KANT’S CONCEPT OF SPACE AND TIME.

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INTRODUCTION

The genesis of the ideas of space and time is as old as philosophy and these ideas have been central to philosophy from its very inception. These ideas focus on a number of basic issues like the relation between space and time, the nature of space and time, the identity of space and time, the relation of space and time to human mind, the relation of space and time to physical objects of the world etc. In the present article, We make a sincere effort to give a clear and faithful exposition of Kant’s concept of space and time in his great authoritative work “The critique of pure Reason”. Therefore, this article will provide a systematic overview of space and time and at the same time focus on some issues related to the problems of space and time.

Before going into Kantian views on space and time, it is expedient to discuss some important views on space and time from earliest to modern periods.

Different views on Space and Time

The ancient Hindu cosmology believes that the universe arises and exists in time. Plato regarded time as the period of motion of heavenly bodies and space as that in which things come to be. Aristotle in his book IV of Physics defined time as the number of change with respect to before and after and place of an object as the inner most motionless boundary of that which surrounds it. The Naiyikas in India take Dik (Space) and Kala (Time) to be two eternal, all pervading substances.

The empiricists hold that the ideas of space and time originate in us by way of obstruction from particular spaces and time of our perception. So they hold that space and time are general concepts derived from particular experiences. The common sense view is that space and time have an objective existence independent of the perceiving mind. They are taken as two infinite substances, which like receptacles, contain all things and events. This common sense view was supported by Galileo and Newton, both of whom conceived space and time as objective existent frameworks of the physical order in which material objects move and change from state to state. Absolute space and Absolute time, without reference to the external objects and occurrences, always remain same.

In recent time, Prof. Alexander conceives space and time as the ultimate cosmic reality, the general matrix of all things. Space and time should not be thought as two distinct and separate realities as thought by Newton. Space and time have no existence apart from each other. The ultimate reality is space-time, the one indissoluble and all-pervasive stuff of all things. This is the primordial existence out of which everything-matter, life and even mind evolved.

“The representation of co-existence is impossible in time alone; it depends, for its completion, upon the representation of space, because in mere time, all things follow one another and in mere space, all things are side by side; it is accordingly only by the combination of time and space that the representation of co-existence arises”.  

Besides these accounts, there are too many other views on the concept of space and time in the history of philosophy. We have also the famous Absolutist view of Newton and relationalist view of Leibniz concerning the status of space and time which form the historical background of Kant’s view on the subject. “The issue between what are now called absolutist and relationalist conception of space and time, represented paradigmatically by “Newton and Leibniz” represents the background to all of (Kant’s) thinging about space and time” 1. While Newton holds that space and time are absolute and independent entities, Leibniz holds that space and time are dependent on objects and object relations for their existence. I will refer to these views in course of my presentation of Kant’s view of space and time in the next section. Now let us come to Kant’s views on space and time on which his transcendental enquiry into knowledge is based in his famous “Critique of Pure Reason”.

Kant’s View on Space and Time


In his critique of pure Reason, Kant undertakes a transcendental enquiry which is meant for him an epistemological enquiry into the a priori elements of knowledge. The critique is divided into three parts – Transcendental Aesthetic, Transcendental Analytic and transcendental dialectic dealing with sensibility, understanding and reason respectively. In the first part, he tries to show how pure mathematics is possible; in the second part, how pure science of nature possible and in the third part how metaphysics is impossible.

In the Transcendental Aesthetic, which is for him, the theory of sensibility, he separates the a priori elements in our sensibility and points out their role for knowledge. These a priori forms are, in his view, space and time. These are also a priori forms of all that can be given intuitively.

The concept of space and time are central to Kant’s critical philosophy. The aim of this paper is to discuss the Kantian view on space and time from two perspectives – historical and philosophical and at the same time to clarify Kant’s stand point on this issue of course, both these perspectives are interwoven in our discussion and a more refined view of Kant’s concept of space and time will emerge out of it.

Historial Context:
At the outset, I would like to make it amply clear that Kantian views on space and time arose out of the debate between Leibniz and Newton concerning the status of space and time. This controversy forms part of the essential background to Kant’s work on space and time in the critique of pure reason.

While Leibniz and Clarke (Clarke represented Newtonian position) discuss the reality or absolute reality of space, they are essentially concerned with the question of the status of space in relation to objects. This is clearly evident from the fifth letter of Leibniz to Clarke where he concludes that space lack reality or absolute reality. For space to be real is for space to exist independently of objects and relations. Leibniz contends that if space exists independent of objects, God would lack a sufficient reason for placing the objects of the universe into space with one orientation rather than another. In his response to Clarke’s claim that ‘there can be ‘extramundance’ space, that is space beyond in the boundaries of the object universe, Leibniz contends that even if here the concept is ideal, it also means that it cannot exist independently of objects. In his last letter to Clarke, Leibniz wrote,

“I have demonstrated that space is nothing other than an order of the existence of things observed in their simultaneity. And therefore the fiction of a material finite universe, moving forward in an infinite empty space, can not be admitted. It is altogether unreasonable and impracticable …… These are imagination of philosophers who have incomplete notions, who make of space an absolute reality”.

