

Representation and Reasoning in Vedānta

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Abstract

This paper considers the matter of representation in Vedānta by examining key claims in the *Ṛgveda* and the *Upaniṣads*, which are some of its principal texts. Specifically, we consider the logic behind the paradoxical verses on creation and the conception of consciousness as the ground on which the physical universe exists. This also is the template that explains the logical structure underlying the principal affirmations of the *Upaniṣads*. The five elements and consciousness are taken to pervade each other, which explains how gross matter is taken to consist of all the four different kinds of atoms that get manifested in different states of the substance. The verses on creation are an example of the use of *catuṣkoṭi* in Indian philosophy prior to the use of it by Nāgārjuna in the Madhyamaka tradition. It also contrasts central ideas of Vedānta with the corresponding contemporary scientific ideas on consciousness.

Keywords: logic in Vedānta, consciousness, superposition, error in reasoning, representation.

1. Introduction

This essay considers representation at the basis of reasoning in Vedānta. For this we use some references from *Upaniṣads* which, together with the *Brahma Sūtras* and the *Bhagavad Gītā*, are the fundamental texts of Vedānta. Since their dates are indubitably much before the rise of Buddhism, one need not be concerned about questions of the possible innovations of Buddhism having influence on it. The motivation is not only to determine how reasoning was used and described but also throw light on some key passages of the *Upaniṣads*.

Vedānta is concerned with the *jñānakāṇḍa* or the knowledge portion of the Vedas and, therefore, it addresses the duality between the subject and the object as well the presumed unity of knowledge. The *Upaniṣads* assert that knowledge is paradoxical: *parokṣa-priyā iva hi devāḥ*, “the gods love what is

paradoxical” (*Aitareya Upaniṣad* 1.3.11; *Bṛhadāraṇyaka Upaniṣad* 4.2.2). This is explained elsewhere (such as *Muṇḍaka Up.* 1.1.4) on the basis of knowledge being of two kinds: first, of things (*dravya*, substance, that can also be an abstraction as in Pāṇini’s *Aṣṭādhyāyī* 1.2.45) and their relationships (*aparā*, lower); and second, of cognitions and consciousness (*parā*, higher). Words represent the *aparā* perspective, whereas the sentence communicates the *parā*, and paradox arises when these two categories are conflated [1].

For the reasons articulated in Vedānta, paradoxes are a common theme in Hindu mythology (e.g. [2]) and also in the grammatical tradition, emphasizing the inconsistency of language when it contains its own truth predicate. An example of the latter is the Bhartṛhari’s paradox [3] that if something is unnameable or unsignifiable (Sanskrit: *avācya*) it becomes nameable or signifiable precisely by calling it unnameable or unsignifiable. Bhartṛhari in *Vākyapadīya* 3.3.25 mentions *sarvam mithyā bravīmi*, “everything I am saying is false” to highlight the tension between the lower and the higher meanings.

The Vedānta tradition asks how the physical universe and consciousness, which belong to different categories, interact with each other given that normal evolution goes according to natural law (Sanskrit *ṛta*). To put this question in a contemporary perspective, note that the case has been made that consciousness, that is awareness of internal or external existence, is not computable [4], [5], that is it cannot be explained in terms of known physics or computing models. Furthermore, everything is taken to be part of a causal chain where the past determines the future, yet individuals believe that they possess freedom.

Language is associated with the mind, and thus with the brain, and it is interesting that neural network theory provides a number of autonomous agents of the brain that is consistent with the Sāṅkhya categories [6]. Also, according to the *drṣṭi-drṣṭi-vāda* of Vedānta, observation (*drṣṭi*) [7] leads to creation (*srṣṭi*) which may be compared to the Quantum Zeno Effect where a quantum state can be steered by observation alone [8]. This reasoning is perfectly consistent with the general framework of Indian logic that includes conscious agents [9], [10].

This essay examines the paradoxical nature of knowledge in the Indian tradition by considering claims in early Vedānta literature. We begin with the Creation Hymn of the *Ṛgveda*, analyze key passages from the *Upaniṣads* for their logical structure, and discuss how *adhyāsa*, that is superimposition of characteristics of one entity on to another, becomes a source of error.

