

## Time and Space in Indian Science and Philosophy

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### Abstract:

*Philosophy of space and time is the branch of philosophy concerned with the issues surrounding the ontology, epistemology, and character of space and time. While such ideas have been central to philosophy from its inception, the philosophy of space and time was both an inspiration for and a central aspect of early analytic philosophy. The subject focuses on a number of basic issues, including whether or not time and space exist independently of the mind, whether they exist independently of one another, what accounts for time's apparently unidirectional flow, whether times other than the present moment exist, and questions about the nature of identity (particularly the nature of identity over time).*

*"The Vedas, the earliest texts on Indian philosophy and Hindu philosophy, dating back to the late 2nd millennium BC, describe ancient Hindu cosmology, in which the universe goes through repeated cycles of creation, destruction, and rebirth, with each cycle lasting 4,320,000 years."<sup>[1]</sup>*

*Since the beginning of sentience, the fabric of reality has been the subject of intense curiosity, and the twin concepts of space and time have figured prominently in the thinking of individuals of various intellectual persuasions.*

**Keywords:** Space, Time, Science, Philosophy, Vedas, Upanishads and Eternal

### NATURE AND DEFINITION OF TIME

Time appears to be more puzzling than space because it seems to flow or pass or else people seem to advance through it. But the passage or advance seems to be unintelligible. The question of how many seconds per second time flows (or one advances through it) is obviously an absurd one, for it suggests that the flow or advance comprises a rate of change with respect to something else--to a sort of hyper-time. But if this hyper-time itself flows, then a hyper-hyper-time is required, and so on, ad infinitum. Again, if the world is thought of as spread out in space-time, it might be asked whether human consciousness advances up a time-like direction of this world and, if so, how fast; whether future events pop into existence as the "now" reaches them or are there all along; and how such changes in space-time can be represented, since time is already within the picture.<sup>[2]</sup>

### I. TIME AND SPACE AS DESCRIBED IN VEDAS

Time (Kala) and Space (Dis) are described in Vedas and allied body of ancient knowledge.

Vedas contain harmonized knowledge of Divine (eternal), Spiritual (with-draw able) and material (perishable) subjects. Time and Space are Divine subjects in Vedas.

These two ontological categories Time (Kala) and Space (Dis) are very important in Vedas. Space is Avyakrta Akasa-the uncreated Eternal and unmodified Akasa- the Space. Akasa is one of the five main elements (mahabhutas) i.e. earth (Prithvi), air (Vayu), water (Jala), fire (Teja) and ether (akash) . The former Ayavkata Akasa and Time (Kala) co-exist with Brahman like Prakrti (divine Nature) and energy principle Jeev/jiva (Spirit).

Both Time and Space are eternal. No one can imagine origin and limit of Time and Space. Space contains everything and makes our movement possible and Time conditions and regulates the generating growth and dissolution of every material thing. Both unmodified Time and space are not perceived by our senses and sense organs. However, these can be perceived by the intuitive power of the Soul (Atma) at the stage of Kaivalya, Turiya, Thuriatheetha and self realization are different meditative stages when one can communicate with the soul.

Hence Rig Veda 1-30-21&22 ordains never waste a single moment. God lives in Time and Space and moves with Time (both are eternal). Heavens, Earth, day and night all serve Time and Time controls All (Rig Veda 1-95-7).

Owing to its subtle and divine nature Rig Veda 1-95-8 again advises, be punctual in worldly affairs and activities. All calculations are made in mathematics i.e. duration of year, month, day, life of the earth based on Sun (Surya).<sup>[3]</sup>

### Kala

The Rg vedic element stood firm a fact on the idea of kala or time. Certain standard invocations identify the Purusha and Kala synonymous. The Vedic-ism did not forget this fact. The Gods like Rudra were worshipped only for the merit of long life. They did not want to have a sudden death-The Rudra namaka speaks of-Apamrtyurnasyatyayurvardhatam-let the sudden death be warned and the span of life be increased. The following is the time scale concept adopted in the Vedas.

2 molecules = 1 Atom  
3 Atoms = 1 Trapa

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- 3 Trapas = 1 Trti
- 100 = 1 Vedha
- 3 Vedhas = 1 Lava
- 3 Lavas = 1 Nimesha (wink of eye)
- 3 Nimeshas = 1 Kshana
- 5 Kshanas = 1 Kashtha
- 10 Kashthas = 1 Laghu
- 50 Laghus = 1 Nadi
- 2 Nadis = 1 Muhurta
- 6/7 Nadis = 1 Prahara / Yama
- 4 Yamas = 1 Day time
- 4 Yamas = 1 Night
- 8 Yamas = 1 Day and 1 night
- 15 Days = 1 Paksha
- 2 Pakshas = 1 masa (1 day for the deat ancestors)
- 2 Masas = 1 Rtu (season)
- 6 Masas = 1 Ayana
- 2 Ayanas = 1 Year of 12 months (1 day for the Gods)

