CHAPTER II

CONSCIOUSNESS: A PHILOSOPHICAL PERSPECTIVE

Consciousness is the most familiar, yet strange phenomenon in our life. If we consider dream also as a specific state of consciousness, we are conscious for about seventy five per cent of our lifetime. In spite of this, consciousness remains the most mysterious phenomenon before us. The history of consciousness study in modern western philosophy started with Rene Descartes (1596-1650). Since then philosophers have been debating over the issues of mind-body relationship. But as far as the issues related to consciousness are considered, philosophers could not reach any consensus and in fact the dispute continues unabated. So consciousness studies form a remarkable part of philosophical enquiry.

Philosophy has moved far from being an armchair business. It has joined hands with psychology, linguistics, neurobiology and artificial intelligence in its striving to account for the phenomenon of consciousness. The five disciplines together contribute to the relatively new discipline of consciousness studies called Cognitive Science. But most of the fundamental problems raised by Descartes remain relevant even today. John Searle\(^1\) (1932- ) has listed some of them thus:

a) How can there be a causal reaction between mind and body?
b) If the material world is causally connected, how can there be freewill?
c) If we are conscious only about our mind, how can we know that other people have mind? Or how can we avoid solipsistic position? and

d) How do we know that there is a physical world outside?

Philosophy, with the support of other disciplines, has moved far ahead of its initial position in terms of the facts related to consciousness. Thanks to advanced technological support in acquiring further information in the area of consciousness studies, in second half of the 20th century (especially after 1970s) there has been tremendous improvements. All these worked well and enhanced our ability to describe consciousness. But still the fundamental problems remain unresolved.

In this background, it is intended here to survey the various aspects related to the study of consciousness such as the nature of consciousness as a phenomenon, various theories of consciousness in Western as well as Indian philosophy. It is also intended to analyse those factors which determine the irresolvable nature of consciousness, and it will also help us to evolve a proper methodology for the work as a whole.

The word *consciousness* is “originally derived from the Latin *con* (with) and *seire* (to know). Thus, “consciousness” has etymological ties to one’s ability to know and perceive” (Gennaro). As stated in a Wikipedia article, another related source of the term is from the Latin word *conscientia* which means *moral conscience*. *Conscientia* also has a literary meaning *knowledge-with* or *shared knowledge*. *Conscientia* in this sense is the knowledge one acquires
about the deed of someone else. Descartes was the first philosopher of mind to use the term ‘consciousness’ in the present day sense.

Consciousness is a term difficult to define due to various constraints. Firstly the term is used with reference to various mental activities as well as the substratum of these activities. Among these activities, some may be absent in certain instances of conscious experience. So consciousness as a phenomenon is not a definite indication of any particular form (or a particular set of forms) of manifested experience. Rather consciousness is a collective abstraction of a variety of manifestations. Again, consciousness is said to be the property of mind. Hence, the differences in approach towards the concept of mind in various schools of psychology and philosophy bring forth the difficulties in defining the term consciousness. The second difficulty arises out of the uniqueness of the issues involved in defining consciousness as an epistemological problem. We shall first consider various approaches to the concept of consciousness and various theories about consciousness and then move to the epistemological difficulty in defining consciousness.

2.1 Features of Consciousness

While we explain consciousness with reference to the modes of our experience, we recognise it as the centre of our experience. Hence consciousness denotes a number of closely related experiences such as awareness, attention, intentionality, subjectivity, unity, qualia and so on. All these phenomena are interpreted and explained in some way or the other by philosophers and scientists as essential features of consciousness. They are often considered as the tests for conscious
states. However, philosophers and scientists have different opinions as to whether they are essential aspects of consciousness or not.

2.1.1 State of Awareness

Awareness is the key concept in explaining consciousness. In the state of being aware, one responds to the stimuli from environment. Equating consciousness with awareness is a commonsense approach to the study of consciousness. Having sensory stimuli and being aware of such stimuli are different phenomena. Husserl described consciousness as always a consciousness of something. A conscious state then is related to mental content or quale (Dennett, Quining 381). A mental state is always a qualified state. Awareness then is the state of being aware of these qualified states. This commonsense notion of consciousness is objected to by various scholars. For example, Eric Saidel speaks of conscious states without awareness. She compares consciousness without awareness to that of animal consciousness. If animals are able to react and feel pleasure, then they are conscious in certain ways but not necessarily with awareness like human beings. She explains awareness as a higher order representation (HOR) against the animal consciousness which is essentially a first-order representation (FOR).

… this bit of reasoning looks at consciousness from the perspective of human conscious experience: this is how phenomenal experience is for human beings, thus this is how phenomenal experience is. Clearly, however, this reasoning is misguided. It is not conceptually impossible that there be phenomenal experience that is not the fodder
for higher-order thought... As a child grows it may learn that its experiences are not the same as other people's experiences, but I see no reason that this sort of learning should endow its experiences with a phenomenal feel.

… argument against animal consciousness is not airtight; there is the possibility that there is something it is like to be an animal (even though the animal may not be able to know that). What evidence is there that this is more than just a logical or conceptual possibility? Here are three different sorts of evidence, all of which suggest that phenomenal consciousness does not require higher-order thought (Saidel).

Here we may notice that awareness is not necessarily an element of consciousness. But being aware is essentially being conscious.

2.1.2 Intentionality

The term intentionality in its contemporary sense is primarily used by Edmund Husserl. Husserl followed Francis Brentano who described intentionality as a characteristic of all conscious activities. Intentionality is the directedness of consciousness towards its objects. The phenomenological tradition finds intentionality to be an essential aspect of consciousness since it conceives the objects to be the intentional correlates of consciousness. This is expressed in the notion that ‘consciousness is always the consciousness of something’. For Sartre, intentionality is indistinguishable from consciousness; both are essentially identical. Intentionality is the characteristic property of
consciousness by which it directs itself towards that which it itself is not. The fact which is the “the most distinctive and most philosophically troublesome about intentionality is its indifference to reality” (Lycan 413). For consciousness to be intentional an intentional object need not necessarily exist.

Intentionality is a topic of controversy in the contemporary cognitive science and philosophy of mind. The issue is centered round the notion of Artificial Intelligence. The question is; while intelligent machines are capable of carrying out tasks that humans can perform, are they conscious of what they are doing? Some of the contemporary thinkers are of the view that intentionality is the feature of consciousness that machines can never claim to have and hence they can never be ‘conscious’. Searle established this position using the thought experiment called ‘Chinese Room Argument’².

2.1.3 Attention

William James in his *Principles of Psychology* describes:

Everyone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalizations, concentration, of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others³.

Attention is the state of being aware of something. Here the focus of awareness is limited to a particular object from within a range of available objects. John Duncan distinguishes between selective
attention and divided attention. The experiments with selective attention dealt with people listening simultaneously to two speech messages. People were unable to recognise both messages simultaneously. But people are able to have better recognition when an audio and a visual signal are attended simultaneously. The amount of divided attention (how much can be done at once) is less when both the stimuli belong to the same sensory type. Selective attention on the other hand depends on the ability to ignore the other stimuli. The general notion of attention as described by William James is of the selective attention type. Specificity of attention towards a certain selected element will reduce the awareness of the total environment and hence there is a negative correlation between attention and awareness.

Attention is generally conceived as an indication of being conscious. It is a common sense belief that one is conscious while attending to something or another. And when we say that ‘consciousness is always the consciousness of something’, it definitely means that in a state of being conscious one attends to some objects. This popular notion of consciousness is challenged from neurobiological standpoint. Christof Koch and Naotsugu Tsuchiya illustrates that the two - consciousness and attention - are not necessarily the same function. They describe these two as having two separate brain processes. There are cases where there is attention while there is no consciousness and cases where there is consciousness while there is no attention.
**Attention without Consciousness**

Blindsight allows people to recognize an object with 98% accuracy (Ramachandran 35). Since they have no vision, they cannot be said to be conscious of the object in front of them. However, their ability to report correctly of the object shows that they somehow have the attention of the object. Hence, we agree with the following statement:

While denying consciously seeing anything, some can move their eyes towards objects, point to the location of objects, or mimic the movement of lights or objects in the blind field. Others show pupil dilation and other emotional responses to stimuli, and several can correctly guess the colour of stimuli they say they cannot ‘see’ (Blackmore 30-31).

**Consciousness without Attention**

The second case where consciousness and attention do not go hand in hand is where there is consciousness but no attention. Christof Koch and Naotsugu Tsuchiya explain the possibility of having such a case thus,

We are always aware of some aspects of the world that surrounds us, such as its gist. Indeed, gist is immune from inattentional blindness: when a photograph was briefly flashed unexpectedly onto a screen, subjects could accurately report a summary of the photograph. In a mere 30 ms presentation time, the gist of a scene can be apprehended. This is insufficient time for top-down
attention to play much of a role. Furthermore, because gist is a property associated with the entire image, any process that locally enhances features, such as focal attention, will be of limited use (Koch and Tsuchiya 18).

Hence we may observe that the common sense notion of the relation between attention and consciousness is not as simple as it seems to be.

### 2.1.4 Qualia

The terms * quale * and * qualia * (plural) indicate the content of consciousness. They are either qualitative, experiential or felt property of mental states. It is hard to explain qualia without consciousness. Qualia are the phenomenal states of mind and thus characterise the subjective experience.

The discussions on the issues related to qualia are centred round two theoretical positions concerning consciousness; materialism and naturalistic dualism. While materialistic theories somehow correlate the subjective experience with their physical counterpart, the physical supervening the mental, dualistic theories claim a separate identity for the psychic content.

The physicalists deny any separate identity for qualia. They state that the subjective content of conscious experience is nothing but the expression of their underlying physical states. Daniel Dennett attacks the notion of qualia which is used to identify conscious states. The traditional account of this first person experience is infallible, intrinsic, private and directly or immediately apprehensible in
consciousness. He goes on to establish that “conscious experience has no property that are special in any of the ways qualia have been supposed to be special” (Dennett, Quining 382).