2. Paradox in the Creation Hymn

Consider the *Ṛgveda* where in the hymn 10.129 (Creation Hymn or the *Nāsadīya Sūkta*) reality is represented in terms of logical divisions that were later formalized as the four corners of *catuṣkoṭi*: “A” (affirmation), “not A” (negation), “A and not A” (both), and “not A and not not A” (neither). The difficulties of interpreting *catuṣkoṭi* in Buddhist narratives are well known [10], and it is not our purpose to go into these.

For any claim, A, one can speak of four possible cases:

- (a) A
- (b) $\neg A$
- (c) $A \wedge \neg A$
- (d) $\neg (A \vee \neg A)$

The interpretation of each of these cases depends on how the claim is defined in the universe of possibilities. If the universe consists of clearly defined objects (such as colored or numbered balls) and A represents balls of specific color or colors or numbers with a given property, then case (c) is the null

set, and (d) is equivalent to (c), which doesn't make the scheme useful. But if some of the balls have multiple numbers, or properties that are superpositions (as, say, in quantum theory, or in real life) then this may be of value in certain deductions.

For example, consider the set $\{1,2,3/4,5,6\}$, where $3/4$ means dual label of 3 or 4. Let A be numbers that are even: $\{2,3/4,6\}$. Then $\neg A: \{1,3/4,5\}$; $A \wedge \neg A: \{3/4\}$; and $\neg A \wedge \neg \neg A: \{3/4\}$. There can be other more interesting examples, where the cases (c) and (d) are not identical. In general, the Venn diagram for the *catuṣkoṭi* will be as below, where the properties of A are defined suitably.

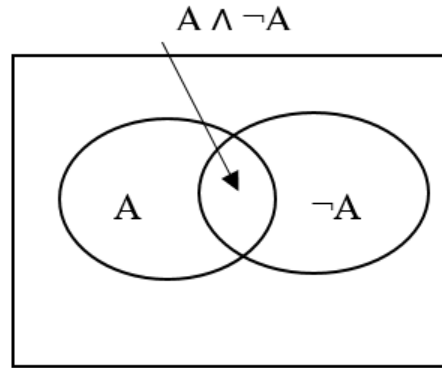


Figure 1: Venn diagram for A and $\neg A$.

Let us now consider the first two verses of RV 10.129 that describe the universe at creation:

*nāsad āsīn no sad āsīt tadānīm
nāsīd rajo no vyomā paro yat
kim āvarīvaḥ kuha kasya śarmann
ambhaḥ kim āsīd gahanam gabhīram*

Not non-existence was it nor existence was it then; there was no air nor the heavens beyond. What covered it? Where? By who sheltered? Was water there, an abyss unfathomable?

*na mṛtyur āsīd amṛtaṃ na tarhi
na rātriyā ahna āsīt praketaḥ
ānīd avātaṃ svadhayā tad ekaṃ
tasmād dhānyan na paraḥ kiṃ canāsa*

Neither death was there nor immortality then, not of night or day was there distinction. That alone breathed without air by its own power; apart from that there was none else.

In this description of the creation of the universe, the first verse speaks of there being neither existence nor non-existence, which appears illogical given that if there is no existence then one has non-existence, so how can one make the assertion of no non-existence. It further asks what the covering was over this state, hinting that something additional had been left out.

The second verse clarifies the ambiguity by explaining that this was before time came into the picture (so no death, nor immortality), indicating further that what remained was the *cover* within which existence and non-existence were wrapped, as indicated in the first verse.

3. The Interpenetrating Elements and the Witness

In the Sāṅkhya system, reality may be seen through the two elements of *puruṣa* (consciousness) and *prakṛti* (nature). These two, in turn, lead to another twenty-three elements (*tattvas*), namely intellect (*buddhi* or *mahat*), ego (*ahaṅkāra*) mind (*manas*); five sensory capacities; five action capacities; and five “subtle elements” or potentialities (*tanmātras*), from which the five gross elements (*mahābhūtas*) of *prthivī*, *āpas*, *tejas*, *vāyu*, *ākāśa* arise. The interplay of all these elements leads to sensory experience and cognition.

But it is important to note that the Sāṅkhya categories are not hierarchically defined, or separated from each other, as in the case of the contemporary scientific view in which chemistry *emerges* from physics, biology from chemistry, and consciousness from the complexity of the electrical activity in the brain. The relationship between the Sāṅkhya *tattvas* is similar to the relationship between the classes of existence and non-existence. To understand this, it is helpful to go to the famous dialogue between Yājñavalkya and Gārgī in the Bṛhadāraṇyaka Upaniṣad (BU 3.8), which by scholarly consensus is considered several centuries prior to the Buddha. The setting for the dialogue is the series of questions that Gārgī asks of the sage Yājñavalkya.

