
Space and Time as a Priori Forms of Human Intuition in Kant's Epistemology

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Abstract

This work offers a concise exposition and critical appraisal of Kant's notion of *space* and *time* as a priori forms of human sensibility or intuition. He dwells on these issues in his *Critique of Pure Reason*, under the Transcendental Aesthetics section. Owing to the fact that Kant published two editions of the *Critique of Pure Reason*, both editions are being referenced. Letters A and B are used to denote the first and second edition respectively. Kant identifies the *a priori* forms of sensibility: space and time, which the mind contributes, to make experience possible. The reason is that an event cannot be experienced at all, unless it is recognized as being in 'space' and occurring in 'time.' Thus, the possibility of human experience is anchored on the spatio-temporal framework of empirical reality, which embraces both the experiences and their objects. Kant's most original contribution to philosophy is his "Copernican Revolution," in which he argues that it is the 'representation' that makes the object possible, and not the 'object' that makes the representation possible. With this he presents the human mind as an active originator of experience rather than just a passive recipient of perception. His opinion was that the rational structure of the mind reflected the rational structure of the world, even of 'things-in-themselves.' In other words, the operating system of the processor, by modern analogy, matched the operating system of reality. It follows from the way in which appearances are given to us that those things given in space and time must be unified in accordance with the categories, and since the 'objects of experience' are given to us in space and time, it follows that they must be unified in accordance with the categories. All representations are subject to the transcendental unity of apperception. Space and time, as forms of human sensible intuition, structure the manifold of appearance, since such a manifold can only occur in accordance with this form. But, space and time are represented by us not only as forms of sensible intuition, but also as intuitions themselves, and therefore as possessing a unity of the manifold of empirical intuition within them. This unity precedes all concepts, and it presupposes a synthesis which does not belong to the senses but through which all concepts of space and time first become possible. So the unity of space and time is explained in terms of the synthetic activity of the understanding. Space and time stand under the synthetic unity of apperception, and in so far as they are represented as unities they are themselves the product of the effect the understanding has upon sensibility, and are thus subject to the categories of human understanding.

Key Words: A priori, Space, Time, Intuition, Sensibility, Kant's Philosophy

1. Introduction

Kant's enquiry into the concept of space and time is divided into a metaphysical and transcendental analysis. Before elucidating Kant's ideas on this topic, it is wise we first get a grip on his terminology. Kant uses the term 'intuition'. Intuition according to him, it is an activity possible for only human beings and it is our most direct or immediate kind of representation of objects.¹ It is a singular representation, that is, one that represents a particular object. Intuition is very similar to concept, but while concept always represents an object by property that the object possess and is always universal, intuition is immediate and represents a particular object.² Another term Kant uses is 'sensibility'. Sensibility is the capacity to acquire representations through the way in which we are affected by objects. Another term coined by Kant is 'empirical intuition' which means the immediate representation of particular objects through sensation.³ 'Appearance', as explained by Kant, is the undetermined object of an empirical intuition. By this Kant means to say that no single observation of an object can give a full determinate knowledge of that object.⁴

Furthermore, the term 'pure intuition' for Kant is the form of sensible intuitions in general in which everything manifold in the appearances is intuited in certain relations which are a-priori in the mind. Thus, extension and shape belong to pure intuition because without an actual object of sensation, they exist a-priori in the mind as a mere form of sensibility. Finally Kant calls the science of all the principles of *a priori* sensibility, 'transcendental.' They are a priori because they are not derived from experience, and they are intuitions because our awareness of them is immediate and non-conceptual.⁵ Space and time as a priori forms of intuition are therefore necessary conditions for human sensibility. Furthermore, Kant also describes space as the 'form our outer sense' and time as the 'form of inner sense'. Outer sense, a property of our mind is means by which we represent to ourselves objects as outside us, and represent them as being in space. In space their shape, size and relation to one another can be determined or become determinable. Inner sense on the other hand is the way in which inner objects, that is, our mental states, are made available to us in intuition, and this is achieved by representing them as being in time. Kant adds that time cannot be intuited externally or outwardly neither can space be intuited internally or inwardly.⁶ The problem of the nature of being as grasped by the human intellect has always been the keen interest of every metaphysician. Beginning with Aristotle who baptized metaphysics as the queen of all sciences in the ancient world, to the contemporary domain in which the grandiose speculations of modern minds have been turned down, metaphysics has never failed to inform man concerning the fundamental principles of all there is. In fact, to capture Aristotle's burden on the matter, he proclaims; there is a branch of philosophy which studies being qua being and the attributes that belong to its very nature, this is not like any of the other sciences.

