

Article

How Does Thinking Work?

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Abstract

In this article, I explore the questions why we think and how that works, and for that we need to go back to where it all began. We know that evolution is a process of adaptation, and if my assumptions about thoughts being quanta of moments of awareness within our sensory system, being observed by the dispassionate observer at the level of Mahat are correct, then there is not very much adaptation required for those moments in which we are aware of our thoughts to become what we call Mind. Earlier I noted that mind is always busy and therefore always occupied with one thought or another. Through evolution our sense of self, ego, would become a viewpoint attached to every thought, further reinforcing the idea that I am thinking and with it the notion of a mind.

Keywords: Thinking, evolution, mind, body, God, Mahat, Consciousness, dispassionate observer, Samapatti, Vedanta, Hindu.

Introduction

At the outset, I have to say that it would be impossible to confine this discussion to the narrow question of how does thinking work because it is inevitable that thinking, by the very nature of the subject, is inextricably tied to the questions of what is mind, what is awareness and what is consciousness, not forgetting the even more obvious question of who or what is doing the thinking? With this expansion of the question I cannot guarantee a straightforward or linear discussion because the process of thinking is anything but linear or straightforward.

In itself, these are hardly questions many people ask themselves; after all, the fact that we all think is self-evident at its most basic level. Most would answer we think because we are conscious, and that we are obviously conscious for all of our waking life. Comparing notes with others we find an apparent confirmation of this conclusion and we would move on to other more important things to think about. But can we really compare notes about how thinking works through such a simple question? If it is all down to the idea of being conscious, perhaps the question we should have asked in our comparison with others should have been what are you thinking right now? Asking that question under strict scientific conditions, let us say, using a number of people, with each individual sitting in front of a computer screen and isolated from the others. If at the same precise moment that question appeared on their screen, they were asked to type their answer, I expect there would be a different answer from each of the participants.

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More specific experiments have been used already to gauge individual responses to a question of right and wrong in set circumstances. At times some traumatic video footage has been shown to the participants prior to the question of right and wrong, and that preview video has shown a discernible biasing effect on the answers. So science has shown us that our perceptions of right and wrong can be influenced by visual images, but is that as far as we can go with this question? Culturally, in the West at least, communities, even nations, are polarised on a daily basis, whether that be through the advertising of products or political messages. In the case of the latter, this polarising effect is ramped up to a ridiculous extent where, to the objective voter if there is such a person, the only honest answer would be a personal decision not to vote at all.

So this is a very real issue; if people can be polarised for whatever means, then there needs to be some way of understanding what is going on. There is not much to the question of why it happens because inevitably the answer is always power in one form or another. But the basic polarising effect goes further back in the development of life, and that is the sensory system developed by life itself. Even the most primitive form of life would have had a rudimentary ability to differentiate itself from the environment and other life forms. Thus, the first polarity would be primarily one of me, and not me. And as any one form of life was either prey or predator, this distinction was of existential importance for all. So the initial software of life would have developed within these survival algorithms which clearly remain with us today, although in the recent modern era at least there are other species capable of experiencing what we could categorise as thought. What appears to be a point of difference for the homo species is the ability to communicate our thoughts, a capacity which has led us to having a more or less agreed Theory of Mind across the whole homo spectrum.

Whether this theory of mind is universally correct is a question which has occupied philosophers since cultures emerged across the planet. Today the question is more about the inability to fathom what is consciousness? Philosophers in the Western world are well aware of the Eastern approach to this question; indeed, some even claim to understand what the Eastern schools of philosophy have to say about consciousness and its fundamental role in reality, but only up to a point. Rather than try to make any headway about which point, or even seeking to reconcile the views from the east with those of the west, let us look a bit deeper into the brain based model of the west, if only for the simple reason of making a clear picture of how homo 1.0.1 began asking these questions in the first place.

All living forms require food, shelter and the opportunity to procreate, the order of priority being determined by opportunity and experience; in other words we could say the priority is driven in part by our experiential memory. Homo 1.0.1 did not just wake up one morning fully differentiated from her/his parents; there would have been a process driven by circumstance and opportunity, with degrees of variation co-existing within a group of individuals, including some cognitive variations. It is obvious from the archaeological evidence that some individuals made simple tools which others copied and subsequently improved. The association of fire with some groups would set the scene for ways to adapt and harness some of the properties of fire. The domestication of dogs would be another adaptation which, like the others, would give homo things to think about, things to share with the group. The point here is that as we evolved over some hundreds of thousands of years our brains changed in capacity along with the numerous items of knowledge one needed to remember. As the knowledge was oral everyone needed to

know the collective story, all of which was assiduously committed to memory and tested by the responsible elders at significant stages in a person's life.

The knowledge needed by individuals in a group or culture would include rules of behaviour. Nowadays we call them rules of right and wrong, but there have always been a need for these mores in every culture and there seems to be many variations between cultures. Some rules are relatively common to every culture but stark differences emerge in different circumstances, depending on the culture's founding beliefs. As noted earlier, there will always be polarities which are used to justify any action in any circumstance. I can remember as a youngster, asking why a particular person treated subordinates outside of what I thought was normal human interaction. The answer given was, "Oh, but that is business," as if that was an acceptable behaviour in the circumstance. The sad fact is that it was acceptable seventy years ago, and remains so today. Not just in business; it is a common expression of a person's perception of their real or imagined power, and it exists at every level of society.

