Gita's Transnational Reception, 1785–1945," *Modern Intellectual History* 7 (2010): 297–317.
8. *Journals* V: 178, quoted in Arthur Versluis, *American Transcendentalists and Asian Religions* (Oxford: Oxford University Press, 1993), 197.
9. Peter Heehs, *The Lives of Sri Aurobindo* (New York: Columbia University Press, 2008).
10. See especially Talal Asad, *Genealogies of Religion: Disciplines and Reasons of Power in Christianity and Islam* (Baltimore: Johns Hopkins University Press, 1993).
11. Gauri Viswanathan, *Masks of Conquest: Literary Study and British Rule in India* (New York: Columbia University Press, 1990); Peter van der Veer, *Imperial Encounters: Religion and Modernity in Britain and India* (Princeton, NJ: Princeton University Press, 2001).
12. Tisa Wenger, *We Have a Religion: The 1920s Pueblo Indian Dance Controversy and American Religious Freedom* (Chapel Hill: The University of North Carolina Press, 2009).
13. Charles Taylor, *A Secular Age* (Cambridge, MA: Belknap, 2007).
14. For further discussion of these issues, see Tomoko Masuzawa, *The Invention of World Religions* (Chicago: University of Chicago Press, 2005).

Race, Indian Philosophy, and the Historiography of Western Philosophy

Dan Flory
MONTANA STATE UNIVERSITY

Until recently, the general opinion of most Western philosophers regarding Indian philosophy was that it failed to measure up to being "true" philosophy and was, at best, some watered-down version of the real McCoy; at worst, simply religion. Revered historian of philosophy Frederick Copleston (1907–1994) spoke for many when he summarily dismissed "the pseudo-glamour of 'eastern wisdom'" and proclaimed the possibility of Indian philosophy influencing early Greek thought as "out of the question."[1] Similarly, Scottish Classicist and editor of the Oxford Classical Texts of Plato, John Burnet (1863–1928), declared that "it is really impossible to assume any Indian influence in Greece" as philosophy developed during the Archaic and Ancient eras.[2] On the contrary, Burnet argued that "everything points to the conclusion that Indian philosophy arose under Greek influence" after Alexander the Great (18), which was not an uncommon view in his day and later. Copleston, for instance, concurred that "Indian philosophy proper [] would not appear to be earlier than the Greek" (vol. I, 16 n. 1). More infamously, Hegel dismissed Indian philosophy as identical with Indian religion, arguing that the former "stands within" the latter, thereby giving him grounds to set Indian philosophy aside as "preliminary" because it is not, allegedly, "authentic philosophy."[3] In a similar vein, Thomas Babington Macaulay (1800–1859), British historian and administrator of education in India, 1834–1838, imperiously devalued all Indian knowledge by declaring that "a single shelf of a good European library was worth the whole native literature of India and Arabia."[4] More recently, it has not been uncommon to hear famous philosophers of the previous generation, such as Richard Rorty, or even some contemporaries, such as Timothy Williamson, categorically dismiss Asian thought as having nothing to offer Western analytic philosophy.[5]

As virtually every reader of this newsletter knows all too well, such views were, and in many ways remain, common, widespread biases. Moreover, they are inscribed in the overwhelming majority of standard histories of philosophy currently available in English, such as Copleston's, as well as most anthologies of philosophy aimed at undergraduates. In textbook after textbook, one finds Indian philosophy excluded or ignored, or, if it is mentioned at all, ghettoized in a way that either implicitly or explicitly devalues its worth as "authentic philosophy." We find an example of such implicit exclusion in the most recent edition of the popular Hackett anthology, *Readings in Ancient Greek Philosophy*, edited by S. Marc Cohen, Patricia Curd, and C. D. C. Reeve, where they introduce their topic by writing:

> What [the ancient Greek philosophers] did, to put it boldly and oversimply, was to invent critical rationality and embody it in a tradition; for the theories they advanced, whether on the nature of the cosmos or on ethics and politics, were not offered as gospels to be accepted on divine or human authority but as rational products to be accepted or rejected on the basis of evidence and argument. …Every university and college, every intellectual discipline and scientific advance, every step toward freedom and away from ignorance, superstition, and enslavement to repressive dogma is eloquent testimony to the power of their invention. If they had not existed, our world would not exist.[6]

The sweep of these claims, when considered as introductory comments for students first learning about ancient Greek philosophy and its overall status in the discipline, is breathtaking; but more importantly, these claims are in full agreement with a history of long standing regarding the dismissal of any possibility before the ancient Greeks of philosophy's development elsewhere. Even these writers' proviso that they are here putting the matter "boldly and oversimply" does not mitigate the categorical sweep of these claims because it does nothing to blunt the impression that anything preceding the ancient Greeks or taking place elsewhere need be seriously considered as a crucial origin of philosophy.

However, there are deeper, if far less appreciated reasons for such biases, which are intimately connected to an intellectual battle that took place more than two hundred years ago over what "philosophy" was and what should count as its history. Late in the European Enlightenment there was a decisive, wrenching academic debate regarding whether Indian philosophy should even count as philosophy. Prior to this time, Indian philosophy was routinely categorized as philosophy by the vast majority of Western figures and commentators writing about the discipline's history. For example, Aristotle and other Classical thinkers spoke of the origins of philosophy in Indian "gymnosophists," among others, as did Augustine.[7] Renaissance thinkers like Marcilio Ficino (1433–1499) agreed, and during the seventeenth and most of the eighteenth centuries Indian philosophy was routinely given a place in the history of philosophy, including speculations regarding its origins.[8] Enlightenment thinkers who not only acknowledged but took seriously Indian philosophy and its originality included Voltaire (1694–1778) and Johann Gottfried Herder (1744–1803); other figures who followed this line of thinking included Frederick Schlegel (1772–1829), F. W. J. Schelling (1775–1854), Arthur Schopenhauer (1788–1860), Ralph Waldo Emerson (1803–1882), and Henry David Thoreau (1817–1862).[9] As historian Peter K. J. Park notes, "That philosophy's origins were Greek was, in the eighteenth century, the opinion of an extreme minority of historians."[10] Instead, European writers routinely placed the origins of philosophy in Near Eastern locales such as Egypt and Babylonia (just as the ancient Greeks often alleged), and sometimes India.

But as Indian philosophy began to be translated into European languages and became widely available to scholars during the late eighteenth and early nineteenth centuries (coincident with Great Britain's accelerating colonization of India), a radical shift occurred. Indian philosophy's status as philosophy, as well as its originality

independent from and preceding Greek philosophy, came into question. In the ensuing debate over what "philosophy" was and whether Indian philosophy was included, proponents for Indian philosophy *as* philosophy, as well as those who argued for its self-generated originality, lost out and advocates for a more exclusive definition of "philosophy" won. Indian philosophy literally dropped out of the history of philosophy in the West. Yet a critical reason why this exclusion occurred remains largely underappreciated.

The Enlightenment debate regarding Indian philosophy crucially hinged on issues not usually associated with the definition of "philosophy," namely, questions of race and whether certain groups as categorized through this concept were even capable of philosophy in the more restrictive sense advocated by opponents of non-Western philosophy. It is no exaggeration to say that Western philosophy went through an identity crisis during this era, precipitated by the question of who was capable of philosophy, a question that many pivotal figures saw as fundamentally dependent on what were then-developing theories of race.

This Enlightenment debate over philosophy, race, and their intertwined histories can perhaps be seen in its most crystalline form in Kant and Hegel, although other thinkers play a crucial part in the debate as well. Together, these two thinkers advance at least four related arguments against Indian philosophy:

1) an argument from race; i.e., only certain kinds of human beings (namely, whites) are capable of doing philosophy

2) an argument from the definition of "philosophy," drawn very narrowly; i.e., the idea that "philosophy" requires strict adherence to a timeless ideal of rationality and must be strictly based on argumentation—a definition that actually excludes a good deal of what we traditionally deem philosophy, such as the Presocratics and much of Plato

3) an argument from authority; i.e., that some scholars have a more authoritative view of non-Western philosophy than others

4) an argument from lack of sufficient conceptualization; i.e., that although some non-Western philosophy may be philosophical in some minimal or informal sense, it does not achieve full status as philosophy in a sufficiently robust, conceptual way.

These related arguments allowed Kant, Hegel, and others to dismiss Indian and other "Oriental" philosophies as not making the grade due to inadequacies either in the people doing it or the way it was allegedly done, thereby clearing the field for declarations that philosophy began with the ancient Greeks, who were understood to be representative Europeans, and that no other possibilities need be considered. In what follows I will seek to provide some largely forgotten details regarding how these arguments played themselves out in considerations of the history of philosophy during the European Enlightenment and its aftermath.

I. KANT

As is becoming better and better known, Kant was at the same time a founding father of modern philosophy as well as a founding father of modern race theory.[11] What is less often acknowledged is that these two theoretical strands are systematically interconnected in his work; together, they form what Kant conceived as an interlocking, continuous, and comprehensive grand theory regarding human capability. Kant's development of transcendental, critical idealism was based on a more pure, restrictive conception of "philosophy" than had been broadly accepted until that time, one that he aimed to be stringently *a priori* and therefore independent of human experience.[12] By defining "philosophy" thusly, Kant made it dependent on an abstract ideal of rationality and a more formal sense of argumentation than had previously been the standard for determining what "philosophy" was.