¹Cf. Immanuel Kant, *Critique of Pure Reason*, Translated, Edited and Introduced by Marcus Weigelt, (New York: Penguin Books, 2007), B33, 34; A19, 20.

² Cf. Paul Guyer, *Kant*, New York: Routledge Publications, 2006, 53-54.

³ Cf. Immanuel Kant, *Critique of Pure Reason*, B33, 34; A19, 20.

⁴ Cf. Paul Guyer, *Kant*, p. 54.

⁵Cf. Sebastian Gardner, *Kant and the Critique of Pure Reason*, New York: Routledge Publications, 1999, A23; B27.

⁶Cf. KANT, *Critique of Pure Reason*, B37, 38; A22, 23.

In his own words, he argues; "Metaphysics is a difficult discussion of the nature of first or primary philosophy, which will study being qua being—what it is, and the attributes that belong to it qua being."⁷ The entire gamut of metaphysics has always, and would ever exist within the spatial- temporal phenomena. So that it is safe to conclude that whoever seeks to speculate about the universe, speculates according to how space and time appears to his mind. For if a philosopher exists within space and time, he must speculate within space and time. Space and time therefore are indispensable to every metaphysician and thus make up its essential ingredients. And so, because of its place, my endeavour is to delineate the concept of space and time in Immanuel Kant's philosophy. This critical figure who reshaped the understanding of the powers of reason, achieved a new dawn for philosophy in his celebrated Copernican revolution in epistemology. This revolution would then inform his whole philosophical enterprise, and would birth three Critiques namely, *the Critique of Pure Reason*, *the Critique of Practical Reason* and *the Critique of Judgment*.

2. Notions of space and time before Kant

The debate concerning the nature of space and time has been a long aged debate. The backdrop of this debate is the question whether space is a substance or not, and whether time is a mental construct or not? When we say that something has undergone a motion, move from a position to another position, what exactly do we mean? Well, starting with the ancient philosophers, the main debate did not just start with motion and change; it started with what the main constituent of the world is, what its true nature is. At the closing stage, the whole space-time arguments before Kant will straighten out into the debate between the absolutists and the relationalists; "The kernel of this debate has been the confrontation between two antagonistic positions: absolutism and relationalism."⁸

However, these positions will be discussed later in this work. Now, let us start from the starting point. Some of the ancient thinkers held that reality is absolute unity, one, infinite being, motionless, continuous, eternal and so on.⁹ This is simply what the senses cannot perceive. At the back of this view is the argument that whatever exists to the senses (matter) is "perishable, temporary and hence unreal and is an illusion."¹⁰ The extremists among them (the idealists) argue that things are only perceived by way of intuition and mental constructs and are represented through mathematical models. Thinkers who held this view include Parmenides, Pythagoras, Zeno and Plato. What this view implies in our study is that space and time are not real; they are illusions, mental constructs through which we describe infinite being. Again, making any positive assumption about void (by which he meant space) did not make any sense to Empedocles: "Nowhere in the world is there any void; and where would it have come from?"¹¹ Here, space is seen as a vacuum; a void, nothingness, the same thing that Parmenides argued that it does not exist (non-being).

⁷ Stephen Makin (trans.), *Aristotle Metaphysics Book* (Oxford: Clarendon Press. 2006), p. xx.

