

The Universal Self and the Individual self in Vedanta

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In the ancient Hindu philosophy known as Vedanta, the mind — understood as an accumulation of memories, desires, emotions, thoughts, etc., including the self, that is, the 'I'-thought present in every conscious experience — is said to be a sense like any other physical sense: see, hear, touch, taste, or smell. The implication is that mind is also instrumental in creating our conscious experiences but it is not awareness itself. One may ask: if mind is also a sense, then similarly to a sensory experience which need not involve all the five physical senses, do we ever have a conscious experience with no 'I' in it? Indeed, Vedanta elaborately describes such a state of consciousness called Samadhi, which lies beyond waking, dreaming, or deep sleep. Vedanta also affirms the existence of a state in which one's self does not see itself as belonging to only one's own body/brain and mind but one sees nobody and nothing in the universe as different from oneself; in other words, this awareness (called Universal Self) identifies itself with everything in the universe, whether living or lifeless. Vedanta claims that in our ordinary lives, in those moments when we express love and sympathy towards others, we are indeed in that state of infinite oneness whether we know it or not, and that the expression of love is a manifestation of nothing but the Universal Self. We will attempt in this article, to examine the rationale for this claim using the notion of an ever-widening circle of identification. We will describe a simple analogy used by Vedanta in its analysis of consciousness, mind, and body relations, to explain how the individual self associated with one's body and mind arises from the Universal Self. We will also summarize Vedanta's theory of mind-body interactions and suggest that it offers solution to the 'hard problem' of today's consciousness researches in a way compatible with modern science.

Keywords: self, Universal Self, consciousness, hard problem, Vedanta, mind-body interaction

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Introduction

In this article, by the word 'mind' we will mean the accumulation of the information content of an individual's experiences, desires, emotions, thoughts, etc. Clearly, the contents of a mind so defined, are all inaccessible to physical senses and not known to others in normal circumstances (not paranormal phenomena) unless one conveys them verbally or by other

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physical means (making it very tempting to lie!). An individual mind (at least in the case of human beings) includes the ‘I’ thought/feeling because as long as we are awake and even while dreaming, the ‘I’ seems to be present in any conscious experience: “I see”, “I hear”, “I remember”, “I know”, or “I want this” and so on. Both Hindu and Buddhist philosophies describe mind as the sixth sense (or as the eleventh sense sometimes) and assert that the ‘I’/ego/self is part of mind. The implication is: like the physical senses, see, hear, touch, taste, and smell, mind’s contents are also instrumental in creating our conscious experiences but not awareness itself (obviously, not an easy proposition to comprehend). One may ask: if so, similarly to a sensory experience which need not involve all the five physical senses, do we ever have a conscious experience with no ‘I’ in it? Indeed, both philosophies extensively analyze such a state of consciousness called Samadhi. They also talk about a state in which one’s awareness does not see itself as belonging to only one’s own body/brain and mind but sees nobody and nothing in the Universe as different from oneself. This awareness, which identifies itself with everything in the Universe whether living or lifeless, is called the Universal Self in Vedanta. The individual self/‘I’ which is associated with one individual body/brain and assumes an identity distinct from everything else (living or lifeless) in the world, is called “Ahamkara” in Vedanta. This philosophy emphasizes two notions of self: individual self and Universal Self (*paramatma* in Sanskrit). Hereafter, for brevity, we may refer to the Universal Self as Self (with big S) and refer to the individual self simply as self. Vedanta claims that in our ordinary lives, in those moments when we express love and sympathy towards others, we are indeed in that state of infinite oneness whether we know it or not, and that the expression of love is a manifestation of nothing but the Universal Self. We will attempt in this article, to examine the rationale for this claim using the notion of an ever-widening circle of identification brought to light by a brief introspection of a few experiences in our ordinary lives. We will present a simple analogy by means of which Vedanta explains how the individual self arises from the Universal Self.

Consciousness, mind, body, and their relations were thoroughly analyzed by Vedanta which claims to have solved the ‘mind-body problem’. While Vedanta’s main objective is to teach how to progress spiritually in order to be relieved from worldly miseries and realize eternal bliss, according to this philosophy, a way to realize eternal bliss is to understand what Reality is, and what the Real source of life and the world experienced in life is. As such, this philosophy contains concepts which can lead to answers to some of the difficult questions that modern researchers come across in their attempts to explain consciousness in scientific terms. In this article, we recognize that mind-body interactions as described in Vedanta are in some ways analogous to software-hardware interactions in today’s computers. We suggest that this analogy sums up Vedanta’s answer to the ‘hard problem’, namely, the difficult question of how subjective experience occurs in living beings but not in lifeless matter.

Do we ever have a conscious experience with no ‘I’ in it?

