

# The transcendental problem of space and time

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## 1. Form of the sensitive representations

First, we need to direct our attention to Kant's understanding of matter and the form of representations.

That which in the phenomenon corresponds to the sensation, I term its matter; but that which effects that the content of the phenomenon can be arranged under certain relations, I call its form (KrV, B34)

We will find textual evidence for what Kant understands as forms of intuitions in transcendental aesthetic: "space and time are its pure forms, sensation in general, its matter" (KrV A 43/ B 60). According to the supposition put forward in the beginning of this article, the content of the transcendental aesthetic doctrine, that is, the proof that time and space are pure intuitions and conditions of the possibility of knowledge is, collaterally, a reaction against the possible material reading of the conditions of sensibility. In order to explore and strengthen this supposition, we will start a discussion that involves the personalities of Leibniz and Clarke.

First, we can observe that, in fact, depending on the way in which one approaches time and space, there are two typical modes of considering them, both of which gained a paradigmatic value because they were the two extremes of disagreement between these two philosophers (and physicists). Time and space would be either the metaphysical expression of relationships between things, in which case the physical phenomena depend on a sufficient reason in order to provide the foundation for their relations of causality, or absolute things, in which case these phenomena would be conditioned only by the mathematical quantities that represent the positions and instants as if they were things.

In correspondence between Leibniz and Clarke, there is an example of this bifurcation of trends in a prominent expression. According to Clarke: "Space, finite or infinite, is absolutely indivisible, even so much as

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in thought; (to imagine its parts moved from each other, its imagine them moved out of themselves;) and yet, space is not a mere point” (1956, p. 22). And, according to Leibniz, supposing that

...space is something absolutely uniform, and without the things placed in it, one point of space absolutely does not differ in any respect whatsoever from another point of space. Now from this it follows (supposing space to be Something in itself besides the Order of Bodies among themselves) that it is impossible there should be a reason why God, preserving the same situations of bodies among themselves, should have placed them in space after one certain particular manner and not otherwise – why everything was not placed the quite contrary way, for instance, by changing east into west. (1956, p. 26)

The latter intends to save the principle of sufficient reason, without which the transition from Mathematics to Physics would be, according to him, impossible. This is because Leibniz is still an advocate of the notion that mathematical truths depend on “matters of reason,” where nothing related to the relative position of objects is assured, and that the transition of these to “matters of fact” is not unrestrictive and depends on the validity of metaphysical principles such as the principle of sufficient reason. Leibniz’s argument is constructed by coordinating the principle of sufficient reason with the principle of the identity of indiscernibles: if space were real, it would be impossible to distinguish one point from another and there would not be sufficient reason for objects to be one way and not the other; if time were real, the world could have been created sooner. And there would not exist, in the universe, absolute positions in space and time, because they would be indiscernible, and therefore, one and the same. But Leibniz also rejects the notion of space and time as absolute substances because he does not move away from the position firmly supported by traditional logic, where the idea of substance had an incorrigible force: in such a way that space, if real, should be either the subject or the predicate. According to Russell:

The relation, then, between a place and the substance occupying it, is one for which the traditional logic had no room. Accordingly, the independent existence of places was denied by careful philosophers, and admitted by Newton only because he was blind to its consequences. (1992, p. 139)

But this is only Russell’s opinion – which reduces this problem to a broader class, one that belongs to the class of Leibniz’s metaphysics and logic problems, derived from Leibniz’s tacit adoption of the doctrine of substance. Textually, Leibniz does not use this argument.

On the other hand, the former, Clarke, intends to reserve the unrestricted passage of Newton’s principles of mathematics to Physics, without the need for a metaphysical principle: “If space was nothing but the

order of things coexisting; it would follow, that if God should remove in a straight line the whole material world entire, with any swiftness whatsoever; yet it would still always continue in the same place...” (1956, p. 32), which would be vividly contrary to Newton’s theory which allows the estimation of the position of a body through the use of only mathematical quantities. For Clarke, it is inconceivable that time and space may be simple relations between objects, countering the priceless and fruitful findings of Newtonian physics.