The notion of qualia goes against the physicalistic theories of consciousness. Or the concept is against those theoretical positions which hold that mental states are identical with physical states or the functional properties. The famous notion of ‘what it is like’ best describes the notion of qualia. In his argument against identity theory, Thomas Nagel explains that subjectivity cannot be identical with or reduced to objective physical properties. He takes the example of our understanding of the way the bats navigate. Since we cannot have ‘vision’ using ultrasound, we have no idea of ‘what it is like to be a bat’.

I assume we all believe that bats have experience. After all, they are mammals, and there is no more doubt that they have experience ... Even without the benefit of philosophical reflection, anyone who has spent some time in an enclosed space with an excited bat knows what it is to encounter a fundamentally alien form of life.

... [bat] has very poor vision, and perceives the surrounding world by a system of reflected high-frequency sound signals; and that one spends the day hanging upside down by one's feet in an attic. In so far as I can imagine this (which is not very far), it tells me only what it would be like for me to behave as a bat behaves. But that is not the question. I want to know what it is like for a bat to be a bat. Yet if I try to imagine this, I am
restricted to the resources of my own mind, and those resources are inadequate to the task...

Reflection on what it is like to be a bat seems to lead us, therefore, to the conclusion that there are facts that do not consist in the truth of propositions expressible in a human language. We can be compelled to recognize the existence of such facts without being able to state or comprehend them (Nagel 424-26).

A similar but slightly different approach to the uniqueness of qualia is put forward by Frank Jackson. He put forward a thought experiment about Mary, the colour scientist. Mary is a colour scientist who knows everything about colour vision. Mary has a very good understanding of every aspect of neuro-physiological functions related to colour vision. But unfortunately Mary was brought up in a room where there is no coloured object. In her room there are only black and white objects. Now, the question is, when she comes out of the room for the first time and sees a red rose, whether the experience of redness will in any way be distinct from her earlier scientific understanding of redness or not. Most people are inclined to say that Mary will acquire an additional understanding about the colour red. This additional experience is qualia. Then it follows that the experiencing of the phenomenal content of consciousness is something in addition to the physicalistic understanding of that experience. In that case the mental content (qualia) must be different from its physical counterpart in some respect.
Susan Blackmore explains the plausibility of using the explanation of blindseer for the separate identity of subjective feeling (qualia).

..the blindseer has objective vision without subjective consciousness; he is a partial zombie who can see without having the qualia of seeing; this proves that consciousness is an added extra and is separate from the physical functions of vision; it proves that qualia exist and that functionalism and materialism are false (Blackmore 31).

2.1.5 Phenomenal and Access Consciousness

Ned Block introduced a functional distinction within the phenomenon of consciousness. He differentiated between two modes of consciousness, phenomenal consciousness (P-consciousness) and access consciousness (A-consciousness). Roughly speaking they are analogous to the commonsense view of consciousness and self-consciousness. The concept of phenomenal consciousness is similar to that of qualia. Block’s notion of access consciousness is closely related to the notion of awareness. He describes that it as the ‘what it is like’ aspect of conscious experience. P-consciousness states, according to Block, are experiential states which correspond to what we see, hear, smell, taste and have pains.

The distinction between phenomenal consciousness and access consciousness brought in much clarity about the physicalistic explanations of consciousness. Physicalism is mainly concerned with
the phenomenal consciousness. He explains that “It is of course P-consciousness rather than access-consciousness or self-consciousness that has seemed such a scientific mystery” (Block, *Consciousness* 167).

Block thus argues that the explanatory gap still (that between the physical state and the phenomenological state) remains unbridgeable. Even neuro-physiological theories fail to explain why neurological states might be the physiological basis of phenomenal consciousness.

While phenomenal consciousness is the experiential content of consciousness, the access consciousness is the representational content of consciousness. It is the state of being aware of the content of consciousness. Access consciousness helps in reasoning process and also in the regulation of actions and speech. It is possible to have access consciousness without phenomenal consciousness and vice versa. (Block, *Consciousness* 172-75).

Block differentiates between phenomenal consciousness and access consciousness as the paradigm of the former is the state of sensation and that of the latter is propositional attitude. The possibility of access consciousness existing without the existence of phenomenal consciousness is explained in the case of blindsight. In blindsight, a person experiencing apparent blindness however is able to make ‘guesses’ about the object in his visual field with a high degree of probability. Hence, even though there is lack of sense experience, (phenomenal consciousness) the ability ‘to guess’ points towards the presence of access consciousness.
The presence of phenomenal consciousness without access consciousness is obvious in case of animal consciousness.

2.1.6 Reflective and Pre-reflective Consciousness

The notion of reflective consciousness is closely related to the notion of access consciousness. According to Sartre, subjective conscious states are primarily a pre-reflective or dynamic process. The term reflection refers to thought processes that are of problem-solving nature. In problem-solving, we are conscious of the ongoing processes. However, in cases like driving in a busy street and talking seriously to a friend, we negotiate traffic (a case of problem solving) almost without any conscious awareness of it. We become conscious of driving only when something strange happens like a traffic jam or an accident. This shows that thought process can occur even without our awareness about that. The level of consciousness at which this happens, according to Sartre is pre-reflective consciousness. The acts at the pre-reflective level becomes the conscious states of mine (the ego) when the ego or the ‘I’ is determined by the reflective consciousness (Onof).

Legrand conceives pre-reflective consciousness as a fundamental state for the reflective consciousness. He says,

It is important to consider that pre-reflective self-consciousness is not only one possible form of consciousness among others. Rather, it is a foundational state, in the sense that it conditions the very possibility to recognize oneself as such at the observational reflective
level … restricting one’s scope to observational self-consciousness would let unexplored the specificity of self-consciousness (498).

2.1.7 Apparent Unity

Epistemology presupposes the necessity of various sensations to be unified in a single consciousness in which they are all related. According to Kant, it is the synthetic unity of apperception that which unifies various elements of experience. Pierre Keller explains:

For Kant, non-empirical conditions on all experience are conditions under which a self-conscious being is able to represent itself in any arbitrary experience as the numerically identical point of view. This representation of the self-consciousness as a numerically identical point of view through different experiences connects different experiences together in a single possible representation. This representation of the self is the same regardless of the different standpoints within experience that the self-conscious individual might be occupying. In this way, the conditions governing the representation of numerical identity of the self provide one with constraints on the way that any objective experience must be (3).

This is applicable to the Sartrean concept of ego or self which is the spatio-temporal frame of our experience. It is the very notion of self-consciousness that makes experience “experience”. The following observation explicates the point further,
The unity of spatio-temporal experience manifests itself in the possibility of our having determinate beliefs and representations about spatio-temporal objects. Beliefs about objects experienced in space and time are determinate because there is a determinate procedure for confirming and disconfirming (verifying and falsifying) those beliefs. We can make out something permanent in spatio-temporal experience that provides the basis for a determinate procedure for confirming and disconfirming our beliefs. The very notion of an object as something permanent in experience, or as something that is numerically identical through space and time turns out to be a function of our need to assume a self-conscious standpoint that allows us to regard our experience as an experience that can be captured and expressed in intersubjectively communicable concepts (Keller 239).

The necessity of identifying the fundamental notion of consciousness with self is explained by Boring and Polyani;

…identification of pure consciousness with self… offers a simple explanation for the otherwise very problematical fact that common sense continues to insist that the self is somehow present in all experience, even when unable to isolate it, and even when intellectual analysis convinces us that is it cannot be given in experience by any empirical quality… For the self is present in all experience, there to be noticed, more or less clearly, as qualityless pure experience (Dodwell 177).
The neuro-physiological explanation of consciousness raises the issue called binding problem. The binding problem in its effect is the problem of synthesising of various elements of conscious experience. They neuro-physiological theory provided by Francis Crick and Christoff Koch probably is directed towards the solution to the binding problem.

Crick and Koch explain how the 35-75 Hz oscillation found in visual experience probably contributes to the solution of the binding problem. If one sees a red square moving to right and a blue circle moving to left, they are seen as different objects having different colours and shapes instead of the colours and shapes being seen as discrete properties or all of them mixed together. The 35-75 Hz oscillation, according to them, is responsible for the coordination of sensual data (Block, *Consciousness* 167).

The concept of the self is denied by the reductionist philosophers on the basis that there is no single 'functional summit' or a central point in the brain (Dennett, *Consciousness* 111). Dennett explains that no tunnelling in of conscious experience is taking place at any point in the brain (Dennett, *Consciousness* 102). He explains,

While there are still thinkers who gamely hold out for consciousness being some one genuine precious thing (like love, like gold), a thing that is just 'obvious' and very, very special, the suspicion is growing that this is an illusion. Perhaps the various phenomena that conspire to create the sense of a single mysterious phenomenon have no more ultimate or essential unity than the various
phenomena that contribute to the sense that love is a simple thing (Consciousness 23).

Some philosophers like David Hume in the West and Buddha in the East have put forward the bundle theory of self, according to which self is a continuum of mental images. According to them, feeling of a persisting self is only an illusion. What really exists is a continuum of the elements of experience, which seems to belong to a single self. Such a theory which demands a continuum without a unifying principle is hard to accept since there is no element that can account for the continuum. Susan Blackmore explains;

Bundle theory is extraordinarily difficult to understand or to accept. It means completely throwing out any idea that you are an entity who has consciousness and free will, or who lives the life of this particular body. Instead, you have to accept that the word ‘self’, useful as it is, refers to nothing that is real or persisting; it is just an idea or a word. And as for the self who has experiences, this sort of self is just a fleeting impression that arises along with each experience and fades away again. The illusion of continuity occurs because each temporary self comes along with memories that give an impression of continuity (68-69).