Samadhi and absence of self: In a conscious experience when we are awake, we are aware of something, which may be an emotion, a desire, a thought etc., or aware of seeing, hearing, touching, tasting, or smelling an external object accessed by one’s senses. In a dream, there is ability to be aware of some imaginations but not of the sensory contacts with the outside world. Hence any of our conscious experiences has three components to it, the subject, the object of awareness, and to be aware. When we report the experience, the subject who is aware is always ‘I’, whose essence is to distinguish itself from everything else in the universe. Hindu and Buddhist philosophies extensively describe a state of consciousness

called Samadhi, which lies beyond waking, dreaming, or deep sleep and in which, the mental activity, the unceasing flow of thoughts that we experience in our usual waking state, comes to a complete stop. It is said to be a state of awareness without thought-flow and the 'I'; it may be attained by single-pointed concentration that slows down mental activity to a complete stop. In this state, the subject who is aware, the object of awareness, and the act of knowing, are all said to merge into just one; hence there is no subject-object division in this state [Swami Prabhvaananda and Isherwood, 1983; Sangharakshita, 1998]. *Ahamkara*/'I'/self is said to be absent in Samadhi because by separating/distinguishing itself from the rest of the universe, *ahamkara* is the root of the subject-object paradigm.

However, in the lives of ordinary people who may or may not practice meditation, yoga, or other techniques of mind control, the self still may step aside momentarily now and then. As seen below, a little introspection and analysis of ordinary (not paranormal) experiences can show that there do exist some rare moments in our normal lives when we avoid the presence of self and act without being dictated by it.

Expansion of self and circle of identification versus separation: We all heard of the fairly common expression "to put oneself in somebody else's shoes". For example, sometimes, when a friend is in financial troubles, we may sympathize and try to help. Other times, we do not feel the same sympathy and may just pass a judgment like "he should not have spent beyond his means" or some other such remark. Compassion and sympathy indicate that we have identified with the other person and felt his/her anguish and wish that the problem would go away just like he/she does; we have put our feet in the other person's shoes. When we are not compassionate or sympathetic, we have separated ourselves from the other person; their problem is not ours. Usually we identify ourselves with our immediate families; we are happy when they are all happy, we are sad when any of them is not doing well. We say that a mother's love for her children is selfless because she does things for them not minding her own comfort. When we love another person or a pet animal, we identify ourselves with that person or animal.

The well-known Indian sage Vivekananda [Swami Vivekananda, 2018] explains that according to Vedanta, what we call love, sympathy, ethics and morality, and doing good to others, are all manifestation of oneness with others, and that oneness and unity are the opposite of separation and exclusion which are the attributes of the self. For example, risking one's own life out of compassion for others starts with forgetting one's self. Here is a story: In Louisiana a woman was driving on the very long and rather high Causeway bridge across the large Lake Pontchartrain. She bent down to open her glove compartment. Her car went through some cement railings and then into the lake. A motorist who was about to get on the bridge noticed a piece missing from its railings. He got out and saw the woman drowning in the water. He dived into the lake and saved her life. In this story, the motorist had no job duties requiring him to risk his own life to save a stranger; he could have just passed by. Even if he was taught at home or in a place of worship, to have compassion for others, no religion says one should help others at the expense of one's own life; our own survival has the first priority in our minds usually. Hence the motorist's decision to jump into the lake did not depend upon any content of his memory, to which the self usually attaches itself and makes use of to act. On the contrary, his usual 'I' identified itself with the drowning person at that moment. It was as if both the motorist's body and the drowning woman's body were his but the former was in a position to save the latter and so he initiated the former accordingly. On the other hand, when suicide bombers kill themselves out of revenge towards a community or for a political purpose, they have self-interest. The bombers do not identify themselves with their victims; they want their victims dead, which is not what the victims want.

Infinite oneness, the Universal Self: It is as though our self is an expandable balloon filled with what we may call the air of identification. For everyone, the I-thought identifies itself with one's body and its associated experiences; everyone loves oneself, loves one's own body, strives for its well-being by all possible means. Usually, a mother's balloon has her child inside it. For most people, the balloon expands to include their family. For some, the balloon may enclose the community they were born into, or the country they were born in or living in, and so on. In a moment of love without expecting anything in return, we are one with whom we love; feelings of distinction, duality, separation, and all that the self stands for disappear. Hence it is a self-transcending experience but it can be self-transcending in a limited way if the love is only for some but not for others, for example, if a mother loves her own children but is jealous of other children. On the contrary, people like Jesus Christ, Buddha, Sai Baba, and many other spiritual masters are said not to have had self-interest ever in their whole lives; whatever they did was for the well-being of others and without discrimination of any kind. This means that their balloon of identification covers everybody and everything and all the time.