We contend that both authors debate time and space without straying from a common point: that these are representable in a *material* way, either through abstract quantities (mathematics) or through relations of order (the metaphysical principle of sufficient reason). It is as a result of their common *material* interpretation that Kant can approach them with a counter-argument that is valid for both of them, as if they were two angles of the same point of view. Stated differently, their mistake is the presupposition that the validity of the principles of physics, the relations of shock, of precedence, above-below, right-left, etc., depend only on *matter*, that is, respectively, or on relative metaphysical order, or a numerical abstraction of a temporal occurrence or a special point (periods, intervals, in mathematical terms). Neither of these are *forms* of space and time. In the excerpt below, Kant provides a clear criticism of Clarke’s, as well as Leibniz’s, concepts with the purpose of showing that both sides have valid arguments:

...those who maintain the absolute reality of time and space, whether as essentially subsisting, or only inhering, as modifications, in things, must find themselves at utter variance with the principles of experience itself. For, if they decide for the first view, and make space and time into substances, this being the side taken by mathematical natural philosophers, they must admit two self-subsisting nonentities, infinite and eternal, which exist (yet without there being anything real) for the purpose of containing in themselves everything that is real. If they adopt the second view of inherence, which is preferred by some metaphysical natural philosophers, and regard space and time as relations (contiguity in space or succession in time), abstracted from experience, though represented confusedly in this state of separation, they find themselves in that case necessitated to deny the validity of mathematical doctrines *a priori* in reference to real things (for example, in space) – at all events their apodictic certainty. (KrV, A 40/ B 57)

How can one find a middle ground between these doctrines? In order to preserve the validity *a priori* of relations in space and time, without the need to postulate the absolute nature of certain external entities, it is necessary that these relations be sought for in the transcendental form of intuitions. The scenario of Kantian argumentation in favor of the

transcendental nature of time and space is the Transcendental Aesthetic, which is the first part of the doctrine of elements of the *Critique of pure reason*, although these ideas were already maturing in his *Inaugural dissertation on the form and principles of the sensible and intelligible world*. In the *Critique of pure reason*, elements of the Kantian position against the material interpretation of space-time relations are preserved in the form of an argument for each of the two targets: against basing space-time relations on mere concepts and against basing these relations on the external relations of objects. With this attack on two fronts, a shared path is presented: the basis for space and time relations can neither be extracted via the postulation of a relative plane (causality and sufficient reason) nor via the postulation of an absolute plane (mathematical), of the matter of feelings in general. Thus, the theory that these relations give expression to a transcendental/*formal* (not material) foundation of sensibility is freed.

Two consequences must be interpreted here – one for Leibniz's metaphysics and one for Clarke's mathematical physics.

The first is that the *identity of the indiscernibles*, justified by Leibniz through the presupposition of time-space as related substances that *intellectualize the empirical world*, is rejected by Kant to whom the time-space presence implies that relations can be justified only synthetically, that is, through the form of experience of things: their reference to a relation between objects which depends on contingent perspectives and which cannot be reduced to pure ideas. According to Kant, time and space are the formal measurements that coordinate the material relation between intuitions. Thus, his contribution defines the moment of intervention of sensible synthesis or synopsis of the subject – as the one that represents the relations of precedence, order, etc. – over the representations of external objects. This is inferred directly by the fact that space-time relations, such as *to the right of F* and *to the left of F*, cannot be filled by identical objects, even if they share identical features. What gives them a touch of difference, ultimately, is the synthetic form – and the appeal to an empirical region – according to which their intuitive matter is donated, regardless of the mere analysis of the *matter* of their predicates. The *identity of the indiscernibles* principle falls apart because the foundation of relations in space and in time is not derived from intellectual principles of logical identity, nor from metaphysical ideas, but rather from the *form* of sensible donation to a subject, which provides the foundation for dynamic relations.

And thus Leibniz regarded space as a certain order in the community of substances, and time as the dynamical sequence of their states. That which space and time possess proper to themselves and independent of things, he ascribed to a necessary confusion in our conceptions of them, whereby that

which is a mere form of dynamical relations is held to be a self-existent intuition, antecedent even to things themselves. Thus space and time were the intelligible form of the connection of things (substances and their states) in themselves. But things were intelligible substances (*substantiae noumena*). At the same time, he made these conceptions valid of phenomena, because he did not allow to sensibility a peculiar mode of intuition, but sought all, even the empirical representation of objects, in the understanding, and left to sense naught but the despicable task of confusing and disarranging the representations of the former. (KrV, A 226/ B 332)