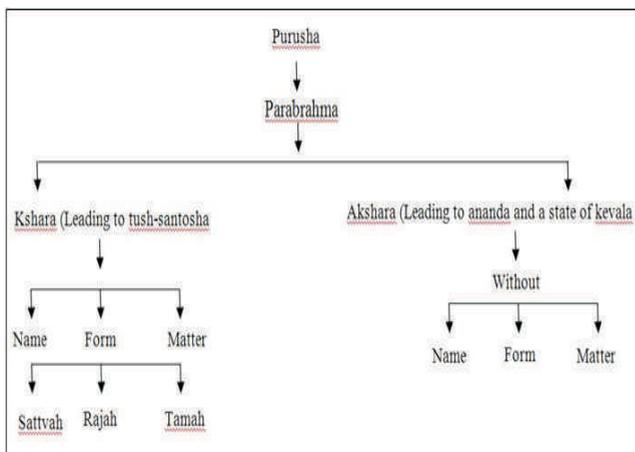
The entire time was directed by Lord Sun controlling the planets and stars.

This type of classification of kala was quite dissimilar to the European way; and the asymmetry is due to : "How are we to know the revelations of the sages without having any regard to the learned commentators who are qualified to interpret them!" as Goldstucker criticized the observations of Prof. Rath and other orientalisists like H.H, Wilson.

The Aryanism has its typical feature in conducting system of life from the matter, form and name to a state where the matter, form and name cannot exist.

This is not a theosophical fracture of the Vedic lore; nor mythical but was purely an utmost committed observation to distinguish something perishable and something imperishable. It is the significance of the Vedic style of life to have a perishable supreme unit-Kshara parabrahma and imperishable supreme unit-Akshara parabrahma.

This is a gradation where in a cosmic hierarchy can be stratified as



Akshara was called as sat and it is above it is above to lead to ananda. Cit is to mean cetana (the secret of life) and Ananda the fruit of life.

The diagnostic approach in the Vedic life can be visualized as the performance of all the Purusharthas within the limits of perishable zone and imperishable zone too. The capacity to categorise the trio-Purusha, Akshara Parabrahma and Parabrahma was called true knowledge.<sup>[4]</sup>

## II. TIME AND SPACE AS DESCRIBED IN UPANISHADS

### The Taittareya Upanishad

We had occasion to probe into the implications of the involvement of consciousness in human individuality in terms of the five layers, or koshas, as they are called, in connection with the process of creation as described in the Taittiriya Upanishad. To recap, the Taittiriya Upanishad touches upon the structure of the human individuality, which is constituted of the five layers known as the koshas – annamaya, pranamaya, manomaya, vijnamaya, anandamaya, or the physical, vital, mental, intellectual and causal.

This suggestiveness of the involvement of consciousness in these koshas is also the subject of the **Mandukya Upanishad**. It lands us on the conclusion that this very consciousness which appears to be involved in the layers of creation – objectively as well as subjectively, macrocosmically as well as microcosmically – is basically universal in its nature.

The creation theory becomes almost complete in the **Aitareya Upanishad**. The projection of an externality to the Universal Consciousness is the principle of creation; an 'other' to the Universal appears to be there, revealed before itself.

"the Atman alone was". Atma va idam eka evagra asit, nanyat kin cana misat (Ait. 1.1.1) is the first sentence of the Aitareya Upanishad. There was nothing alive anywhere at that time, when the Atman alone was. Outside the Atman, outside Brahman, outside the Absolute nothing can be, because it is a non-relative existence. The emanation of this universe is made possible by the appearance of space and time.

Creation starts with the five elements. And when creation starts in this manner, division takes place. Creation is not merely a manifestation of externality, it is also a manifestation of division or partition of the otherwise inclusiveness, or its extension. We do not merely see things outside but, at the same time, we see many things. So, creation involves two aspects of perception: externality and multiplicity. The externality aspect is caused by space-time manifestation. The very meaning of space-time is externality; extension and duration are the characteristics of space and time.