However, in tandem with this now-familiar, revolutionary re-conception of "philosophy" and in Kant's eyes symbiotic with it, he also developed a theory of race that, beginning in the 1760s and apparently reiterated and elaborated until his death, posited a hierarchy of human beings based on permanent, unchanging group characteristics that included intellectual as well as physiological traits.[13] These hierarchically arranged traits of human capability dictated that some human beings, as categorized by group, had the potential to be *fully* human (i.e., full-fledged persons), while others did not. Deploying such an argument based on "race" as he had theorized it Kant tells us in his *Physical Geography* that, "Humanity is at its greatest perfection in the race of the whites. The yellow Indians do have a meager talent. The Negroes are far below them and at the lowest point are a part of the American peoples."[14]

Many of these racial aspects are also integrated into Kant's writings on ethics, human history, and practical anthropology. Most of us have no doubt shuddered when reading Kant denigrate "South Sea Islanders" in the *Grounding for the Metaphysics of Morals* by asserting that they "let [their] talents rust and resolve to devote [their lives] entirely to idleness, indulgence, propagation, and in a word, to enjoyment," or when reading his infamous comments about blacks in *Observations on the Feeling of the Beautiful and Sublime*.[15] But as both Robert Bernasconi and Thomas McCarthy argue, these racist ideas are thoroughly interlaced with Kant's conceptions of human development, cosmopolitanism, and universal human history. Kant gives his Eurocentric view of the world and the place of humanity in it a formidable philosophical foundation, one rooted in racially based ideas about how European civilization offers the best conditions under which humanity might develop, the belief that whites are the most talented, best equipped—indeed the *only* sufficiently equipped—humans beings for achieving human perfection, and that the other "races" have no choice (due to their allegedly inadequate and unchanging hereditary incapacities) but to yield to whites on this path to the ultimate "cosmopolitan" goal of humanity.[16]

In particular, Kant saw philosophy itself as something that was foremost a capacity of whites, but not of other races, for only whites had progressed to the point where

they could think at a level of abstraction and universality such that it could be called philosophical. Park notes that in Kant's lectures on logic, after sketching out an abstract, *a prioristic* conception of "philosophy" consistent with the *Critiques* and the *Prolegomena*, he goes on to claim that, "[a]mong all peoples the Greeks first began to philosophize. For they first attempted to cultivate the cognition of reason *in abstracto* without first the guiding thread of pictures, while other peoples sought instead to make concepts intelligible to themselves *in concreto by pictures only*."[17] In this and other writings Kant goes on to discount Egyptians, Persians, the Chinese, and Indians as incapable of the requisite abstraction and speculative uses of reason that are for him the hallmarks of philosophy, and therefore as incapable of true philosophical and scientific thought.[18] Park summarizes Kant's overall position by stating that for this German philosopher "[o]nly white people have the capacity for abstract concepts," thereby referencing the related argument based on insufficiency of conceptualization. In particular, "the Hindu race did not develop philosophy because they did not have [this] capacity," which Kant identifies as specifically attributable to their "descent (*Abstammung*)"; in other words, their race.[19]

Disciples, acolytes, and younger contemporaries of Kant then developed and elaborated these ideas into formal histories of philosophy that explicitly excluded, among other things, Indian philosophy. Bernasconi identifies two Enlightenment philosophical historians influenced by Kant in this way, Dieterich Tiedemann (1748–1803) and Wilhelm Gottleib Tenneman (1761–1819); in addition, Park elaborates by discussing several others, among them early Kant disciple Karl Leonhard Reinhold (1758–1825) and Kant's younger contemporary Christoph Meiners (1747–1810).[20] This last figure, Park argues, is perhaps the most important, as he evidently influenced Kant himself regarding the alleged racial capacities of human beings to do philosophy. Despite being an anti-Kantian in other matters, Meiners deserves special pride of place here, according to Park, for his startling combination of racial anthropology and alternative philosophy of history.[21] Although virtually forgotten today, in his own time Meiners wielded substantial authority in philosophy, including an influence that reached all the way to Königsberg.[22] Rejecting long-held claims that colonists from Africa and Asia (namely, the Egyptians and Phoenicians) had substantially influenced the Greeks in philosophy, Meiners instead argued for Greek autochthony. But what Park perceptively notes is that Meiners' arguments about philosophy's origins depend fundamentally in his racial anthropology, for this German academic deployed what are now familiar racial categories to back up his arguments that only whites could have created science and philosophy. As Park summarizes, "innate differences between the races explained for [Meiners] literally everything about the course of human affairs . . . racial differences explained why Europeans have almost always dominated all other peoples of the earth" (!) (82). For example, like Burnet and Copleston long after him, Meiners declared that in philosophy "'[i]t is most probable that the Hindus were students of the Greeks'" (cited in Park, 80). Alexander the Great brought Greek settlers and rulers to India, who in turn allegedly transmitted philosophy to this unfortunately benighted subcontinent. Ancient as well as contemporary accounts to the contrary were summarily dismissed, mainly due to a presumption of superior thinking capacities on the part of Europeans. In this fashion Meiners, like Kant, deploys an argument against Indian philosophy based on race. Moreover, Meiners' influence on Kant regarding questions of race was such that these two figures were a virtual "tag-team;" the correlations in thinking, vocabulary, and phrasing Park deems too close to be merely coincidental.[23]

In addition, Meiners' connection to his childhood friend, the above-mentioned Dieterich Tiedemann, helped to further extend these ideas into the discipline of philosophy. Unlike almost all works in the field that preceded it, Tiedemann's six-volume history of philosophy excluded "Orientals" because their ideas were "not backed up with reasons," as Park summarizes Tiedemann's introduction to his work (83), so Oriental philosophy did not count as philosophical because it was at best conjecture, more inspired by religion than reason. In other words, Oriental philosophy did not measure up as philosophy because it did not meet the stringent definition of "philosophy" as based strictly on argumentation and the ideal of rationality. Other historians of philosophy such as Tenneman followed suit, and from these beginnings the idea of ancient Greek philosophy as autochthonous spread.

Meiners' works "show us how racism and Eurocentric history of philosophy go hand in hand," according to Park (82). Moreover, Meiners' and Kant's rejections of earlier accepted histories of philosophy originating in non-Greek cultures and their questioning of non-white peoples' ability to even do philosophy eventually proved decisive. Deploying arguments based on race, a restrictive definition of "philosophy," and an alleged lack of adequate conceptualization in the Oriental philosophies considered, these two figures, in concert with their cohort, signal a dramatic shift in the history of philosophy as it was understood in the West to that time.

II. HEGEL

The eventual spread of these ideas had its culmination in the work of Hegel roughly three decades later.[24] In this early nineteenth-century German philosopher's work, there is admittedly a more intricate set of arguments presented regarding the exclusion of Indian philosophy that reflect, among other things, the fact that much more of the philosophical corpus from the subcontinent had been translated into European languages and examined during the intervening years. Additionally, while the debate about philosophy's origins continued to rage in the first few decades of this century (with important figures weighing in on both sides of the controversy), Hegel's towering influence on mainstream history of philosophy in the West demands that his arguments merit special, if all too cursory, examination.

In many ways, Hegel simply followed in the footsteps of his immediate predecessors when discussing Oriental philosophy in general and Indian philosophy in particular. But unlike some of his predecessors, Hegel had to take more seriously the possibility that Indian philosophy was

indeed philosophy because by his time there existed a substantial corpus of work by other European scholars that argued in favor of doing so. According to Bernasconi, Hegel felt forced to take seriously Schlegel's arguments regarding the "wisdom of the Indians" being on a par with Greek philosophy because the latter had synthesized a formidable array of then-contemporary research.[25] Although hardly an unequivocally positive advocate, Schlegel used an implicitly broader definition of "philosophy" to incorporate Indian philosophy into the discipline, thereby upsetting Hegel's thesis that "the" philosophical tradition had a continuous historical narrative traceable from the Greeks by means of the development of "spirit."[26]

Hegel's strategy in refuting Schlegel depended crucially on an argument in addition to the three elaborated above, namely, an argument based on allegedly more authoritative sources that he felt gave him grounds for claiming himself to be more knowledgeable about Indian philosophy than Schlegel, who had studied Sanskrit, whereas Hegel had not. The latter favored the view of British Sanskrit Scholar and co-founder of the Royal Asiatic Society, Henry Thomas Colebrook (1765–1837), whose 1824 essay "On the Philosophy of the Hindus," among others, permitted Hegel to re-assert his own position and reject Schlegel's. In so doing Hegel was able to support his claim that Indian philosophy was more religion than it was philosophy because Colebrook's work allowed Hegel to re-assert the argument against Indian philosophy based on a more restrictive definition of "philosophy."[27] Once this argument from authority was in place, Hegel was able to additionally allege that Indian thought was subservient to religion, as well as claiming, based on that difference, that Indian philosophy lacked the appropriate conceptual character to be considered "authentic" philosophy, as well as deploying familiar arguments based on racial considerations. As we have seen, each of these latter three arguments had already been deployed by earlier scholars, but Hegel's use of them proved decisive, given his subsequent influence on how the history of philosophy was written in the West.

That said, Hegel struggled mightily with the task of excluding Indian philosophy in lectures over the last half-dozen years of his life. While on the one hand he was ultimately forced to admit that Indian philosophy was *almost* "philosophy proper," on the other he argued that it failed to "proceed to conceptualization" and therefore failed to cross the crucial threshold that Greek philosophy allegedly had, thus enabling Hegel to maintain that "[p]hilosophy proper begins for us in Greece."[28] As Bernasconi summarizes the matter, "Hegel refused a place to Indian philosophy so as to make a decisive and highly influential statement about the identity of philosophy as Western."[29] In so doing, Hegel maintained a *de facto* racialized, Eurocentric definition of "philosophy" that preserved the ability to be *truly* philosophical for whites and enshrined it in what he argued was "the" correct narrative for the history of philosophy. Despite having to take Indian philosophy rather more seriously than some of his better-known declarations would imply, Hegel nonetheless rejected it as authentic philosophy based on the deeply problematic arguments outlined above. In his eyes, it did not quite measure up to the more stringent criteria that ancient Greek philosophy had allegedly met.