The first questions with answers describe how the elements are pervaded by other elements in a sequence:

Verse 3.6.1:

yadidaṃ sarvamaṃsvotaṃ ca protaṃ ca, kasminnu khalvāpa otāśca protāśceti; vāyau gārgīti; kasminnu khalu vāyurotaśca protaśceti; antarikṣalokeṣu gārgīti

If all this is pervaded (Skt. *ota-prota*) by water, by what is water pervaded?’ ‘By air, O Gārgī.’

‘By what is air pervaded?’

‘By the sky, O Gārgī.’

This means that the five elements (*mahābhūtas*) of *prthivī*, *āpas*, *tejas*, *vāyu*, *ākāśa* that are normally translated as earth, water, fire, air, and ether are not quite identical to the conventional meaning of these terms. The Sanskrit word *ota-prota* means interweaving, and it implies that the elements are always presents in what might be seen as entanglement with the other elements. Also note that *ota-prota* is a symmetric concept, so that if A pervades B, then B also pervades A. The literal meaning of *ota-prota* is from *ota* (from *udīcī*, northward) and *protā* (from *prācī*, eastward), that is lengthwise and crosswise weaving.

The Vaiśeṣika system explains that four elements *prthivī*, *āpas*, *tejas*, and *vāyu* are atomic and gross matter consists of all four [12]. The example is given that gold normally is solid (seemingly, and erroneously, only *prthivī* atoms), but when it is heated it becomes liquid (*āpas* atoms get manifested), and further heating it starts to flame (*tejas* atoms manifested), and if the process is continued it will lose mass (owing to the working of the *vāyu* atoms).

Further on in the dialogue, Yājñavalkya says:

Verse 3.8.4:

sa hovāca, yadūrdhvaṃ gārgi divaḥ, yadavāk prthivyāḥ, yadantarā dyāvāprthivī ime, yadbhūtaṃ ca bhavacca bhaviṣyaccetyācakṣate, ākāśe tadotaṃ ca protaṃ ceti

He said, ‘That, O Gārgī, which is above heaven and below the earth, which is this heaven and earth as well as between them, and which they say was, is and will be, is pervaded by the unmanifested ākāśa.’

In this cosmology, the physical universe with objects is composed of the elements pṛthivī, āpas, tejas, and vāyu that are pervaded by ākāśa (ether). And finally, all this is contained within “consciousness”:

Verse 3.8.11:

*tadvā etadakśaram gārgyadr̥ṣṭam draṣṭr, aśrutam śrotṛ, amataṃ manṛ, avijñātam vijñāṭṛ;
nānyadato'sti draṣṭr, nānyadato'sti śrotṛ, nānyadato'sti manṛ, nānyadato'sti vijñāṭṛ;
etasminnu khalvakśare gārgyākāśa otaśca protaśceti*

This immutable, O Gārgī, is never seen but is the witness; It is never heard, but is the hearer; It is never thought, but is the thinker; It is never known, but is the knower. There is no other witness but this, no other hearer but this, no other thinker but this, no other knower but this. By this immutable, O Gārgī, is the (unmanifested) ākāśa pervaded.

There are two interesting aspects of this assertion:

1. Witness (*draṣṭr*) – and hearer, thinker, knower – is the name given to the conscious agent behind the cognition that takes place in the mind.
2. This consciousness does not only reside in physical space, but transcends it.

Now we can return to the Creation Hymn (RV 10.129), and see that non-existence and existence were within the cover of this consciousness, who is the Witness. It is only later that time and space were created and then one can speak of things.

Since consciousness is taken to transcend physical space and time, it doesn't figure in the definition of “existence” and “non-existence” (Figure 2).

