

MEDITATION, NON-DUALITY AND QUANTUM PHYSICS



Introduction

There are many different ways of thought processes through which human beings research the essence of what the self really is. We seek to do it within the model laid down in Vedanta philosophy, in particular the *Advaita Vedanta* or ultimate, non-dual philosophy, which is deeply engrained in Oriental tradition, especially in India.

There are other philosophical models which are close to the Vedanta, such as Zen Buddhism, Taoism, and there are definitely a great deal of these, along with other traditions, which offer a clear, coherent insight into what the nature of humankind is, that is to say, metaphysical interpretations concerning its essence.

Of all these great universally known systems we shall choose the *Advaita Vedanta*. This does not mean it is the best; it is simply the model through which we are going to describe the metaphysical ideas with which we will later on compare with some of the proposals that are given in quantum physics.

For example, if we were to try to understand the nature of the mind within a Western framework, we would probably choose Freudian psychology, Gestalt or humanist or any other kind of model that psychology provides us with; we would have to choose a manner in which to tackle the fundamental process of what is being meant to be analyzed.

By this token, to understand what we are in essence, we are going to pick a model that, whereas it does not vary a great deal from other great Eastern models, it bases itself on the profound and fundamental idea known as “Non-dualism”. This Vedanta system has the particularity of being a highly abstract model and, as such, somewhat complicated to understand.

Non-duality

Non-duality is not a commonly cultivated idea in the West, nor are philosophers from these existing ideas called upon... Although very simple, it is a deeply complex idea because of the implications it has on the total order of things, whether they are scientific, metaphysical, ethnical or epistemological. To enable us to submerge into it we shall take a close look at another Western discipline, its development stemming from mathematics and physics, with which the help of later on we shall find the concept of Non-duality much easier to understand.

The ideas proposed by Vedanta philosophy are very alike and have similar foundations to the model given in quantum physics. And so, we shall try to analyse some very simple ideas from this scientific discipline and, through them, we shall leap on to describe why and for what reason there is for Meditation practice within Eastern traditions, particularly in the *Advaita Vedanta*.

Classical and Quantum Physics

There are two basic models in physics: the one about microscopic, atomic and sub-atomic particles and the one about large macroscopic particles. Physics that studies the large particles is usually known as “classical physics” and physics that studies the functioning of the laws that explore and explain the behaviour of tiny, sub-atomic particles, is known as quantum physics.

Both models, classical and quantum have factors in common; in certain aspects they are very close, but laws that describe the behaviour of particles when they are large are very different to when they are tiny. Although large elements are the sum or composition of small elements, when they are studied one by one rather than a summed up group, the laws through which physical processes are described vary.

The main difference between classical physics and quantum physics is that in classical physics the observer does not intervene with or modify what is observed. For example, when you see an airplane, however closely you observe it, its characteristics and special conditions remain the same, it goes at the same speed and the pilots and passengers do not show any changes because there is someone watching them from the ground; therefore, in classical physics there is no need to analyse the nature of observers, since they are considered to be totally independent from what is observed.

In the “classical” mode, objects are clearly different from each other: observers are different from what is observed; the observed is different from other observed things, perceivers differ from other perceivers. One special characteristic in classical physics is that all objects and subjects are specifically “one thing” everything being different to each other. And so, walls are different from windows, windows from window panes, the window panes from the curtains, the curtains from the ceiling, the ceiling from the floor and so on and so forth. Each thing holds something that is its own and unique, the fact that it is being observed by any subject does not change it.

Nevertheless, this condition of clear-cut independence does not arise in quantum physics. In quantum physics objects do not behave like independent events differing from each other but rather as “probabilities”. To our way of seeing things, objects are usually “things” one after the other, but in the world of quantum physics they acquire the condition of behaving simply as probabilities.

In 1926, Erwin Rudolph Schrödinger, after many attempts, for the first time exposed a type of equation that could predict the behaviour of quantum particles. It was an extraordinary breakthrough and supposed a great advance in research into the nature of the universe and especially sub-atomic particles, but this equation had the problem that, although it pretended to describe particles, it was not sure whether what was being described were particles or just some of their conditions.