The reality of infinite oneness is affirmed in *Isavasyopanishad* [Sharvananda, 1951]. Verse 6 of this Upanishad says that the wise one beholds all beings in oneself, and oneself in all beings; for that reason, he/she has only love for anyone and anything but no hatred. Hatred is born of self-interest, which in turn has its basis in the sense of separateness. When the unity of the Self in all is realized, there is no room for hatred. Vivekananda explains infinite oneness as follows: Vedanta claims that all that we call ethics and morality and doing good to others is also the manifestation of this oneness. There are moments when every man feels that he is one with the universe, and rushes forth to express it, whether he knows it or not. This expression of oneness is what we call love and sympathy. This is summed up in Vedanta by the celebrated aphorism "Thou art That". Vedanta teaches: "You are one with this Universal Being and as such every soul that exists is your soul; every body that exists is your body and in hurting anyone you hurt yourself; in loving anyone you love yourself. As soon as a current of hatred is thrown outside, whomever it hurts, it also hurts yourself. If love comes out of you, it is bound to come back to you." For I am the universe, this is my body. I am the Infinite; only I am not conscious of it now but I am struggling to get conscious of the Infinite and perfection will be reached when full consciousness of this Infinite comes.

The concept of an ever-widening circle of identification is emphasized in Buddhism as well. Hayward [Hayward, 1990: 64-65] expressed it fluently: "Rarely is one able to identify with other more distant members of the human species, and even more rarely with members of other species. Yet all spiritual growth is based in the experience that such broader identification is possible. The growing into maturity of a human is experienced as an ever-widening sense of self, from identification with the individual body-mind, to self as family, self as circle of friends, as nation, as human race, as all living beings, and perhaps to self as all there is. Buddhists emphasize the obstacle that arises at each step on the way of this gradually widening circle of identification, namely the belief that there is a separate self at all." Not having one's own self is also explained by Sangharakshita [Sangharakshita, 1998: 52-53], "one who breaks down the notion of a self that is separate from the world, and completely identifies with others has a will which no longer comes into conflict with the will of any other. He/she wants what others want; others want what he/she wants". While both Hindu and Buddhist philosophies talk about losing individual self to infinite oneness, Vedanta emphasizes the existence of the Self and its manifestation

as all the different forms in the universe whereas Buddhism discusses selflessness but does not propose the existence of an omnipresent and omniscient Self.

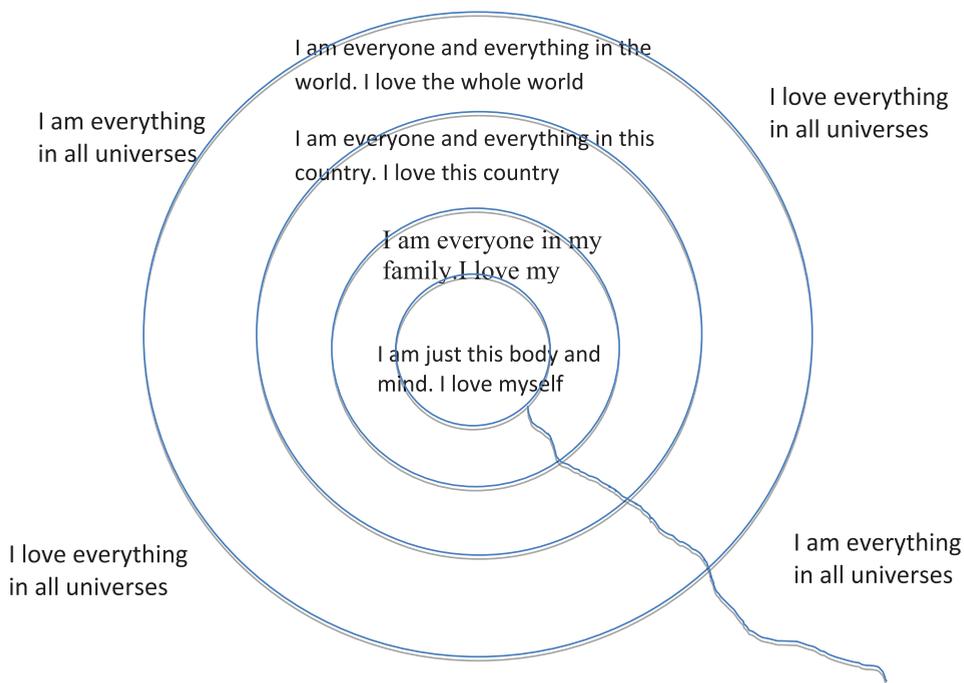


Figure 1. Awareness without ‘I’ and “I am the universe” experience

Chidabhasa — The Appearance of consciousness in living beings

If the mind is not conscious, how come we have so much conscious experiences in our lives? Before looking into how Hindu philosophy answers this question, let us briefly summarize Vedanta’s account of body-mind interactions and relations of consciousness, to mind, body, and matter in general.