There is not much prospect of change in the way homo 1.0.1 presents today. The "Oh, but that is business," is the direct result of how an individual thinks. It is both nature and nurture because it is all there in our memory, mostly at the unconscious level. That means we are not aware of why we think what we think, or how that comes about. We become aware of a thought some hundred milliseconds after the thought has been assembled, and that becoming aware of it gives the impression of an immediacy which is an illusion. We accept our awareness of that thought to be our conscious self; yet another illusion.

To further complicate all of this, our capacity to think as part and parcel of that illusion has established, in a general sense at least, the notion of individuality and a world where each individual is unique. For example, the DNA of any individual is unique, even in the current population of between seven and eight billion individual humans. And unsurprisingly, each has a unique assemblage of personal life experience. If there was a way to categorise an individual's life experience using a numerical value for every possible experience and its response we would have a number far in excess of that reflected in the human genome. In fact, it would more resemble the number of synaptic connections in the human brain as a network of all possible connections. Moreover, the number of possible of networks appearing across any number of individuals would not necessarily relate to exactly the same experience in any two or more individuals.

Therefore, the uniqueness of an individual renders a Theory of Mind to one of generalities rather than the basis of a formal definition. If an external observer was able to translate an individual life experience, as a metaphoric picture of the individual's memory it might look like a wall of post-it notes, each note containing information of time, place, event and response, adjusted against the individual assessment of risk and opportunity. Each response would in effect be a modification of the mind, or more specifically, a modification of how that individual processes information from that point forward. The process is more complicated than that because all possible responses are taken into consideration as a collective process. So our wall of post-it notes are not individual statements but an interactive collection which can adjust their relatedness in response to any question. This is why, given the same question and some agreed parameters, people will still arrive at different answers. If we are to decipher how thinking works

there is obviously a need to break some of these down into understandable pieces before we can reassemble it all into something approaching a coherent explanation.

Thinking, in a not so general sense

The scientific consensus seems to be that consciousness arises in the brain, and most of the neuroscience can be seen to support that view with the observation of brain activity in specific areas of the brain corresponding to what they have found to be related to the brain outputs such as memory, motor function and so on. The big question of why consciousness emerges at all still remains as perplexing as ever. And aside from what the accepted consensus can tell us, when we consider thinking as an isolated activity, quite distinct from moving a finger, the question of what is thinking as an activity of the mind remains elusive.

A general sense of thinking would be one of observing our thoughts as a connected mental thread or inner conversation we happen to notice during a brief interruption to the flow of thoughts. Or it can be what appears to be a deliberate focus of our mind on a particular item or matter of concern, leading to words being strung together in a coherent manner. Either way, we assume in a general sense that we are consciously thinking about something and the succession of related or even unrelated thoughts are evidence of our mind at work. Taking this assumption a little further we can say that “I” am the one who is doing the thinking. Imagine that same process of thinking being carried out by two individuals as an exercise in problem solving. Where there is a clearly defined problem and an agreed requirement to produce a ‘practical’ solution, it is quite likely that each individual can offer one or more solutions that are not the same. The question arises, where do these different solutions come from if they are addressing the same problem? The answer comes from the fact that we are talking about two individuals addressing a common problem from two different perspectives; in effect we are talking about two different minds.

Let us say that these two individuals are the same age, the same gender, have had the same education, the same beliefs, the same interests, and are at the same level in the organisation. To make the similarity even closer, suppose they are identical twins who have been raised together. Taking into account this common baseline for each of the individuals, we are left to ponder the two different minds. We could just say the difference demonstrates the benefits of diversity and move on; we can’t do that because our objective here is to understand how we think what we think, or to be more specific, how “I” think what “I” think, and why “I” think that specifically. As the way I think has been commented on by many of the people I know, I will use this difference to make a deeper examination of this complex subject.

On closer inspection the apparent deliberate focus of our mind is not as deliberate as it may seem. If one sets out to stop our mind we find that to be a virtually impossible task. There are people who practise stopping the mind through meditation, not just those from Eastern traditions but also mystics from practically every religious tradition. Contemplative practices as well as a variety of meditative practices do indeed achieve this quiet state, and while the general observation of these people may lead to categorising them as spiritual, we should not let that term get in the way of what can be a scientific inquiry.

A model of reality is a necessary device if we are to have a basis for understanding anything, and it is clear that the early Hindu culture recognised that need. Through their philosophical dialogues the traditional scholars throughout that culture arrived at a consensus based on identical direct experience. For them, as with most people today, the model had a Supreme Being or God whose existence was inferred rather than proven because there was no alternative rationale to explain what they had found through contemplation and meditation. For we who must address that same dilemma of God or no God, I present Fig. 1 which is notionally the same model as the one I have used extensively in my earlier papers, but differs in that it is (I hope) easier to understand. I will use the same words to begin with for the inferred God and the physical reality that is Not God. The Sanskrit word for God in my earlier work was Purusha, while Not God was Prakriti. Prakriti (Matter) has Mahat, Mind and Body, spread along a spectrum from the very fine through to the very dense in representing matter becoming atomic. Mahat is God's reflection on Prakriti, and I will continue to use that word, Mahat throughout the remainder of this discussion.