Although not all scientists could or did not want to understand such circumstances, most of them arrived at an agreement that what this equation described were probabilities. For example, let's imagine in our hand we are holding an orange seed. At this moment it is just one little seed but, what could it be in just a few years? It could succeed in becoming an orange tree, it could simply be an orange; it could also be another seed, some orange juice, the shadow of the orange tree, firewood, a piece of Wood, an ornament, a utensil, part of a birds nest, etc., it could also become vitamins, that when taken by a child and assimilated by his or her organism to increase their defences to protect them from illness. It can be

transformed into so many things that it becomes a never-ending task to register a possible number of options, a number which would reach to infinity. Now, are all these probabilities futuristic? Or rather, is the seed simultaneously any of the probabilities or just one? Is it only one object or just a shadow or a piece of fruit? Can it be “one” and only “one”, or one and potentially all the others simultaneously? What most scientists agree upon is that Schrödinger’s equation describes “one” condition and all the potential remaining ones.

One fundamental condition that sub atomic particles have is that they act as probabilities: they can potentially be in any place at any time, they can be in the future and in the past. There are particles that can be in any place in the universe and in the next moment be right here with us. Sub-atomic particles are extremely complex; we are unable to know anything about the complexities of how they function with absolute exactness, in other words, it is not possible to know their condition or the sum of their conditions at any given moment. The only thing we can know about any of them, when detected, is one of the probabilities they have in themselves out of all those that simultaneously exist in them.

In the world of large things, things are “things”: we give them names, we know their weight, their mass, their speed, and we know if they move or remain motionless, if they accelerate or not. If the object is a living being, we can know if it is sad or not, if it is tired, if it is healthy or ill. In the world of large things you can clearly define objects and, one after the other their conditions are specific and defined, but with sub-atomic particles the same thing does not happen: when we seek a sub-atomic particle, we can know the probabilities where we may find it by means of Schrödinger’s equation but, we do not know where it is until we actually observe it. Before being observed the particle is a probability and will only refrain from being one until it is detected, to be transformed into an object that forms part of the countless probabilities that we had previously determined. Objects are only something if observed but, if not, they are only probabilities.

Consequently, we can state that in the sub-atomic world, the nature of observers changes the reality of particles because, if they are present, the object seems to be “something”, but if there are no observers the object becomes only a probability. It is an interesting moment in which an object goes on from being a probability to being an object: in the previous example of the orange seed we said that it could potentially be an undetermined number of different things with the passing of time, it was an unlimited number of probabilities; if we go back to see it within the transcourse of time, all these probabilities are pinpointed into just one option. This pinpointing of “many probabilities” into “only one” is known as “collapse in the function of waves”. In quantum physics it is said that observers collapse the function of waves and, when collapsing, one of the countless probabilities becomes present.

Schrödinger’s cat

Schrödinger, who described the equation of waves that determined the movement of particles and their contained energy at any given moment in a dynamic form, came up with an imaginary experiment in 1935 that has become to be known as “the paradox of Schrödinger’s cat”, to demonstrate the paradox of new proposals that quantum physics manifested.

The experiment consists in imagining a cat shut inside a totally sealed box, which initially makes it impossible to see inside it. Inside the box, apart from the cat, there is some poison inside a bottle with a hammer in the position of being about to shatter it. The hammer is connected to a mechanism for detecting radio active particles that, if detected, would make it fall on the bottle, which would provoke the poison to be let loose and, as a consequence the death of the cat. Next to the detector there is some radio active material that may or may not generate radio-activity, and that therefore can be detected inside the box within a certain period of time. At the end of this period two possible occurrences may have happened, but without looking inside the box you will not know which of the two probabilities might have been produced and, so, we cannot definitely know if the cat is still alive or if it is dead. While the cat cannot be observed we could say it is simultaneously “alive and dead”. There obviously cannot be a simultaneously alive and dead cat, nonetheless, in the case we are dealing with the cat has the sum of probabilities of “dead” and “alive”. Otherwise, objects as we usually know them, are not a sum of probabilities but simply specific and unitary conditions.

Up to now no one has solved the paradox of Schrödinger’s cat. Not even Einstein himself or any other quantum physicist that has been up to the present day has puzzled out the absurd idea that there could exist a double condition of life and death for the cat, since there is no overlapping and simultaneous probability of a “dead and alive” cat: it is dead or it is not. But, how do we know if it is alive or dead? Our only option is to observe it, when we do, there is only one of the options. Beforehand what we have is Schrödinger’s wave equation that determines the countless variables of a sub-atomic particle, that is to say, in our example it is assimilated that the probabilities of being alive and dead overlap.

Because of this, in the universe made up of sub-atomic particles there is no tacit distinction between “subject” and “object”, since the object cannot be completely independent from whoever mediates in its physical conditions, in other words, the observer is essentially involucrated with the object, without being able to create a differential state, something which does happen in classical physics.