When externality in the form of space-time, which is the basic principle of creation, also becomes a factor of multiplicity and division of things, the variety of species, as we say, appear to manifest themselves gradually: from the crude, earthly material existence of the elements to the living bodies of plants, vegetation, and animals, leading up to human beings. The Aitareya Upanishad takes us up to the level of the human being as evolved from the lower species, which are the mineral, vegetable and animal.<sup>[5]</sup>

### III. PHILOSOPHICAL PERSPECTIVE

#### A) *Vaisesika Philosophy*

When the Vaisesika asserts the universal and real character of space and time, what it means is that the universe as it appears to us is an endless expanse, an immeasurable extent, an abyss in which there are no bounds, no bottom, on end. Every event has spatial and temporal properties. If the spatial position of a thing remains the same while the temporal varies, we say that the body is at rest; if it varies continuously as the time varies continuously, we speak of motion. Since our experience has a spatiotemporal character, the Vaisesika infers that space and time stand there outside us, as empty receptacles waiting for things and events to fill them. The truth seems to be that spatial and temporal relations are constituted out of spatial and temporal perceptions. If the spatial and temporal characters of our experience demand the assumption of the universal substances of space and time, there is no reason why we should not have one vast intelligence in the vast heaven, one vast light and one vast darkness, vast cosmic reservoirs of all properties, good, bad and indifferent, which characterize our actual experiences. Space and time cannot be regarded as derivatives from experience, which presupposes them. That space and time are universal, all-pervading substances, is their way of saying that whatever is, is in space, and whatever happens, it happens in time. Things of the world are in motion, i.e. occupy space and change their behavior in time. The space void of bodies and the time void of events are called substances. To account for our experiences, which have the features of spatiality and temporality, the Vaisesika assumes an immensity or infinite space that refuses to submit to bounds and a duration that cannot be completed. But these infinite space and time are metaphysical hypotheses and not descriptions of facts.

Though space without time changes does not seem to be absurd, time is nothing without changes or events, even as a relation is nothing without terms that are related. Time is interpenetrated by real stuff. Time does not involve a plurality of things. It might occur in a single substance. A person may change his character, a flower may change its colour. Space, dealing as it does with properties of position, distance, etc., requires various real things. Time alone of itself does not imply such a variety of coexistence. It no more involves coexistence than one real thing involves others.

The argument by which atoms are assumed is not applied to space and time. The Vaisesika does not say that the continuance of time arises out of the separate indivisible instants of time or the continuance of space out of separate points or spatial units. If the difficulty of the crumbling of matter into nothing is to be avoided only by the assumption of indivisible atoms, the continuity of space and time can only be accounted for on an analogous theory of points and instants. If in the latter the assumption of one universal space or time is feasible, the assumption of one universal matter is quite a legitimate hypothesis even for the explanation of the physical universe. We have things in certain relations to each other which we call spatial and events in certain relations which we call temporal. Time and space represent the relations of the objects for our experience. These spatial and temporal relations are facts for immediate experience, and the theory that events occur in a given space and a given time,

involving changes in the given persistent atomic stuff, is the result of metaphysical reflection. A universal space, a universal time and persistent atoms are all hypothetical explanations and not given facts. The defective definition of substance as the substratum of qualities leads the Vaisesika to regard space, time, etc., as substances. Matter is the stuff which fills space and time, and if we wish to be accurate we must say that the fundamental concept by which the universe can be explained is space-time-matter stuff, a conclusion of which some Vaisesikas had a dim apprehension. Sivaditya says that akasa, space and time are one in reality, though conceived as threefold on account of the diverse effects, a view confirmed by Candrakanta Tarkalamkara, who argues that, according to Kanada, space, time and akasa are one substance only, though variously called space, or time, or akasa, according to the effects produced by it and the variety of external conditions attending it. space and time are abstractions from nature. later Naiyayikas described space and time as the modes of God.<sup>[6]</sup>

#### B) *Samkhya Philosophy*

Every phenomenon of cosmic evolution is characterized by activity, change or motion (praispanda). All things undergo infinitesimal changes of growth and decay. In the smallest instant of time (ksana) the whole universe undergoes a change. In the empirical world, space and time appear as limited, and are said to arise from akasa, when it is conditioned by coexistent things in space and moving bodies in time.

The world is neither real nor unreal. It is not unreal, like a man's horn, nor real, since it passes away. It is not, however, to be regarded as indescribable, since such a thing cannot exist. The Samkhya repudiated the view that regards the world as a reflection of what is not, nor is the world a mere idea. The world exists in its eternal form of prakrit and passes away in its transitory manifestation. The world has phenomenal reality as undergoing transformations. Cosmic processes is twofold in character, creative as well as destructive. Creation is the unfolding of the different orders from the original prakrit, and destruction is the dissolution of them into the original prakrit. As a result of the disturbance of the condition of equilibrium, the universe is evolved with its different elements, and at the close of the world period the products return by a reverse movement into the preceding stage of development, and so finally into prakrti. Prakrti remains in this condition until the time arrives for the development of a new universe. The cycle of evolution and reabsorption has never had a beginning and will never have an end. The play of prakrit does not cease when this or that individual attains release, though the emancipated are unaffected by the action of prakrit. Though prakrit is one only, and common to all purusas, it manifests itself in many ways: to the souls in bondage it evolves into many a form the subtlest to the grossest; and to the freed it retraces its steps and becomes resolved into its.<sup>[7]</sup>