To explain proximity in space, succession of time, and cause-effect relations observed in nature, Vedanta postulates that an all-pervading, ever-existing, blissful, merciful, free willed consciousness exists as the unchanging ground of all creation and that it is the source, sustainer, absorber, and ruler of all bodies, minds, and beings in the universe. This Universal Consciousness (hereafter Consciousness for brevity) which is the same as Self is said to manifest Itself by Its own will, as all the various beings in the universe. Moreover, in *Kenopanishad* [Swami Sharvananda, 1932], Consciousness/Self is said to be beyond space, time, senses, logic, and mind and therefore Its existence cannot be predicted by any scientific theory, nor can Consciousness be detected by scientific experiments.

Bhagavadgita [Mookherjee, 2002], which is based on Upanishads and which is one of the primary sources of Vedanta describes *jiva* (translated as soul), the embodied individual being, as an infinitesimal spark from Consciousness and therefore eternal as well. *Jiva* draws to itself the body, the senses, and the mind that are constituents of *prakriti*, the Nature that is

not conscious. Vedanta considers mind as a memory, i.e., an accumulation of the individual's experiences, desires, emotions, etc., and endowed with the perceptual faculty, ability to think, argue logically, intellectual abilities, and ability to make decisions based on past experiences and future goals. The sense of 'I'/ego/self that claims a personal identity and ownership of actions is also part of mind. As said before, a major difference of Vedanta from Western philosophies is that Vedanta emphasizes that mind, although subtle is also a sense implying that mind is only instrumental in creating our conscious experiences but it is not conscious by itself. It is often emphasized that mind is restless and faster than senses and matter perceptible to senses explaining why mind is not accessible to physical senses, and why it is subjective [Swami Sharvananda, 1951].

In the chapter *Shetra Shetrajna Vibhaga Yoga*, Bhagavadgita describes the distinctions between the body mind complex and the one who is aware of them (*shetrajna*). The Field of activity (*shetra*) consists of the five elements (the earth, water, fire, air and space), the ten organs, sense objects, the ego/self (*ahankara*), desires, aversion, emotions, experiences (*manas* and *chitta*), and intellect (*buddhi*). In *Karma Yoga* chapter, Gita says that the senses influence the body, *manas* and *chitta* influence the senses, *buddhi* influences the *manas* and *chitta*, and *jiva* influences *buddhi*. All contents of the Field, namely, the body, its environment, and the mind are not conscious. Vedanta recognizes both mind's action upon the body and the body's role in creating experience but considers mind neither as a state of the biological matter in the body nor as an emergent property of it. In fact, Vedanta proposes that the subtlest aspects of the mind, the accumulated latent impressions of all past experiences, and desires called *vasanas* or *samskaras* survive the death of the physical body and are carried by the immortal *jiva* who enters them into another body for fulfilment of desires. This is the principle of reincarnation believed in all major Eastern philosophies and religions and not found in Western philosophies and religions.

Pratibimba Analogy¹: The question, "if the mind is not conscious, how come we have so much conscious experiences in our lives?" is answered by Vedanta using the following analogy: When sunlight falls in a pot containing water, it is reflected by the water and an image of the sun is created in the water. The image has some brightness but its origin is in the sunlight and not in the pot nor in the water. Vedanta says that a living being's body is similar to a pot and its mind is like the water in the pot. Consciousness/Self is like the sunlight. The living being's consciousness is like the image of the sun in the water. There are as many reflections as there are pots with water. It is said that the intellect component of the mind reflects Consciousness resulting in the formation of the image (*pratibimba* in Sanskrit). The quality of the reflection depends upon that of the reflecting medium; for example, the image is not clear if the water is not pure and the image moves if the water has waves but any changes in the reflection do not affect the sun. Similarly, different people seem to have different personalities because their mental contents differ but the underlying Consciousness in all of them is the same and unaffected by the personalities and any changes in them. Jiva Goswami [Satyanarayana Dasa, 2015] explains that being an atom of Consciousness/Self, *jiva* is also conscious and that in the analogy, the rays that fall into a single pot are like *jiva*. However, unlike Self, *jiva* may be influenced by lusty intelligence and identify itself with its own reflection in the circumstantial material body and mind giving rise to *ahankara*, the individual self.

¹ The *Pratibimba* analogy is first given in Brahma Sutras 3.2.18, 19, 20 [Swami Vireswarananda, 1936]. Goswami explains that similar to a ray of the sun, *jiva* is neither different from the sun nor is the same as the sun; *jiva* is simultaneously one with and different from Consciousness [Satyanarayana Dasa, 2015].