III. HEGEL'S SUCCESSORS

As is evident from Copleston's famous work and other writers who recognize Copleston as "splendid for facts," Hegel's argument carried the day, despite its dubious foundations, perhaps because it agreed better with the *ethos* of subsequent eras.[30] For example, one finds substantial agreement with Hegel in the work of later nineteenth-century philosopher Eduard Zeller (1814–1908), whose work classicist Walter Burkert identifies as the most significant in the field of scholarly history of philosophy after Hegel.[31] In the early pages of his 1883 *Outlines of the History of Greek Philosophy*, while Zeller breaks from Hegel by acknowledging "Indian and Chinese systems of doctrine" as truly philosophy, he similarly rejects them on the grounds that the Greeks were even more strongly philosophical and thereby exceeded the capacities of all other ancient forms of thought. For Zeller, as for Hegel, Greek philosophy remains the true starting point of philosophy because it best expresses the "spirit of man."[32]

By the time we get to W. K. C. Guthrie's monumental six-volume *A History of Greek Philosophy*, which first began to appear in 1962, the possibility of original and antecedent non-Greek philosophy was not thought to be an option worth serious consideration. "With the Greeks we stand at the beginning of rational thought in Europe," Guthrie tells us (1).[33] While he admits important influences on the Greeks from eastern neighbors, he argues that, unlike them, the Greeks pursued knowledge for its own sake and not for merely practical purposes. "Oriental" science and philosophy, by contrast, lacked "a certain aptitude for abstraction, for reasoning on the basis of pure concepts—in other words, a certain philosophical spirit" (38). The origins of philosophy—and, for that matter, science—were thus uniquely European for Guthrie, for the Greeks, as exemplary Europeans, had the requisite philosophical motivation to ask "Why?"—a motivation distinctly lacking in non-European peoples, to whom the question did not even occur (36-37). For example, Guthrie tells us, "the torch of philosophy was not lit in Egypt, for they lacked the necessary spark, that love of truth and knowledge for their own sakes which the Greeks possessed so strongly and embodied in their own word *philosophia*" (31). Egyptians, Mesopotamians, and others failed to make the "advance to higher generalizations [that] constitutes the essence of the new step taken by the Greeks" (36). India is mentioned in Guthrie's story of the origins of philosophy only in passing or in order to discount the possibility of its influence on Pythagoreanism, based on the authority of Zeller (187, 251).

Again, the substantial agreement with Kant, Hegel, and other Enlightenment thinkers described above is evident. The Greeks allegedly surpassed a threshold for rationality that "Oriental" peoples failed to achieve. Guthrie even uses a doorstep metaphor when discussing the knowledge bequeathed to the Greeks by Oriental cultures. Eastern peoples did not find their way across that crucial threshold and into the house of philosophy because they did not "proceed to conceptualization" of knowledge in the way that the Greeks allegedly did. It simply never occurred

to them; they lacked the aptitude to do so (34). Based on this Hegelian-flavored argument, Guthrie felt justified in claiming that philosophy began with the Greeks and nowhere else, such as India.

IV. CONCLUSION

As I hope to have sketched persuasively above, the arguments of these late eighteenth- and early nineteenth-century philosophers, as well as many of their twentieth-century successors, were racist, either explicitly or implicitly. European thinkers pondering the origins of philosophy initially argued openly for and later simply presumed (based on the work of their predecessors) a version of racial white supremacy with regard to philosophy and the capacity to do it that begged the question regarding whether or not there were peoples before the Greek Presocratics who might also have philosophized. Sadly, this presumption has gone largely unquestioned into the present day. In spite of scholarship by the likes of Burkert, who has seriously argued for a reconsideration of the idea that Near Eastern thought profoundly influenced early Greek philosophy and has made a formidable case for it, and other specialist scholarship like that of M. L. West and Peter Kingsley—and even the work of that notorious but prescient scholarly interloper, Martin Bernal—we still typically find expressions of ancient Greek autochthony in philosophy such as is evident in the quotation by Cohen, Curd, and Reeve noted earlier.[34] Such assertions eerily echo those of Kant, Hegel, and others chronicled in this essay. Our students deserve better, but more importantly so do philosophies of Asia that, like Indian philosophy, can lay legitimate claim to being "authentic philosophy," once the deeply flawed arguments such as those outlined above are exposed.

Indian philosophy in particular may lay legitimate claim to being far older than ancient Greek philosophy, and there is growing evidence that the former may even have influenced the latter via what was then the dominant power in the Eastern Mediterranean, a kingdom that stretched from the shores of "our sea," as the Romans used to call it, to India itself, namely, the Persian empire.[35] Philosophy as a discipline has its work cut out for it in re-examining its currently prevailing origin stories in the West. I would argue that we would do well, as a first step, to formally re-incorporate Indian philosophy into the fold, as it routinely had been until the late eighteenth century, and rejecting myths that owe their genesis to Enlightenment theories of race, "philosophy" as narrowly and restrictively understood through ideals of rationality, abstraction, and sufficient conceptualization, and dubious authorities that have distorted how the history of philosophy has been told over the last two centuries.

NOTES

1. Frederick Copleston, *A History of Philosophy, vol. II: Augustine to Scotus* [1950] (London: Burns and Oates, 1959), 21-22; and *A History of Philosophy, vol. I: Greece and Rome* [1946] (London: Burns and Oates, 1949), 15.
2. John Burnet, *Early Greek Philosophy*, 4th ed. [1930] (Cleveland: Meridian Books, 1965), 82.
3. G. W. F. Hegel, *Lectures on the History of Philosophy 1825-6, Vol. I: Introduction and Oriental Philosophy*, ed. Robert F. Brown, trans. R. F. Brown and J. M. Stewart, with the assistance of H. S. Harris (Oxford: Clarendon Press, 2009), 111, 112, 103.
4. Thomas Babington Macaulay, "Minute on Education" [1835], cited in Barbara Stoler Miller, "Translator's Note," *The Bhagavad-Gita* (New York: Bantam, 1986), 15.
5. Cited in Arindam Chakrabarti, "Analytic versus Comparative: A bogus dichotomy in Philosophy," *APA Newsletter on Asian and Asian-American Philosophers and Philosophies* 2, no. 1 (Fall 2002): 39-40.
6. S. Marc Cohen, Patricia Curd, and C. D. C. Reeve, "Introduction," *Readings in Ancient Greek Philosophy*, 4th ed., eds. Cohen, Curd, and Reeve (Indianapolis: Hackett, 2011), viii.
7. Cited in Diogenes Laertius, *Lives of Eminent Philosophers*, vol. I, trans. R. D. Hicks (1925; rpt. London: William Heinemann, 1980), 3; Augustine, *The City of God* [425 CE], trans. Marcus Dods (rpt. New York: Modern Library, 1993), 254, 340-41, 506.
8. Peter K. J. Park, *Africa, Asia, and the History of Philosophy: Racism in the Formation of the Philosophical Canon, 1780–1830* (Albany: SUNY Press, 2013), 71–76; and Robert Bernasconi, "Philosophy's Paradoxical Parochialism: The Reinvention of Philosophy as Greek," *Cultural Readings of Imperialism: Edward Said and the Gravity of History*, eds. Keith Ansell-Pearson, Benita Parry, and Judith Squires (New York: St. Martin's Press, 1997), 212–26, esp. 212–18.
9. J. J. Clarke, *Oriental Enlightenment: the Encounter between Asian and Western Thought* (London and New York: Routledge, 1997), 59–65, 85-86.
10. Park, *Africa, Asia, and the History of Philosophy*, 76.
11. See Charles W. Mills, *The Racial Contract* (Ithaca: Cornell University Press, 1997), 72; and Thomas McCarthy, *Race, Empire, and the Idea of Human Development* (New York: Cambridge University Press, 2009), 43-44.
12. Immanuel Kant, *Critique of Pure Reason* [1781], trans. Norman Kemp Smith (rpt. New York: St. Martin's Press, 1965), esp. 58–62; and *Prolegomena to Any Future Metaphysics* [1785], 2nd ed., trans. Paul Carus and James W. Ellingson (Indianapolis: Hackett, 2001), esp. 33-34.
13. See, for example, Kant's essays in *Kant and the Concept of Race: Late Eighteenth-Century Writings*, ed. and trans. Jon Mikkelsen (Albany: SUNY Press, 2013). There is a controversy over whether Kant held these racist views until his death (see Pauline Kleingeld, "Kant's Second Thoughts on Race," *American Philosophical Quarterly* 57, no. 229 (2007): 573–92), but reservations about Kant's consistency seem, in my view, have been largely assuaged; see, for example, Robert Bernasconi, "Kant's Third Thoughts on Race," *Reading Kant's Geography*, eds. Stuart Eden and Eduardo Mendieta (Albany: SUNY Press, 2011), 291–318.
14. From Kant's *Physical Geography* lectures [published 1802], excerpted in *Race and the Enlightenment*, ed. Emmanuel C. Eze (New York: Blackwell, 1997), 58–64, at 63.
15. Immanuel Kant, *Grounding for the Metaphysics of Morals* [1785], 3rd Edition, tr. James Ellington (Indianapolis: Hackett, 1993), 31 (see also Kant's remark on South Sea Islanders in Eze, *Race and the Enlightenment*, 70); and *Observations on the Feeling of the Beautiful and Sublime* [1764], trans. John T. Goldthwait (Berkeley: University of California Press, 1960), 111.
16. Robert Bernasconi, "Kant as an Unfamiliar Source of Racism," *Philosophers on Race: Critical Essays*, eds. Julie K. Ward and Tommy L. Lott (London: Blackwell, 2002), 145–66; McCarthy, *Race, Empire, and the Idea of Human Development*, 42–68. See also (among other writings analyzed by Bernasconi and McCarthy) Kant's "Idea for a Universal History with a Cosmopolitan Intent" [1784], trans. Ted Humphrey, *Perpetual Peace and Other Essays* (Indianapolis: Hackett, 1983), 29–40.
17. Immanuel Kant, *Logic* [1800], trans. Robert S. Hartman and Wolfgang Schwarz (1974; rpt. New York: Dover, 1988), 31. Park cites a slightly different translation, *Africa, Asia, and the History of Philosophy*, 90.
18. Kant, *Logic*, 31. For additional references, see Park, *Africa, Asia, and the History of Philosophy*, 91-92.