⁸ Hector Vucetich, "Exact Philosophy of Space-Time," in *International Journal of Modern Physics D* 20(5) (Sept. 2011), p. 1.

⁹ Cf. Abdul Malek, "The Philosophy of Space-Time: Whence Cometh "Matter" and "Motion"? In *Journal of Advances in Physics* vol. 12 No. 2 (August, 2016), p. 4071.

¹⁰Cf. Abdul Malek, "The Philosophy of Space-Time: Whence Cometh "Matter" and "Motion"? p. 4072.

¹¹R. G. Podolnyi, *The Something Called Nothing: Physical Vacuum, What is it?* (Moscow: MIR Publishers, 1986), p. 18.

Furthermore, the materialists (including some dialectics) believed that matter is the primary constituent of the world.¹² For them (the materialists), reality is perceptible by senses, and is changing (Heraclitus would say that everything is in a constant flux). Here, we have Aristotle, Democritus, Heraclitus, Epicurus, and Leucippus. Besides, there is somehow, a difference in their conception of space and time. Aristotle held that one could conceive space (void) but, it is not found anywhere in the world.

To support his assumption on this, he gave two logical arguments as contained in Podolny's *The Something Called Nothing*: His argument was that if void exists, all bodies in it would fall with the same velocity irrespective of their difference in density (and by the way, has experiments not shown that all bodies fall with the same velocity?), and that infinite velocity would be possible since there should be no friction in a void, hence, a moving object would continue in an endless motion. Again, for Aristotle, time is simply a measure of motion.¹³ How then is motion possible where there no space? That I will discuss in the next paragraph. Now, Aristotle, Epicurus, Leucippus and Democritus agreed that motion is a fundamental feature of what there is, but, while space is necessary for motion to take place for the other three, it is not for Aristotle. Democritus and Leucippus aver that reality is a combination of atom and space,¹⁴ events happen by means of combination of these atoms, and space gives room for the resulting motion and change. Consequently, they believed that there is infinite divisibility of space and time.¹⁵ Motion and change is feasible in Aristotle due to displacement of matter. Since matter is found everywhere, void is not possible and motion is by one matter displacing another. This will be more akin to a circular motion. Aristotle discussed motion and change in the form of potentiality and actuality,¹⁶ nevertheless this is not within our scope. What is more, the medieval and the renaissance philosophers were just taking their parts within these positions which have become prominently absolutism and relationalism.

At the dawn of the modern period, we see Descartes equating space and matter, and taking a relational view in terms of position (motion and change),¹⁷ that's why, he rejected the existence of void.¹⁸ Space and time became fundamental categories in Galileo such that for him, "The real world is the world of bodies in mathematical reducible motions, and this means that the real world is a world of bodies moving in space and time."¹⁹ On the other hand, philosophers within this period were actually baptizing. Christianizing or reformulating the assumptions of their earlier or contemporary philosophers. One person that did this excellently was Gassendi. He argued for the existence of void which he adopted from the Epicurean philosophy. He was of the opinion that space and time are neither

¹²Cf. Abdul Malek, "The Philosophy of Space-Time: Whence Cometh "Matter" and "Motion"?" p. 4071.

¹³Cf. Edwin Authur Burt, *The Metaphysical Foundations of Modern Science* (New York: Dover Publications, Inc., 2003), p. 94,

¹⁴Cf. Jim Ijenwa Unah, *Even Nothing is Something: Inaugural Lecture*, University of Lagos, 19th April, 2006, p. 6.

¹⁵ Cf. Abdul Malek, "The Philosophy of Space-Time: Whence Cometh "Matter" and "Motion"?" p. 4071,

¹⁶ Cf. Edwin Authur Burt, *The Metaphysical Foundations of Modern Science*, p. 94.

¹⁷ Cf. Gary Hatfield, "Kant on the Perception of Space (and Time)," in Paul Guyer (ed.) *The Cambridge Companion to Kant and Modern Philosophy* (Cambridge: Cambridge University Press, 2006), p. 62.