On the other hand, the second consequence against Clarke is that, in interpreting Kant's findings, Newton's theory would have to be reinterpreted based on a transcendental doctrine, an analysis of the principles and posthumous metaphysics of nature, screened critically<sup>1</sup>: its principles would not result from the supposed absolute nature of time and space that would provide the material basis for relation, but rather from a *formal* principle, which gives foundation to relations of causality, reciprocity, and permanence *synthetically* – and with this we wish to say that the basis of relations are the *formal* conditions of the experience. We quote below an excerpt from Kant's posthumous manuscripts, taken from an article by Hermann Cohen:

We can give account of movement in an entirely math way, for the concepts of space and time can be presented a priori in pure intuition and constituted by the understanding. However, in the case of driving forces, on the respect of efficient cause these movements, as the physical needs of these forces and their laws, these forces require a philosophical principle. (2001, p. 594 – my translation)

Next, we will discuss what the purpose of appropriating time and space to use them as a support for a transcendental theory is. And we will elucidate why this is preferable than to deliver them to the domain of sciences such as geography and physics. At this point, the important observation is that: the matter of intuitions – that is, its empirical or metaphysical occurrence – is not sufficient: we still need space and time as transcendental forms in order to filter the influence of an object over concepts, that is, in order to give the concept an intuitive fulfillment.

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<sup>1</sup> In fact, "The turn to a more subjective understanding of space coincided with a fresh insistence upon the revised definition of metaphysics. Metaphysics is no longer equated with the science of substantial forces, but is now cast as the science of the limits of human cognition." (Caygill, 2000, p. 120 – my translation)

## 2. Time and space as planes of universal experimentation

In opposition to this trend, Kant appropriates the notion of space and time, defining them as *forms* of sensibility that donate intuitions. At this point in the argument, in order to make absolutely clear the complex motives that Kant could not help but hear – for they were bound by the deepest determinations of his work – in his concept of time and space as forms of intuition, it is necessary to draw attention to how Kant comprehends intuition. We need to remember that Kant's interpretation of the *immediate* and *singular* nature of intuitions differs from Locke's or Leibniz's versions of it. The latter perceived only the intellectual or sensitive nature of the problem; therefore, either they considered intuition as a confused representation of that which is thought clearly by understanding, or as a clear and concrete representation of that which is vaguely and abstractly thought by understanding.

It must be admitted that the Leibniz-Wolfian philosophy has assigned an entirely erroneous point of view to all investigations into the nature and origin of our cognitions, inasmuch as it regards the distinction between the sensuous and the intellectual as merely logical, whereas it is plainly transcendental, and concerns not merely the clearness or obscurity, but the content and origin of both. For the faculty of sensibility not only does not present us with an indistinct and confused cognition of objects as things in themselves, but, in fact, gives us no knowledge of these at all. (KrV, B 62)

This same accusation could be applied to Locke who, presupposing the inversion of the same rule, distinguishes the understanding of sensibility as if the former were abstract representations derived from the latter, falling under the same amphibology<sup>2</sup>, that is, confusion about the diversity of knowledge according to its transcendental origin, and ends up considering intuition as “the clearest and most certain that *human frailty* is *capable* of” (Locke, 1976, p. 272).

Kant offers the transcendental point of view as an expression of the idea that knowledge is neither purely logical nor purely sensitive, but rather that it depends on the contribution of both sources of knowledge: whereas concepts are subordinate to rules, intuitions test the limits of these rules via the modalities of fulfillment, such as confirmation or refutation – both imply a modification of the content of concepts, therefore, a synthetic change, and not a merely analytic test. It should be noted that the

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<sup>2</sup> “In one word, Leibniz intellectualized phenomena, just as Locke, in his system of noogony (if I may be allowed to make use of such expressions), sensualized the conceptions of the understanding, that is to say, declared them to be nothing more than empirical or abstract conceptions of reflection” (KrV A 271/ B 327).

relationship between concepts and intuitions is not the same as that which subsists between the formal and the material, nor between synthesis and the manifold. Indeed, concepts also have a material part and can be presented as a theoretic manifold, and intuitions also have a formal part and can be exposed synoptically (as a unity) through imagination. However, these are different relations, although they overlap. The relation between concept and intuition is only the relation of the generic concept with the possibilities of regional enrichment, that is, the process of particularization of the concepts or application of judgments.

Another way to understand the contribution of singularity and the immediate nature of intuitions in Kant's work is by observing that all the synthetic judgments are representations of some modality of intuitive fulfillment of a concept, implying a regional perspective of approaching this concept – whereas an analytic judgment does not have a regional perspective and does not suffer the weight of intuitions in the evaluation of its truth.