Formation of *ahamkara* (individual self): Once the image is formed, if *jiva* identifies itself with the image (which happens more often than not), *jiva* begins to think ‘I am this’, ‘this body is mine’, and ‘this mind is mine’ etc. This thought of identification is *ahamkara*, i.e., ego/self. Then *jiva* begins to own the attributes of the body and mind and think that ‘I am tall’ if the body is tall, ‘I am angry’ if there is anger in the mind, etc. and begins to experience the temporary misery and happiness of material life and becomes addicted to enjoying material senses (Bhagavadgita). On the other hand, Consciousness/Self is independent of the pains and pleasures of the *jiva* in as much as changes in the reflection do not affect the sun.

Another implication of this example is that just as there is no reflection in an empty pot, there is no appearance of consciousness in lifeless matter but only in living beings because the latter have minds. Again, just as the reflection is gone if the pot is broken but the sun and its rays still remain, the mind cannot exhibit its apparently conscious behavior after the death of the physical body but Consciousness and *jiva* are there forever. The above example also indicates that both the mind and the body are required for consciousness to appear in an individual living being. In fact, Sankhyakarika [Swami Virupakshananda, 1995] states that the world can only be experienced when both *sthula sarira* (the gross body) and *sukshma sarira* (the subtle body same as the mind) are present together (interacting). Thus, Vedanta recognizes that both the mind and the body participate in creating conscious experience in a living being.

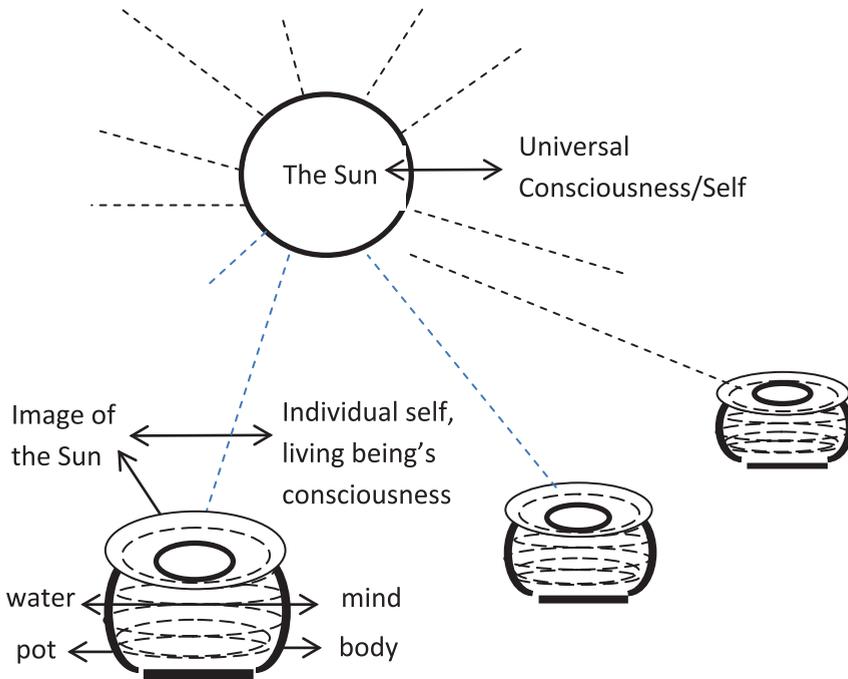


Figure 2. Chidabhasa - Appearance of consciousness in living beings

Compatibility with Neuroscience

The brain plays a role in creating conscious experience. Zoologist J.Z. Young [Young, 1981] thought that all conscious activities in life such as breathing, eating, sleeping, speaking

and all mental events, loving, hating, thinking, imagining, dreaming, believing, worshipping, etc., have correlated neural activities taking place in the brain. Regarding sensory experiences, he stated that the arrangement of the cells in the brain provides a detailed model of the world so that what goes on in the brain provides a faithful representation of events outside. Although for many experiences, the specific of correlated neural activities are not yet known, it is well established in cognitive neuroscience that a “conscious” sensory experience occurs in one’s mind if and only if it is accompanied by a corresponding neural activity in the brain. The same is true in the case of awareness of one’s own goals and intentions, which is apparently independent of immediate sensory stimulation [Baars and Gage, 2010]. There is extensive literature as well, which deals with neural correlates (NCs) of mental activities such as involuntary or spontaneous thoughts, and mind wandering. The point is that one may safely assume that all conscious activities in life have correlated neural activities taking place in the brain. The neural activity creates a neural pattern called a neural correlate of consciousness (NCC), which represents the information that one is aware of in the experience. In the case of a sensory experience, the NC is a faithful representation of the external object from which the brain receives sensory inputs. For example, Mormann and Koch [Mormann & Koch, 2007] say that “every phenomenal, subjective state will have associated NCC: one for seeing a red patch, another one for seeing grandmother, yet a third one for hearing a siren, etc. Perturbing or inactivating the NCC for any one specific conscious experience will affect the percept or cause it to disappear. If the NCC could be induced artificially, for instance by cortical microstimulation in a prosthetic device or during neurosurgery, the subject would experience the associated percept.” Thus, a complete and healthy neural correlate is necessary and sufficient for the corresponding conscious experience to occur. A typical sensory experience is shown in Figure 3.