¹⁸ Cf. Margaret J. Osier, *Divine Will and the Mechanical Philosophy* (Cambridge: Cambridge University Press, 2004), p. 186.

¹⁹ Edwin Authur Burt, *The Metaphysical Foundations of Modern Science*, p. 93.

substance nor accidents; they are just special categories of being.²⁰ Of course, he rented this idea from the philosophy of Francesco Patrizi. It was Patrizi's belief that space is "...an incorporeal corporeal," which continues to subsist even after the annihilation of matter."²¹ Incorporeal corporeal: how possible is this theory? This is just like saying, a headless head, or a lifeless life. What that means in philosophy I do not know. I really think I am being distracted right now so, let me focus on the business. There are two important personalities that their philosophies summarized the positions, absolutism and relationalism: Newton and Leibniz.

3. Newton and Leibniz: Absolutism (substantivalism) and Relationalism

Absolutism is a school of thought that held space-time as a substance, "a physical entity endowed with concrete properties."²² The space-time entity is like a substantial stage where events are dramatized. The presence of objects and relations does not affect space-time entity, and they are imperceptible and lack causal relations,²³ "absolute, immutable quantities which provide the fundamental arena in which matter can exist and evolve."²⁴ This view was heavily championed by Isaac Newton and we have his words describing time and space in this way: "Absolute time, true and mathematical, in itself and by its own nature, flows evenly without relation to any external thing. Absolute space, by its own nature, without relation with any external thing, stays always identical and motionless."²⁵ In summary, it is Newton's view that like every other matter, space-time is a concrete substance. It existed before other substances and will continue to exist even after their death or when they are removed (it is like a container, containing other matters). Hence, it is infinite (in the case of space), absolute, and "self- subsisting."²⁶ Relationalism is practically a direct opposing school of thought, positing a contrary view: space- time is never a substance but an expression of a complex relationship existing among physical entities.²⁷ The chief proponent of this view is G. W. Leibniz and he has it that space and time exists simply because, physical objects exist. This implies that the true existence of space and time is directly dependent on the existence of concrete objects.²⁸ He would say, "...I hold space to be something merely relative, as time is; ...I hold it to be an order of coexistence, as time is an order of successions."²⁹ He argued that there is neither "here" nor "there," neither "now" nor "then", no absolute space or time, all there is, is relationships among material objects.³⁰ Below is Gary Hatfield's summary of Leibniz's view on space-time:

²⁰ Cf. Margaret J. Osier, *Divine Will and the Mechanical Philosophy*, p. 183.

¹⁶ Cf. Margaret J. Osier, *Divine Will and the Mechanical Philosophy*, p. 183.

²² Hector Vucetich, "Exact Philosophy of Space-Time," p. 2.

²³ Cf. Abdul Malek, "The Philosophy of Space-Time: Whence Cometh "Matter" and "Motion"?, p. 4071.

²⁴ Valia Allori, "Space, Time, and (How They) Matter," in Shyam Wupuluri and Giancarlo Ghirardi (eds.) *Space, Time and Limits of Human Understanding* (Gewerbstrasse: Springer, 2017), p. 96.

²⁵ Isaac Newton, *Mathematical Principles of Natural Philosophy* (U. of California Press, Berkeley, 1946), as in Hector Vucetich, "Exact Philosophy of Space-Time," p. 1.

²⁶ William F. Lawhead. *The Voyage of Discovery: A Historical Introduction to Philosophy* (United Kingdom: Cengage Learning, 2007), p. 287.

²⁷ Hector Vucetich, "Exact Philosophy of Space-Time," p. 2.

²⁸ Cf. Abdul Malek, "The Philosophy of Space-Time: Whence Cometh "Matter" and "Motion"?, p. 4072.

²⁹ Hector Vucetich, "Exact Philosophy of Space-Time," p. 2.