19. Park,*Africa, Asia, and the History of Philosophy*, 94.
20. Robert Bernasconi, "Philosophy's Paradoxical Parochialism," 218ff.; Park, *Africa, Asia, and the History of Philosophy*, esp. 11–17 and 76–95.
21. It is perhaps worth noting that Martin Bernal identifies Meiners as a crucial player in this debate as well; see *Black Athena: The Afroasiatic Roots of Classical Civilization, Vol. I: The Fabrication of Ancient Greece, 1785–1985* (New Brunswick, NJ: Rutgers University Press, 1987), 217-18; and Mikkelsen includes one of Meiners's essays ("Of the Varieties and Deviate Forms of Negroes" [1790]) in *Kant and the Concept of Race*, 198–207.
22. Park, *Africa, Asia, and the History of Philosophy*, 76-77.
23. Ibid., 95.
24. Ibid., 151.
25. Robert Bernasconi, "With What Must the History of Philosophy Begin? Hegel's Role in the Debate on the Place of India within the History of Philosophy," *Hegel's History of Philosophy: New Interpretations*, ed. David A. Duquette (Albany: SUNY Press, 2003), 35–49, at 36.
26. Bernasconi, "With What Must the History of Philosophy Begin?" 37. (See also Hegel, *Lectures on the History of Philosophy 1825-6*, Vol. I, 46, 49, and elsewhere.)
27. For details, see Bernasconi, "With What Must the History of Philosophy Begin?" 38–43.
28. Cited in ibid., 43.
29. Ibid., 45-46.
30. See, for example, Copleston, *A History of Philosophy*, vol. I, 10-11, 15-16. The quoted phrase about Copleston being splendid for facts comes from David Hamlyn, *A History of Western Philosophy* (London: Penguin, 1987), 334.
31. Walter Burkert, *Babylon, Memphis, Persepolis: Eastern Contexts of Greek Culture* (Cambridge, MA: Harvard University Press, 2004), 50-51.
32. Edward Zeller, *Outlines of the History of Greek Philosophy* [1883], trans. Sarah Frances Alleyne and Evelyn Abbott (New York: Henry Holt and Co., 1890), 6, 5.
33. W. K. C. Guthrie, *A History of Greek Philosophy*, Vols. I-VI (Cambridge: Cambridge University Press, 1962–1981). (All the quotes in this paragraph are from Volume I: The Earlier Presocratics and the Pythagoreans.)
34. For the work of Burkert, West, Kingsley, and Bernal, see (among others) Walter Burkert, *Babylon, Memphis, Persepolis*, esp. 49–70; M. L. West, *Early Greek Philosophy and the Orient* (Oxford: Clarendon Press, 1971); Peter Kingsley, "Meetings with Magi: Iranian Themes among the Greeks, from Xanthus of Lydia to Plato's Academy," *Journal of the Royal Asiatic Society* III:5 (1995): 173–209; and Bernal, *Black Athena*, esp. vol. I. In addition, for an assessment of Bernal's *claims* through Volume II (and separate from an evaluation of his *evidence*, which is set aside in favor of considering whether his assertions might be true), see Dan Flory, "Racism, *Black Athena*, and the Historiography of Ancient Philosophy," *The Philosophical Forum* 28 (1997): 183–208.
35. See, for example, Burkert, *Babylon, Memphis, Persepolis*, 113; and Kingsley, "Meetings with Magi."

Eternity and Infinity: The Western Misunderstanding of Indian Mathematics, and Its Consequences for Science Today

C. K. Raju
CENTRE FOR STUDIES IN CIVILIZATIONS, NEW DELHI

PRACTICAL INDIAN MATH

Most students today study mathematics for its practical applications. And it was for its practical applications that *ganita* developed in India: arithmetic and algebra for commerce, permutations and combinations for the theory of metre, probability theory for the game of dice,[1] "trigonometry" and calculus, or rather the study of the circle and the sphere, for astronomy and navigation. Navigation was important for overseas trade, which stretches back 5,000 years in India, and was an important source of wealth. Astronomy was needed for the calendar and to determine the seasons, since the rainy season is critical to Indian agriculture, the other key source of wealth in India.[2]

Since *ganita* was done for its practical applications, Indian texts from the ancient *sulba sutra*-s, through the fifth century Aryabhatiya to the sixteenth century Yuktidipika, all admit empirical proofs in *ganita*.[3] An empirical proof is one that involves anything we can perceive with our senses. For example, Aryabhata states that a plumb line is the test of verticality. Secondly, all practical applications invariably involve a tolerance level, or an "error margin." Thus, all the above three texts give the ratio of the circumference of a circle to its diameter, or the number today designated by π, as 3.1415.... The sulba sutra-s declare its value to be non-eternal (*anitya*)[4] and imperfect (*savisesa*),[5] with something left out). Aryabhata, who numerically solves a differential equation, to derive his sine values precise to the first sexagesimal minute (about five decimal places), declares his value of B to be *asanna* (near value).[6] That is, Indians accepted both (1) empirical proofs, and (2) imperfections as part of *ganita* or mathematics.

Discarding insignificant quantities naturally extends to the discarding infinitesimals. This latter enters essentially in the way Indian texts treat infinity and the sum of infinite series. By the fourteenth century, Aryabhata's method was extended in India to an infinite "Taylor" series for the sine, cosine, and arctangent functions, to derive their values accurate to the third sexagesimal minute (about ten decimal places), and Nilakantha in his commentary also explains why the near value of B is given and not the real value (*vasatavim sankhya*).[7] The fifteenth century, Nilakantha is also the first source for the formula for the sum of an infinite geometric series.[8] Discarding infinitesimals involves a rigorous way to sum infinite series, a way that was not understood until recently in the West.

RELIGIOUS WESTERN MATH

In the West mathematics was long valued for its religious connections. The very word mathematics derives from mathesis, which means learning.[9] In Plato's *Meno*, Socrates explains that learning is achieved by arousing the soul, for "all learning is recollection" of the eternal ideas in the soul. Having demonstrated a slave boy's innate knowledge of mathematics, he claims he has proved the existence of the soul and its past lives: for, he argues, if the slave boy did not learn mathematics in this life, he must have learned it in a previous life.[10] The Greeks had imported Egyptian mystery geometry, which had the spiritual aim of arousing the soul by turning the mind inward.[11] The belief was that math contains eternal truths and hence arouses the eternal soul by sympathetic magic. This notion of soul became unacceptable to the post-Nicene church, which cursed the belief in past lives,[12] and banned mathematics, in the sixth century. However, those "Neoplatonic" beliefs survived in

Islam as part of what Muslim scholars called "the theology of Aristotle," and were influential in the *aql-i-kalam* or Islamic theology of reason. From there it came to Europe as part of Christian theology.

When the wealthy Khilafat of Cordoba splintered and became weak, in the eleventh century, the church saw an opportunity, and launched the Crusades with a view to conquer and convert Muslims by force, the way Europe was earlier Christianised by force. However, the Crusades failed militarily (beyond Spain and after the first Crusade). Nevertheless, Muslim wealth was so tempting that the church changed its entire theology to the Christian theology of reason promoted by Aquinas and his schoolmen. This was a modified form of the Islamic theology of reason. Reason was declared universal, since Muslims too accepted it so it helped to persuade them. However, not wishing to acknowledge that this major change in theological beliefs arose from an adaptation of Islamic beliefs, and not finding any sources in the Bible to support rational theology, the church claimed ownership of reason by attributing its origin to an early Greek called Euclid. Alongside it reinterpreted the *Elements* and its geometry, supposedly authored by Euclid, as concerned not with the soul, but solely with metaphysical (deductive) proofs or methods of persuasion, to align it with the post-Crusade theology of reason.

There is no evidence for "Euclid." While my book *Euclid and Jesus* goes into all the details of this spurious myth, to avoid having to do so repeatedly, I instituted the "Euclid" prize of USD 3300 for serious evidence about "Euclid." Needless to say, the challenge has not been met. If the book was written by someone else in another era it might admit a totally different interpretation. Accordingly, one needs to go by the book *Elements* itself, and not by the story told about the book. The two are quite different, as clarified below.