#### C) *Advaita - Vedanta Philosophy*

Samkara takes up the central principles of experience, and declares that whatever is bound by space, time and cause cannot be real. Our experience has space for its general form, but the real is non-spatial and indivisible. For whatever is

spatial is divisible, and the later is always a produced effect and not a reality which is unproduced and indivisible and therefore non-spatial. The universality (vibhuvta) of space is only relative. Whatever is limited in space is limited in time also. Time has an inherent tendency to pass beyond itself, though it can never do so. It is real in the world of experience. Within the world of experience time has universal scope. But the unending duration of the world is not self-sufficient. The temporal is not the real.

Since causality is the central category of experience, Samkara subjects it to a penetrating criticism intended to show the thoroughly unsatisfactory nature of the concept. That events are interconnected in a system is the assumption of common sense and science.

Every finite thing presents the contradiction that it is not only finite, i.e. confined within itself, but is also relative in the sense that it hangs on another. No object of experience is self-determined and self-contained. Every object is tending to pass away from itself to something else. The finite as such is transitory being, ever trying to transcend itself.<sup>[8]</sup> The visible finite and invisible infinite are coordinated through the medium of human effort called Yoga for the achievement of a state and status beyond time and space.

#### IV. YOGA IS A COORDINATING MEDIUM

Yoga is an integral and systematic body of knowledge of body, mind and consciousness to control, observe and experience the body, mind and consciousness with a social foundation and spiritual orientation to realize the ultimate truth.

According to this definition Yoga can be understood as integral knowledge. It is called in the classical terms as darsana. It has been mentioned in Darsanopanishad of Samaveda that yogam sashtamgadarsanam that is to mean yoga is an integral knowledge with eight limbs.

It is systematic knowledge. It is systematic because it provides a specific conclusion on each aspect of yoga after taking into consideration the experience of different people of different sections in different times. It consolidates and generalizes for the benefit of the humanity all the experience into one solid unit. As such it is systematic. It can be called systematic on another ground that it accepts the role of cause and effect and accepts the law of supremacy of finer elements in yoga.

The process of yoga is identified in this definition as controlling, observing and experiencing the body, mind and consciousness. The body is controlled through the physical exercises. Mind is controlled through the introspection and the consciousness is controlled through the meditation. One has to observe and experience his own body, mind and consciousness with and without control.

The aim of yoga is realizing the ultimate truth beyond the presumptions and presuppositions beyond space and time.

Patanjali defines yoga to be the cessation of the activity of mind. (yogascittavritti nirodhakah). It is carried out in the expression controlling the body, mind and consciousness. Once a person controls citta either through the dispositions or through the air, it is equal to the cessation of the activity. Yogasikhopanishad mentions that unification of the dual forces like life force and excretory force is yoga (Dvamdvajalasya samyogo yoga ucyate). The process of

control, observation and experience suggested in the above definition covers the area of unifying the dual forces. Bhagavadgita defines yoga as yogah karmasukausalam – skill in the action is karma. That skill is identified through the phrases of controlling, observing and experiencing the body mind and consciousness and also orientating spiritually for the realization of the ultimate truth with a social foundation. To express in the jargon of Bhagavadgita it is protecting the varna dharma and Asrama dharma and contributing for the realization of the truth beyond the Self (adhyAtma). The protection of varna dharma and asrama dharma are expressed in the term social foundation in this definition.

#### Realization of Self

Realization of the Self is the ultimate aim of Yoga. It has been clearly and specifically told in the classical works like Yogatattvopnishad that without the knowledge of yoga one cannot know the ultimate. It is described in the terms of Patanjali as Kaivalya. Realization of the Self is the lower layer in the process of reaching Kaivalya. Even though the terms kaivalya and self realization appear to be somewhat away from the so-called secular way of life they are still having currency in a set of practitioners of yoga who are aiming at kaivalya. Hence this target suggested by patanjali in his yoga sutras is not outdated and as long as the man sees the sky and astral bodies and something beyond them, the validity for kaivalya continues.<sup>[9]</sup>

#### V. CONCLUSION

The yoga system is the science, the technique of the reversal of this process into which we have fallen through the process of creation. From the lowermost condition in which we find ourselves, we attempt to lift ourselves up systematically to the preceding condition. This is actually the inner meaning of the systematic enumeration of the stages of yoga that Patanjali Maharishi tells us, as yama, niyama, asana, pranayama, pratyahara, dharana, dhyana and samadhi. These – rising from yama, etc., up to the point of samadhi – are the stages in our return journey from the condition of the fall back up to the Absolute, which is the precondition of creation.

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