From the transcendental point of view, intuition belongs to a source of representation different than understanding, and is used as a counterpoint for the foundation, restriction, fulfillment, enrichment, contribution, and application for conceptual operations.

With this, Kant draws attention to another aspect of the problem – the phenomenological and transcendental – according to which, intuitions are interpreted as a structural mapping of the location/context of the application of the concepts. Objectively, intuitions are that which assigns a concept to their relation with an object, and this relation must not be confused with the absolute influence of things in themselves, but rather with the partial aspect of the object that is offered to the phenomenal perspective. Depending on how this aspect emphasizes some and omits other information or how it provides a more or less partial perspective to the intuitive contribution, the relation of influence of the object over the concept may have different weights. Now, those who use concepts in a judgment are interested in a homogeneous weight of the influence of an object over a concept, one which definitively influences the decision for one or the other side of the conceptual boundary, in such a way that judgment will be either true or false but never half true or half false nor neither of either. If the intuitive contribution gives as much weight for one side as for the other, or has no weight at all, this is because the relation emphasized by phenomenal perspective does not establish a regional affinity between the concept and the object. In other words, it could be said that in this case the relation established with the object does not establish a measure for its contribution, and consequently, does not provide

phenomenal knowledge. They are *heterogeneous* in relation to each other, and not *homogeneous*, to use the words of Kant in the beginning of his *Analytic of Principles*, the transcendental schema<sup>3</sup>. This is what would happen if the only possible relation of the concept with the object was given through the random matter of perceptive intuitions, as empiricists desired, creating the problem of induction and leading to skepticism.

In this context, time and space are *forms* of intuition because the exploration of the possibilities of intuitive application within concepts and theories – if we seek knowledge – depends on the identification of the regional margin of its intuitive foundation, and that is determined or measured in an experimental plane, *a priori* and homogeneous: that is, time and space, understood as the final context of an experience concerned with proving or refuting a theoretical system of concepts. For this reason, some laws of intuitive donation can be parallel to the laws of geometry, and the form of sensitive donation obeys certain necessary laws such as the one where two contradictory theories cannot be intuitively contextualized by the same temporal and spatial occurrence (which is an interpretation of a law of physics).

In order to enrich our example, we may point to the fact that, occasionally, the regional margin of the intuitive foundation of a theory is restructured because the structural set of facts that supported a certain conceptual set will eventually gain a new intuitive sense, a new material weight, so that it will either confirm a partial value or it will give the theory a different probabilistic value and this *still* is the very effect of how time and space are contextualized: the mode or *form* of the structural totality of facts is organized on a uniform intuitive line. Hasty theories may find themselves surprisingly refuted or having only an inductive value because the spatial and temporal evidence was contextualized in a limited way, as would happen if a scientist poorly designed his empirical research table (although this is not simply about one of Bacon's tables of contents<sup>4</sup>). If each scientist claims a specific version, *a posteriori*, of the limits of time and space for his investigation, each will have different and frequently contradictory theories, all equally confirmed, because some will omit the data that others will emphasize. But this is not time-space according to

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<sup>3</sup>“Thus the empirical conception of a plate is homogeneous with the pure geometrical conception of a circle, inasmuch as the roundness which is cogitated in the former is intuited in the latter.” (KrV, B 176)

<sup>4</sup> We refer to the tables of investigation of nature suggested by Bacon in *Novum organum*, where the author applies reason and experience, together, to discover the forms of nature: “From the discovery of forms therefore results truth in speculation and freedom in operation.” (Bacon, 1979, p. 95 – my translation)



Kant. The importance of the non-material and *a priori* aspect of time and space will therefore be evident for knowledge.