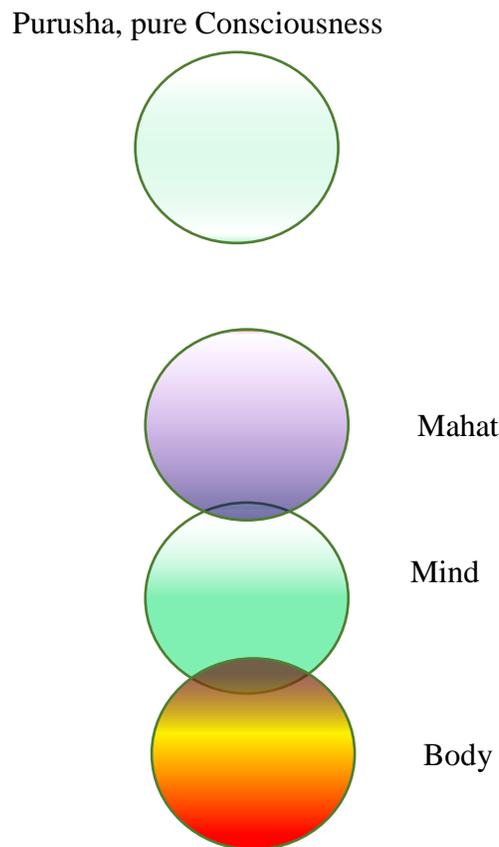


Fig. 1

The reflection of Purusha infers that Mahat has the same characteristics of Sat-chit-ananda, which are Existence, Knowing and Bliss. To avoid any reference spiritual practice I will confine my observations to real events that happened while I worked to help people who asked for my help. I have written at length about these events in journal, JCER. More recently I have had the benefit of communications with Hari whose articles on Mind as a computer struck a chord with me. Since then, we have written jointly on the subject of my Samapatti experiences. Those articles in JCER have been regarded by others with a sound knowledge of Vedanta, and other schools of philosophy in the Hindu tradition, as being consistent with what is described in the Yoga Sutras of Patanjali as being Samapatti, a particular kind of Samadhi in which two minds can coalesce. I confess to coming into this state ‘by accident’ because I have not been taught to be in that state, no do I have to do anything to elicit it. Patanjali’s Yoga Sutra 1. 41, says that “when the seer’s mind has been brought under control, whatever he/she becomes focused on; obtains in the receiver, receiving, and received (the self, the mind and external objects), concentratedness and sameness, like the crystal (before different coloured objects; crystal placed in the presence of a flower, such as a rose will appear to be red). The first is the grossest material such as the body; the second is finer such as the mind and third is the egoism. There are three objects of meditation given us. First, the gross things, as bodies, or material objects, second fine things, as the mind, the Chitta, and third the Purusha qualified, not the Purusha itself, but the egoism. By practice, the Yogi gets established in all these meditations. Whenever he meditates he can keep out all other thought; he becomes identified with that on which he mediates.

In my own experiences I didn’t set out to focus at all; I believed I was just listening to what the person was concerned about and perhaps that is another form of focus. Things appeared to be different when a young woman asked me to help her disturbed cat. She explained the cat had been a stray, and she assumed it was disturbed because it never washed itself and could not be held on her lap for more than a couple of minutes. I sat in a bean bag and she placed the cat on my lap. It was obviously unwashed and smelly; I placed my hand on its head and wondered what I could do for this animal. It went to sleep immediately and I began to have chaotic images in my mind. This was unusual because I am unable to make any visual images myself. The chaos remained for about twenty minutes and gradually gave way to images of what I thought was an unusual garden. The grass seemed to be very large and the colours were mainly reds, yellows and brown. I realised the images were viewed from cat’s eye level. The garden felt familiar and comfortable, while at the same time I knew it was unfamiliar to me. After around twenty minutes in the garden I felt the cat was going to wake up. It woke up and began to wash itself. Both the woman and I were surprised although I did not say anything at the time.

From this experience I can accept that, just as Patanjali’s Sutra claims regarding Samapatti would explain, I was viewing the cat’s dream, a dream which began after the mental chaos had cleared away from its mind. I also think the fact that I became aware that the cat would wake up is significant. The fact that two minds can coalesce while in the Samadhi state suggests to me that the accepted theory around mind and consciousness is incomplete. Another experience of personal significance happened when I had been called interstate because my eldest daughter Tracey was in hospital in a coma, having organ failure after rejecting a heart and lungs transplant received some five years earlier. When I walked into the hospital room I found my daughter surrounded by grieving family and friends. In a little while I was able to take a seat at her bedside and as I sat there looking at her I went into an intense state of bliss, which lasted for a

little over a week. Whenever I think about that experience I never experience the bliss; my memory is just a narrative stating that this happened. In fact, in my memory of any part of my life is in that same narrative form and I am sure this has some bearing on why most people find me calm, which is why they sought me out for calm conversations.

What has occupied my thoughts about the Samadhi state, and Samapatti in particular, are the following observations about memory and what was really happening during my Samapatti experiences:

- The information being remembered as the direct experience of an event may really be in two distinct forms. One is the form which triggers a psychophysical response similar to the original experience while the second, the factual or narrative memory, is that of the dispassionate observer.
- From my Samapatti experiences I contend that the belief that an individual's memory is confined to that individual's brain, and therefore exclusive by the fact of lacking any physical connection to anyone else, is not necessarily correct.
- In the case of my daughter in a coma, the fact that I was able to experience her state of bliss, which was clearly not obvious to anyone else present at that time, points to a need to better understand what is possible in the Samapatti aspect of the Samadhi state.
- In the case of the disturbed cat, I believe that the fact of my being aware that the cat would wake up moments before it did wake up also needs some better understanding. I also believe this awareness bears some similarity to the 300ms gap between a measurable signal to act and the action itself.
- The fact that I, as someone who is unable to create mental visual images, was able to see the mental images reflected by the chaos in the cat's mind, needs further consideration.