Hence it is clear that the idea of self is indispensable for any study of consciousness.
2.2 Theories of Consciousness

Theories of consciousness are expected to answer various questions related to the phenomenon of consciousness such as what is consciousness, what are its features, how does it come into existence and how is it able to affect the body. Different theories explain these problems from different metaphysical standpoints or even without holding any metaphysical position at all. The metaphysical theories of consciousness may broadly be divided into three - dualistic, physicalistic/materialistic and idealistic theories.

Dualism is the position closest to the commonsense view of consciousness. It considers mind and matter as two distinct entities. Physicalistic theories on the other hand consider mind a by-product of matter and they equate mental activities with brain activity. Idealistic theories (as in the case of Berkeley, Hegel and some Indian theories) recognise consciousness as the sole reality. All these theories have their own merits and demerits, which we discuss below.

2.2.1 Dualistic Theories

Dualistic theories of consciousness fall within two groups namely substance dualism and property dualism. Substance dualism (the metaphysical position held by Descartes) asserts the independent existence of physical and non-physical entities. Property dualism, on the other hand, explains the physical properties and consciousness as two separate properties instantiated by one and the same reality. Further, property dualism denies the reducibility of one kind to the other; that of consciousness to physical property or vice versa. Among
dualistic theories property dualism has wider acceptance than substance dualism.

The wider acceptance of dualistic theories in general over the physicalistic theories is due to different factors. Firstly it is the most commonsense view of reality from the introspective or first-person approach. According to the first-person approach,

...our conscious mental states just do not seem like physical things or processes. That is, when we reflect on our conscious perceptions, pains, and desires, they do not seem to be physical in any sense. Consciousness seems to be a unique aspect of the world not to be understood in any physical way. Although materialists will urge that this completely ignores the more scientific third-person perspective on the nature of consciousness and mind, this idea continues to have force for many today. Indeed, it is arguably the crucial underlying intuition behind historically significant “conceivability arguments” against materialism and for dualism (Gennaro).

Secondly, belief in dualism goes in agreement with the belief in immortality. Only the physical elements of our being perish in death. This gives some room for the further existence of conscious experience. Now, the question is, whether it is the consciousness or the self that is believed to exist after death leads to further investigation into the nature of the mental substance. Near death experiences and out of body experiences are often put forward in support of the immortality of soul and the dualistic standpoints.
Further “various paranormal psychic phenomena, such as clairvoyance, faith healing, and mind-reading are also often cited as evidence for dualism” (Gennaro).

The major problem faced by substance dualism is to explain how these two entities (matter and mind) interact. Descartes speculated that the interaction between matter and mind takes place in pineal gland. This ‘ghost in the machine’ concept (Ryle 17) is unable to explain satisfactorily the way in which the interaction takes place. It is objected that if mind is able to influence matter, then it goes against the law of conservation of energy.

But if interactionism is true, then when mental events cause physical events, energy would literally come into the physical word. On the other hand, when bodily events cause mental events, energy would literally go out of the physical world. At the least, there is a very peculiar and unique notion of energy involved, unless one wished, even more radically, to deny the conservation principle itself (Gennaro).

Property dualism is of different types. The fundamental property dualism regards consciousness as a basic constituent of reality as in the case of matter. The relationship between matter and conscious mental properties is often compared with electromagnetic waves. In electromagnetic wave (EM wave) the reality is an outcome of the at par participation of electrical and magnetic forces and their mutual interaction. Consciousness may better be explained as
analogous to the phenomenon of electromagnetism as shown in the following observation:

In a way, what is going on here with consciousness is analogous to what happened with electromagnetism in the nineteenth century. There had been an attempt to explain electromagnetic phenomena in terms of physical laws that were already understood, involving mechanical principles and the like, but this was unsuccessful. It turned out that to explain electromagnetic phenomena, features such as electromagnetic charge and electromagnetic forces had to be taken as fundamental, and Maxwell introduced new fundamental electromagnetic laws. Only this way could the phenomena be explained. In the same way, to explain consciousness, the features and laws of physical theory are not enough. For a theory of consciousness, new fundamental features and laws are needed (Chalmers 127).

The second type of property dualism - emergent property dualism - “treats conscious properties as arising form complex organizations of physical constituents but as doing so in a radical way such that the emergent result is something over and above its physical causes and is not a priori predictable from nor explicable in terms of their strictly physical natures” (Gulick).

According to neutral property dualism, the third type, fundamental level of reality is neither mental nor physical. Both the mental and the physical depend on this primary level of reality for
their existence. Bertrand Russell and P.F. Strawson are the main exponents of this position. V.S Ramachandran’s remark on the nature of reality may be seen falling within the realm. He describes,

I believe this approach to consciousness will take us a long way towards answering the riddle of the benefits of consciousness and why it evolved. My own philosophical position about consciousness accords with the view proposed by the first Reith lecturer, Bertrand Russell, there is no separate ‘mind stuff’ and ‘physical stuff’ in the universe: the two are one and the same. (The formal term for this is neutral monism.) Perhaps mind and matter are two sides of a Möbius strip\(^8\) that appear different but are in fact the same (36-37).

The neutral property dualism may be seen moved far beyond the dichotomy of matter and mind in respect of the nature of reality. This monistic approach to reality in the history of modern philosophy may be traced back to Spinoza where he identifies nature with God which is the only reality (substance). According to Spinoza, matter and mind are the two expressions among the infinite expressions of this fundamental reality. This approach to reality, where the relation between matter and mind is explained as parallelism\(^9\) can be seen as a solution to the hard problem of consciousness. Even though this explanation seems to be far from the scientific understanding of reality today, there are evidences in support of this position also. A leading neuroscientist of the today, V.S Ramachandran, describes the problem thus:
The question is how does the flux of ions in little bits of jelly - the neurons- in our brains give rise to the redness of red, the flavour of marmite or mattar paneer tikka masala or wine? Matter and mind seem so utterly unlike each other. One way out of this dilemma is to think of them really as two different ways of describing the world, each of which is complete in itself. Just as we can describe light as made up of particles or as waves - and there's no point in asking which description is correct, because they both are, even though the two seem dissimilar. The same may be true of mental and physical events in the brain (112-113).

Closely related to neutral monism is the fourth type of property dualism called panpsychism. According to this, all constituents of reality have some psychic or pan-psychic properties distinct from the physical properties they have. The close relationship between neutral monism and panpsychism can be seen in the philosophy of Spinoza. The thought experiments that are put forward in support of dualism and in opposition to physicalism are many. Some of them are a) knowledge arguments b) zombies and c) mysterianism.

2.2.2 Materialistic Theories

The materialistic or physicalistic theories in general deny the independent existence of consciousness as an entity and they intend either to deny consciousness altogether or to assert the dependence of consciousness on some physical entity. There are various versions of physicalism. The physicalistic theories have the advantage of being
more convincing than other types of theories. Here we have to discuss whether such a conviction is sufficient in the study of consciousness or not. As Chalmers noted "Materialism is a beautiful and compelling view of the world, but to account for consciousness we have to go beyond the resources that it provides" (Chalmers xiv).

Materialism studies consciousness in terms of the interrelation between brain and the phenomenal states of consciousness using two methods - the first one is to study the patients with brain damage owing to accident, disease or medication and the corresponding loss in their cognitive functions (Ramachandran x). The second is to stimulate specific areas of brain using electric current or electromagnetic waves. The corresponding cognitive changes as well as neuro-physiological changes are monitored using EEG\textsuperscript{10}, PET\textsuperscript{11}, fMRI\textsuperscript{12} and the like to establish the correlation.

Materialistic or physicalistic theories in general are reductionist theories that intend to reduce conscious experience to functional or physical states of brain. Thus they bring out psychic phenomena in terms of bodily phenomena. These theories finally claim that psychic phenomena are nothing different from the bodily ones. Their orientation is explained thus,

Reduction occurs when the concepts of the old theory are mirrored by concepts in the new theory. In that case, the older concepts can be said to designate “nothing but” what the new concepts designate. “Temperature” turns out to be nothing but mean molecular energy of molecules; lightning is nothing but an electrical
discharge. Theories in which the concept of temperature figures, then, are reducible to more fundamental physical and chemical theories. Reduced theories can be seen as “special cases” of the theories to which they are reduced. Further, we are inclined to regard entities and properties included in the reduced theory as being illuminated by the reducing theory. Temperature, we now see, is mean molecular kinetic energy of molecules; lightning is a stream of electrons (Heil 169).

Physicalistic theories are causally complete. They argue that, once the whole of human actions can be explained in terms of the physical, there is no need for any conscious principle to determine human actions. Here is a description of the causal or reductive completeness:

This is because the physical world appears to be **casually complete**. The causes of physical effects always seem to be other physical causes. If we trace back the causes of a goalkeeper rising to save ball, we may find… Physical contractions in his muscles… …in turn caused by **electrical messages** travelling down his **nerves**… …themselves due to **physical activity** in his **motor cortex**… …in turn caused by earlier **neuronal activity** in his **sensory cortex**… … itself caused by his retina registering the motion of the ball… (Papineau 65, author's emphasis).
Materialistic theories have the advantage of being simple. By holding such a theory there is no need to postulate the existence of a nonphysical mysterious entity. According to the principle of simplicity, wherever two hypotheses can equally explain a given phenomenon, the one which posits fewer force is accepted. Even though both dualism and materialism explain the phenomenon of consciousness, materialism has the advantage of being simple (Onof).

There are various forms of materialistic theories such as behaviourism, identity-theory, eliminative materialism and functionalism. We can go into a brief account of these theories.