Let us now explore, with this new perspective, the requirement for these planes of universal experimentation, that is, time and space, to be *forms* of intuition. For the sake of argumentation, we can formulate the hypothesis that the form of intuitive contextualization/particularization of theories may be interpreted *materially* via geographical cardinal coordinates, or by using metaphysical, or psychological theories, or mathematically using geometry. Thus, we would have a general science of science without the need for transcendental phenomenology: we would be able to judge whether a theory is confirmed or refuted by appealing to cartography, or geometry, and, in this case, the answer concerning the intuitive fulfillment of a theory rests on another theory. In order to obtain confirmation of an evolutionary hypothesis, a biologist would resort to an archaeologist who would in turn seek a psychologist, whereas a psychologist would resort to a physiologist and he, in turn, to a physicist, continuing indefinitely, in a mapping of concepts via other concepts. However, this would mean providing material sense to the formal aspect of intuitive donation, and the very own eminently immediate and simple sense of intuition would be corrupted and exchanged for a mediate and conceptual-theoretical sense. In other words, it would not be intuition confirming concepts, but concepts confirming concepts. It would be similar to exchanging the intuitive senses of seeing, hearing, and perceiving for the theoretical sense of physiological doctrines about sight, hear and perceive, which would lead to the following problem: intuitive value would be naturalized as something that is transcendent in itself and would lose its original immanent contribution, as Husserl has observed:

A seeing cannot be demonstrated. A blind person who would like to be able to see cannot acquire that ability through scientific demonstration; physical and physiological theories of color yield no intuitive clarity about the sense of color comparable to the clarity possessed by those who can see. (2010, p. 63).

The same thing happens when we take time and space as real, transcendent things, studied by physics or geography: the intuition that they would provide would not be real intuition but rather a data of sensibility artificially created by theories, or an intuition constructed conceptually. It would not be absurd to defend the thesis that intuitions are actually concepts or theoretical interpretations of psychology. However, it would be a blatantly anti-Kantian thesis which would open the context to dogmatism and an intellectualist concept of the contribution of experience – which takes us to a second objection.

The other objection against considering time–space as absolute positions is that the relative weight of the objective contribution of intuition would be confused with the absolute weight, as if the partial data of the spatial-temporal position were the representation of the *things themselves* and as if the *laboratory* of each scientist were reality itself. It is in this latter sense that the problem of induction becomes unsolvable and becomes part of the more general class of dialectic problems: for, if each spatial-temporal location were to position the very *thing itself*, each particular inductive generalization would have an absolute weight. And it would not be possible to measure the difference of the value between two theoretical hypotheses with different results.

But, what we consider to be the main problem is that to ignore the indispensable need for the *formality* of time and space would mean to forget that the way factual evidence is intuitively organized depends exactly on how the *subject* disciplines his “experimental laboratory” (the conditions of possibility *a priori*) in order to give spatial–temporal sense to his discoveries. David Hume would not deny that it is our experimental habits that provide a sense of uniform connection, a causal weight, to the content of our experience over time. Was he then the first proponent of Kant’s views (I here refer to the view that time and space are subjective forms of intuitive donation)? Only partially: from the very beginning we cannot disregard the fact that both Descartes and Hume flirted superficially with the transcendental version of the problem of knowledge, but both lose this sense as soon as they find it. Hume remains skeptical with regard to the weight we give to our confirmations and refutations, and rightly so because to him this weight does not depend on the content of robust metaphysical theories but is conditioned by our habit *a posteriori*. Therefore, it depends not on time and space, *formal* and *a priori*, but on the matter of psychological theories that map our representation of time and space. Hume confuses the relative weight of intuitive contributions with the absolute weight of psychological data and that is why – in confusing the sensitive representation with a thing itself – he was able to claim that the influence of the object over concepts is merely contingent and depends on point of view, almost as if to say that “objects” are mere rays of clustered sensitive properties, a view adopted by other empiricists such as B. Russell in *Meaning and Truth*.<sup>5</sup>

The initiative of *The Critique*’s author is to deny any material theory of time and space, denying them not only an absolute nature (thus agreeing with Hume) but also a representative or psychological nature, amplifying

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<sup>5</sup> This text will be discussed in the last section, confronting the analytic tradition in general.

the insight of the Scottish philosopher to a transcendental version of the challenge to metaphysics that the insight suggested. For Kant, as we have seen, time and space are *forms* that condition the intuitive donation, governing all the different ways to fulfill concepts: subsequently, the laws that govern them can be found neither in logic nor geometry but rather in the transcendental axioms of intuition.<sup>6</sup> The introduction of the transcendental ideality of time and space translates into a matter of time and space as intuitive sources by means of the global ideality of intuitive organization in an experimental context made regional by the transcendental subject. Now, it is not a novelty to translate the search for a basic context for knowledge into a search for time and space.<sup>7</sup> However, Kant does this in a radical philosophical version of the problem: time and space are not merely the material context where things are, but rather the *forms* that individualize *matter* regionally, allowing synthesis (*not inductive*, and not through tables of content for empirical research) of all the moments of the experience. Thus, he made possible the transcendental evaluation both of the regional foundation of knowledge and the changes in the intuitive focus that expand the regional margins of our knowledge, thus also predicting changes in the theoretical paradigms.<sup>8</sup>