With this brief introduction, we shall see how these ideas are similar to the model of reality Eastern philosophy from the Vedanta presents.

Probability and collapse in Cognition

In the *Vedanta* what is fundamentally analysed is the nature of consciousness and the cognitive process that determines the arrival of the different states of consciousness. What is essentially proposed by quantum physics, and especially by Schrödinger’s equation, coincides a great deal with what happens when we study the nature of the mind.

A way to show this is if we try to remember any event that has happened during our lives, the amount of probable memories that come up is practically infinite. All the memories that you can potentially recall are there in your memory and any of them can appear at any instant. Even though those memories that are on the surface of your mind will come easier compared with unconscious processes, all of them are at a disposition to flourish at any given moment.

In our case, memory acts as a sort of Schrödinger’s equation; it is an immense probabilistic mass. The instant a thought focuses upon “something”, among the vast probabilities of what could be potentially thought or remembered, the function of the memory wave collapses. The immense mental mass, when determining a thought, takes on

a role and breaks the probabilistic condition that overlaps the countless events in our memory.

This thinking process in philosophy is known as “dialect”. When one reasons, when the dialectic process occurs, what we have is a comparison between the known object and all the potential information we previously have stored in our memory, and as such, of all the potentiality of history that there is in the memory of an individual. We opt for a certain piece of information that is available. Consequently, the act of thinking reduces the pack of waves or, which is the same, collapses the function of mental waves, in such a way that only the condition of history that most resembles the known object appears active. The achievement of giving a synthetic judgement that determines the existence of a “name” and “form” collapses our memory and induces just one sole option. This judgement we pass every time we think and differentiate that area of the memory that most resembles the observed object is known, in philosophy, as “synthesis”.

The Present as a solution

Let’s see, for example, this ball. Who can see the ball? Obviously whoever observes the ball is the observer and we can go on to assume, in common perception and from what we have exposed beforehand, that observers collapse the function of mental waves by being present by means of their personal history. They undergo the function of comparing the experienced outer object with an inner one stored in their history and, from this union, this codification; a given judgement is derived in form of synthesis. This enables, out of the entire observer’s history, the “name” of ball is given to the object and a differentiated observer who is observing it emerges.

The process of comparing an object with information we have of it and going on to pass judgement is known as “thinking”. And so, if we give a reason to the object, in this case the ball, what can we firmly state? We can say it is round, it is red and yellow, it is soft, and it has drawings on it. We can also say it was made in China, with raw materials imported from the Third World, that... we could unlimitlessly continue giving the object qualities but, what do we decide on saying when we see the object and we think about it? One concept after the other: it is a ball, it is round, and it is soft... All the probabilities do not arise, only one appears but immediately afterwards another followed by another, all of them in a sequential manner.

This obviously happens if we think over the observed object. However, what happens if instead of passing judgement, observers “contemplate” the object without making any mental judgement? What happens then with the ball and observers? That’s it, what happens if observers do not think about the known object? Thinking about the object is remembering it and, obviously, remembering it is placing oneself somewhere in the past, in history. What happens if the object is situated in the here and now, in the Present, instead of the past? What would occur with the equation of waves that determines and delimits the potential information of this object? Would memory collapse into just one event or wouldn’t it? In theory it would not collapse.

Who makes the function of waves collapse time and time again are observers that through their personal history stored in their memory, the act of remembering and dialectic process that it holds in the form of the assignment of “names” to observed objects. Therefore, so that the function does not collapse in the Present there cannot be any thinking observers.

Observer-observed Non-differentiation.

This results in the paradoxical situation of, if we truly are in the Present, there is no thinking observer: when in thought brings about the appearance of differentiated observers, history and collapse, but if observers contemplate the object without thinking about it, if during the observation there is absolutely nothing of their or its history aroused, there does not cease from being an observer since they are participating in the observation. What there is not is “someone” who is differentiated from what is known within the process of knowing itself and, consequently, observers are made to be non-different to what is observed.

It is not that the observed and who observes are “one”, that they are the same thing, but rather, in the Present the place of the observer and what is observed is not differentiated. It is similar when watching a film at the cinema, if it turns out to be interesting, it comes to a point when the spectator is so immersed in the film there is no distance between him or her from the screen. The spectator does not disappear: there is an observer, as there is understanding to what is happening, nonetheless, spectators do not distinguish themselves as being any distance from the screen.