All of these points are challenging to the general beliefs about thinking and what we call consciousness, and a part of why they are challenging relates to the obvious fact that any answer will, by definition, have to come from outside of what we currently believe thinking and consciousness to be. All of what we think contributes to our sense of reality, including our own self-identity and how we fit into the whole. So our thinking has manufactured a model of the meaning of everything, and from meaning we can begin to understand. From that perspective, any challenge to our beliefs will disturb a status quo which we are relatively comfortable with. What we need to recognise is that the reason we seek to define anything is only partly to make it understandable; to define also limits what we allow as part of the definition and therefore what we understand within a definition must obviously be incomplete. The irony is that what we exclude from a definition will not necessarily make it less understandable; it just means that we fit the definition with our collective aims. It then becomes a question of risk and of whether or not we are prepared to take that risk.

Seeking answers to those observations

All of the points are questions that must be asked in the light of the information not generally available to those who seek to understand what is thought and what is consciousness? There is an even deeper question, that of whether these two are even related?

The first point arises from the observation of two different kinds of memory in an individual; one being the memory of that same experience from the perspective of a dispassionate observer, and the other being that of the person who experiences an actual event and its memory contains the psychophysical content. I realised early on that all of my Samapatti experiences are remembered from the viewpoint of the dispassionate observer and now I find that my whole life memory is from that same viewpoint. Our difficulty stems from the fact that each viewpoint is experienced by the seer in Samapatti, and the only reasonable answer is that this person is able to function at two different levels of awareness.

The second point is more challenging because from the experience of treating the disturbed cat we find that the observer has had access to the cat's memory, or, as Patanjali would have it, the two minds have coalesced. Here a further difficulty is the fact that the observer is able to distinguish which is the cat's mind/memory and which is his.

The third point is equally challenging in that my daughter Tracey was obviously in a near death state in which she was experiencing an extreme state of bliss, which I was, once again, able to experience. And as in point two, my memory of that experience is that of the dispassionate observer.

The fourth point relates to the observer being aware that the cat would wake up before it actually woke up, a further confirmation of the two minds being coalesced.

The fifth point demonstrates that the observer does indeed experience the cat's dream/mental state.

All of these points beg for some kind of context if we are to begin to understand any of it, and given my inability to create a mental image I will attempt to picture them using diagrams. Not the diagram I gathered from the Yoga Sutra book which I have quoted endlessly in my earlier papers; I need to describe them through what I believe was happening.

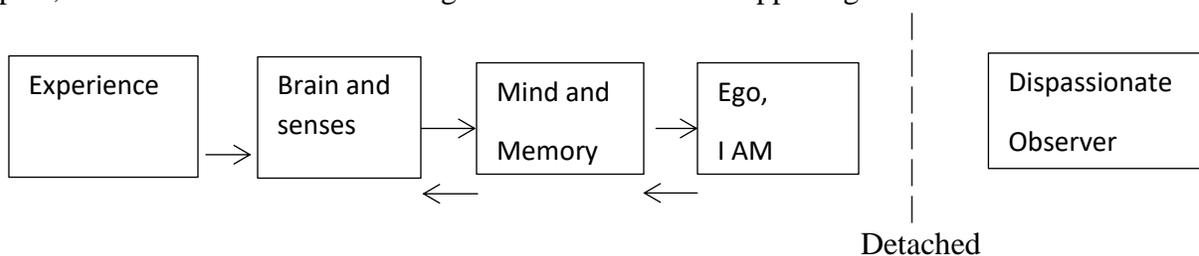


Fig. 2

This figure represents point one, and presupposes a linear flow of information from the sensory inputs into the brain, which in the conventional model would contain both Mind and Memory. However, the presence of the dispassionate observer challenges that model because there is no obvious path from the subject's experience of bliss to the observer's brain's sensory input. This is part of the Hard Problem of consciousness because it appears to be impossible for the mind to analyse itself.

Returning to the remaining four points, I believe these can be answered partly by the paragraph above, in that the focus the observer had in that high Samadhi state provided his observation of the cat's Mind as it prepares for the cat to wake up. The fact that the cat began to wash itself immediately on waking, an action it had not usually done according to its owner and evidenced by its smelly condition, suggests some of its recent habits had been modified during the period of being asleep on my lap. I think there is some relationship between the time between the observer knowing that the cat will wake up and actually waking up; I think this observation has some resonance with the work of Libet which talks about the time between the brain receiving a signal to act and the awareness that the action has taken place. All of the discussion thus far leads me to the conclusion that the role of the dispassionate observer is central to what is generally called consciousness. There is little acceptance of this observer's role in the current brain-based model of what consciousness really is, contributing to make the present Hard Problem of Consciousness being as hard a problem as it is.

The dispassionate observer

My starting premise has been that if we are to understand consciousness in a manner at all different from the conventional viewpoint we must consider evidence not normally addressed by that conventional viewpoint. At the same time the evidence must have some standing by way of the proof that is available to support it. I have found my proof in the Hindu cultural traditional schools of philosophy such as Vedanta, Buddhism and the Yoga Sutras, which have described experiences in the spectrum of the states of consciousness in Samadhi; this is a state in which the activity of the mind, and therefore thought, has been brought under control. In that state we find that despite there being an absence of thoughts, consciousness remains, along with the personal viewpoint. In a higher Samadhi the personal viewpoint is absent.