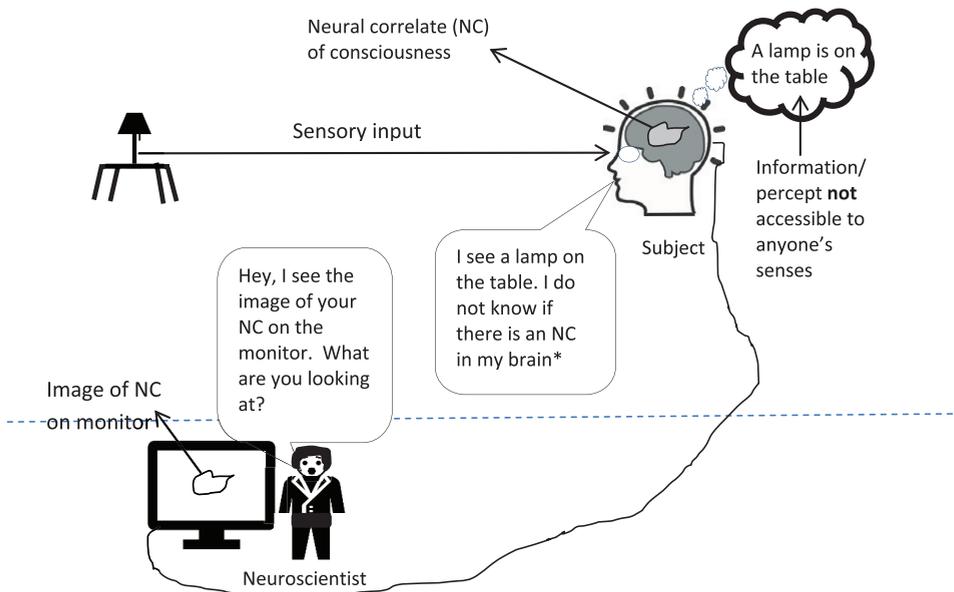


Figure 3. Sensory experience and its neural correlate in the brain

In the above example,

1. The first person is aware of the information that a lamp is on the table but he/she is not aware of the NC. On the other hand, any third person such as a neuroscientist monitoring the brain can see only the NC's picture but does not know its 'meaning'. Hence the NC is **not** identical with its 'meaning'.
2. The NC is physical whereas the 'meaning' is nonmaterial/unphysical. A third person cannot access or detect the 'meaning' either directly by senses or by material instruments unlike for example, physicists can measure electromagnetic energy in their experiments. A third person has no way of knowing what the first person is aware of unless the latter reports it to the former using some material means of communication. Briefly put, the first person's experience is subjective.

Physical sciences such as physics, chemistry, and neuroscience have been so far concerned with and successful in explaining the 'third person' rather than the 'first person' view of the world because all their methods essentially consist in proposing theories which can be verified in experiments using material instruments.

Consistency of the *Chidabhasa* (meaning appearance of consciousness) phenomenon with neuroscience is seen for example in Figure 3, by comparing NC to a pot, and the percept to the water inside. According to this analogy, both the mind and the body are required for consciousness to appear in a living being; clearly this position is consistent with the neuroscience finding that the existence of a neural correlate is necessary and sufficient for the corresponding conscious experience to occur; in other words, every experience-causing biological trace (a pot) in the brain's memory has an associated 'meaning' (water in the pot). However, there is a difference between the ancient and modern theories, which is the following: in general, neuroscientists consider the neural and mental records as identical and do not have an answer to why a neural record leads to conscious experience (the 'hard problem'). Vedanta's answer is that a neural record and its associated mental record are both not conscious but together they lead to conscious experience due to the underlying all-pervading and omnipresent Consciousness. If so, the following question arises: why do biological traces in brains and other living bodies have associated mental contents whereas lifeless matter does not seem to have any mental aspects whatsoever? Vedanta's answer to this question is the remaining part of its solution to the 'hard problem' and given below.