³⁰ Valia Allori, "Space, Time, and (How They) Matter," p. 96.

Space is constituted by relations among bodies. Space is the perception of the order of coexistences - or rather, of possible relations of coexistence. Bodies at an instant have a set of actual relations among themselves; the idea of space comes from recognizing that they could be otherwise ordered (switching two small bits of matter, or reordering it all). The mind thus recognizes space as the set of possible relations among bodies. Space is ideal just in the sense that it abstracts away from the actual relations among really existing bodies to represent possible relations.³¹

The debates between these two conflicting schools of thought were not just as simple as I have stated their views here; there were both empirical and logical experiments (like the bucket argument of Newton and the shifted or boosted world argument of Leibniz), assumptions, critiques and even replies from both sides. We are mostly interested in their views and positions since they form the background for Kant's view on space and time.

4. Kant on space and time

It is interesting to note that Kant's philosophy is subjectively-dependent, it is anthropological. In other words, Subjective point of view is priority for Kant; objectivity comes later and is grounded on the testimony of the subject. For that reason, before Kant even started discussing what space and time is for him, he first and foremost described how man gain knowledge of what is and what is not. He differentiated sensation from intuition. Intuition to him is the immediate representation of objects on which all thought as means are directed to as an end. Sensibility is man's "...capability (receptivity) to acquire representations through the way in which we are affected by objects...."³² Hence both are conscious acts but, while sensibility is of subjective origin, intuition is of objective origin.

Next, he differentiated intuitions and concepts. Janiak gave us a summary of Kant's clear distinction between these two: "whereas intuitions are singular, immediate representations, concepts are general, mediate ones. Each represents properties, objects, or states of affairs, but they do so distinctly."³³ Kant went further to state that "intuition which is related to object through sensation is called empirical," and "undetermined object of an empirical intuition is called appearance." He understands it as that which from the appearance corresponds to the sensations, matter, and that which permits the organization of the manifold of the appearance in certain relations is form. In other words, intuitions can be both a priori and empirical (a posteriori). It is worthy of note here that the debate on the nature of space and time between the Newtonians and the Leibnizians formed the background for Kant's discussion on this theme. He was very much aware of not only the positions, but also the arguments of those two notable schools of thought: absolutism and relationalism. Kant was to synthesize what was relevant from these schools of thought and not to do away with all they held as true. He held unto the Newtonian view that space and time are absolute and not a system of properties, determinations or relations dependent on

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³¹ Gary Hatfield, "Kant on the Perception of Space (and Time)," p. 65.

³² Immanuel Kant, "The Critique of Pure Reason" in Paul Guyer and Allen W. Wood (eds.) *The Cambridge Edition of The works Of Immanuel Kant* (Cambridge: Cambridge University Press, 1999), p. 172.

³³ Andrew Janiak, "Kant's Views on Space and Time."

the existence of physical objects as proposed by Leibniz. Yet, in contrast to Newton, he denied that space and time are independently existing substances.³⁴ Of course, the sharp point in his view was that point where he brought in his Copernican revolution into the argument, turning the point of attraction to the subject and no longer the object (to the observer and not the observed).

Space and time are first and foremost for Kant the "frames of reference" on which objects are presented to us: they are "forms of intuition."³⁵ For Kant, space is the frame of reference for outer intuition while time is that frame of reference for considering the relations among these outer intuitions.) They are not the product of outer experiences, and their representation is not either the products from relations of outer appearance through experience. However, Kant believed that even the outer experience itself is actually possible due to the representation of space and time.³⁶ Hence, space is then indispensable for any outer intuition. And far from that, it is that a priori foundation of all outer intuitions. "It is therefore to be regarded as the condition of the possibility of appearances, not as a determination dependent on them, and is an a priori representation that necessarily grounds outer appearances"³⁷ When Kant says that space and time are the frames of reference, it is not like a calibrated or a defined physical entity fixed as a reference point. On the contrary, this frame is a construct of the mind, an objective representation in the subject. It does not exist without the object to be represented, but most importantly, it existed first before the object of representation. Hence, it is an a priori representation. How is this possible? I have explained above (even with the aid of diagram) that for Kant, objects are represented in us consciously in two ways: either subjectively in which it is called sensation (meaning representation through man's capacity), or objectively in which it is called intuition (meaning immediate representation of object, the way in which object presents itself to man in an instant). Empirical (intuition) is that intuition that relates to the object through sensation. Appearance is that empirical intuition that is not yet determined.