In describing that state, all of these traditions have the same descriptions of what is available to such an observer. One aspect of the higher levels of the Samadhi state is the viewpoint of a dispassionate observer. And in the Yoga Sutras for example, this viewpoint is referred to as Mahat, a Sanskrit word for The Greatest Teacher. I have used this Sanskrit word because in the English language there is no actual word for that level of the dispassionate observer. In that tradition there is an intermediate level between Mahat and Mind, a level where the capacity for discrimination between me and not me first appears. This intermediate level retains the characteristic of ego as I AM, unlike Mahat which is impersonal. As a simple Western thinker, I have avoided using the Sanskrit terms where possible to make the explanations I develop as accessible as I can to a wider audience. I am making the case for my narrative kind of factual memory being something quite distinct from memory in a general sense, which is emotional and judgemental and which people have every day. It became clear to me that what keeps the narrative brief and matter-of-fact is that dispassionate viewpoint; there is no "I" in that viewpoint. To expand the terms, Mahat, memory, process and instrument of apprehension I offer Patanjali's Sutra 1.41 by way of an apology for having been confused about the latter two points in earlier essays and articles. The process of apprehension (memory formation), cognition, is the same for factual memory and non-factual memory; non-facts are distorted views of reality that are influenced by our past experiences, emotions, desires, etc.

Yoga Sutra 1.41 describes Samapatti: “For the Yogi whose Vrttis (thoughts) have become powerless (controlled), the mind becomes stable and the observer, the act of observation, and the object of observation coalesce. He/she is like a piece of crystal before flowers; the crystal becomes almost identified with flowers. If the flower is red, the crystal looks red, or if the flower is blue, the crystal looks blue”. In chapter 3 of Yoga Sutras, it is said that it is only in the beyond-sensory perception of *samadhi* (Sampatti being one kind of Samadhi) that we see an object in the truth of its own nature, absolutely free from the distortions of our imagination. *Samadhi* is, in fact, much more than perception; it is direct knowledge.

In this discussion I have only considered the levels of consciousness up to that of Mahat to keep the explanation relatively simple. Patanjali has Mahat taking on the nature of purusha which is the reflection of Pure Consciousness on matter. In the case of direct perception such as in Samapatti, the mind-field takes on the nature of Mahat. What the Sutras tell us is that the instrument of memory formation and cognition is the mind. When a memory is coloured by a samskara¹ it is a non-factual memory because the process of recording what is observed is influenced by ignorance, I-am-ness, attachments, aversions, fears, etc. In Samapatti the seer at the level of Mahat has no identity, which means that whatever his/her focus is upon becomes the identifying characteristic used by Mahat to sample the subject’s mind-field. This is what is meant by the two minds coalescing; it means that what the seer knows of the subject’s mind-field is not coloured by the subject’s samskaras and therefore the seer’s memory of that coalescence is only factual, not as it is known by the subject. In the context of Samapatti then the Sutras provide a more in-depth explanation of the role of the dispassionate observer.

In considering my experience of my daughter’s bliss when I automatically went into that Samadhi state it was inevitable that I would contrast this experience against the other experiences I have had over many years. The common thread was the reflection of one level of awareness in a subject into my own level of awareness. This reflection obviously flowed in its opposite direction from my level into that of the subject. In the case of the cat, this apparent two-way flow of information (my calmness), can be seen as an influence that brought the chaos in the cat’s dream into a calm state, leading to it wake up and begin to wash itself. At the same time the information in the cat’s mind gave me a sense that the cat would wake up now. I say an apparent two-way flow of information but it can be simply that when my empty mind coalesced with the cat’s mind, it too became empty.

In my daughter’s case both she and I were in the state of the dispassionate observer through the coalescing of the two minds. That feeling was not repeated when I remembered that experience. My memory of it is only a dispassionate and factual observation that this happened, because it came from her own state at that level I use Sanskrit term of Mahat. Putting that shared experience into a picture may assist this explanation.

¹ Tendencies, potentialities and latent states which exist in the subconscious and unconscious areas of the mind are called *samskaras* in Sanskrit. The samskaras are built up by the continued action of Vrttis (waves of thought) and they, in their turn, create new waves of thought.