Body-mind interactions according to Vedanta — Living-being-computer analogy:

The *pratibimba* analogy shown in Figure 2 does not say anything about the interaction between the mind and the body because the pot and water do not interact. Instead, Vedanta's theory of body-mind interactions summarized in the previous section can be illustrated by the following analogy which includes all the main ideas of the *pratibimba* analogy: Replace the pot in Figure 2 with a computer's hardware and water with the computer's stored information; replace the sun whose light originates the reflection, with the computer operator. Information/software cannot exist outside the hardware like water cannot stay in one place outside a pot. Similar to an empty pot that cannot show reflection, the hardware of the computer cannot display any intelligent interactive behavior unless it is loaded with some software. The computer operator who activates the software is like the sunlight that originates the image. We now have the living-being-computer analogy which models body-mind interaction.

The body and the mind are not conscious; they are respectively analogous to the hardware and software (information stored in a computer). Self/Consciousness and *jiva* are analogous

to the computer operator and really know and have control over all that happens in an individual's life. Mind is subtle and its magic is visible only when it is working within the body similarly to the way the capabilities of software (also subtle) are visible only when it is loaded into the computer and activated. When a program runs in a computer, it produces some results which are stored new information in the computer memory. Hardware without software cannot produce any new records of information. Similarly, the physical brain's interaction with already existing contents of the mind produces new mental contents.

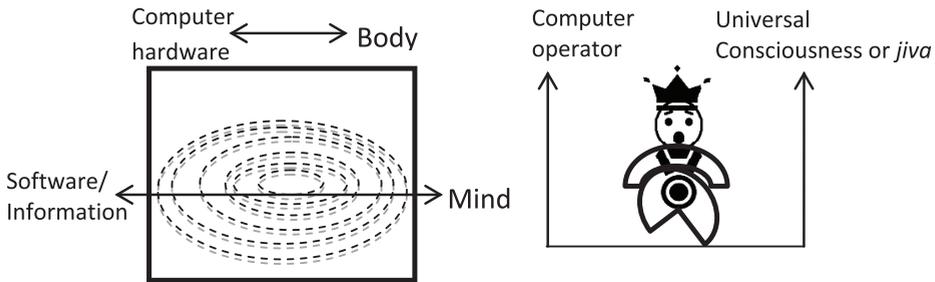


Figure 4. Computer analogy of Consciousness, Mind, and Body Relations in Vedanta

Information stored in a computer is of two kinds: data and programs. Data are passive; any program is passive until it is activated. A stored program has to be initiated into execution either by an external input or an already running program. Once activated, the program runs and creates outputs which are new records in the memory. To do even the simple task of creating a record of any input, the computer needs to have a “WRITE” instruction, a program, already in its memory. The input entered by the operator activates the stored program, which then runs in the hardware (i.e., the hardware goes through a dynamic process) and creates the record, which is a passive data item. After the activity is over, the program goes back to its passive state. Artificial Intelligence programs produce both new data and new programs. Therefore, activity of the software, that is, running programs in the hardware creates more records/information in the computer's memory.

One fundamental difference between information processing in a computer and in a living brain: Using the well-known Chinese room analogy for illustration, Searle (1980) pointed out that cognition is not solely a matter of formal symbol manipulation. This fact can also be seen from the following observations of our daily life: A word in any language is not identical with its meaning because the same meaning may be conveyed by different words in different languages. Sometimes language is not even used to communicate information. For example, a right signal flashing from a car is an indication to others that it is about to make a right turn. While information can be conveyed in many ways such as by words, sounds, and electrical signals, in any means of communication, human (and living) beings assign meaning or information to structures of matter or material energy but the material/energy structures themselves are not identical with the information they convey. The ‘real information’ which is in our brains is different from the language or energy signals that are used for its storage and communication just like water is different from its container without which it cannot be taken from place to place.

In the case of a digital computer, a mapping of some information that exists in the programmer's head is stored as a sequence of states of its hardware elements denoted by '0' and '1'. In a quantum computer, the representation is in terms of states of qubits which are quantum objects; still, meaning is assigned to the qubit states '0' and '1' by the computer programmer. Hence, when we casually say that information is stored in a computer, it really means that the computer contains physical records representing/mapping some 'real information' that exists in the programmer's head; often, we overlook the distinction between the meaning and its vehicle of delivery because their inseparability overshadows their distinction. On the other hand, the information content of a conscious experience and its NC are created together and linked together in a living brain; no one outside the brain assigns 'meaning' to newly created neural records.

