

Immanuel Kant  
THE TRANSCENDENTAL DIALECTIC  
BOOK II , CHAPTER II  
THE ANTI-NOMY OF PURE REASON A426 B454  
FIRST CONFLICT OF THE TRANSCENDENTAL IDEAS

*Thesis*

**The world has a beginning in time, and is also limited as regards space.<sup>1</sup>**

*Proof*

If we assume that the world has no beginning in time, then up to every given moment an eternity has elapsed, and there has passed away in the world an infinite series of successive states of things. Now the infinity of a series consists in the fact that it can never be completed through successive synthesis. It thus follows that it is impossible for an infinite world-series to have passed away, and that a beginning of the world is therefore a necessary condition of the world's existence. This was the first point that called for proof.

As regards the second point, let us again assume the opposite, namely, that the world is an infinite given whole of coexisting things. Now the magnitude of a quantum which is not given in intuition as within certain limits, can be A428 B456 thought only through the synthesis of its parts, and the totality of such a quantum only through a synthesis that is brought to completion through repeated addition of unit to unit.<sup>2</sup>

---

<sup>1</sup> The antinomies follow one another in the order of the transcendental ideas above enumerated.

<sup>2</sup> An indeterminate quantum can be intuited as a whole when it is such that though enclosed within limits we do not require to construct its

*Antithesis*

**The world has no beginning, and no limits in space; it is infinite as regards both time and space.**

*Proof*

For let us assume that it has a beginning. Since the beginning is an existence which is preceded by a time in which the thing is not, there must have been a preceding time in which the world was not, *i.e.* an empty time. Now no coming to be of a thing is possible in an empty time, because no part of such a time possesses, as compared with any other, a distinguishing condition of existence rather than of non-existence; and this applies whether the thing is supposed to arise of itself or through some other cause. In the world many series of things can, indeed, begin; but the world itself cannot have a beginning, and is therefore infinite in respect of past time.

As regards the second point, let us start by assuming the opposite, namely, that the world in space is finite and limited, and consequently exists in an empty space which is unlimited. In order, therefore, to think, as a whole, the world which fills all

---

totality through measurement, that is, through the successive synthesis of its parts. For the limits, in cutting off anything further, themselves determine its completeness.

spaces, the successive synthesis of the parts of an infinite world must be viewed as completed, that is, an infinite time must be viewed as having elapsed in the enumeration of all coexisting things. This, however, is impossible. An infinite aggregate of actual things cannot therefore be viewed as a given whole, nor consequently as simultaneously given. The world is, therefore, as regards extension in space, not infinite, but is enclosed within limits. This was the second point in dispute.<sup>3</sup>

Things will therefore not only be related *in space* but also related *to space*. Now since the world is an absolute whole beyond which there is no **A429 B457** object of intuition, and therefore no correlate with which the world stands in relation, the relation of the world to empty space would be a relation of it to no *object*. But such a relation, and consequently the limitation of the world by empty space, is nothing. The world cannot, therefore, be limited in space; that is, it is infinite in respect of extension.<sup>4</sup>

---

<sup>3</sup> The concept of totality is in this case simply the representation of the completed synthesis of its parts; for, since we cannot obtain the concept from the intuition of the whole -- that being in this case impossible -- we can apprehend it only through the synthesis of the parts viewed as carried, at least in idea, to the completion of the infinite.

<sup>4</sup> Space is merely the form of outer intuition (formal intuition). **B457** It is not a real object which can be outwardly intuited. Space, as prior to all things which determine (occupy or limit) it, or rather which give an empirical intuition in accordance with its form, is, under the name of absolute space, nothing but the mere possibility of outer appearances in so far as they either exist in themselves or

---

can be added to given appearances. Empirical intuition is not, therefore, a composite of appearances and space (of perception and empty intuition). The one is not the correlate of the other in a synthesis; they are connected in one and the same empirical intuition as matter and form of the intuition. If we attempt to set one of these two factors outside the other, space outside all appearances, there arise all sorts of empty determinations of outer intuition, which yet are not possible perceptions. For example, a determination of the relation of the motion (or rest) of the world to infinite empty space is a determination which can never be perceived, and is therefore the predicate of a mere thought-entity.

## OBSERVATION ON THE FIRST ANTINOMY A430 B458

### I. *On the Thesis*

In stating these conflicting arguments I have not sought to elaborate sophisms. That is to say, I have not resorted to the method of the special pleader who attempts to take advantage of an opponent's carelessness -- freely allowing the appeal to a misunderstood law, in order that he may be in a position to establish his own unrighteous claims by the refutation of that law. Each of the above proofs arises naturally out of the matter in dispute, and no advantage has been taken of the openings afforded by erroneous conclusions arrived at by dogmatists in either party.