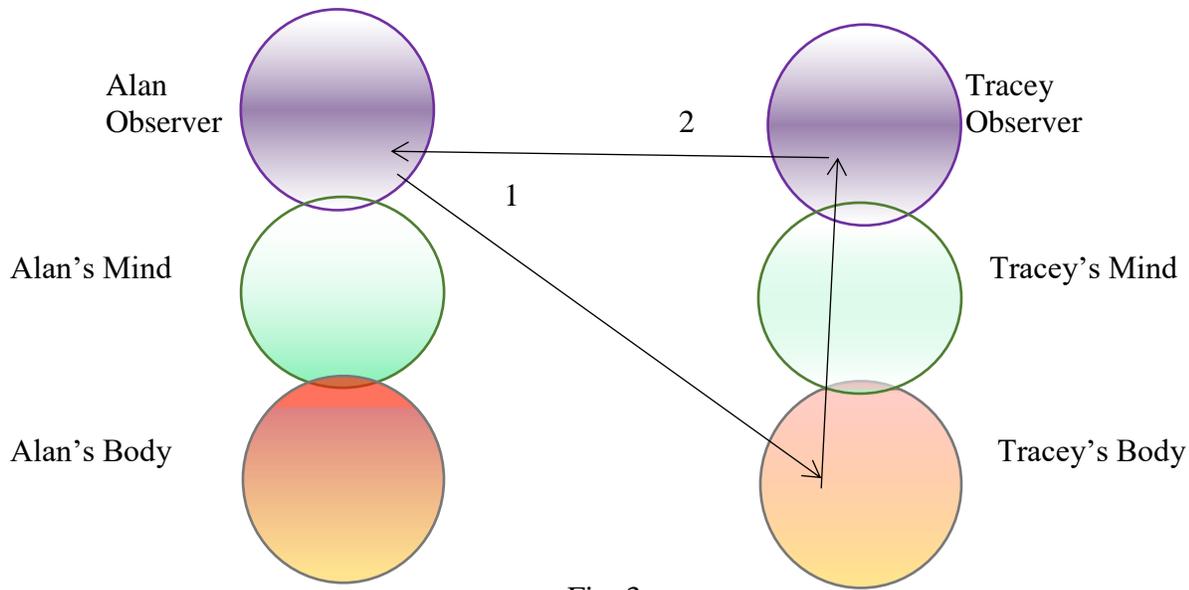


Fig. 3

In this figure I have used different colours for the three levels of awareness and the overlap is intended to show that communication can move up and down between each level of awareness:

1. Alan the observer is focused on Tracey's comatose body and then moves to Tracey's true state of the dispassionate observer. Her mind is empty and the body inactive.
2. Tracey as the dispassionate observer coalesces with Alan, who, as the dispassionate observer reflects like a pure crystal Tracey's state of mind, which is pure bliss. He directly perceives Tracey's bliss. His later memory of the experience is just a narrative describing the observation and it therefore does not re-create the original physical experience.

With this description and its validation from the Hindu schools of philosophy we can now address what happens when we think, and examine how that happens.

The where, and what of how all of this works

We begin with the questions of where and why the steps in Fig. 2 take the form I have used. This is not really a question of place in its physical sense but one about states of awareness. In particular this is specifically the question of those states of Mind and Mahat in the whole reality. To make any sense of this question we need to put these states as they would be used in the Hindu traditions and find a way to then translate them into a more Western context. Oddly enough, we can do this through using a common Western meaning attached to the word Mahat. In that tradition one of the meanings of Mahat is that of the Greatest Teacher, which we can interpret to mean consciousness, as knowing, as information and as communication. And in that same tradition it is also the state in which matter is becoming atomic. It also contains the potential for the physical senses. Mahat has also been describes as the substrate from which all matter is created, and in the Yoga tradition this is also related collectively with the older names

of Earth, Water, Air, Fire and Space. As these names were given to what the ancient seers found at the level of Mahat we can be forgiven if we relate them to the more familiar names of the force of Gravity, the Electromagnetic force, and the Strong and Weak nuclear forces. The name, Space is unexpected from our modern perspective, and was explained by the ancient ones as being definitely not physical space; it was a state which contained information. This would have obviously been linked with the role of the Greatest Teacher, a role that would have been associated with communicating information. With these attributes of Mahat in mind, the issue of where matter becomes atomic can be taken to be the more familiar term of the non-local state or prespacetime because this is the only space that is different from physical space.

The attributes of consciousness and knowing align with the state of the dispassionate observer, while communication has to mean that Mahat communicates with the levels above it and those below, not just as the observer but also as the teacher. These latter points suggest to me that this is the level where memory resides because, as the teacher, it has access to all information ever experienced, from the cosmic down to that of the subquantum particle states. And since this is a non-physical attribute of that non-local space it would retain that information forever in what is also a non-time space.

From the diagram, Fig. 3 we saw the communication that flows between body, mind and a dispassionate observer. I am suggesting that on this evidence the same communication flows between the dispassionate observer, mind and memory. In this flow there is a need to really grasp the significance of that diagram because if we look carefully there is so much more it can tell us. To see this extra dimension we need to reconsider what happens when a person is thinking about anything, or even when she/he is just daydreaming. It is obvious that thoughts pass or extrapolate from one to the next in an endless and rapid succession. In other words, while we are awake the mind is always very busy within this internal dialogue and we believe this is consciousness because we are aware of our thoughts.

This awareness we call mind, and make the general assumption that this awareness is consciousness; therefore the mind is where consciousness resides. In that same assumption we conclude that the mind resides within the brain in a relationship of sorts with our memory. From that conclusion it would follow that the activity of the mind that we observe is a constant sifting through our memory. The difficulty with this line of reasoning is that we regard these snapshots of our memory/mind cycling past our awareness to be thought. This is a fairly logical conclusion to reach because we are aware of these conscious thoughts, and since we believe they are indeed conscious the major assumption is that consciousness arises in the brain.

In my narrative memory the mind and "I" are never there and this is what challenges the conventional brain based viewpoint about consciousness. Can we test this assumption about consciousness being brain based? At this point the answer is no, making this the Hard Problem of consciousness. I am not so sure testing it is so easily dismissed. From my perspective, the problem relates to where else could consciousness come from? And from that same perspective I would suggest that the position of the dispassionate observer might fit the bill. First, we have seen from the dispassionate observer that my narrative or factual memory is an impartial observation that a particular experience took place. Second, any observation must have its basis in consciousness for it to become a valid memory. Returning to Fig. 3 we see that I experienced

Tracey's bliss, and taking into account her comatose state she clearly wasn't physically experiencing that bliss, so what was experiencing that bliss? I am suggesting that as Tracey was at the level of the dispassionate observer there was a conscious experience of bliss, which was communicated through my dispassionate observer awareness to my physical body/mind.