A thinking process is an interaction of the mind with the body and is like running a program in a computer: Creation of a new conscious experience involves paying attention to the incoming sensory or endogenous stimuli such as volition, possible activity of some thoughts already stored in memory for example, opinions and prejudices, and activity of appropriate neural systems to either create a new neural trace or activate an existing trace to remember a past experience. Paying attention is like the READ instruction in a computer. Since awareness of the stimuli occurs if and only if there is a neural record representing the stimuli, the neural activity includes a WRITE instruction like that of the computer. Analogous to a computer program's run, this combined activity of the mind and brain produces a linked pair of records, one biological and one mental, together causing the new experience. At the end of a thinking activity which involves both body and mind, those mental contents which participated in the activity continue to remain passively in the memory². For example, in Figure 3, while the brain creates the neural representation of the lamp-on-the-table, the percept is also created because the mind is already paying attention to the senses. Paying attention involves what Vedanta describes as mind's influence on the body and the senses; the experience is a conscious one because of the underlying consciousness of *jiva* as explained in the *pratibimba analogy*. Again, like a computer, a thinking activity in a living being may be initiated by an internal desire/purpose, or by external sensory stimuli, or by *jiva* or Consciousness/Self. Just as a computer's hardware cannot by itself produce a new program unless appropriate software is loaded into it, so also, lifeless matter which has no mind to begin with (analogous to hardware with no software), cannot produce conscious experiences which necessarily requires both body and mind (both hardware and software). Thus, the living-being-computer analogy implies that life begins with mind-matter interaction and ends (the living being dies) when the participating matter cannot support the interaction. Matter in all forms and states cannot support interaction with mind just as software cannot be loaded into any material system but only into suitably built computers.

The theory of mind-brain interactions in Vedanta may be called interactive dualism but it is NOT Cartesian Dualism. As said above, Vedanta affirms the existence of a supreme Consciousness and an individual *jiva* who are immaterial; they are beyond the mind. The self/*ahamkara* which is said to be part of the mind is not conscious. Hence neither *jiva* nor

² For example, a violinist has the ability to play violin but he/she does not play violin all the time. The ability to play violin is stored in the musician's memory in a passive state and he/she activates it to perform. He/she enjoys the music while playing violin and remembers the experience even afterwards. After the performance is done, the ability to play violin is still there and no one else knows about the musician's talent unless he/she performs.

the ego is the ‘I’ of Descartes who presumes that the mind, the ‘I’, and soul are essentially the same thing and that it is conscious. While recognizing both mind’s action upon the body and the body/brain’s role in creating experience, Vedanta considers mind neither as a state of the biological matter in the body nor as an emergent property of it; it asserts that the contents of mind are faster than matter which is perceptible directly by senses or indirectly via material instruments, implies that they are different from organic or inorganic matter. Moreover, Vedanta explicitly states that the subtlest aspects of the mind, the accumulated latent impressions of all past experiences, and desires called *vasanas* or *samskaras* survive the death of the physical body.

Interestingly, mind brain interactions can indeed be modeled as tachyon interaction with ordinary non-relativistic matter. This mathematical model shows how the brain creates new contents of the mind if the mind pays attention to the brain (Hari, 2011). This model also explains why every subjective experience (including remembering a previous experience or imagining a future event) happens ‘now’ in one’s mind (Hari, 2016). This model was successful in explaining and justifying Eccles’s hypothesis about the role of volition in exocytosis, the basic process of inter-neuronal communication (Hari, 2008), and Libet’s causal anomalies (Hari, 2014).

One school of Vedanta called Advaita known as non-dualism or monism explains elaborately that Consciousness alone appears as the various forms in the universe, mind, matter, and all, like for example, jewels are made of one and the same gold. Since Advaita also claims that this fact can be realized only by spiritual means but not by any external material means, the monistic part does not contradict the dualistic part described above. Other schools of Vedanta differ from Advaita in their descriptions of *jiva*’s relation with Consciousness in the state of ultimate enlightenment, for example, whether *jiva* retains its identity or gets absorbed into Consciousness but all schools agree that *jiva* is not mind, that mind is part of Nature, which is not conscious, and that mind is faster than senses.

Conclusion

Vedanta emphasizes the existence of an all pervading, ever-existing, omniscient, and blissful Universal Self which manifests itself as all the different forms in the universe and that love and compassion for others is its manifestation in human nature. Vedanta explains how individual self and consciousness arise from Universal Self and its analysis may provide solution to the ‘hard problem’ in a way consistent with the finding of modern neuroscience that conscious experiences of living beings are accompanied by correlated biological activities. According to Vedanta, both the body and the mind are not conscious but conscious experience occurs in a living being because the mind supported by the body reflects Consciousness/Self like water contained in a pot reflects sunlight; lifeless matter has no mind and therefore no conscious experience. Life starts with interaction of mind with matter creating more and more experiences i.e., more mind contents while it lasts, and ends when the interaction ends. Lifeless matter cannot create mind all by itself like hardware in a computer cannot create records of information unless the required software is already loaded into it.



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