Now, it is Kant's opinion that anything in this appearance that corresponds to sensation is called matter. However, there is something else in it that gives room for ordering of manifolds of appearances, this is called form. This existed before the object, "for it precedes the objects of experience (since it is known a priori and they are known empirically)"³⁸ and it is that which the object represents to the subject, that is which the subject intuits on in the object. It is a priori. This is what Kant literally refers to as space, the intuition. "Therefore the original representation of space is an a priori intuition, not a concept."³⁸ It is not a concept but a pure intuition, for even in many spaces, one represents first and foremost one single space that is all encompassing, all other parts cannot precede it. In this is contained his transcendental ideality of space and time, he "expresses the transcendental ideality of space and time by saying that they are in us merely as subjective

³⁴ Francis Israel Minimah, "Kant's 'Transcendental Exposition' of Space and Time in the 'Transcendental Aesthetic': A Critique," in *African Research Review: An International Multidisciplinary Journal*, Ethiopia vol. 10(1), Serial No. 40 (Jan., 2016), p. 34.

³⁵ William F. Lawhead, *The Voyage of Discovery*, p. 361.

³⁶ Cf. Immanuel Kant, *Critique of Pure Reason*, p. 175.

³⁷ Immanuel Kant, *Critique of Pure Reason*, p. 175.

³⁸ Immanuel Kant. *Critique of Pure Reason*, p. 175.

forms of organizing the sensations of the mind and yet they are necessary conditions for the existence of phenomena. "³ Thus, our concept of time explains the possibility of that body of a priori synthetic knowledge which is exhibited in the general doctrine of motion and which is by no means unfruitful.³⁹ Time is a concept. It does not exist without the objects of intuition, just like the space. The expression summarized Kant's view in contrast to other views on space and time:

Now before I display our paralogism in its deceptive illusion, I must first remark one would necessarily have to distinguish a twofold idealism. I understand the transcendental idealism appearances the doctrine *a* that they are together to be regarded as mere representations and not as things in themselves, and accordingly space and time are sensible forms of our intuition, not determinations given for themselves or conditions of objects as things in themselves. This idealism is opposed transcendental realism, which regards space and time as given in themselves (independent of our sensibility). The transcendental realist therefore represents outer appearances (if their reality is conceded) as things in themselves, which would exist independently of us and our sensibility and thus would also be outside us according to pure concepts of the understanding. It is really this transcendental realist who afterwards plays the empirical idealist; and after he has falsely presupposed objects of the senses that if they are to exist they must have their existence in themselves even apart from sense, he finds that from this point of view all our representations of sense are insufficient to make their reality certain. The transcendental idealist, on the contrary, can be an empirical realist, hence, as he is called, a dualist, i.e., he can concede the existence of matter without going beyond mere self-consciousness and assuming something more than the certainty of representations in me, hence the *cogito, ergo sum*. Since he allows this matter and even its inner possibility to be valid only for appearance - which, separated from our sensibility, is nothing - matter for him is only a species of representations (intuition), which are called external, not as if they related to objects that are external in themselves but because they relate perceptions to space, 'where all things are external to one another, but that space itself is in us. ³¹