2.2.2.1 Behaviourism

The history of psychology till the 20th century records several attempts to study conscious mental states and processes. With the introduction of psychoanalytic theory, the theory of mental causation was taken to the inexperienced avenues of psychic life. Freud's triple division of conscious states viz. the conscious mind, the pre-conscious mind and the unconscious mind was a new approach to the study of psychic phenomena. Far from being the study of consciousness, Freud's psychoanalytic theory focused on the psychic dynamism that gave rise to various behavioural patterns, especially the abnormal ones. The Freudian approach was one of psychic determinism.

The criticisms levelled against the scientific status of psychological theories from various fields of philosophy and science together with the complexities involved with objectifying private experiences necessitated a different approach to the study of human
behaviour. This new theory called behaviourism overthrew the concept of mind altogether. According to behaviourists, there is no metaphysical entity called mind. It is a mistake - a category mistake - to suppose that mind exists as an entity in a way similar to that of matter. Gilbert Ryle (1900-76), one of the chief exponents of behaviourism explains the fundamental mistake committed in such a supposition thus,

It is one big mistake and a mistake of a special kind. It is, namely, a category-mistake. It represents the facts of mental life as if they belonged to one logical type or category (or range of types or categories), when they actually belong to another...

Since, according to the doctrine, minds belong to the same category as bodies and since bodies are rigidly governed by mechanical laws, it seemed to many theorists to follow that minds must be similarly governed by rigid non-mechanical laws (Ryle 17,21).

In its essence behaviourism considers ‘mind’ as a non-existing entity. There is no mind at all; what exists is only a disposition to behave. As it is the disposition of glass to break when it falls, human beings too make behavioural responses to stimuli. It is possible to explain the whole of behavioural processes without any reference to mind or conscious experience. A typical behaviourist explanation of headache goes like this,

Perhaps when you tell me that you have a headache, you are not picking out any definite thing or private condition
at all … but merely evincing your headache. You have been trained in a particular way. When you are moved to moan and rub your head, you are, as a result of this training, moved as well to utter the words “I have a headache.” When you ascribe a headache to me, you are saying no more than that I am in a kind of state that leads me to moan, rub my head, or utter “I have a headache.” The private character of that state could differ across individuals. It might continually change, or even… be altogether absent. The function of the word “headache” is not to designate that private character, however. It “drops out of consideration as irrelevant” (Heil 59).

The type of behaviourism discussed above represents philosophical behaviourism or logical behaviourism. Philosophical behaviourism is a theory of human behaviour, the nature of mind and mental terms. The second type of behaviourism called psychological behaviourism or methodological behaviourism focuses on scientific methods of applied psychology. The second type is concerned with experimental study of mind involving stimuli and responses.

2.2.2.2 Identity Theory

Identity theorists identify various conscious states with brain states or neural states. Having a specific type of phenomenal experience, according to this theory, is to have a specific neural or neuro-physiological state. The typical aspects of this theory identify pain with C-fibre firing and visual consciousness with 30-70 Hz signal passing through the cerebral cortex (Crick and Koch 103).
There are two main types of identity theories; type-type identity theory and token-token identity theory.

**Type and Token Identity Theories**

The words *token* and *type* are applied to identical theories as it is applied to words. “A telegram ‘love and love and love’ contains only two type words but in another sense, as the telegraph clerk would insist, it contains five words (‘token words’)” (Smart). As the word ‘type’ indicates, type-type identity theory claims that a particular type of mental state is identical with a particular type of physical state. The token-token identity theory on the other hand claims that a particular instant of mental state is identical with a particular physical state i.e. for each and every mental state there exist a particular (not type) physical state.

Type-type identical theory entails token-token identical theory, but not vice versa since the former is stronger in its claim. Hence it is possible to reject the former while holding the latter. The rejection of type-type identity theory along with the acceptance of the token-token identity theory is known as *non-reductive physicalism* (Lowe 49). This position is fully consistent with functionalism, which conceives mental states to be essentially functional states.

**Type- Type Identity Theory**

The type-type identity theory holds that one particular conscious property is identical with its corresponding physical property. It is like the identity between water and H$_2$O. Being water
is essentially being $\text{H}_2\text{O}$. Similarly the experience of pain, according to this form of theory, is identical with the firing of C-fibre.

Identity theorists focus on … theoretical identities. Such identities are uncovered by scientists exploring the way the world is put together. Lightning, we came to discover, is an electrical discharge; water is $\text{H}_2\text{O}$; temperature is mean kinetic energy of molecules; liquidity is a particular kind of molecular arrangement. An identity theorist holds that it is a good bet that research on the brain will lead to the discovery that certain properties we now designate using mental terms are properties of brains. Pain, for instance, might turn out to be the firing of C-fibers in the brain. … If this is so, then the property of being in pain would be identified with the neurological property of being a C-fiber firing (Heil 78).

The supports for such theories from neuro-scientific standpoints assure higher authenticity of these theories. But there are various objections to this standpoint.

One serious objection to identity theory is from the possibility of multiple realizability. According to this, mental properties are abstractions and are capable of being realised through various means. One and the same calculation may be done mentally or by using computer. In case of mental calculation, the conscious mental states (of calculation) are, according to identity theory, neural states or a series of neural states. The same calculation when done by a computer is identical with binary states (the way in which a computer
process information) or a series of binary states. One and the same thing, the calculation, is realizable through various means; as neural states or as binary states. Then it becomes false to identify calculation or thought with either of these states: neural or binary.

Any computational property can be "realized" or "implemented" in a variety of ways (electronic, mechanical, hydraulic), so it would be a mistake to identify any computational property with, say, an electronic property, since the same computational property can be implemented \textit{without} the electronic property, for example mechanically. If thought is computational or functional, then for the same reason it would be a mistake to identify thought with any neural state; for thought can be implemented non-neurally, e.g. electronically. It would be wrong to identify thinking with a brain state if a device without a brain could think (Block, \textit{Anti-Reductionism}).

Type-type identity theory, it is argued, however has the advantage that they overcome the problem of explanatory gap- the gap between the phenomenal and the physical. Since according to this theory the phenomenal states are identical with the physical states, there is no need to explain how one causes the other. “It does not \textit{cause} it, it \textit{is} it. And thus there is no gap to bridge, and no further explanation is needed. Identities are not the sort of thing that can be explained, since nothing is identical with anything but itself, and it makes no sense to ask why something is identical with itself” (Gulick). But the problem really is far from being over. Even though
one and the same reality may be described in various ways, there must be a point of their convergence and this point of convergence makes it meaningful to explain different expressions of the identity. The problem of explanatory gap precisely is a problem of this sort and the identity theory does not seem to solve the problem.

Saul Kripke explains identity to be a necessary relation and not a contingent one. He explains that certain elements of the relation between the brain states and phenomenal consciousness to be contingent and the two- the brain state and the phenomenal consciousness- cannot be identical.

... the correspondence between a brain state and a mental state seems to have a certain obvious element of contingency. We have seen that identity is not a relation which can hold contingency between objects...

... I suspect that the considerations given indicate that the theorist who wishes to identify various particular mental and physical events will have to face problems similar to that of type-type theorist; he too will be unable to appeal to the standard alleged analogies13 (Kripke 154-55).

2.2.2.3 Eliminative Materialism

Eliminative materialism or eliminativism denies the existence of consciousness or some of its generally accepted features. This theory refutes the Folk-psychological14 approach to the concept of conscious activities. They reject the commonsense notions of psychological concepts accepted by folk-psychology or commonsense psychology.
The eliminative conclusions depend mainly on two aspects of folk psychology. Firstly folk-psychology accepts the importance of commonsense notions of belief, thought, desire etc., and they are considered to be the theoretical terms of folk-psychology. Secondly eliminativism holds that “folk-psychology is a seriously mistaken theory because some of the central claims that it makes about the states and processes that give rise to behavior, or some of the crucial presuppositions of these claims, are false or incoherent” (Stich 265). The eliminative conclusion about folk-psychology goes like this:

The weaker conclusion is that the cognitive sciences that ultimately give us a correct account of the workings of the human mind/brain will not refer to commonsense mental states like beliefs and desires; these states will not be part of the ontology of a mature cognitive science. The stronger conclusion is that these commonsense mental states simply do not exist (Stich 265).

There are various possible objections to this argument. The second premise may be disproved in various ways. Stich claims that even if we accept the truth of these premises, the eliminative conclusion need not necessarily follow from their premises.

2.2.2.4 Functionalism

Functionalism is a physicalistic theory which considers mental phenomena as functions within a complex system. It does not identify mental functions with any sort of physical or material state. Functionalism differentiates between a function and their physical
state. A table or chair is a functional notion and it may be composed of any physical substance such as wood or steel. So it is incorrect to identify the table with its physical or material constituents. Mind or conscious functions, similarly, is a functional notion. When its material side is considered, the contribution is given by neurons. This makes the possibility of realising the psychic phenomena with the help of different physical constituents other than neurons.

…we should ask whether it is possible that minds occur in structures other than brains... Such fabled creatures would have minds although, being silicon instead of carbon, they could not have brains. Moving away from fiction and closer toward fact, what should we make of artificially intelligent devices? They can be liberated from human biochemistry while exhibiting talents that appear to demand the kind of cognition that fuels much of what is psychologically distinctive in human activity.

Possibly, then, some minds are not brains. These minds might be made of virtually any sort of material as long as it should be so organized as to process information, control behavior and generally support the sort of performances indicative of minds. Minds would then be functional, not physical, kinds (Maloney 333).

This functionalistic account of mind explains conscious functions with the help of physical states other than neural states contributed much to the development of cognitive science. Functionalism views mind as a computer and this prompted the
development of artificial intelligence (A.I). Functionalist account makes it possible to realise conscious functions by making the physical structure irrelevant.