We have already seen that quantum physics comes to the conclusion that while the observer is not present, the particle is a sum of simultaneous probabilities; in fact, the observer is also a sum of simultaneous probabilities. The world becomes odd in such a way. The cat in the example is a dead cat and an alive cat simultaneously. At a perceptive level we should state from the perspective of the *Vedanta* that, if when an object is observed you are in the Present and you do not think about it, observers do not shatter information, making them non-different to what is observed, put another way, the observer does not collapse the historic function of waves, history does not collapse, to such a point as where the observer is simultaneously all the potential probabilities of what the object is, in a simultaneous and non-sequential manner.

The Present and Meditation

And so, the *Vedanta* states that if people can remain in the Present and not pass any judgement on anything observed, whether it be an inner or outer object, are able to become non-differentiated from all infinity and an unlimited sum of probabilities that the object in itself already possesses. And when these people are capable of doing this, when they are non-different from the entire universe that has ever existed, exists, and will exist, because all information is implicit everywhere, they become aware of an exceptional form of cognition known as *samadhi* or *nirvana*.

Hence, what is intended with Meditation: Meditation is learning to see the world without collapsing it and learn to observe oneself without collapsing oneself. Meditation is seeing the world from the present, from the here and now, from what is actually happening. Meditation is the art of quietening down the fluctuations in your mind, in other words, preventing your mind from using the history it potentially has stored in a sequential manner in any of its countless conditions.

It has happened to everybody that on some occasion when so immersed in and focused upon some activity, whether it be a sport, a game, studying or at work, that time seems to stand still or passes without us noticing, that everything else but the activity disappears. We do not realise if it is cold or not, if someone is calling us, and so on and so forth. They are extremely interesting and pleasant moments where our feelings are totally integrated with the action we are in the process of carrying out. They are such highly

efficient moments that, if our mind were trained to habitually stay at this level, we would undertake any activity in much less time and effort.

It is a very simple question: Is it possible to achieve permanence in this form of cognition? Is it possible to perceive the world without thinking about it?

We are not usually in the Present. When we were vagabond children we were wide open to it, but this natural skill was forgotten long ago. Because of cultural reasons and through the prevailing education system, since we were children we have learnt to accumulate information and use it through the dialectic processes, to reason beyond what the situations require. Up to such a point we do not know how to stop thinking, we do not know how to contemplate the world without interpreting it, we do not know how to act and remain with what is happening without thinking about other things. But not only do we spend all of our time thinking, but that by now our mind has gained so much inertia that we cannot control it.

It is hard for human beings to be attentive. For example, when they succeed in being so for a few moments when they hear someone speak, they lose themselves in the words, they get lost when confronted with any inner and outer event. The Present is usually very sporadic in people; for example, it happens with surprises, when there is something new, when you learn something. When you are amazed at something, there is so much intensity placed on the action happening there is no need to remember what is being done but rather, we react and experience freely without reasoning.

People are habitually overwhelmed by feelings, emotions and thoughts. All this unstable effort reaches such a magnitude and high level of intensity that it is impossible to control them. Then people feel sad and confused. So much time, so many years reinforcing mental processes of compulsive thoughts generate relentless inertia. This inertia is like an emotional whirlwind where passion enslaves and controls us. And so, when we are walking down the street and we are aware of people engaged in their inner selves not taking any notice of what is happening around them. They get home and they are not even capable of enjoying their dinner, since they cannot be attentive on this brief moment because they are thinking about a thousand different things.

The “I”.

This situation of constant dialectic process to do with different events in day to day living, which makes there be a condition of being a differentiated subject from known objects, is known as “I”, “ego”, and “I-ness”. But this I-ness is dissolved when people contemplate the world from the Present and merges into the field being known, becoming a non-differentiated part of it.

Because of this, the *Vedanta* bases its metaphysical system on the non-existence of the differentiated “I” or, which is the same, in a practical order, on the experience of a non-differentiated “I” in perception. We seek a continuous and constant perception in the Present. We seek to educate our mind in the Present so that the instant comes where this non-differentiated subject becomes aware of the convergence of all the infinite probabilities of that which is known and becomes non-different from the infinite probability of information that exists in the Present. This process is known as *samadhi* or *nirvana*.

This is the essence of human beings: being non-differently conscious of the entire universe and all its probabilities of existence. This is what Meditation seeks: not collapsing

cognition, that no sequential probability, one after the other, emerges but rather that individuals are capable of perceiving the totality of infinity at any given moment to be this very infinity itself, to be the Absolute, to be eternal. This is what we seek and this is the basis of Meditation.