FROM CONCOCTED EUCLID TO FORMALISM

Post-Crusade, the belief in the eternal truths of mathematics persisted for new theological reasons. Western theologians who always understood how God worked said that logic bound God who could not create an illogical world, but was free to create the facts of his choice.[13] Hence it came to be believed in the West that mathematics, as truth which binds God, or eternal or necessary truth, must be "perfect" and cannot neglect even the tiniest errors (which are bound to surface some time during eternity!) It was further believed that this "perfection" could be achieved only through metaphysics: a "perfect" mathematical point is never a real dot on a piece of paper, howsoever much one may sharpen the pencil.

Carried away by the story that this metaphysical understanding of "real" math originated with "Euclid" and his "irrefragable" proofs, European scholars did not notice the fact that the very first proposition of the *Elements* uses an empirical proof! The proof involves the intersection of two arcs: we *see* the arcs intersecting, so it is an empirical proof. But there is no axiom from which this intersection can be deduced, so there is no axiomatic proof. This error in the supposedly infallible proofs in the *Elements* went unnoticed for some 700 years. This error was finally admitted in the nineteenth century, and it was further admitted that other empirical proofs (such as the proof of Proposition 4 or the side-angle-side theorem) are essential to the proof of the "Pythagorean" theorem in the *Elements*. So, not even the *Elements* ever had a non-empirical proof of the Pythagorean theorem, which was, of course, empirically known long before "Pythagoras" or Pythagoreans.

But what happened subsequently was even more amusing. For metaphysicians, the story naturally proved to be stronger than the facts! Instead of accepting that the whole story was false, a new story was added. Those empirical proofs were attributed to an error by the supposed "Euclid" in executing his purported intentions. Bertrand Russell and David Hilbert then rewrote the *Elements* to correct "Euclid" and make his book 100 percent metaphysical! That rewriting does not fit[14] the *Elements*, but it led to the present-day formal mathematics[15] of Russell and Hilbert, which makes all mathematics 100 percent metaphysics.

TRANSMISSION OF INDIAN MATH AND ITS EUROPEAN MISUNDERSTANDING

The two streams of mathematics, religious and practical, collided when the West started importing Indian mathematics for its practical applications from the tenth century.[16] Earlier, on the "Neoplatonic" belief that knowledge is virtue, the Baghdad House of Wisdom had imported numerous texts from all over the world, especially India, in the ninth century. Muslims frankly acknowledged those imports as in al Khwarizmi's book titled *Hisab al Hind*. When the techniques in this book traveled to Europe, they were called algorismus or algorithms (after al Khwarizmi's Latinized name) Again, the algebra from Brahmagupta[17] came to be known as algebra after al Khwarizmi's *Al jabr waa'l Muqabala*. These arithmetic and algebraic techniques were adopted by Florentine merchants because of their immense practical advantage for commerce.

Transmission of knowledge often results in misunderstanding, and the hilarious story of the persistent European misunderstanding of imported Indian math is told by the very words like "zero," "surd," "sine," "trigonometry," etc., in common use today. Zero (from cipher, meaning mysterious code) created conceptual difficulties for Europeans for centuries, since it involved the sophisticated place value system, different from the primitive Greek and Roman numerals which were additive and adapted to the abacus. Thus, in 976, Gerbert, who later became the infallible pope Sylvester, had a special abacus constructed for "Arabic numerals," which he imported from Cordoba, for he thought the abacus was the only way to do arithmetic![18] Due to these conceptual difficulties among Europeans, elementary arithmetic algorithms (for addition, subtraction, multiplication, division, etc.) entered the Jesuit syllabus as "practical mathematics" only as late as 1572.

Similar amusing European confusion underlies the term "surd" from the Latin *surdus* meaning deaf, applied today to the square root of two. That was calculated since the *sulba sutra*-s as the diagonal (*karna*) of the unit square, and the term *surdus* is a mistranslation of bad *karna*, meaning

bad diagonal but misunderstood as bad ear, for the word *karna* also means ear.

Similarly, the term sine is a translation error from Toledo. It arose from the Arabic *jaib*, meaning pocket, as a misreading of *jiba* from the vernacular *jiva*, from the Sanskrit *jya* meaning chord. Since the chord relates to the circle, not the triangle, the word "trigonometry" (or measurement of a triangle) indicates a European conceptual misunderstanding for what should properly be called circlemetry (or measurement of the circle), and was studied in Indian texts in chapters on the circle.

THE PROBLEM OF INFINITE SERIES

While early imports of Indian mathematics in Europe came indirectly via Arabs from Baghdad, Cordoba, and Toledo, calculus and probability went directly to Europe through Jesuits based in Cochin in the sixteenth century.[19] The maximum confusion and misunderstanding attended the transmission of the infinite series of the Indian calculus to Europe. As already indicated, the most elementary circlemetric ratio, the ratio of the circumference of a circle to its diameter, necessarily involves an infinite series, as in B = 3.1415...., which decimal representation is an infinite sum 3 + 1/10 + 4/100 + 1/1000 + 5/10000 +.... These infinite series were used in India to derive sine, cosine, and arctangent values accurate to the third sexagesimal minute (about ten decimal places).[20] These values ("tables of secants") were of great practical importance to the navigational problem of determining latitude and longitude at sea. They were also critical for the (specifically) European navigational problem of determining loxodromes: Europeans navigated with charts, and since the surface of the earth is curved, setting a straight course by the compass did not result in a straight line course on the chart. Recall that navigation was, for centuries, the principal scientific challenge facing Europeans, who dreamed of wealth through overseas trade. The Royal Society, and the French Royal Academy were set up around this problem. The overwhelming practical value of precise trigonometric values from India meant that the related infinite series could not simply be abandoned.

Now for practical purposes, related to navigation and astronomy, a precision of, say, eight decimal places was ample. But the infinite series presented a conceptual difficulty on the European faith in mathematics as "perfect." Thus, the infinite series of the imported Indian calculus could not be "perfectly" summed. Practically speaking, even today, one typically states the number π only to a few decimal places as B = 3.14. But this means that there is some error: about 0.0015. One can make the error much smaller by proceeding to 100 or 1,000 places after the decimal point, with the understanding that one can go on further if one really needs to do so. The resulting tiny error is of no practical consequence. While this process is adequate for *all* practical purposes, as an infinite sum it is nevertheless not "perfect," since some tiny error would still remain neglected. On the other hand, it is evidently impossible to sum the series "perfectly" by adding all terms, physically, for that would take an eternity of time, no matter how fast one does the addition.

Hence, on the deep-seated Western faith in mathematics as perfect, Descartes[21] declared that the ratio of curved and straight lines was beyond the human mind. "[T]he ratios between straight and curved lines are not known, and I believe cannot be discovered by human minds, and therefore no conclusion based upon such ratios can be accepted as rigorous and exact." Coming from a leading Western mind, this was curious, since, from the days of the *sulba sutra*-s, Indian children were taught to measure curved lines using a string, and to compare them with straight lines just by straightening the string. This was not Descartes' individual problem. Galileo in his letters to Cavalieri[22] concurred with Descartes, and Newton's posthumous opponent Berkeley[23] thought that this was good reason to reject the calculus. He asserted, "It is said, that the minutest Errors are not to be neglected in Mathematics." Thus, the argument from Descartes to Berkeley was that summing infinite series involved either an eternity of time or minute errors; that was imperfect, hence not mathematics, which, they took for granted, ought to be perfect. Why ought mathematics to be perfect? Why not an "imperfect" mathematics good enough for all practical applications? This issue seems never to have been debated in the West since it related to the hegemonistic religious faith.

Indeed, though calculus began as circlemetry, this Cartesian difficulty with curved lines is still part of Western mathematical education today. The geometry box which every child carries to school has nothing with which to measure curved lines, although an angle is better defined as a circular arc rather than somehing (what thing?) between two straight lines.[24] These objections regarding the purported "imperfections" of the calculus created a problem for Newton, whose physics could not do without calculus. Newton thought that Descartes' objection could be met, and (d/dt) could be "rigorously" or "perfectly" defined by making time "flow" metaphysically.[25] That idea of time itself flowing is a statement explicitly recognized as meaningless by Indians at least since Sriharsa.[26] Newtonian physics failed just because of this conceptual error about the nature of time.[27]

INFINITY AND ETERNITY

Though Newton's fluxions were eventually abandoned, the West still maintained that metaphysical "real" numbers are the solution to the specifically European problem of "perfectly" summing an infinite series. At least this is the solution that is taught in schools and universities today: that real numbers are essential to calculus. (Hence, the formulation of physics using calculus forces physical time to be represented by the real line.) In the nineteenth century, the Western solution to the problem of infinite sums moved towards metaphysical "real numbers," or the continuum, an uncountable infinity of numbers constructed using Cantorian set theory and its transfinite cardinals.[28] In schools and universities today, calculus is taught by appealing to the continuum and the metaphysical "limits" that make it possible to "perfectly" sum infinite series. Actually, all that metaphysics is too difficult to teach in high school and even most undergraduate courses for non-mathematics majors, so students are only told about it, not actually taught.

That is, not only was calculus wrongly attributed to Newton and Leibniz, it is today taught in universities and schools by falsely claiming that its infinite series can be summed "rigorously" only by using a particular metaphysics of infinity.