Here by “real space” out of the material universe Leibniz does not mean space independent of the mind, but rather space independent of objects”. Leibniz also discusses in the correspondence the status of space as relative to the mind when he asserts in the fifth letter that relations are ‘ideal’ because they are neither substances nor accidents and are therefore not elements of reality. In his New Essays, he writes, “in reality there are substances and properties of substances, the mind adds ‘relations’ since space is the order of possible relations of objects, it is presumably ideal in some sense’. So the relational theory of Leibniz entails that there can not be empty spaces outside the world. “All existing elements may be ordered either by the relation of contemporaneity (Co-existence) or by that of being before or after in time (Succession). So time is the order of non-contemporaneous things and space is the order of contemporaneous co-existent things”. Leibniz rejected the absolutist theory of Newton mainly by the principle of sufficient reason and the identity of indiscernibles.

On the other hand, Newton’s view of space and time is known as absolutist view which maintains that space and time are really objective existing in its own right independent of objects and object relations. Newton himself asserts “in Philosophical disquisitions we ought to abstract from our senses, and consider things themselves distinct from what are only sensible measures of them”. According to him, from the sensible measures of space and time, certain prejudices take place and in order to free ourselves from these prejudices “It will be convenient to distinguish them into Absolute and relative, true and apparent, Mathematical and Common”.

Kant’s Response:
The central point of Kant’s view is that space and time are nothing but forms of intuition. This view of Kant is connected with his claim in the transcendental Aesthetic that we have pure intuitions of space and time. It is only on this view of space and time as a priori intuition that synthetic Judgement a priori is possible in mathematics. Before going into detail about this, our chief aim here is to clarify the very idea ‘a priori intuition’ in the light of Kant’s contention.

At the outset, Kant distinguishes between intuition and sensation. An intuition is a conscious objective representation of an object, properly, event etc whereas a sensation is merely a state of subject and do not represent anything distinct from sensing subject. Similarly, in distinguishing intuition and concept, Kant’s view is that intuitions are singular immediate representations whereas as concepts are general mediate ones. Each represent properties, objects or state of affairs, but they do so distinctly. But intuition and concept are types of objective representation and both can be either empirical or a priori. By concept, we simply mean a representation. Now, the question is, how are we to understand the very idea that we can have pure a priori (non empirical) intuition at all. For an understanding of this, we should go through the exposition of space and time (both metaphysical and Transcendental) given by Kant in his famous Transcendental Aesthetic.

The metaphysical Exposition of Space and time deals with the origin and content of representation of space and time whereas the transcendental Exposition deals with an explanation of synthetic A priori knowledge available to us in mathematics and geometry. In metaphysical exposition Kant has given us a pure a priori intuition of space and time. His idea of space is that space is a non-empirical, singular immediate representation. In case of empirical singular immediate representation we can easily understand that in case of ordinary perception, we can, for ex, see a chair in front of us. The empirical case is very much clear, but what does it means to contend that we have a non-empirical singular immediate representation?

This can not be same to a case of seeing a chair directly in front of us. Newton himself asserts “in Philosophical disquisitions we ought to abstract from our senses, and consider things themselves distinct from what are only sensible measures of them”.

Leibniz rejected the absolutist theory of Newton mainly by the principle of sufficient reason and the identity of indiscernibles. According to him, from the sensible measures of space and time, certain prejudices take place and in order to free ourselves from these prejudices “It will be convenient to distinguish them into Absolute and relative, true and apparent, Mathematical and Common”.


cite{Leibniz Gotfried “Discussion on the Nature of Space and Time”, by Millic Capek, Reidel publishing company, Boston USA (1976), Page – 273.}
cite{Ibid, Page – 81.}
front of us, then what gives it its immediate and singular character. Kant’s suggestion is that intuition must somehow have its seat in the subject – it must somehow be a ‘form’ of the mind or outer sense. In the transcendental Aesthetic, the goal of Kant is to explain how a non-empirical singular immediate representation of space is possible. Space and time are the necessary functional modes of mind through which we look at our environment.Were all human minds blotted out, space and time vanish forthwith. They are not in things, but in the mind that perceive things. They are surely necessary forms of our perception, and not idle fancies.