### 3. Conclusion: confrontation with analytical tradition

We began this article with a controversy that is present in the discussions between Leibniz and Clarke on time and space, and we demonstrated Kant's interest in refuting them in Transcendental Aesthetic as a case associated with the broader interest in proving that the *here and now* that provide the basic content of representations of sensitivity cannot be pointed out materially via a theory, whether it be a geographic, physics, mathematic, or metaphysics theory. The issue of time and space, in Kant, is intimately linked to the importance of the issue of intuition as the only key available to us to the phenomenological relation of representation with the *object* and, thus, this question depends on the legitimacy of the

<sup>6</sup> The fact that, surprisingly, the laws that were exposed by these axioms coincide with the laws of Euclidean geometry, although it is not an inferior problem (since it is due to this that some critics have used the existence of non-Euclidean geometry against Kant), is not a matter that can be discussed here.

<sup>7</sup> Hume and Bacon have done this, although they introduced induction to achieve it, and gave rise to this methodological and epistemological problem, contextualized in parallel with the problem of metaphysics (creating skepticism).

<sup>8</sup> See Alfred E. and Maria G. Miller in the Translator's Introduction to *Kant's theory of natural science* by Peter Plaass: "In this way then, Kant's a priori approach to the grounding of physics (and much of his results) can be reconstructed in a modified form that is consistent with the historical-cultural development approach of paradigm-dependency analysis." (p. 155)

experimental foundation as a whole. What Kant means – we argue – is that if, hypothetically, someone defines time and space as the laboratory of a particular scientist, this will have consequences for the idea of experimental foundation as a whole, and could bring a false phenomenological perspective of knowledge (such as empiricism or dogmatism). Thus, the problem may not be superfluous. The conclusion of transcendental aesthetic promises to point to the correct perspective of this dependency: that time and space are transcendental *forms* of the experience that condition the sensitive representation.

However, this first discussion does not fix itself on a request for agreement with transcendental aesthetic, but rather to focus on the special case of the misconception or mistake committed by Leibniz and Clarke when they considered time and space to be the matter of *relations* or as the matter of *absolute entities*. Therefore, we present the forms of sensitivity – time and space idealized transcendently – in the wake of the requirement that, without them, we would be exposed to a *material* posture, non-formal/non-transcendental, and more, we would be exposed to a mistaken view of the relation of the experimental foundation that evaluates empirical science and knowledge in general.

Since this problem may be spelled out in a few words, as we present it we will not sacrifice the clarity of the conclusion: if the object (the thing itself) is not representable, what is the nature of the influence of an object (or thing in itself) over a representation? –Apparently, this is also a form of adapting the question around Kant's idealism and was formulated for the first time in a letter to Marcus Herz in 1772. How is objectivity possible? However, we adapt this problem now for the following: how does a representation absorb the intuitive contribution of the object? – which is, observably, the same question adapted for the purposes of the chapter *Transcendental schematism* in the first *Critique*: how is it possible to have homogeneity between pure concepts and intuitions (KrV, B 176)? Or, how is it possible to establish an index of recognition for the contribution of that which is represented to give foundation to representation? Now, if Kant's idealism is really empirical realism, it is necessary that it be reflected in some way in the identification of the dependency of the representation with the object; and it is necessary that this have some consequence in the discussion of the philosophy of science. There is no point in accusing his rivals of confusing the two levels of reflection, i.e., the transcendental and the empirical, and the material and the formal, if the alternative does not improve the perspective of objectively giving foundation to knowledge.

The distinction between matter and form includes, in the discussion under this topic, an alternative response, a new phenomenological

approach, based on the expectation that whatever be that the representational matter lacks, in the sense that it does not establish a precise structural correspondence between itself and the object represented (because it is a mere manifold), would be compensated for by *form*, that is, by subjective and synthetic intervention, capable of guiding the intuitive foundation of representations and, consequently, their objective regional direction. This theory, however, has the following gap: Which forms are these and how are they possible? To solve the problem highlighted above, an adjacent theory is needed, concerned with the strategy of justifying the empirical application of the pure forms of the subject and, with them, the existence of synthesis *a priori*, and of the judgments that correspond to them – which is: the thesis of transcendental idealism. We will not discuss it here, but it is, undoubtedly, the scenario for the theoretical background that contextualizes the criticism that Kant has of the view of material space and time, and it provides an alternative: to view them as forms of experience. Thus, the strategy of our program is to present the principal problem of the *Critique of pure reason* – How are synthetic judgments *a priori* possible? – converted to the form of a proposal of justification of the problem of space and of time.