There are two issues here. First, it should be clearly noted that there is nothing unique or "universal" about metaphysical notions such as infinity and eternity. The notion of *atman* in the Upanishads, so fundamental to Hinduism, is embedded in an underlying *physical* belief[29] in quasi-cyclic time: eternity is not "linear" like the real line. The same is true of the notion of soul according to Egyptians, Socrates, or early Christians. Indeed, the primary conflict in Christian theology was over the nature of eternity, whether it is quasi-cyclic as Origen thought, or whether it is metaphysical and apocalyptic as believed in post-Nicene theology.[30] It was this fundamental religious conflict over the nature of eternity which culminated in the church's ban on mathematics (for "pagans" like Hypatia and Proclus still understood mathematics as concerning the soul).

This conflict over the nature of eternity was also the basis of the subsequent curse on "cyclic" time called the anathemas against pre-existence. It is also reflected in the first creationist controversy, which concerned the nature of eternity, not evolution. Thus, Proclus stated, in *his* book, also called *Elements*, that eternity turns back on itself, as in the uroburos, or a snake eating it own tail. This was the ancient Egyptian symbol for quasi-cyclic time and is still the modern symbol for infinity, ∞. In contrast, John Philoponus[31] maintained that would make one time creation, as in the Bible, impossible, and also make apocalypse impossible, depriving the church of a valuable weapon of terror ("doomsday is round the corner").[32]

Formally speaking, infinite sums have no intrinsic meaning "out there," in some Platonic sense, and can be defined in surprising ways. For example, the Ramanujan sum of $1 + 2 + 3 + 4 + \ldots = -1/12$.

THE METAPHYSICAL CONTINUUM NOT ESSENTIAL FOR CALCULUS

Further, contrary to what is taught in schools and universities, calculus and the summation of infinite series can be done using number systems both smaller and larger than the continuum. Formally speaking, the continuum or the field of real numbers, R, is the largest "Archimedean" ordered field. Therefore, any ordered field, F, larger than R must be non-Archimedean. The failure of the Archimedean property in F means that F must have an element x such that $x > n$ for all natural numbers n. (Any ordered field must contain a copy of the natural numbers, and also fractions or "rational" numbers.) Such an x may be called an infinite number. Since F is a field, the positive element x must be invertible, and the inverse too must be positive, so we must have $0 < (1/x) < (1/n)$ for all natural numbers n. Such a number $(1/x)$ may be called an infinitesimal. Note that, unlike non-standard analysis, where such infinities and infinitesimals appear only at an intermediate stage, the infinities and infinitesimals in a non-Archimedean field are "permanent."

On the other side, of a number system smaller than R, a computer can only work with a finite number system. A computer cannot handle infinity or the continuum and uses instead floating point numbers. These numbers do not even obey the associative "law," and hence do not constitute a field.[33]

Both approaches (with a larger or smaller number system) fit into the *sunyavada* philosophy, which I call zeroism, which tells us that in representing an entity (any real entity, not merely a "real" number or integer) we are compelled to discard or "zero" some small aspect as "non-representable" on the grounds that "we don't care." This happens because any real entity constantly changes, though we usually neglect those changes as too tiny to care about. Likewise, when we speak of "two dogs" we do not thereby imply that the two dogs are identical but only that we don't care to describe the differences. The difference is that, on zeroism, it is not the representation that is erroneous, but the idealistic belief in "perfection" that is erroneous. This point of view is not found in Western philosophical thought about mathematics. The representation (of, say, B) can always be improved, but achieving "perfection" is impossible. This makes no difference to any practical applications: computer arithmetic is good enough for most practical applications of mathematics, and even calculations done by hand involving say, B, can only use a finite number of digits to represent B. Even theoretically zeroism has a clear advantage in the case of probability,[34] for probability cannot be recovered as the conventional limit of relative frequency.

Historically speaking, Indians used both rounding and discarding of infinitesimals, which are similar but not identical processes. The formula for an infinite geometric series was first developed using exactly such non-Archimedean arithmetic. From the time of the sixth century, Brahmagupta, Indians used polynomials, which they called unexpressed numbers. This naturally led to "unexpressed fractions" or ratios of polynomials, corresponding to what are today called "rational functions." These are an example of non-Archimedean arithmetic.[35] What are today called "limits" were determined in that non-Archimedean arithmetic using order counting or discarding infinitesimals very similar to discarding small numbers.[36] (Formally speaking, limits in a non-Archimedean field are not unique, as in R, but involve discarding infinitesimals. Thus, the best one can say is that for any infinite n, the inverse, $(1/n)$, is infinitesimal, not zero.) This was too sophisticated for Western mathematicians of the seventeenth century to understand: who lacked even a precise idea of infinitesimal and naively thought of it as a very tiny quantity.

It is well known that constructing the continuum required Cantor's set theory, which was full of holes exposed by paradoxes such as Russell's paradox. While the axiomatization of set theory resolved Russell's paradox, other paradoxes like the Banach-Tarski paradox still persist, though they are not so well known. According to this paradox, using set theory, one ball of gold can be cut into a finite number of pieces that can be reassembled into two balls of gold of the exact same size! Western mathematicians believe that to be a form of truth higher than

empirical truth, hence one on which they base present-day math! More fundamentally, the consistency of set theory is maintained by using double standards typical of theology: adopting separate standards of proof for metamathematics and mathematics. If transfinite induction were permitted in metamathematics, as it is in mathematics, that would make set theory decidable, hence inconsistent. If transfinite induction is not solid enough for metamathematics, why should it be acceptable in mathematics? Thus, it is only an agreement between Western scholars, an agreement which is sustained by a system of "authorized knowledge."

To reiterate, eliminating the Western metaphysics of infinity in present-day mathematics does not affect any practical applications of mathematics to science and engineering, which must all be done in the old way. For example, as already noted, all practical applications of the calculus to physics, such as sending a rocket to Mars, still involve Aryabhata's method of numerical solution of differential equations, or its variants.[37] This numerical solution is typically obtained today by using a computer that cannot handle the continuum.

SPREADING RELIGIOUS BIASES THROUGH MATH

Ironically, however, this cocktail of practical Indian mathematics and Western metaphysics was declared "superior" to the original, and returned to India, and globalized through colonial education. The claim of "superiority" is a fake one: one could, with stronger reason, maintain that empirical proofs are more reliable than the metaphysical claims of Western theologians about infinity, and reject formalism. This colonial story of "superiority" is central to Christian triumphalist history from Orosius to Toynbee, which predates also the racist claim of superiority put forward by Kant, for example.

Indeed, along with the practical value of mathematics, children today learn at an early age that empirical proofs are inferior. Now, all systems of Indian philosophy accept the *pratyaksa*, or empirically manifest, as the first means of *pramana*. This applies also to Indian *ganita*, which accepts empirical proofs. This means that along with mathematics, children today are implicitly taught in school that all systems of Indian philosophy are "inferior" compared to "superior" church metaphysics. Since Islamic philosophy too accepts *tajurba* as a means of proof, this bias is against all non-Christian beliefs.[38] Note, once again, that science too prefers empirical proofs to metaphysics, so accepting empirical proofs does not damage any practical applications of mathematics to science. However, Western metaphysical mathematics just gives our children that foolish sense of "superiority" and teaches them that they must reject all Indian traditions as "inferior."

Indian philosophers too have swallowed the story that mathematics involves some superior kind of knowledge ("binding on God," true in all possible worlds which God could create, true in all possible Wittgensteinian worlds on possible-world semantics). "As certain as 2+2=4," as even the late Daya Krishna once said to me. But why exactly is deduction a "superior" form of proof? Why should non-Christians accept that belief in superiority? When Western theologians claimed that logical proofs are "superior" (since logic binds God), they neglected to ask "which logic"? Logic is not universal. The Buddhist logic of *catuskoti* or the Jain logic of *syadavada* are not 2-valued, and not even truth-functional. Therefore, the theorems of mathematics are at best cultural truths relative to a culturally biased axiom set[39] and a culturally biased logic: in other words, mathematical theorems may be Christian truths, but they are far from being universal truths. The quickest way to show how a different logic would lead to a different mathematics is to see that proofs by contradiction would fail with a quasi truth-functional logic, though the consequences of changing logic obviously extend far beyond intuitionism.

CRITICALLY RE-EXAMINING WESTERN MATH

So, it is important to carefully examine the "superior" way of doing 2+2=4 as metaphysics, the links of this metaphysics to church theology, and whether that really is a superior way of doing mathematics or just an inferior misunderstanding that should be abandoned. The "superior" way to do 2+2=4 is to prove it as a theorem starting from Peano's axioms. However, Peano's axioms bring in infinity by the backdoor. The quickest way to see this to note that a computer can never do Peano arithmetic,[40] since that involves a notion of infinity. Once again, a computer can do all integer arithmetic needed for practical purposes; what it cannot do is handle the entire infinity of natural numbers, for any integer arithmetic on a computer will fail beyond some large number.

A critical examination of the Western philosophy of mathematics from a non-Western perspective was not even attempted for the almost two centuries since colonialism globalized Western education. That system of education, originally designed for missionaries, makes it almost impossible for anyone to carry out such a critical examination. The ordinary way of doing 2+2=4 is to point to two pairs of apples to make four apples. Most people think this is the only way. They are unaware that this empirical way is regarded as erroneous on the "perfect" or "superior" Western way of deducing 2+2=4 as a consequence of Peano's axioms or set theory. Most people never learn this "perfect" and "superior" way, perhaps because it is too complicated to teach axiomatic set theory at the high-school level.