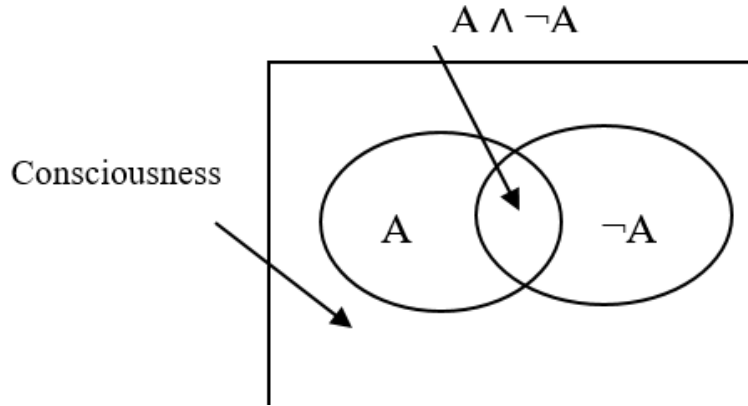


Figure 2: The universe within consciousness.

Considering consciousness as the “ground” on which the physical universe is created leads to several representational paradoxes. Noting that *Brahman* is the term used to define the Universe together with consciousness, the following *mahāvākyas* (great statements) from the *Upaniṣads* sum up the heart of the Vedic conception:

1. *tat tvam asi*, That thou art. *Chāndogya Upaniṣad* 6.8.7.
2. *aham brahmāsmi*, I am Brahman. *Bṛhadāraṇyaka Upaniṣad* 1.4.10.
3. *prajñānam brahma*, Consciousness is Brahman. *Aitareya Upaniṣad* 3.3.
4. *ayam ātmā brahma*, This self (ātman) is Brahman. *Māṇḍūkya Upaniṣad* 1.2.

The first means that Brahman includes all that one can see and think of, so it includes both physical and

cognitive categories; the second means that the consciousness that illuminates the mind (the individual self) is the same as the “ground” on which the universe exists; the third and the fourth are direct assertion of the identity of consciousness and the universe.

By including consciousness within the conception of the universe, one can speak of paradoxes concerning whether one is in true reality or merely a simulation of it, which is a matter that contemporary futurists have speculated on. Ordinary consciousness has time as a foundational element, but the time variable depends on physical phenomena. In contemporary discourse, it has been said that, someday, technology will make it possible for humans to become “post-human,” that is, transcend the limits of the human condition [12]. There are others who believe that the only way to make sense of all the scientific facts is to take reality as a simulation. Another scenario is to imagine that once humans learn how to completely characterize brains, they will be able to copy themselves into computers, creating their emulations, or *ems*, in the process. In a world of emulations, one cannot speak of what is real.

The paradoxes related to the impossibility of determining the difference between an event and a simulation thereof are encountered in the Purānas [2], the Yoga Vāsiṣṭha [13], and other books.

Although these paradoxes may be resolved by privileging the initial state as real and the later states as simulations or dream states, that cannot be done otherwise. In absolute terms, the situation becomes one of unresolvable illusion, which is called the Māyā.

Consciousness is not a property of Brahman but its very nature. Brahman is one without a second, all-pervading and the immediate awareness and in this abstraction it is *nirguṇa* Brahman, or Brahman “without qualities.” This Brahman is ever known to itself and constitutes the reality in all individuals selves, while the appearance of our empirical individuality is due to *avidyā* (identification with our material self).

Brahman thus cannot be known as an individual object distinct from the individual self. However, it can be experienced indirectly in the natural world of experience in the mind. Later Vedānta speaks of Brahman as the light (*Prakāśa*) that illuminates the mind [14].

4. The Problem of Time

The problem of distinction between the real and its emulation is a part of the larger question of the relationship between consciousness and time. Ordinary consciousness is anchored on physical phenomena and time as a conceptual category becomes problematic even in contemporary cosmology where in the theory of black holes, time and space are assumed to flip to make sense of how an object simply disconnects from the rest of the physical world [15].

To emphasize the relative nature of time and space, there are stories in the flow of time at different rate for individuals in different worlds [2]. To give an example, the *Devi Bhāgavata Purāṇa*, has the story of the sage Nārada questioning Viṣṇu about this, who says: “Before I explain, will you fetch me some water?” pointing to a river. Nārada does as he was told, but on his way back, he sees a beautiful woman. Smitten by her, he begs the woman to marry him. She agrees and he forgets about Viṣṇu.

Nārada builds a house for his wife on the banks of the river. She bears him many children. Loved by his wife, adored by his sons and daughters, and by his grandchildren, he feels happy and secure. Suddenly, dark clouds appear in the sky and there is thunder, lightning, and rain. The river overflows, breaks its banks and washes away Nārada’s house, drowning everyone he loved, and destroying everything he possessed. Swept away by the river, he cries for help, and Viṣṇu from nowhere stretches out his hand and pulls him out of the water. Viṣṇu asks, “Where is my water?” And the spell that was upon Nārada breaks, and he realizes that the years that he felt he had spent with his family, which had brought him such joy, were just an instant.