I might have made a pretence of establishing the thesis in the usual manner of the dogmatists, by starting from a defective concept of the infinitude of a given magnitude. I might have argued that a magnitude is infinite if a greater than itself, as determined by the multiplicity of given units which it contains, is not possible.

### II. *On the Antithesis*

The proof of the infinitude of the given world-series and of the world-whole, rests upon the fact that, on the contrary assumption, an empty time and an empty space, must constitute the limit of the world. I am aware that attempts have been made to evade this conclusion by arguing that a limit of the world in time and space is quite possible without our having to make the impossible assumption of an absolute time prior to the beginning of the world, or of an absolute space extending beyond the real world. With the latter part of this doctrine, as held by the philosophers of the Leibnizian school, I am entirely satisfied. Space is merely the form of outer intuition; it is not a real object which can be outwardly intuited; it is not a correlate of the appearances, but the form of the appearances themselves. And since space is thus no object but only the form of possible objects, it cannot be regarded as something absolute in itself that determines the existence of things. Now no multiplicity is the greatest, since one or more units can always be added to it. Consequently an infinite given magnitude, and therefore an infinite world (infinite as regards the elapsed series or as regards extension) is impossible; it must be limited in both respects. Such is the line that my proof might have followed. But the above concept is not adequate to what we mean by an infinite whole. It does not represent *how great* it is, and consequently is not the concept of a *maximum*. Through it we think A432 B460 only its relation to any assignable unit in respect to which it is greater than all number. According as the unit chosen is greater or smaller, the infinite would be greater or smaller. Infinitude, however, as it consists solely in the relation to the given unit, would always remain the same. The absolute magnitude of the whole would not, therefore, be known in this way;

Things, as appearances, determine space, that is, of all its possible predicates of magnitude and relation they determine this or that particular one to belong to the real. Space, on the other hand, viewed as a self-subsistent something, is nothing real in itself; and cannot, therefore, determine the magnitude or shape of real things. Space, it further follows, whether full or empty, may be limited by appearances, but appearances cannot A433 B461 be limited by an empty space outside them. This is likewise true of time. But

while all this may be granted, it yet cannot be denied that these two non-entities, empty space outside the world and empty time prior to it, have to be assumed if we are to assume a limit to the world in space and in time.<sup>5</sup> indeed, the above concept does not really deal with it.

The true transcendental concept of infinitude is this, that the successive synthesis of units required for the enumeration of a quantum can never be completed. Hence it follows with complete certainty that an eternity of actual successive states leading up to a given (the present) moment cannot have elapsed, and that the world must therefore have a beginning.

In the second part of the thesis the difficulty involved in a series that is infinite and yet has elapsed does not arise, since the manifold of a world which is infinite in respect of extension is given as *co-existing*. But if we are to think the totality of such a multiplicity, and yet cannot appeal to limits that of themselves constitute it a totality in intuition, we have to account for a concept which in this case cannot proceed from the whole to the determinate multiplicity of the parts, but which must demonstrate the possibility of a whole by means of the successive synthesis of the parts.<sup>6</sup>

The method of argument which professes to enable us to avoid the above consequence (that of having to assume that if the world has limits in time and space, the infinite void must determine the magnitude in which actual things are to exist) consists in surreptitiously substituting for the sensible world some intelligible world of which we know nothing; for the first beginning (an existence preceded by a time of non-existence) an existence in general which presupposes no other condition whatsoever; and for the limits of extension boundaries of the world-whole -- thus getting rid of time and space. But we are here treating only of the *mundus phaenomenon* and its magnitude, and cannot therefore abstract from the aforesaid conditions of sensibility without destroying the very being of that world. If the sensible world is limited, it must necessarily lie in the infinite void. If that void, and consequently space in general as *a priori* condition of the possibility of appearances, be set aside, the entire sensible world vanishes. This world is all that is given us in our problem.

Now since this synthesis must constitute a never to be completed series, I cannot think a totality either prior to the synthesis or by means of the synthesis. For the concept of totality is in this case itself the representation of a completed synthesis of the parts. And since this completion is impossible, so likewise is the concept of it.

---

<sup>5</sup> It will be evident that what we here desire to say is that *empty space*, so far as it is *limited by appearances*, that is, empty space **B461** *within the world*, is at least not contradictory of transcendental principles and may therefore, so far as they are concerned, be admitted. This does not, however, amount to an assertion of its possibility.

<sup>6</sup> This quantum therefore contains a quantity (of given units) which is greater than any number -- which is the mathematical concept of the infinite.