Given functionalism, it may be true that every individual mind is itself a physical structure. Nevertheless, by the lights of functionalism, physical structure is utterly irrelevant to the deep nature of the mind. Consequently, functionalism is foundational to those cognitive sciences that would abstract from details of physical implementation in order to discern principles common to all possible cognizers, thinkers who need not share any physical features immediately relevant to thought. Such a research strategy befriends Artificial Intelligence inasmuch as it attends to algorithms, programs, and computation rather than cortex, ganglia, and neurotransmitters (Maloney 333).

Functionalism is accused of denying the centrality of consciousness in cognitive experience. According to this objection, two functionally identical states may be felt differently by two persons. For example, when experiencing redness, A’s subjective feeling of redness need not necessarily be that of B’s. It is impossible to differentiate this in the first person account. In computers also one and the same function may be incorporated using different algorithms\(^\text{15}\). The algorithm used here is analogical with the phenomenal mental states in the functionalistic account of mind.
2.2.3 General Objections to Physicalism

Other than the specific criticisms from the dualistic standpoint and also from within different theories within physicalism, there are some general objections that are applicable to all forms of physicalism. These objections generally focus on the subjective account of conscious experience and the methods of objecting include thought experiments; some of the major objections are discussed below.

Explanatory Gap

Even though physicalism is able to describe the phenomenon of consciousness to a great extent, it remains inexplicable that how these physical states give rise to the subjective mental phenomena. So there is an important way in which physicalism remains non-reliable (Kripke 144-52).

David Chalmers identifies the difference between the hard problem of consciousness (explanatory gap) and easy problems of consciousness. The easy problems are the problems related to cognition. Chalmers here gives the psychological explanation of consciousness in contrast to the phenomenological explanation which is the hard problem. The specific argument against materialism goes like this,

(1) In our world, there are conscious experiences.

(2) There is a logically possible world physically identical to ours, in which the positive facts about consciousness in our world do not hold.
(3) Therefore facts about consciousness are further facts about our world, over and above the physical facts.

(4) Therefore materialism is false (Chalmers 123).

**Knowledge arguments**

The two main forms of this argument are already explained in describing subjectivity and qualia. These two arguments appeared in the article by Thomas Nagel, “What it is like to be a bat” and Frank Jackson's thought experiment of the colour scientist Mary. The notion of subjectivity is a theme of vigorous debates between materialists and anti-materialists who consider consciousness to be an irreducible aspect of nature.

**Zombies**

Zombies are not empirical, but logically conceivable creatures having all its physical features similar to normal human beings. But the difference between normal human beings and zombies is that the latter do not have consciousness or subjective experiences. However, it becomes impossible to distinguish this lack of consciousness from the external observation of the zombie. In spite of this it follows that, the impossibility in distinguishing zombies from normal human beings does not make the former identical to the latter. The logical possibility of ‘a physically identical zombie world’ (Chalmers 123) then makes the materialistic position erroneous. If physical stuff supervenes the psychological states, or if they both are identical, then the physical states must cause the psychological state. The conception of zombies goes against this. A normal individual and his zombie are
identical in everyday physical aspects. But, since the latter is not conscious and there is no logical contradiction in conceiving zombies, materialism cannot logically claim the supervenance of physical states over the psychological states.

**Mysterianism**

Mysterianism focuses on the cognitive limitations of human beings on acquiring knowledge about the problems related to conscious experience. They argue that it is impossible to solve the hard problem or to fill the explanatory gap, since human beings are ‘cognitively closed’ towards such aspects of reality. So it follows that the materialistic metaphysics of consciousness is unacceptable.

McGinn, a chief exponent of mysterianism, explains his hypothesis as *Transcendental Naturalism*. Consciousness accordingly is a mystery but not a miracle. The mystery, which is an epistemological issue, is related to our conceivability of its existence. But there is no ontological issue reflecting in such a non-conceivability and hence it must not to be accounted as a miracle.

The nature of consciousness is a *mystery* in the sense that it is beyond human powers of theory construction, yet there is no sense in which it is inherently miraculous. This position depends upon a sharp separation between epistemological and ontological questions. Epistemologically, consciousness outruns what we can comprehend, given the ways our cognitive systems are structured--in rather the way that theoretical physics is
beyond the intellectual capacities of the chimp. Ontologically, however, nothing can be inferred from this about the naturalness or otherwise of the object of our ignorance: what cannot be known about is not thereby supernatural in itself… Consciousness has an epistemologically transcendent natural essence. .. the nature of this process is cognitively closed to us. The problem is therefore insoluble by us, but not because consciousness is magical or irreducible or nonexistent; it is insoluble simply because of our conceptual limitations. This hypothesis, which I call *transcendental naturalism* (TN), explains why it is that we find ourselves as perplexed by consciousness as we do without having to draw unwanted ontological conclusions from this bafflement (McGinn 42-43).

2.2.4 Idealism

Idealism is the monistic position which accepts only one metaphysical substance- the mind. In the history of modern philosophy, idealism was first put forward by George Berkeley (1685-1753) through his famous dictum *esse est percipi*. He identified existence with perception- the phenomenal element in experience. The *subjective idealism* of Berkeley postulated an infinite mind- God in order to maintain the continuum of physical world.

With a drastic change in methodology, in the history of Western philosophy, Hegel introduced the principle of *Absolute Idea* as the sole reality. For Hegel, *real is rational and rational is real*. The
reality according to Hegel is grasped through the dialectical evolution of reason. “Reason is the conscious certainty of being all reality”. The Hegelian Absolute is the fruit of an approach to reality rather than an approach to consciousness.

The monistic position held by Upaniṣads and Advaita philosophy can be seen close to the idealistic approach to the concept of mind. The concept of reality here goes far beyond the dichotomy of physical and mental realms. These aspects are to be discussed later in this chapter under section 2.2.6.5.

2.2.5 Specific Approaches to the Phenomenon of Consciousness

In addition to the theories of consciousness discussed above, there are many specific approaches to the phenomenon of consciousness that do not come under the above categories. Some of them are ‘Higher Order Theories’, ‘Neural Theory’, ‘Quantum theory’ and ‘Integrated Information Theory’ (IIT). Even though these theories cannot completely account for consciousness as a phenomenon, they focus on some of the significant aspects of it. The Higher Order Theory and IIT are discussed below.

2.2.5.1 Higher Order Theories of Consciousness

According to Higher Order Theories of consciousness, there are two levels of conscious states. Of these, the first level (First Order Representational state- FOR) is that of sensation, thought and the like and the second level is a Higher Order Representational state (HOR) for which the FOR is an object. The mystery of consciousness,
according to these theories, lies in the twin level functioning of consciousness and can be explained in terms of the HO representation.

There are two versions of Higher Order Theories; Higher Order Perception theory (HOP) and Higher Order Thought theory (HOT). HOP treats consciousness as having some perceptual element, where the HOR state perceives the FOR state. According to HOT, conscious states involve some conceptual component, where the HOR state has a thought about the FOR state. William Seager defines the HOT of consciousness as follows,

\[ \alpha \text{ is a conscious state of } S \text{ if and only if (iff)} \]

(1) S is in the mental state \( \alpha \),

(2) S has an ‘appropriate’ thought about \( \alpha \) (we’ll call having this thought ‘being in the state \( T[\alpha] \)’; the content of \( T[\alpha] \) is something like ‘I am in state \( \alpha \)’),

(3) S’s being in \( \alpha \) causes S’s being in \( T[\alpha] \),

(4) S’s being in \( \alpha \) does not cause S’s being in \( T[\alpha] \) via inference or sensory information (63).

According to these theories, to be conscious of something (FOR state) is to have an HOR state of that conscious state. This introduces the problem of knowing about the HOR state. To know about the HOR state is for that state to be an object (FOR state) of a still higher HOR state. This makes both the versions of Higher Order Theories circular and lead to infinite regress of FOR-HOR states.
2.2.5.2 Integrated Information Theory of Consciousness

According to the Integrated Information Theory developed by Giulio Tononi, the phenomenon of consciousness is determined by two key features; the degree of differentiation or complexity and the richness of information. Consciousness, according to this theory involves integration of information in isolated conscious states. This integration or unity of conscious phenomenon entails privacy of conscious experience, that is, “always experienced from a particular point of view and cannot fully be shared” (Tononi and Edelman 994).

It is the richness of information and its complexity that determines whether a specific state is a conscious state or not. When this richness and complexity is within a certain limit that phenomenon is accounted as merely physical, but with an increased richness and complexity it is accounted as a conscious state.

Why should the differentiation between light and dark performed by the human be associated with conscious experience, while presumably that performed by the photodiode is not? ... To the photodiode, the discrimination between darkness and light is the only one available, and is therefore minimally informative. To a conscious human, by contrast, an experience of complete darkness and an experience of complete light are two specific conscious experiences selected out of an enormous repertoire, and their selection implies the availability of a correspondingly large amount of information. To understand consciousness, it is important
to identify underlying neural processes that are both integrated and capable of such exceptionally informative differentiations (Tononi and Edelman 994).

The IIT leads to serious consequences like universal nature of consciousness (Koch 19). If it is the integration of information that determines consciousness, then all states of information sharing are more or less conscious states. Even a single hydrogen ion having a proton made up of three quarks has to be conscious in its own way (Koch 19) and this leads to the theoretical position of panpsychism, similar to the one held in Jainism (Koch 16).

2.2.6 Indian Theories of Mind

All the Indian schools of philosophy, with the exception of Cārvākas, believe in the existence of some principle other than the material. Hence, in contrast to the Western theories of mind, the ontological status of mental states is not a particularly difficult question for most of the Indian schools (Dreyfus and Thompson 90). However, the problem of mind-matter interaction and the status of the notion of self that unifies all conscious experiences are issues of debate among these schools. In this section, we can attempt a brief survey of some of the Indian theories of mind especially focusing on the relation between conscious experience and the notion of self.