Thus, when it comes to mathematics, for even a simple thing like 2+2=4, the Western-educated have no option but to confess their ignorance and rely on authority which is located in the West. Consequently, they accept Western mathematics as a package deal, and it does not strike them that it is possible to separate the original practical value of mathematics from its add-on, metaphysics. More people need to be informed about this cocktail of practical value and religious belief, which indoctrinates millions of children into religious biases, though they come to school to learn only the practical applications of mathematics.

Recently, a serious challenge to the Western philosophy of mathematics as metaphysics did come up, through my philosophy of zeroism, Western mathematicians, their followers, and Western philosophers of mathematics are the ones now reduced to silence, for there is no answer to these potent objections.

WHAT IS THEORETICALLY NEEDED TO APPLY CALCULUS TO SCIENCE?

So far as practical applications of mathematics to science are concerned, we have seen that the continuum is a redundant piece of metaphysics. However, the theoretical defects in the Western misunderstanding of the Indian calculus, even from within formalism, were exposed long ago. On university-text calculus, a differentiable function must be continuous, so a discontinuous function cannot be differentiated. However, long before the axiomatization of set theory, which supposedly made calculus "rigorous" by giving an acceptable basis to the continuum, Heaviside was merrily differentiating discontinuous functions in his operational calculus, for the need to do so arises in science and engineering. The formalized version of Heaviside's theory is known as the Schwartz theory of distributions. This permits a discontinuous function to be infinitely differentiated.

So what exactly is the definition of the derivative one must use in physics? The one on which a discontinuous function is not differentiable, or the one on which it is infinitely differentiable? "Choose what you like" is the typical response of a formal mathematician. This may sit well with the belief that mathematics is metaphysics, but the slightest reflection shows that, since mathematics is an integral part of physics, this "choose what you like" response makes the resulting physics irrefutable, hence unscientific in a Popperian sense.

Worse, we *cannot* choose what we like, since *both* definitions are inadequate. The inadequacy of the Schwartz theory was established even before its birth, for products of distributions arise in the S-matrix expansion in quantum field theory, and such products are not defined on the Schwartz theory.[41] Many equations of physics, such as the equations of fluid dynamics, or of general relativity, are non-linear partial differential equations. Shocks arise naturally, and represent a (hyper)surface of discontinuity. If we use university-text calculus, based on the continuum, then the derivative of a discontinuous function is not defined, so the "laws of physics" break down, as, for example, in Stephen Hawking's creationist claim that a singularity represents the moment of Christian creation when the "laws of physics" break down.[42] If we use the Schwartz theory, then derivatives are defined, but not products, so there is again a problem. (A similar problem arises in quantum field theory, and is known as the renormalization problem.)

To be sure, there are umpteen definitions of the product of Schwartz distributions, including one that I proposed long ago, using non-standard analysis.[43] The problem is which one to choose. There are two ways of deciding: 1) consult an authoritative Western mathematician, and 2) choose the definition which best fits the widest spectrum of practical applications, where the "best fit" is to be decided by empirical proof or an empirical test of the consequences. Most mathematicians will prefer the first method, for formal mathematics, like theology, is all about authority. But this method does not suit science, so I prefer the second one of relying on practical applications. That makes mathematics just an adjunct physical theory. This also selects out my definition, which is the only one which works for both classical physics[44] and quantum field theory.[45]

The interesting thing is this. While my definitions initially used non-standard analysis, it can all be done just as easily using a non-Archimedean ordered field.[46] That brings us back full circle to the original Indian understanding of the calculus as best suited even to present-day science. So, we should discard formalist mathematics as merely a biased metaphysics of infinity, based on Western notions of eternity, and a Western misunderstanding of Indian calculus, which does not properly fit either the calculus or its applications to current science.

NOTES

1. C. K. Raju, "Probability in Ancient India", ch. 37 in *Handbook of the Philosophy of Science, vol 7. Philosophy of Statistics*, ed. Prasanta S. Bandyopadhyay and Malcolm R. Forster, General ed. Dov M. Gabbay, Paul Thagard and John Woods (Elsevier, 2011), 1175–96, http://www.ckraju.net/papers/Probability-in-Ancient-India.pdf.
2. For a short account, see "Cultural Foundations of Mathematics," Ghadar Jari Hai, 2, no. 1 (2007): 26–29, http://ckraju.net/papers/GJH-book-review.pdf.
3. For a detailed discussion of this issue of empirical vs deductive proofs, see C. K. Raju, "Computers, Mathematics Education, and the Alternative Epistemology of the Calculus in the YuktiBhâsâ," *Philosophy East and West* 51, no. 3 (2001): 325–62, http://ckraju.net/papers/Hawaii.pdf.
4. Apastamba sulba sutra 3.2.
5. Baudhayana sulba sutra 2.12.
6. *Aryabhatiya*, Ganita 10.
7. Nilakantha, *Aryabhatiyabhasya*, commentary on Ganita 10, Trivandrum Sanskrit Series, 101, reprint 1977, p. 56, and its translation in C. K Raju, *Cultural Foundations of Mathematics* (Pearson Longman, 2007), 125-26.
8. Nılakantha, *Aryabhatıyabhasya*, cited earlier, commentary on Ganita 17, p. 142.
9. Contrary to the wrong derivation of mathematics from "mathema," given currency by the Wikipedia, Proclus clearly derives mathematics from "mathesis." "This, then, is what learning (μάθεσιή) [mathesis] is, recollection of the eternal ideas in the soul; and this is why the study that especially brings us the recollection of these ideas is called the science concerned with learning (μαθέματικζ) [mathematike]). Its name thus makes clear what sort of function this science performs. It arouses our innate knowledge . . . takes away the forgetfulness and ignorance [of our former existence] that we have from birth, . . . fills everything with divine reason, moves our souls towards Nous, . . . and through the discovery of pure Nous leads us to the blessed life." Proclus, *Commentary on the Elements* [Corrected title], trans. Glenn R. Morrow (Princeton University Press, Princeton, 1992), 47, p. 38.
10. Plato, Meno, In *The Dialogues of Plato*, trans. B. Jowett, Encyclopedia Britannica (Chicago, 1994), 179–80.
11. C. K. Raju, *Euclid and Jesus: How and Why the Church Changed Mathematics and Christianity across Two Religious Wars* (Multiversity, 2012).
12. C. K. Raju, "The Curse on 'Cyclic' Time," in *The Eleven Pictures of Time* (Sage, 2003), ch. 2.
13. C. K. Raju, "The Religious Roots of Mathematics," *Theory, Culture & Society* 23, no.1–2 (Jan–March 2006): 95–97, http://ckraju.net/papers/religious-roots-of-math-tcs.pdf.
14. C. K. Raju, "Euclid and Hilbert," in *Cultural Foundations of Mathematics* (Pearson Longman, 2007), ch. 1.
15. For the purposes of this article, the fine distinction between logicism and formalism is irrelevant, and distracting, for my key concern is with the issue of empirical proofs and "perfection"

of mathematics. Both Russell and Hilbert followed a similar historical trajectory in first analyzing the *Elements*, and writing books, both titled *Foundations of Geometry*, and then proposing to get rid of empirical proofs not only in the *Elements* but in all mathematics. I will refer to that sort of mathematics, divorced from the empirical, which was globalized by colonialism, and is taught today in schools and universities as "formal mathematics."