From this analysis of what took place in that particular experience, it suggests to me that it is the narrative memory of the awareness of the experience that is my memory of that experience. In other words, the narrative awareness is another word for consciousness at that dispassionate observer level and this is how consciousness, present as a fundamental of that higher level of awareness, is evident at the lower level of mind and memory as conscious thought. And of course, this would make any memory brought to mind become a conscious memory/thought. From this explanation it would be that the constant flow of thoughts through our mind comes from our memory; the important fact to grasp is the fact that each memory has a conscious component because the dispassionate observer is a conscious observer, and that the information within a memory will arrive in our awareness as a conscious thought, a spoken voice, an awareness of an emotion or feeling, a smell or a visualisation. The phantom limb phenomenon can fit this model; our experience of our body comes mostly from memory and when a limb for example has been amputated its associated neural networks set up by a life's experiences are still in the brain. When the amputee moves parts of the body it is extremely likely that the parts of the neural network related to the now missing limb will still give the sensations related to the amputated limb. Therefore, whatever thought we have in a particular moment is really our being aware of a memory of a conscious observation; it is the new observation of each thought in a current context that gives the appearance of conscious thought, when in truth it is an inference of consciousness. And it would follow that any connection drawn from those thoughts would be conscious thoughts or even a compilation of information with any or all of our senses as its context. So rather than consciousness as something that arises from brain activity, consciousness arrives fully formed in the neural networks of the brain as the activity in the neural correlates related to a conscious memory.

This takes us back the original question of why we think and how that works in practice, and for that we need to go back to where it all began. We know that evolution is a process of adaptation, and if my assumptions about thoughts being quanta of moments of awareness within our sensory system, being observed by the dispassionate observer at the level of Mahat are correct, then there is not very much adaptation required for those moments in which we are aware of our thoughts to become what we call Mind. Earlier I noted that mind is always busy and therefore always occupied with one thought or another. Through evolution our sense of self, ego, would become a viewpoint attached to every thought, further reinforcing the idea that I am thinking and with it the notion of a mind. One could assume that every life form thinks; the question of what they think about would be a distraction too far at this time.

There remain the questions of HOW we think and WHY we think the thoughts we do think? The answers for each of us are widely variable for many different reasons, but I think they would still revolve around the same concerns held by those early life forms, namely those related to sense of self, safety, food, shelter, community and procreation. As we developed these concerns grew into fear of death, attraction and repulsion and the inevitable polarity around all of the above.

Community gave safety through association and numbers, but it also led through polarity into disagreements and conflict, all of which fill our daily news bulletins to this day.

The question of WHY we think in a particular way is firmly connected to HOW we think because both come from our memory of past experiences. In most of us the consciousness of the dispassionate observer is a narrative but the physical result of that experience impinges on the hardware and the way in which that information is handled in terms of its context. I also said in the introduction that one way to think of our memory is to imagine a large wall covered by interactive post-it notes. To make it even more relevant, replace the post-it notes with Facebook pages. What our memory is like in scientific terms is a constantly changing network of neural connections related to our experiences and their contexts. In a physical sense, any of these network connections is like any other. In the context of an individual life, the interplay of the connections in one situation may be the feeling of love while in another it may be intense stress resulting in violence.

In the Hindu traditions every experience will modify the mind. In the Western system experience becomes physical as a neural correlate; a neural connection or connections within the neural network expressed in those parts of the brain activated during a particular experience. The intensity of a particular experience will influence the both the strength of the related connections as well as in which parts of the brain specific connections are activated by the experience. In that sense we could say that the modifications/samskaras are weighted by their original intensity and the number of related connections to other memories. Adding to the connections are the elements of awareness associated with the experience that applies to any or all of the human concerns mentioned above. So the memory of an experience will be reactivated in both the physical response and the conscious aspect of that experience. However, it is not quite that simple because the time between the origins of a memory and of it being recalled may diminish its former intensity. A further complication comes from the likelihood that over time experiences may be related in a contextual sense to other experiences, a relationship which can either add to or take from the particular thought currently emerging from our memory. These contextual issues can arise from my sense of self at any moment, or what I think a decision taken at this time may have on my future in terms of community perception or my physical survival. A contemporary equivalent could be Facebook, where many of the posts are seeking approval. The phrase, "What's in it for me?" is always part of the decision making process. Patanjali tells us that our individual sense of self is related to fear of death (or the death of whom or what I believe myself to represent), attraction, repulsion, I amness and ignorance of what is real. All of these are components of the unconscious decision process during the 300ms before we become aware of the decision.

What is not obvious about these complications is that the shuffling of these factors in a particular context does not happen in our immediate conscious awareness. We might consider homo 1.0.1 to be more evolved than Pavlov's dog, but the thinking and decision making process is exactly the same; we just have more inputs, all of them unconscious inputs. I am suggesting that our momentary decision enters our awareness after the decision has been made by our internal hardware and software, and this has been modified by every one of our living moments. From all of this it is easy to understand why the cultural practices of almost every religion encourages its adherents to follow a moral path of some kind common to that particular culture, and as an

enforcement of that moral code is the threat of an eternity in hell for any compromise of the code. The Hindu and the Judeo Christian traditions also encourage contemplation and meditation as the means to attain an empty mind, which would in theory at least, provide some clarity in the decision making process. A takeaway message would be that there is merit in understanding the process.