In order to understand how Kant explores the possibility of syntheses *a priori*, for example, one of the paths is to make sense of how *a priori* schemas are possible, which leads to one of the most controversial aspects of Kant's philosophy: the acceptance of a schematizing operation that is realized neither through images and metaphors, nor through dreams, but rather through "determinations *a priori* of time" (KrV A 145/ B 184). This connection of the schematizing activity with time is the recognition that form, or general determination, of the conceptual application, that is, the form of judgment (which is a rule that applies a concept to an intuition) is always connected to the chronology of experiences gathered by the internal sense. Thus, it is the recognition that the homogeneity between concept and intuition is not purely speculative, nor purely sensitive, and does not depend on referring to another scientific theory, such as physics. Rather, it depends on the formal management of an intuitive compartment which accumulates data over time in a "*transcendental 'I think'*".

With that we enter new terrain of interpretative possibilities of time, solidary, for example, to the terrain traversed by Husserl's phenomenology, to whom "The Eidetic property that the designation "temporality" expresses not only stresses something inherent in general to all individual experience, but a necessary way of linking the experiences" (2006, p. 185).

The utility of exploring divergences and convergences between old and new terrain of interpretative possibilities is clear when we consider

opposite terrains: for example, the terrain of Analytic Philosophy in general, considered in the ambit of its common solidarity *against* synthetic judgments *a priori* and, therefore, opposed to any phenomenological or transcendental framework to portray relations, association, and other modalities of cognitive fulfillment which takes one to a content donated spatial-temporally. The rebirth of Hume's approach through logical empiricism is mostly due to the refusal of the latter to accept Kant's solution, based on the transcendental doctrine of causality (a category of relation which, in turn, provides the foundation to one of the axioms of intuition) and, subsequently, refuses the transcendental doctrine of time and space.

Another part of the consensus of Analytic Philosophy that is not favorable to Kant is the one involving the belief that Kant does not help with the problem of portraying formally the logical relations in structural models, such as function and argument – capable of mapping relational inferences (including numerical calculations) that the subject–predicate form would not be able to do.<sup>9</sup> But this is another problem that alludes to the difference between the concepts of time and space. For Kant, arithmetic is synthetic *a priori*, and the content of relations in general cannot be reduced to the logical form of propositions, although they could be reduced to the transcendental form of the experience. The analytical perspective of philosophy denies the alleged Kantian intuitionism but at the expense of buying a material view of time and of space, merely theoretical, where fulfillment (and all the modalities of temporal–spatial associations, connections, and relations) is not just one more phenomenological modality (a transcendental form of sensitivity) but rather a mere semantic, linguistic modality, which repositions the topic as, so to speak, a problem of translation or interpretation of domains. Spatial–temporal things are no longer synthetic constructs, but rather inductive rays of qualities (Bertrand Russell) or, to put it more radically, they are interpreted as pragmatic postulates with semantic purposes (Carnap).

Russell, in *Meaning and truth* is willing to make that same old material interpretation of space and time that Kant reproached in Leibniz and Clarke; however, this time the philosopher takes on an empiricist spirit:

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<sup>9</sup> Such criticism could already be found in Frege's re-approach to the Kantian version of analytic, since part of its capacity to give a new structural sense to the notion of conceptual contention – an organic version of the relation between definition and rules of inference – is based on the new version of Frege's Analyticity, through his conceptography and the presentation of the form of function and argument instead of subject–predicate. However, this criticism became more emblematic in this citation by Ryle: "Kant contributes nothing to the technical problem of how to exhibit or symbolize type-homogeneities and heterogeneities in abstraction from the concrete factors which exemplify them." (1980, p. 30)

“our purpose is, if possible, to construct out of qualities bundles having the spatio properties that physics requires of ‘things’.” (Russell, 1956, p. 100)