An important corollary of this view, as Kant holds, that space and time, cognized apriori, are valid for all objects of possible experience, but their validity is limited to the empirical objects only. They are valid for things which appear to our perception, but not for things in themselves or noumena. They have empirical reality, but transcendental ideality space and time are real for the things which enter our experience. Although they are subjective forms of mind, they are necessary conditions to which all human perception is subject and are not peculiar to this or that individual. There can be no object of perception for us which is not in space and time. This means that space and time are empirically real. “Space and time are not realities of the phenomenal world, but modes under which we perceive things apart”.6

“Space does not represent any property of things in themselves, nor does it represent them in their relation to one another. Space does not represent any determination that attaches to the objects themselves and which remains even when abstraction has been made of all the subjective conditions of intuition. For no determination, whether absolute or relative, can be intuited prior to the existence of things to which they belong, and none, therefore can be intuited apriori” A26/B42

In this paragraph, Kant intends to refute both the Newtonian view of space which suggests about its “absolute” determinations and also the Leibnizian view which suggests “relative” determination. Besides the difference on absolute and relative determination of space between Newton and Leibniz the similarity between them is that each indicate that the representation of space can not be non-empirical singular immediate representation. But the sole aim of Kant is to establish that space is pure apriori singular immediate representation. This is the heart of Kant’s main position in the Transcendental Aesthetic of critique of pure reason.

The famous conclusion of Transcendental Aesthetic is “Space is empirically real but transcendentally ideal”. “Our exposition therefore establishes the reality, that is the objective validity of space in respect of whatever can be presented to us outwardly as object, but also at the same time the ideality of space in respect of things when they are considered in themselves through reason, that is, without regard to the constitution of our sensibility”.7 A26/B44.

The terms ‘real’ and ‘ideal’ have special significance for Kant and a clear understanding of these terms require a sharp brain and this paves the way to go in depth into his transcendental Aesthetic. He uses the terms, ‘real’ and ‘ideal’ for something concerning its status in relation to mind. He is concerned with mind – dependent status of objects and with the status of our knowledge of their existence.

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6 K. Pearson, Grammer of Science, Page – 84.
8 Ibi- Page 72.
representation of objects? His argument is that all of our representations of particular objects must be given to us in space and/or in time, so that space and time, are the forms of all intuitions. Again, Space and Time must themselves be represented like particular objects rather than general kinds of objects. So they are themselves intuitions. "Space and Time are not actual entities nor determinations nor relation of things..... that would pertain to them even if they were not intuited". A/23 B/37.

Is it dependent on the relations among objects or independent of those relations?

This question is concerned with the relationship of space and time to physical objects. If we discuss the ontology of space and time independently from substance property metaphysical framework the question of relationship of space and time to physical objects would arise. In response to this question, two views of absolutism and relationalism have already been discussed in the previous section Newtonian view of absolutism hold that space and time exist independently of all possible objects and object relations. Relationalism of Leibniz, on the other hand, holds that space and Time depend for their existence on the possible object and object relations.

The answer of Kant to this question need to discuss the following question and its answer given by Kant as these two questions are interrelated.

What is the relationship between space and time on the one hand and human mind on the other?

Closely related to this question, another question arises: what is the origin of our representation of space and time? Since our idea of representation of space and time is somehow different from our idea of representation of ordinary physical objects. Another question is, what is the content of our idea or representation of space and time. Kant is of opinion that the content of a representation might provide us with a guide as to its possible origin. Alternatively we might to be able to consider the origin of representation as providing us with a clue as to what its content might be. If we think of the mind as representing space and time in a certain way, then perhaps this is part of our understanding of mind’s relationship with space and time. In the critique of pure reason, Kant’s position is that space and time are somehow dependent upon the mind for their existence. It may be that some kind of dependence is suggested either by the origin or by the content – of our representation of space and time. This dependence of space and time on the mind, Kant thinks, solves the problems arising out of Absolutism of Newton and Relationalism of Leibniz.

Conclusion

The fundamental maxim of Kant is "We are not in space and time, but space and time are in us". This may appear absurd to the common man who are acquainted with usual ways of Thinking. Our usual way of thinking is that we are in space and time. But Kant sees problem in this. "it is the virtue of deep and penetrating mind that is sees problems where lesser minds fails to discover any". In a Technical way, he has introduced radical change in philosophy for which he is rightly regarded to brought Copernican revolution in Philosophy. This claim involved two interconnected foundations of his critical philosophy. The first one is epistemology of Transcendental idealism and the second one is the moral philosophy.

The aim of this article is to explore the first one. The rational order of the world as known by science is not just fortuitous accumulation of sense perception conceptual unification and integration is carried out by the mind through concepts or “categories of understanding” operating on the perceptual manifold within space and time. Space and time are not concepts but are pure form of sensibility that are a priori necessary conditions for any possible experience. Thus the objective orders of space and the causal necessity that operates within it are dependent upon mind’s processes, the product of the rule-based activity that Kant calls “synthesis”.

References


Footnotes

9 Rashvihary Das, A Handbook of Kant’s critique of pure reasons page xvi (introduction).

8. Ibi- Page 72.