Ordinary consciousness in our mind is grounded on objective reality, in the absence of which one cannot distinguish between real and dream states.

5. Brahman as the Universal Set

We now return to the Brhadāranyaka Upaniṣad verses about the interweaving (or interpenetration) of the different elements. This may be represented variously and for illustration we do so in Figure 3.

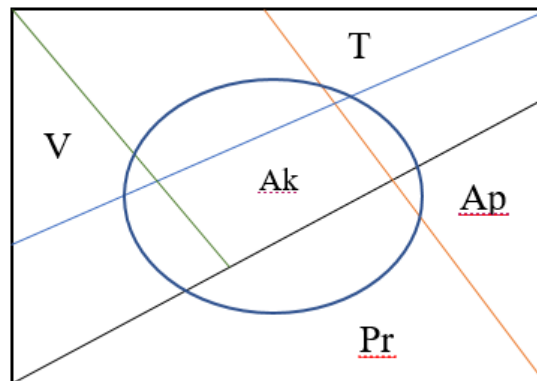


Figure 3: The interweaving of the elements.

Consciousness pervades through all the elements and it is accessible directly to the individual in the light that illuminates the mind, which is an instrument based on the brain's neural networks.

The mind is atomic and its size depends on the acuteness of its concentration, therefore it apprehends consciousness that can be as small as is possible and since it is the foundation for reality, it is also as large as can be conceived. This is expressly stated at many places as in the Īśa Upaniṣad, which is one of the most significant texts of Vedānta. Speaking of the *ātman* (consciousness), it says:

*anejadekaṃ manaso javīyo nainaddevā āpnuvanpūrvamarṣat |
taddhāvato 'nyānatyeti tiṣṭhattasminnapo mātariśvā dadhāti*

The [ātman] is motionless, yet faster than the mind; and the senses cannot overtake for it runs before them. Inactive, it goes faster than those who run after it. In it, the all-pervading air supports the activity of all beings.

*tadejati tannaijati taddūre tadvantike |
tadantarasya sarvasya tadu sarvasyāśya bāhyataḥ*

It moves, yet it is motionless. It is distant, yet it is near. It is within all, yet it is outside of all.

Brahman as the universal set is accessible to us through our mind means that it is possible to reach false judgments about things by invalid associations. A common error of perception arises from conflation of material and cognitive aspects of one's self, and similar errors can also arise within a more limited locus based on invalid generalization from a limited set of attributes.

6. Error and True Knowledge

The Advaita Vedānta scholar and teacher Ādi Śaṅkara used the term *adhyāsa* to indicate erroneous or illusory perception. In the introduction to the *Brahma Sūtra*, Śaṅkara defines *adhyāsa* as the apprehension of something as something else with two kinds of confounding, namely as the object and its properties. The illusory object, like the real object, has a definite locus [16].

The Advaita theory of error (*anirvacanīya khyāti*, the apprehension of the indefinable) holds that misperception is a product of the ignorance about the substratum. The illusion could arise from association with the memory of a previous experience (*smṛtirupaḥ paratra pūrva dr̥ṣṭaḥ avabhāsaḥ*), or confounding the appearance of one thing with the properties of another (*anyasya anyadharmā avabhāsatam*).

Adhyāsa arises when properties of the body are superimposed on the experiencing self. The argumentation in the *Brahma Sūtras* is to establish that consciousness cannot arise from the body alone [17] which is the same view that consciousness cannot be computed or computers will never be conscious [4].

7. Conclusions

This essay presented the logical framework in which reasoning is done in Vedānta. It began with the Creation Hymn of the Ṛgveda, analyzed key passages from the Upaniṣads for their logical structure, and discussed how *adhyāsa*, that is superimposition of characteristics of one entity on to another, can become a source of false perception. Some key verses of Upaniṣads that are central to the Vedānta system were examined using Venn diagrams.

Consciousness, which is the universal set in these diagrams, is accessible to the human agent through the cognitions of the atomic mind, which is a category separate from consciousness. It is this counterintuitive dichotomous basis that is the primary source of the paradoxes of Vedānta.

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