16. C. K Raju, "Math Wars and the Epistemic Divide in Mathematics," ch. 8 in *Cultural Foundations of Mathematics*, cited above.
17. See, e.g., *Algebra....from the Sanscrit of Brahmegupta and Bhascara*, trans. H. T. Colebrooke, John Murray (London, 1817).
18. For a picture of this abacus, see *Euclid and Jesus*, cited above.
19. For detailed documentation of this claim of transmission of calculus from India to Europe, see C. K. Raju, *Cultural Foundations of Mathematics: The Nature of Mathematical Proof and the Transmission of the Calculus from India to Europe* (Pearson Longman, 2007).
20. For a complete tabulation of the sine values and errors involved, see Tables 3.1 and 3.2 in ch. 3, "Infinite series and π" in *Cultural Foundations of Mathematics*, cited above.
21. R. Descartes, *The Geometry*, trans. David Eugene and Marcia L. Latham, Encyclopaedia Britannica (Chicago, 1996), Book 2, 544.
22. For a short account of Galileo's letters to Cavalieri, see Paolo Mancosu, *Philosophy of Mathematics and Mathematical Practice in the Seventeenth Century* (Oxford University Press, Oxford, 1996), 118–22.
23. George Berkeley, *The Analyst or a Discourse Addressed to an Infidel Mathematician*, 1734, ed. D. R. Wilkins, http://www.maths.tcd.ie/pub/HistMath/People/Berkeley/Analyst/Analyst.html.
24. C. K. Raju, "Towards Equity in Math Education 2. The Indian Rope Trick," *Bharatiya Samajik Chintan* (New Series) 7, no. 4 (2009): 265–69.
25. I. Newton, *The Mathematical Principles of Natural Philosophy*, A. Motte's translation revised by Florian Cajori, Encyclopedia Britannica, Chicago, 1996, "Absolute, true, and mathematical time . . . flows equably without relation to anything external." For a detailed analysis of how Newton made time metaphysical, see C. K. Raju, "Time: What Is It That It Can Be Measured," *Science & Education* 15, no. 6 (2006): 537–51.
26. Sriharsa, *KhandanaKhandaKhadya*. IV.142. For a discussion in the context of McTaggart's paradox, see "Philosophical Time," ch. 1 in *Time: Towards a Consistent Theory* (Kluwer Academic, 1994).
27. Raju,*Time: Towards a Consistent Theory*. For a quick summary, see, C. K. Raju, "Retarded Gravitation Theory," in *Sixth International School on Field Theory and Gravitation*, eds. Waldyr Rodrigues, Jr., Richard Kerner, Gentil O. Pires, and Carlos Pinheiro (New York: American Institute of Physics, 2012), 260–76, http://ckraju.net/papers/retarded_gravitation_theory-rio.pdf.
28. For the construction of formal real numbers using "Dedekind cuts," see any standard text on mathematical analysis, e.g. W. Rudin, *Principles of Mathematical Analysis* (McGraw Hill, New York, 1964). Real numbers are an uncountable infinity.
29. C. K. Raju, "*Atman*, Quasi-Recurrence, and *paticca samuppada*," in Self, *Science and Society, Theoretical and Historical Perspectives*, ed. D. P. Chattopadhyaya, and A. K. Sengupta, PHISPC (New Delhi, 2005), 196–206, http://ckraju.net/papers/Atman-quasi-recurrence-and-paticca-samuppada.pdf.
30. C. K. Raju, *The Eleven Pictures of Time*, cited above.
31. Ioannes Philoponus, *De aeternitate mundi contra Proclum*, (Leipzig: B. G. Teubner, 1899).
32. The church-state alliance meant that the state ruled. This was achieved by the post-Nicene change in church beliefs. "Rulers rule by driving terror in the hearts of the ruled. But what weapon did the priest have to perpetuate his rule? All he had was a doctrine of universal love which frightened no one. Therefore, the Christian doctrine itself was refashioned into a weapon. . . . The new doctrine enabled the priest to strike superstitious terror in the hearts of simple people who believed what they were told." C. K. Raju, *Euclid and Jesus* (Multiversity, 2012), 79.
33. An example computer program is given in C. K. Raju, "Computers, Mathematics Education, and the Alternative Epistemology of the Calculus in the YuktiBhâsâ," *Philosophy East and West*, 51, no. 3 (2001): 325–62, http://ckraju.net/papers/Hawaii.pdf. Similarly, a computer can never do Peano arithmetic. The theory for both floats and ints is explained in my classroom notes on computer programming, put up at http://ckraju.net/hps2-aiu/ints.pdf and http://ckraju.net/hps2-aiu/floats.pdf.
34. C. K. Raju, "Probability in Ancient India," ch. 37 in *Handbook of the Philosophy of Science*, vol. 7, *Philosophy of Statistics*, ed. Prasanta S. Bandyopadhyay and Malcolm R. Forster. General Editors: Dov M. Gabbay, Paul Thagard, and John Woods (Elsevier, 2011), 1175–96.
35. An elementary construction of the non-Archimedean field of rational functions is given in E. Moise, *Elementary Geometry from an Advanced Standpoint* (Reading, Mass.: Addison Wesley, 1963).
36. *Cultural Foundations of Mathematics*, cited earlier.
37. Aryabhata did solve differential equations using what is today called Euler's method. (Euler studied Indian texts.) Specifically, his method of obtaining sine differences cannot be understood as an algebraic equation. *Cultural Foundations of Mathematics*, cited earlier, ch. 3.
38. This is along the lines that teaching Aquinas's irrefutable belief in "laws of nature" through "Newton's laws," as the first lesson in science, can and has been used for religious propaganda against Islam. See C. K. Raju, "Islam and Science," keynote address at International Conference on Islam and Multiculturalism, University of Malaya, in *Islam and Multiculturalism: Islam, Modern Science, and Technology*, ed. Asia-Europe Institute, University of Malaya, and Organization for Islamic Area Studies, Waseda University, (Japan, 2013), 1–14, http://ckraju.net/hps-aiu/Islam-and-Science-kl-paper.pdf.
39. The continuum is a culturally biased axiom set as pointed out by Naqib al Atas, for Islamic philosophers preferred an atomic number system. See, further, C. K. Raju, "Teaching Mathematics with a Different Philosophy. 1: Formal Mathematics as Biased Metaphysics," *Science and Culture* 77, no. 7-8 (2011): 275–80, http://www.scienceandculture-isna.org/July-aug-2011/03%20C%20K%20Raju.pdf.
40. See Raju, "Computers, Mathematics Education, and the Alternative Epistemology of the Calculus in the YuktiBhâsâ." The theory for ints is explained in my classroom notes on computer programming, at http://ckraju.net/hps2-aiu/ints.pdf.
41. C. K. Raju, "Distributional Matter Tensors in Relativity," in *Proceedings of the 5th Marcel Grossmann Meeting on General Relativity*, ed. D. Blair and M. J. Buckingham, R. Ruffini (series ed.) (Singapore: World Scientific, 1989), 421–23. arxiv: 0804.1998.
42. A detailed analysis of Stephen Hawking's singularity theory and its linkages to Christian theology may be found in *The Eleven Pictures of Time*, cited earlier.
43. C. K. Raju, "Products and Compositions with the Dirac Delta Function," *J. Phys. A: Math. Gen.* 15 (1982): 381–96.
44. C. K. Raju, "Junction Conditions in General Relativity," *J. Phys. A: Math. Gen.* 15 (1982): 1785–97. See also "Distributional Matter Tensors in Relativity" cited above for new shock conditions. For a more recent exposition of a link between renormalization theory and a modification of Maxwell's equations, see C. K. Raju, "Functional Differential Equations. 3: Radiative Damping," Physics Education (India), 30, no. 3, article 7, Sept. 2014, http://www.physedu.in/uploads/publication/15/263/7.-Functional-differential-equations.pdf.
45. C. K. Raju, "On the Square of x^{-n}," *J. Phys. A: Math. Gen.* 16 (1983): 3739–53. C. K. Raju, "Renormalization, Extended Particles, and Non-Locality," *Hadronic J. Suppl.* 1 (1985): 352–70.
46. "Renormalization and Shocks," appendix to *Cultural Foundations of Mathematics*, cited above.

CALL FOR PAPERS

Special Issue **"Contested Terrains: Third World Women, Feminisms, and Geopolitics"**

Volume 32 Issue 3, 2017

Guest Editors: Ranjoo Herr (Bentley University) and Shelley Park (University of Central Florida)

Hypatia seeks papers for a special issue on "Contested Terrains," featuring feminist scholarship that explores the varied geopolitical landscapes on which contestations about feminist theories and practices regarding Third World women are situated. The experiences and perspectives of Third World women have been frequently erased, distorted, and manipulated both by dominant feminist discourses and by dominant geopolitical discourses. Long after the proclaimed demise of second wave feminism in the academy, neoliberal feminist discourses continue to dominate within neocolonial geopolitical regimes. Conventional geopolitical discourses flatten the complexity of Third World women's lives and ignore their diversely embodied, material, and psychic realities within nations by emphasizing conflicts and alliances between nation-states. We invite feminist analyses that rescale geopolitical landscapes, shifting our attention from the macroscopic perspectives of international affairs and globalization to the smaller scale connections between space and politics that play out at the level of Third World women's intimate lives, community practices, and everyday tactics of survival and resistance. Papers that explore the ways in which race, ethnicity, class, gender, sexuality, disability, age, and other forms of difference intersect with issues of geopolitical location are encouraged.

This special issue starts from the premise that differences and disagreements among women have value. Thus, we encourage submissions that explore tensions among women—locally, regionally, nationally, and globally—as a potential source of productive feminist questioning, reflection, knowledge, and practice. At the same time, such tensions should not be romanticized; disagreements are experienced differently and disproportionately by diverse participants with varying issues at stake. Because the material and psychic consequences of disagreement are rarely distributed evenly across geopolitical terrains, contributors are encouraged to analyze the consequences—as well as the origins—of contestations between and among Third World and First World women.

We use the identifier "Third World women" here to center the perspectives of women of color who—whether living in the Third World or in the First World—contest the neocolonialism and cultural imperialism of the First World, including First World feminisms. However, contributions critically examining geopolitical divisions of the globe into "First" and "Third" worlds (or other conventional geopolitical mappings) are welcome. How best to describe the differing geopolitical contexts of different feminisms in the era of economic, political, and cultural globalization is—and should be—itself a site of contestation.

Possible topics may include:

- **Contested discursive terrains:** For example, the contested geopolitical partitionings of West/East; North/South; or First World/Third World and competing feminist understandings of globalization as embedded in theories of "Third World feminism," "transnational feminism," "women of color feminism," "postcolonial feminism," and "global feminism."

- **Contested epistemological terrains:** For example, inequitable access to publishing resources, the privileging of written over oral traditions, and different understandings of cultural intelligibility.

- **Contested political terrains:** For example, the geopolitics of war, military occupations, nationalism, patriotism, terrorism, migration, border patrols, detention, and deportation; differing experiences of trauma and violence, security and danger.

- **Contested economic terrains:** For example, resource conflicts between and among women (and girls) situated differently as owners, sellers, consumers, workers, and commodities in various industries ranging from agriculture to technology to tourism.

- **Contested terrains of kinship:** For example, local and global disagreements among women concerning the ethics of polygamy, arranged marriages, transnational adoptions, and other familial forms.

- **Contested terrains of solidarity:** For example, the struggles that arise between women, locally and globally, with different ethico-political values or priorities; how allies often harm those they intend to help.

Submission deadline: December 1, 2015

Papers should be no more than 8,000 words, inclusive of notes and bibliography, prepared for anonymous review, and accompanied by an abstract of no more than 200 words. In addition to articles, we invite submissions for our Musings section. These should not exceed 3,000 words, including footnotes and references. All submissions will be subject to external review. For details, please see *Hypatia*'s submission guidelines.

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