As we can see, the English philosopher submits his concept of the sensitive thing to theoretical physics, promoting a theoretical construct of sensations, corresponding to what we saw in the first chapter of this article. Coherently, he knows that in this way one does not need to presuppose a substrate for spatial-temporal relations and that, consequently, relational concepts such as causality are interpreted in his theory as contingents:

My conclusion is that the qualities suffice, without our having to suppose that they have instances. Incidentally, we have reduced to the empirical level certain properties of spacio-temporal relations which threatened to be synthetic *a priori* general truths. (Russell, 1956, p. 103)

Russell’s position is an example of a material and empirical interpretation of space and time: these are viewed as a matter of sensations, systematized by geography or by physics. Conflicts concerning which things instantiate and which things do not instantiate a theory should be decided, according to this perspective, by an appeal to natural theories. Carnap’s perspective, on the other hand, radicalizes this empiricism to a completely logical and linguistic view. According to Carnap, “the acceptance of a new type of entity is represented in our language by the introduction of a framework of new forms of expressions to be used according to a new set of rules” (1980, p. 121). With this, the content of fulfillment of a theory is no longer an experimental issue (synthetic–intuitive) but semantic, one that may generate conflicts, yes, but merely linguistic conflicts such as divergences in translations:

Two geographers, a realist and an idealist, who are sent out in order to find out if a mountain that is supposed to be somewhere in Africa is only legendary or if it really exists, will come to the same (positive or negative) result. [...] In all empirical questions there is unanimity. There is disagreement between the two scientists only when they no longer speak as geographers but as philosophers... (Carnap, 1980, p. 162)

The question of the subject disappears, and only language turns out to be relevant to theoretical fulfillment. Concurrently, the question of induction, that is, the empirical relation between two temporal events, disappears in its strong philosophical format – capable of ruining the pretensions of objectivity of sciences – and is transformed into a mere matter of degree, relative to the simplicity of language to portray phenomena, that is, a mere pragmatic issue about the most useful translation or interpretation. Naturally, there are no unanimous interpretations in analytic philosophy: logicism has been accused by the former analytical philosophers. Moreover, the problem of induction has

already been exposed as dangerous.<sup>10</sup> Not to mention the famous culmination of this tradition, in Quine's criticism of the concept of analytic. However, even in these powerful attacks of this tradition against itself, the problem of intuition, of the spatial-temporal content, of subjectivity, has never been re-discussed. They were forever banned, justifying the legendary opposition between Kant's reception made through analytical tradition and the other one, made through phenomenological tradition.

That is, the fundamental anti-Kantian presupposition, the collective attack against the synthetic *a priori*, has stood firm throughout the trajectory of analytical tradition. The contribution of this article is to point to one of the branches that remain solid and well buried in Analytical Philosophy: the material presuppositions about time and space, that is, the refusal to see time and space other than through its matter. The analytical tradition was born from anti-Kantian presuppositions. And part of its limitations, from my point of view, is still due to the inability to adequately discuss these presuppositions.

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<sup>10</sup> "According to my own design, the various difficulties of inductive logic, outlined here, are unsurpassed." (Popper, 1980, p. 5)



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**Abstract:** This article aims to discuss the character of the transcendental concept of space and time – found in the Transcendental Aesthetic – and its importance in the following issues: the phenomenological problem of the form of intuitive donation, the scientific and metaphysical interpretation of space-time, the question of the content of space-time occurrences and their experimental contribution, and the question of the form of relations and associations of experimental content. The goal of the article is to radicalize an interpretive approach to Kant's doctrine of Space-Time in order to demonstrate possible confrontations with current issues of Analytic Philosophy, which will be done, although superficially, in the final section.

**Keywords:** space-time, transcendental aesthetic, form, science, experience, analytic philosophy

**Resumo:** Este artigo visa discutir o caráter do conceito transcendental de espaço e tempo – encontrado na Estética Transcendental – e sua importância nas seguintes questões: o problema fenomenológico da forma da doação intuitiva, a interpretação científica e metafísica do espaço-tempo, a questão do conteúdo das ocorrências espaço-temporais e suas contribuições experimentais, e a questão da forma das

relações e associações de conteúdo experimental. O objetivo do artigo é o de radicalizar uma abordagem interpretativa da doutrina do Espaço-Tempo de modo a demonstrar confrontações possíveis com questões atuais de Filosofia Analítica, o que é feito, muito embora superficialmente, na seção final.

**Palavras-chave:** espaço-tempo, estética transcendental, forma, ciência, experiência, filosofia analítica

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