2.2.6.1 Cārvāka

Cārvāka being the materialistic school does not accept the existence of any principle other than the material. In their epistemology, only perception is the valid means of knowledge as
reject inference, comparison and verbal testimony. On the metaphysical side, they accept only four elements viz. air, fire, water and earth. This led them to accept the reality of consciousness as it is perceived, but they reject any unifying self behind these conscious acts since no such entity is perceived. Self as a unifying principle of conscious experiences is always inferred and Cārvākas reject inference in general. They regard consciousness as the by-product of the interaction of the four elements that ceases to exist with the death of the body. No self or any such principle remains after death. The Cārvāka approach to consciousness is similar to the modern concept of epiphenomenalism.

2.2.6.2  Jainism

Jainism views the whole universe as divided into two categories; jīva and ajīva. Jīva is the soul or the conscious spiritual principle. All the animate and inanimate objects, according to Jainism, possess the soul. Souls are as many in number as there are objects. Consciousness is the essential nature of soul and the soul inherently is endowed with four infinite potentialities i.e. infinite intuition, infinite knowledge, infinite power and infinite bliss. The soul essentially is eternal and infinite but is limited by its association with matter. The soul takes the space of the body it occupies; the soul of an ant is as small as the ant and that of an elephant is as big as the elephant. The belief in the conscious spiritual principle that pervades both the animate and inanimate nature takes Jainism to the panpsychic position that conceives all objects to possess mind. The soul or conscious
principle, on its dissociation from matter, is capable of regaining its original nature and potentialities.

2.2.6.3 **Buddhism**

Buddhism in general does not believe in soul but believes in the conscious spiritual principle. It conceives self as nothing but a series of conscious activities and denies the existence of any metaphysical principle called self. The Buddhist approach to self is an outcome of its metaphysical doctrine of momentariness, according to which, everything is transitory and exists for a moment only. Conscious states are also momentary and the sense of ego is an illusion. This approach to the self, which essentially is the bundle theory of self, is criticised for it not being able to account for any unitary principle that is the necessary pre-requisite of knowledge.

A later metaphysical school of Buddhism, the Yogācāra School, is able to account for the no-soul theory with convincing justifications. The Yogācāras or Vijñānavādins conceive the phenomenal world as a function of consciousness (Leaman 78). Consciousness is the only real existent and it develops the entire world of experience by its two functions: perception (*khyāti*) and imagination or conceptual construction (*vikalpa*) (Gupta 75).

Vijñānavādins explain the apparent continuity of ego as the outcome of the store of impressions (*ālaya vijñāna*) evolving from the traces of sense perceptions that had accumulated earlier. These active seeds are the cause of conscious experiences. The false conception of the self, according to Vijñānavādins, emerges from these seeds.
2.2.6.4 Saṃkhya - Yoga

In Saṃkhya-Yoga, the real subject is pure-consciousness or Puruṣa and they are as many in number as there are persons. Mind in Saṃkhya – Yoga is an effect of Puruṣa’s association with the material substratum of the universe (Prakṛti). The three evolutes of Prakṛti (intellect, ego and mind) together with the conscious principle form the functioning mind- Citta. In Saṃkhya – Yoga it can be seen that all the functional states of consciousness involve some material substance. The Saṃkhya - Yoga theory is dealt with in detail in Chapter IV.

2.2.6.5 Upaniṣads and Advaita

The Upaniṣads and the Advaita Vedānta tradition (which relies heavily on the Upaniṣadic literature) conceive consciousness as the sole existent reality. Vedāntins identify consciousness with the ultimate reality i.e. the Brahman. The essence of the objective world (Brahman) and that of the subjective reality (Ātman) are considered to be one and the same. The whole world is considered to be the manifestation of the Absolute whose essential nature is Being, Consciousness and Bliss (Sat-Cit-Ānanda). Viewed from the transcendental standpoint, consciousness alone exists and the world is an illusion (Māya). The real seer or the subject is the Ātman/ Brahman, which essentially is consciousness. The Advaita Vedānta and Upaniṣads conceive consciousness as the self-luminous basis of all knowledge. It is the unseen seer who cannot be seen. It is the un-experienced subjectivity.
Mundakopaniṣad explains the four levels of the existence of consciousness viz. waking (jāgrat), dreaming (swapna) and sleeping (suṣupti) and ‘the fourth’ (turīya). This is represented by the syllable AUM. The waking state is represented by the letter ‘A’, and in this state the consciousness is directed towards the external world. In the state of dreaming, represented by the letter ‘U’, the consciousness is directed inwardly towards the mental objects. Deep sleep is the state represented by the letter ‘M’ and in this state, the consciousness is not directed towards any specific object but the subject is immediately aware of its own existence. The fourth state is the one in which consciousness in its pure form exists. In this state consciousness is not limited by the notion of individual ego and transcends all the earlier three states. In this state of absolute existence, the consciousness is independent, inactive, eternal, undifferentiated and without any content (Gupta 23). This state of consciousness is identical with Ātman/ Brahman.

2.2.6.6 Sri Aurobindo

Sri Aurobindo (1872-1950) gave a different interpretation of the Vedāntic tradition in his theory of evolution and Integral Yoga. According to him, as Advaita conceives, the whole existence is consciousness in its essence. But, while the traditional Advaita maintains consciousness to be essentially transcendental, for Aurobindo it is both immanent and transcendental. The whole universe is in the process of evolution through which it strives towards the realisation of the Absolute, which is pure-consciousness. The evolution of nature into the Absolute presupposes the involution or
descent of the Absolute to life and matter (Gupta 139-40). The evolutionary process thus aims at the returning of the matter and life to their original state.

For Aurobindo, ‘mind’ exists in all planes of existence, from the highest to the lowest (Warrier 97). The mind is realised through eight levels of existence. Through these levels the lower ones progress towards the higher ones to reach the ultimate state of absolute existence; that of *Supermind*. The eight levels of existence are a) The Mental b) The Vital c) The Physical d) Higher Mind e) Illumined Mind f) Intuitive Mind g) Overmind and h) Supermind.

‘The Mental’ is the level of existence of the inanimate while ‘The Vital’ is the essentiality of plants and animate nature. ‘The Physical’ is the level of bodily existence. The bodily consciousness is not generally known to us, but Aurobindo conceives the body in possession of its own consciousness “which alone enables it to control and direct it [the body] in the proper way” (Warrier 98). The ‘Higher Mind’ corresponds to the general notion of ‘mind’, while the ‘Illumined Mind’ corresponds to our notion of self-consciousness. The ‘Intuitive Mind’ is the source of knowledge for the higher mind and the illumined mind and is revealed through insights. ‘Overmind’ is the evolutionary stage next to the intuitive mind. It is the power of *cosmic consciousness* that is attained by going beyond the limitations of ego sense. At this stage “many ego-centric notions may still remain, but they become insignificant and powerless” (Warrier 108). The next stage in the evolutionary process is Supermind. It is the state that is devoid of any notions of the ego. Its very nature is knowledge and
moves from lower truths to higher truths to finally arrive at divine omniscience and omnipotence. The individual who has realised this state is called the *Gnostic Being*.

### 2.3 Some Key Issues in the Study of Consciousness

So far we have seen various approaches towards the study of consciousness but we are not able to see any general consensus about the issues related to consciousness. There are points of wider disagreement between the dualistic and the materialistic theories. Even within the sphere of materialism there are disagreements about various aspects of the phenomenon of consciousness. Among these disagreements, that one based on the nature of subjectivity can be seen as the most profound one. Now we may proceed to discuss some key issues related to the study of consciousness.

#### 2.3.1 Can Subjectivity be Ignored?

The major issue between materialism and anti-materialism is the question of objectivity versus subjectivity. While materialism in every sense denies the existence or meaning of subjectivity, anti-materialism asserts the primacy of subjectivity. The materialistic justification of the denial of subjective element in experience is supported by ‘causal completeness’ and, the instances of attention and awareness without consciousness. Here one thing that we have to take into consideration is the various levels of consciousness like phenomenal consciousness and access consciousness. An explanation using ‘causal completeness’ and hence cases of attention without consciousness may be possible in the instances of reflex actions and
learned behaviours. But when faced with a novel situation in which creative thinking is required, one cannot do without consciousness of the higher order.

Imagine you are driving your car and having a lively animated intimate conversation with your friend sitting next to you. Your attention is entirely on the conversation, it's what you're conscious of. But in parallel you are negotiating traffic, avoiding the pavement, avoiding pedestrians, not running red lights and performing all these very complex elaborate computations without being really conscious of any of it unless something strange happens, like you see an actual zebra instead of just a zebra crossing! ...

Intriguingly you cannot imagine the converse scenario. Paying conscious attention to driving and negotiating traffic while unconsciously having a creative conversation with your friend. This may sound trivial but it is a thought experiment and it is already telling you something valuable, that computations involved in the meaningful use of language require consciousness but those involved in driving, however complicated, don't involve consciousness.

I believe this approach to consciousness will take us a long way toward answering the riddle of what consciousness buys you and why it evolved (Ramachandran 35-36).
If conscious awareness does not have any importance at all, it would have been possible to have meaningful conversation without being conscious. Since there cannot be instances of meaningful conversation without being conscious, it follows that consciousness has an active role in meaningful activities. Then the epiphenomenal and materialistic interpretations that conceive consciousness as merely a by-product are incorrect at least in this respect.

2.3.2 The Cause of Epistemic Circularity in Consciousness Studies

Any specific definition of consciousness is objectionable from one or the other point of view since any such definition fails to account for all aspects of consciousness. Any objective or third person account of consciousness evades the very nature of consciousness which is subjectivity. Thomas Nagel in his famous article “What it is Like to be a Bat” described the essential nature of consciousness to be subjective. The conscious state as what is felt remains beyond the realm of the objective explanations. Even a subjective account of consciousness is forced to commit the fallacy of petitio principii since it is impossible to have such an account without putting some term synonymous to consciousness in it.