One aspect of the process of thinking not mentioned up to this point is that of creating meaning. If we follow the process through what I have described, there is the not so obvious inference that we are making decisions as fast as we make thoughts, and, along with our thoughts these decisions are in answer to the perennial question of what exactly does this particular thought mean? Well it should come as no surprise to realise that every experience we have in memory has its own degree of meaning, and that meaning is contained in every memory as part of the conscious thought attached to that experience. I must add, this attached conscious thought is not coming from the dispassionate observer, and as a consequence the meaning is not from a higher level of awareness. It is in fact quite the contrary; meaning is very much attached rather than dispassionate because it is the mind which, in this case, is applying the algorithms of concern about not so much what does this mean, as it does by asking what does it mean for me personally? Meaning may be a support to understanding something in a general sense; it can also give the signal to do or not do something in the context of a particular experience, memory or thought. It can also be driven by one's imagination, which is, after all, the application of thoughts to a number of hypothetical situations, and the danger can be that we actually believe what we imagine is real. It would be more productive to practise finding the dispassionate observer position, and that is what humans have sought throughout our entire existence as a species. All of the Eastern and Western traditions have similar philosophies about what preceded the level of Mahat.

The common thread is that of a God or superior being which is inaccessible in an absolute sense. This superior being is the source of Consciousness and quite separate from Mahat, which is a reflection of that superior being. Where the Western and Middle Eastern systems of belief differ from those of the east is in this question of accessibility. The Hindu traditions say that God is without distinguishing mark, which is to say that whatever God observes makes no impact on God. In contrast, the Judeo, Christian and Muslim traditions have a God who is ever open to appeal and making judgements, punishment, forgiveness, love and compassion towards the true believers. Then there are the Buddhists, who take the view that there is no superior being. The position of the dispassionate observer is called the soul, spirit or Atman, depending on one's personal viewpoint. What Mahat has in common with the God/Superior Being is detachment, which is what we would expect where Mahat is the reflection of God on the substrate mentioned above.

From the practical perspective of an understanding of how does thinking work, the issue of what is above the level of Mahat does not have anything of consequence so far as answering that specific question, and in that context the concept of God is optional. But as this question can inform an understanding of what is consciousness, we can nevertheless take a peek above that level from the perspective of the traditional Hindu philosophies. There we find the words, Sat, Chit, Ananda, which translated roughly indicate Existence, Knowing and Bliss. These can be interpreted as being characteristics of God/Superior Being which are stating that this Being

exists, It knows and It is in a state of undisturbed bliss. I use the word It with a capital letter deliberately because this is what is reflected upon Mahat, the dispassionate observer who experiences no grief and has no ego identity. As there is no physical aspect at the level of the dispassionate observer there is no gender component in the observation, or in its record in memory at that level. Gender is a component of the body and the mind. What might be less obvious is that there is only one dispassionate observer, the knowledge of which has been lost or glossed over in the translation over millennia. It is the fact of only one observer which underpins the fact of Samapatti, and probably less obviously at first, there is only one self. This is the final illusion.

The realisation from this discussion is that the dispassionate observer observes continuously, which is hardly surprising if, as I have suggested, it operates in the non-local dimension or state. This continuous conscious observation means that it is constantly conscious of the mind-field and, in the case of recalling a memory, that memory enters our conscious awareness; which is why the mind is always busy with thoughts. A specific memory is made by reactivating an earlier samskara or samskaras, giving rise to a continuous stream of thoughts which we assume to be the process of thinking. This is what gives the appearance of consciousness in the mind, as mentioned earlier. It is the dispassionate observer who answers the question with consciousness. The 300 milliseconds mentioned earlier is the time taken by the mind to have the brain respond to receiving the signal to act, with the final result being exactly what was communicated by the dispassionate observer, and modified/coloured by our samskaras, but not always. When we are asked a question we cannot answer immediately, or something we need to make a decision about, the mind will keep on looking for the answer. In that case the process of sifting through our memory continues outside of our awareness in what we call the unconscious mind. Here the mind's process of memory formation might continue for days or weeks until the "penny drops" and we become aware of the answer. The unconscious mind can, for some people, access information at the level of the dispassionate observer, and we call that insight.

As for the question of how I happen to be in the dispassionate observer state so relevant to this work, I can only refer to what the traditions of Vedanta, Buddhism and Yoga have to say on the matter. The explanation provides two options. They all say that I, as someone established as I obviously am in the Samadhi state, would have had to have devoted a whole lifetime of meditation and to have studied with a competent Master, which I clearly have not done. The second option is to have been born that way, which infers having a skill acquired in the former way mentioned above in an earlier life. This means that skills or other modifications of the mind acquired in an earlier life have been retained at a post-life level of awareness. As part of the latter option, it is possible that the severe febrile convulsions I experienced as a three year old placed me into a near death state which left a particularly strong neural correlate of connections which had effectively set up this empty mind state. Whatever the cause, it has made me who I am now and have been for the past eighty years. This is not something I can teach anyone. Rather, it is a confirmation of what mystics and meditators from the east, the west, and all points between have said for thousands of years. Perhaps this is just an update.

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