5. Critical Appraisal

Kant's form of a priori intuition is more or less like the one in Euclidean geometry, such that the synthetic a priori gives room for the intuition of space and time as objective representations to the subject. However, as pointed out in Minimah's work, *Kant's 'Transcendental Exposition' of Space and Time in the 'Transcendental Aesthetic': A critique*, if it is possible to have a contrary axiom that states otherwise, it will be difficult to state what is true a priori ⁴⁰ For instance, a contrary theory based on a Euclidean axiom saying that a triangle has 140° as the sum of its internal angles, would pose a serious threat to the truth value of the a priori intuition. Thus, the only way to settle this is to resort to

⁸Immanuel Kant, *Critique of Pure Reason*, 66 (1781) quoted in Francis Israel Minimah, "Kant's 'Transcendental Exposition' of Space and Time in the 'Transcendental Aesthetic': A Critique," p. 37.

⁴⁰ Francis Israel Minimah, "Kant's 'Transcendental Exposition' of Space and Time in the 'Transcendental Aesthetic': A Critique," p. 38.

empirical facts, and Kant would not accept this. He posited that intuition and sensation are both empirical and a priori: I wonder how possible it is for a conscious immediate representation of intuition to be classified as both empirical and non-empirical. Despite the fact that Kant shifted the point of view from object-dependent to subject-dependent, what he was actually doing was to reconcile seemingly antithetical theories and views together. He synthesized them from prominent positions like absolutism and relationalism. Again, one would wonder: in a place where human beings do not exist (although other beings exist) if space and time would exist, since they are contingent on the subject's perspective. The study of space and time has helped a lot in explaining a variety of important phenomena in the universe. It has helped in developing many theories as well, such as Einstein's Special and General relativity theories. Kant's contributions, besides giving a new look to this debate, have significantly mediated between the two opposing views on space and time (absolutism and relationalism). Besides, he was also able to distinguish between intuitions and sensations, and this was his ground for defining space as a "non-empirical, singular, immediate representation."⁴¹

6. Conclusion

Views on the notion of space and time started with the ancient philosophers. Space as empty void was inconceivable for some ancient idealist including Parmenides, Pythagoras and Zeno. It does not exist. Though Aristotle was apparently a materialist, he believed that void only ends in concept; it does not exist anywhere in the universe. Democritus, Heraclitus, Epicurus and Leucippus believed in the existence of void, and this permits the motion (activities) of the atoms which they believed was the main constituent of what there is. Dissenting views on space and time dominated the Medieval as well as the Modern period age. Descartes held that space did not exist while Galileo believed not only in its existence but that it gives room for motion. Gassendi argued that space and time were neither substance nor accidents, but just categories of their type, an idea he borrowed from Patrizi. Patrizi, who claimed that they were both incorporeal and corporeal. These arguments would eventually be assimilated into absolutism (subjectivism) and relationalism, schools of thought headed by Newton and Leibniz respectively. For the absolutists, space and time are physical entities with concrete properties. Hence, it does not matter whether objects exist or not, neither will their relations change anything about the existence of space and time. They give room for causal relations, and are imperceptible, they establish the ground for matter to evolve and exist. For them, space and time are prior to other concrete matters, and will even continue to exist after them.

On the contrary, the relationalists claim that space and time are not substances; they are mere expressions of complicated relations among physical entities. Their existence is directly dependent on the existence of the concrete objects from which their relations issue forth. Space is something relative, an order of co-existence, while time is an order of succession. There is no absolute 'here' nor 'there',⁴² neither is there an absolute 'now' nor 'then'. Thus, he turned the debate from objective point of view to subjective point of view.

⁴¹ Cf. Andrew Janiak, "Kant's Views on Space and Time."

This is a priori intuition, the form that gives room for the ordering of appearances. If this is not represented to the subject, then there is no space, and if there is no object to represent this to the subject, then there is no space nor time. The intuition of space does not depend on outer experience. Instead, the outer experiences themselves depend on the intuition of space for them to exist. Hence, Kant took aspects of the two existing schools of thought and incorporated them into his transcendental idealism: space and time are real absolute existents, but cannot exist without the concrete objects of the world of human subjective sensible experience

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