What is standardly meant in ordinary usage by the word "conscious"? One use of "conscious" is applied to a person's total state. A person is conscious, in this sense, if he or she is in a generalized condition of alertness or arousal: being awake rather than asleep or in a coma. This sense of "conscious", however, may be derivative from a primary or core sense of "conscious" in which it applies
to partial psychological states (or perhaps processes or representations), such as individual beliefs, plans, or emotions. A partial psychological state is conscious if and only if it involves phenomenal awareness, i.e., subjective experience or feeling...

Let us concentrate on the core sense of "conscious." The definition suggested above seems reasonably accurate but not terribly illuminating. "Awareness" is just an approximate synonym of "conscious," and so is "phenomenal." Not much progress is made by providing these synonyms. Is there a definition that gets outside this circle of unrevealing synonyms, while still confining itself to the ordinary grasp of the concept (rather than shifting to the psychological mechanisms of consciousness or its neurological basis? (Goldman).

This circularity in definition, of course, is not due to any limitation on the part of those who try to describe it. Such circularity can be the explicit expression of the circularity implicit within the notion of consciousness. While every object of this world is experienced and every mental conception is an instance of conscious experience, consciousness as such is not experienced. Consciousness is what is inferred from all such experiences. Consciousness is the prerequisite for experience to take place. It is the mode in which experience does exist. So consciousness in itself cannot be experienced. Every object and conception are objects of experience. Consciousness is the subject. Even for a conceptual account of
consciousness, in the process of being conceived, consciousness must act as subject. It is the attempt to drag consciousness from the realm of subjectivity into the realm of objectivity that causes the essential circularity in any analysis of consciousness. Even in cases in which subjective knowledge is considered, perceptual consciousness or phenomenal consciousness which is called qualia remains an object to consciousness.

Consciousness is the epistemic necessity of any experience. Experiences in general are centered round the subject-object relationship. The fundamental subjective necessity of any experience is consciousness. So what happens when consciousness is treated as an object of consciousness?

Merleau Ponty sees consciousness as always embodied and the embodiment is the centre of experience. Or else, consciousness is always a consciousness of something and is expressed as an intentional state. So, in general, consciousness is not experienced as other objects are experienced. It is inferred from the consciousness of objects. A disembodied consciousness/contentless consciousness/pure consciousness cannot be an object of experience. In explaining consciousness, the essential nature of consciousness inferred from experiences, is subjected to analyses using consciousness.

The fundamental paradox in such analyses is that, what is being analysed and what is analysing are the same. A concept, when referred to itself must end up in contradiction or tautology. It ends up in contradiction as far as it is referring to itself negatively. A logical
expression of such an instance can be seen in this remark by Wittgenstein,

No proposition can say anything about itself, because the propositional sign cannot be contained in itself (that is the "whole theory of types") (3.332).

Same thing happens in the case of semantic antinomies or that of liar’s paradox. An example of semantic antinomy goes like this:

[The sentence given in square brackets in this page is false] now, if we start by assuming this sentence to be true, it turns to be false on analysis (by its content sense). And if we start by assuming this sentence to be false then it turns out to be true since its content denies its expression.

Somewhat similar in the opposite direction takes place when a concept asserts itself. When a part of a proposition asserts its other part or when the whole sense of a proposition refers back to the proposition affirmatively, it is necessarily tautological. In such cases there exists no criteria nor there are any other criteria required for further analysis of the proposition.

It is the first methodology (the contradictory one) that is used by Descartes to derive his famous dictum- *cogito ergo sum*. The possibility of the denial of self here is taken negatively as such an attempt will necessary lead to contradiction. So in order to avoid such a contradiction, Descartes accepted the existence of the ‘I’. This analysis presupposes the non-existence of contradiction. Here Descartes forgot to doubt the non-existence of contradiction or the
meaningfulness of contradiction. Whatever yield is made out of contradiction or tautology, we must be aware of the caution that Wittgenstein had put forward,

The proposition shows what it says, the tautology and the contradiction that they say nothing.

The tautology has no truth-conditions, for it is unconditionally true; and the contradiction is on no condition true.

Tautology and contradiction are without sense. (Like the point from which two arrows go out in opposite directions) (Wittgenstein 4.461).

Rationality may be seen as that which is ‘coloured’ by consciousness. Then it follows that consciousness must be either the source or is prior to rationality. Any rational account or objective account of consciousness then must be an impossibility. The knowledge about consciousness must then be differentiated from all other avenues of experience. There must be some uniqueness about consciousness. Any rational attempt to explain consciousness must end up in circularity which then is no more an explanation.

2.3.3 Objectivity and Meaning

Conscious states are always intentional. It transcends our mode of being and reaches out beyond sense data to the world of objects. Intentionality is the directedness of mind to objects or states of affairs. The sense or meaning of conscious states is determined by the intentional nature of that conscious experience. Accordingly one and
the same phenomenal state can have more than one meaning depending on the intentional content /directedness in that experience. Figure 2.1 and 2.2 illustrate this point.

![Fig. 2.1](image1.png)

There are two possible ways of seeing the cube. When one fixes his eyes along the sides marked ‘a’ he can see a right-upward projected cube. When one fixes his eyes along the sides marked ‘b’ he can see a left-downward projected cube. So the object seen is getting changed according to one’s intentionality/directedness.

![Fig. 2.2](image2.png)

In the given picture there is an old woman and young lady. Here too the meaning of the picture changes with the directedness of mind.

So what is subjectively meaningful need not necessarily be the meaning of that at its objective level. Much of what is meaningful is being determined by intentionality.

Consider another example of temperature measurement in a furnace. The heat of the furnace is picked up by the thermo-couple sensor which converts heat to electricity. The voltage thus produced is
carried to the monitoring panel through electric cables and is read by a milli-ammeter. The ammeter dial is calibrated such that the reading corresponds to the furnace temperature.

Now, if the sensor gets scaled due to prolonged use, the temperature shown by the meter will be less than the actual furnace temperature. It is technically possible to correct this phenomenon through various means. a) The sensor can be taken out of the furnace and the scales can be removed, b) Additional sensors may be added to increase the sensitivity to compensate for the reduced reading, c) The voltage produced by the sensor may be amplified to the required level to compensate for the reduced reading, d) The strength of magnets in the milli-ammeter may be increased for an increased deflection and e) The dial may be calibrated to cater for the reduced reading.

In the foregoing example one and the same phenomenon - error due to scaling - is realised as a) A chemical process, b) Sensitivity of the sensor, c) An electrical phenomenon, d) A magnetic phenomenon and e) A representational error. The specific way in which one interprets the phenomenon depends on the way he/she finds it meaningful to use/ correct/ access it. This notion of realising one and the same phenomenon differently at various levels is different from the earlier notion of multiple realisability. In multiple realisability, one and the same end is realised through different means. Here one and the same phenomenon is realised differently at different levels.

The materialistic interpretation of consciousness, where conscious states are identified with neural or functional states, can be seen as their specific approach to certain physical levels of realisation.
What is meaningful to us is the conscious experience. But as far as a neurobiologist is concerned, the neural changes are meaningful. Even there may be the possibility of interpreting the neuron changes as the organisation and reorganisation of fundamental elementary particles. From the point of view of computation, the functional states are meaningful. And it remains non-objectionable that from the empirical standpoint, the conscious states are meaningful. So to identify consciousness with any of these levels of physical realisation; fundamental particle, neurons, functions, phenomenal consciousness etc will amount to the fixation of the phenomenon of consciousness at this level.

2.3.4 Materialistic/ Neurobiological Account of Consciousness and Solipsism

Consider a neurobiologist or an identity theorist explaining the phenomenon of consciousness. The sort of explanation he makes is that a subject’s conscious states are nothing different from his/her brain or neuronal states. Hence the physical states supervene the psychological states. Some materialists go a step further to state that what is meaningful are the neural states and the subject’s conscious state is insignificant. Is it so?

What was going on in the previous explanation of the subject’s conscious states? The subject has been in an experimental condition. He is connected with brain managing/ monitoring instruments; for example, EEG. The neuroscientist is showing some movie clippings to the subject. The emotional responses of the subject as being reported by the subject himself and also being observed by the
neuroscientist are registered. Finally, the emotional feelings of the subject are *interpreted* as identical with the changes in the neuronal states as registered in the monitoring equipment.

Now the question is, what these interpretations are? Can any neurobiologist explain the whole scenario observed and interpreted by him as something different from his own neuronal states? How can he go beyond his neuronal state to any reality that exists outside his neural network? A similar account is delineated in a science-fiction movie by asking “what is real? The dialogue goes like this:

How do you define "real"?
If you're talking about what you can feel...
...what you can smell, taste and see...
...then "real" is simply electrical signals interpreted by your brain...
It exists now only as part of a neural-interactive simulation... (Fishburn)

How can the neurobiological explanation of consciousness escape from the danger of falling into solipsism? It is very well in the danger of relapsing into solipsism since all materialistic explanations fail to account for the primacy of consciousness in phenomenal experience. Consciousness is a mode of being, the subjectivity and not the object of knowledge.

**2.3.5 Is Consciousness Identical with Awareness?**

In considering this question, we may refer back to some earlier discussions on the nature and theories of consciousness.
a) Awareness and consciousness need not go together. There are instances of awareness without consciousness and is vice versa. Further, there can be experiences where both are present and also instances in which both are absent. Then it follows that is all four combinations of awareness/consciousness relations are possible and hence there is no necessary correlation between them.

b) In a similar way goes the relation between attention and consciousness. Here also all four combinations between them are possible and no necessary correlation can be established between them.

c) Susan Blackmore notices that consciousness is a grand delusion. According to her, consciousness arises in asking questions about consciousness. She asserts that consciousness is a phenomenon that is present only when we are aware of that phenomenon.

Consciousness, then, is a grand delusion. It arises through asking such questions as ‘Am I conscious now?’ or ‘What am I conscious of now?’ In that moment of questioning, an answer is concocted: a now, a stream of experiences, and a self who observes it all appear together, and a moment later they are gone. Next time you ask, a new self and a new world are concocted, backwards from memory. If you go on to believe that you always were conscious, and construct metaphors about streams and theatres, then you only dig yourself deeper and deeper into confusion (Blackmore 131).
d) Block’s notion of phenomenal and access consciousness assumes phenomenal consciousness as any phenomenal state of experience and access consciousness as the awareness about that state.

e) Higher order theories of consciousness, in a way similar to that of the phenomenal and access consciousness explain consciousness to be a higher order thought process over the lower order phenomenal states.

f) The Sartrean distinction between reflective consciousness and pre-reflective consciousness shows that reflective consciousness is necessary in handling novel issues as well as in problem-solving whereas pre-reflective consciousness is the non-conscious processes involved in learned actions.

In all the above expressions except the last one (Sartre), consciousness is taken to be self-consciousness. If so, we may have to say that animals are not conscious in any way (this has already been objected to (Section 2.1.1). If we assume the states of being conscious to be the states other than self-consciousness we may observe that all these states (mentioned as attention, awareness, phenomenal consciousness, the lower order consciousness etc) are conscious states at a lower level. The Sartrean notion of pre-reflective consciousness is the clue to the solution. While driving and simultaneously talking to a friend (Section 2.3.1), one is able to navigate traffic through calculations, which according to Sartre is a pre-reflective thought process. Does consciousness have any other role in such a process? Of course; and non-conscious driving is possible only by the one who is very much used to driving. One who is new to driving will focus all
his attention and will have to be fully conscious in all his actions while driving. That is to say that consciousness plays a key role in handling novel situations. Once one gets well versed with the situation, consciousness relegates to the background. So we may observe that awareness, attention etc all are different modes of realising consciousness. The highest level that is described in the discussion here is self-consciousness.

Since self-consciousness functions in places where one is faced with a novel situation and language processing (Ramachandran 36), we may observe that consciousness has something to do with survival.

2.3.6 Consciousness, Evolution and Transcendence

In section 2.3.1 we have seen that subjectivity is an essential element of the phenomenon of consciousness. In section 2.3.2 it was stated that there is an essential circularity in defining consciousness. And in the succeeding section we found that the objective states of one and the same phenomenon at various levels cannot be taken to be identical to that phenomenon. Then the question is how can we have an account of consciousness?

One way of discovering a theory is the analysis of relevant data from different angles. Here in the case of consciousness this cannot contribute much to give a fundamental theory of consciousness. As we have seen in the case of materialistic theories, in such analyses at any specific level, what is lost is some essential feature of the issue in hand. Owing to the unique nature of consciousness discussed in
section 2.3.2. it is seemingly not possible to get an objective theory of consciousness.

A second way to form a theory is through the design of a system of hypothesis which is consistent within itself and to test the data of the proposed phenomenon for its coherence with this system. If there is no inconsistency, the new system may be accepted. Many of the philosophical systems prior to analytical tradition were of this nature. They were testing the empirical data within their system of assumptions, one such coherent system is Spinoza’s metaphysics.

But is such a system a necessarily correct one? It goes true as far as our interpretations are considered. There is no necessary objectivity of such a system. If not so, solipsism is one of the best systems consistent within itself- as long as one does not speak it out. When spoken out it assumes that someone else needs to know that and thus confirms the existence of other minds, and this self-refutes solipsism.

It seems to be hopeful if the circularity in the conception of consciousness could be avoided. The circularity is seemingly avoided in higher order theories of consciousness where phenomenal consciousness represents the conscious states and the higher order consciousness is aware of this lower order. The same relation goes between phenomenal and access consciousness too. Now the problem is partially solved by proposing two functional states where the higher order conscious state makes the lower order its object of experience. This raises further the problem of objectifying the higher-order conscious states. There need to be a still higher order conscious state
to know the higher order state and still more higher order state to
know that state and so on \textit{ad infinitum}. We may observe that the
initial circularity is now transformed into infinite regression.

These two, circularity and infinite regression, are often
interrelated. Take the classic example of hen and egg. They can be
described as \textit{type} or \textit{token} in the sense discussed in section 2.2.2.2.
Considering hen and egg as types, the relation between them is
circular. The former causes the latter and the latter causes the former.
When they are considered as tokens, the relation leads to infinite
regression. A hen is caused by an egg, which is caused by another
hen, which again is caused by still another egg and so on \textit{ad infinitum}.

What is the way out? The former example can be illustrated in
a more meaningful relation than circularity or infinite regression. The
explanation is evolutionary. Both the hen and the egg are evolved
from a lower biological species. This gives a convincing explanation
to avoid circularity and infinite regression. How can we have an
evolutionary theory of consciousness?

The discussion in the last section regarding the role of
consciousness as pre-reflective consciousness in habituating action
may be considered in this context. Self-consciousness is required in
facing novel situations. Once the action becomes a habit, the same
can be carried out on the level of pre-reflective consciousness or in a
mode of, attention/ awareness without consciousness. This has got a
survival value which is a key concept in evolution.

In any meaningful account of existence we cannot neglect the
teleological view. The teleological view in a certain sense explains an
action in terms of its contribution towards the existence/ functioning of the organism/ system. Precisely this is what is being done in neurobiological interpretation of conscious experience. So teleology may be seen as not alien to materialistic theories.

Human beings are at the apex of the evolutionary process. They are the only self-conscious beings in nature. If we look at the hierarchy of evolution, we can see that highly evolved animals like chimpanzee, even though not self-conscious, possess a level of consciousness that enable them to identify themselves in mirror. Lower animals cannot do this even though they are conscious in a certain sense. If we accept the panpsychological view and interpret the evolutionary process, we may see that consciousness in different degrees is revealed through different stages of evolution and is expressed as self-consciousness in human being. In Aurobindo’s theory, rational level of evolution is explained as a specific state of evolutionary process and this level is lower to the levels of Highermind and Supermind (Aurobindo 79-80). According to Aurobindo, the Gnostic being or Super-consciousness is the highest evolved state.

All those materialistic interpretations fall within the category of reason. The analyses in this respect are done using intellect, which is a specific stage in the evolutionary process (Sāṃkhya-Yoga). The categories of reason need not necessarily limit the categories of understanding since there are possible higher states of evolution. To know human consciousness, we may have to transcend the relatively lower stage of evolution, that is reason. So in experiencing
consciousness one has to transcend the normal mode of experience because no such empirical mode of experience can comprehend consciousness. In the last chapter we have discussed how phenomenological method can fulfil this requirement.

NOTES

1 John Searle in his audio book Philosophy of Mind – Chapter on “Dualism: Descartes' Legacy”

2 For details see The Internet Encyclopedia of Philosophy.

3 Quoted in MIT Encyclopedia of Cognitive Science (Duncan 39)

4 Blind sight: Some patients are effectively blind because of brain damage can carry out tasks which appear to be impossible unless they can see the objects. For instance they can reach out and grasp object, accurately describe whether a stick is vertical or horizontal, or post a letter through a narrow slot. The explanation appears to be that visual information travels along two pathways in the brain. If one is damaged, the patient may loose the ability to see an object but still be aware of its location and orientation (Ramachandran 182).

5 The basic idea behind explanatory gap is that we cannot fully account for subjective experience in terms of physical processes. There exists the necessity of ‘filling the gap’ between the physical phenomenon and its corresponding subjective experience.
6 *Propositional attitude* states include beliefs, desires, hopes, fears and the like. They are the mental states that can be expressed as the state of a subject in the form ‘ S Φs p’ where ‘S’ denotes the subject and p stands for some proposition. Φ represents any verb of the propositional state like beliefs, desires, hopes or fears. For example ‘Tom (S) believes (Φs) that it is raining (p) (Lowe 40).

7 Binding Problem: According to neurobiological approach the brain functioning is through parallel processing and there is no unitary centre in the brain to account for various data regarding one object as distinct from that of another object. The problem then is the unification of various elements of experience regarding an object such as its colour, shape and smell within that object perception.

8 Möbius strip: A strip with only one side, but appears to have two sides.

9 According to ‘parallelism’, mind and body are the effect of one and the same cause and hence they appear to be causally connected. However there is no direct connection between them.

10 EEG: Electroencephalography is the recording of electrical signals produced by the brain produced by the firing of neurons. EEG can register the brain activities for a period of time and is an indication of the various brain states.
PET: Positron Emission Tomography is a nuclear medicine imaging technique that can produce three dimensional images. It is used for functional brain mapping in neuroscience researches.

fMRI: functional Magnetic Resonance Imaging is a neuroimaging technique that is based on nuclear magnetic resonance. It can produce the image of brain activation from all regions of the brain.

Analogies of identity such as that of water and H2O; heat and mean kinetic energy are described earlier in the book.

Folk-psychology: The commonsense psychology that explains human behaviour in terms of beliefs, desires, intentions, expectations and so on. It is in contrast with the scientific psychology that relies on experimental data for explanation.

Algorithm: A finite set of instructions that are used for problem solving in mathematics and computing. The instructions are about the methods to be used in processing the input data in order to get the desired output. Different algorithms can be used to get the desired output from the given input.

The first person and third person perspectives of consciousness correspond to the subjective account of conscious experience and the behavioural account of the subject’s experience. By virtue of being the subject, the first person account is a direct experience of the mental states. The third person account on the
other hand conceives the mental states from the obvert behaviour of the experiencing person.

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