

## Some citations relating to Kant's theory of space and time

### 1. *The central place of transcendental idealism in critical philosophy*

The system of the critique of pure reason turns on two cardinal points: as system of nature and of freedom, one leading with necessity to the other. —The ideality of space and time and the reality of the concept of freedom, the first leading inexorably and analytically to the second. According to the one, synthetic-theoretical cognition a priori; according to the other, synthetic-practical, likewise completely a priori. The nature of man cannot be determined a priori (to actions) without presupposing freedom. It is therefore necessary to assume something supersensible with respect to which the sensible can be considered determinable, and, conversely, something sensible a priori in accordance with which the supersensible determines sensibility in acts. (*Reflexionen über Metaphysik*, AA 18 §6351, 1796-8)

### 2. *Space and time are presupposed by perception (apprehension of a manifold), not sensation (synopsis of a manifold)*

—Neither simultaneity nor succession would ever enter into *perception*, did not the representation of time underlie them a priori. (A30/B46)

—The representation of space cannot ... be obtained through *experience* of the external relations of appearance; rather, this outer *experience* itself is possible in the first place only through that representation... Space is nothing other than the mere form of appearances of the outer senses ... given prior to all *perceptions*. (A23/B38 and A26/B42)

Space . . . is the form of this faculty of the mind [i.e. sensibility] for perceiving things externally. (AA 17 §4673)

—An intuition which is supposed to be possible a priori can only concern the form under which the object is intuited, for to represent something a priori means to make a representation of it prior to and independently of *perception*, i.e. *empirical consciousness*. (AA 20, 266)

—I prove in the first place that space (and also time, which Berkeley did not consider) and all its determinations can be cognized a priori by us because, no less than time, it inheres in us as a pure form of our sensibility before all *perception* of experience and makes possible all intuition of sensibility, and therefore all appearances. (PFM Appendix, AA 4 375)

—[P]ure intuition underlies all *perception* (in respect to the status of perceptions as representations, the form of inner intuition, time, is their basis). (A115-16)

—[S]pace is however itself nothing other than an inner mode of representation (*Vorstellungsart*) in which certain *perceptions* are connected with one another. (A378)

— Space is not something existing as an object of intuition (no more than time is) but the mere form of the composition of the manifold next to and after one another; but being positioned next to and after one another (*iuxta et post*) presupposes space and time already in the subject: not something given in itself for sense representation, but that which is thought as its form. Not an object of perception but a formal a priori condition for *perceiving* what is given for the senses as a whole. (AA 22, 435)

—We know nothing but our mode of *perceiving* objects, which is peculiar to us, and not necessary to every being. (A42/B59)

—[I]dealism of appearances: we are in part their creator from the standpoint we apprehend [*annehmen*] them. (AA 15 §254, 1770s)

Space and time carry with them in their representation the concept of necessity. Now this is not the necessity of a concept. For we can prove that their non-existence is not contradictory. Necessity also cannot lie in the empirical intuition. For this can, to be sure, carry with it the concept of existence, but not of necessary existence. Thus this necessity is not in the object (*Object*) – objective – at all; consequently it is only a necessary condition of the subject for all **perceptions** of the senses. (E XVII, p. 17; 23:22-3; attached to A26-b)

### 3. *Perceptible and imperceptible space and time*

—In all experience something must be sensed, and this is the real of sensible intuition. Consequently, the space in which we are to set up experience regarding motions must also be capable of being sensed, i.e., must be indicated by what can be sensed; and this space as the sum total of all objects of experience and itself an object of experience is called *empirical space*. Now, such space insofar as it is material is itself movable. But a movable space, if its motion is to be capable of being perceived, presupposes again another enlarged material space in which it is movable, and this enlarged space presupposes just as well another, and so to infinity... The space in which motion is perceived is a relative space, which itself moves again. (*The Metaphysical Foundations of Natural Science*, AA 5, 481)

—Subjectively, and in the actuality of consciousness, [time], just like any other representation, is given only upon the occasion (*Veranlassung*) of perceptions. (A453/B480 n.; see also A429/B457n.)

—The mere form of intuition, without substance, is in itself no object but merely the formal condition of the object (as appearance), as pure space and pure time, which are indeed something as forms of intuiting, but not objects which are intuited (*ens imaginarium*)... [They are *nothing* in that they are] empty intuition without object, *ens imaginarium*... [I]f extended beings were not perceived we could not represent space...the mere form of intuition in the absence of anything real [is] not an object. (A290/B347 & A292/B348; see also AA18 §5577, c. 1780: "Mere form without reality (thought as thing in itself) is *ens imaginarium*. Space.")

—Space is not something existing as an object of intuition (no more than time is) but the mere *form of the composition* (*Zusammenstellung*) of the manifold next to and after one another; but being positioned (*gesetzt*) next to and after one another (*iuxta et post*) presupposes space and time already in the subject: not something given in itself for sense representation, but that which is thought as its form (*Formale*). Not an object of perception but a formal a priori condition for perceiving what is given for the senses as a whole. (*Opus Postumum*, AA 22, 435)

—Space and time are intuitions without an object, hence merely subjective forms of the composition (*Zusammenstellung*) of the manifold into the infinite of an absolute whole (which is not a part of a still greater whole). Not something apprehensible which is given for perception (*dabile*), but the self-determination of the subject, the form in which it itself constitutes the object, and this is its own object. (AA 22, 74; see also 105, 364, and 435)

—Space and time are not themselves things (*Sachen*) but only representations of the apprehensible relationships of representation for the subject insofar as it makes itself into an object synthetically (not analytically according to the law of identity) in pure intuition... Space and time are not given objects of intuition but forms of intuition itself and of the synthetic relationship of the manifold in space and time. They precede the existence of objects of the senses a priori—not as perceptions (empirical representations with consciousness) nor as an aggregate of a determinate (delimited) manifold but as a system. There is only *one* space and *one* time (therein consists their infinitude) and only *one* experience. (AA 22, 90)

#### 4. *Space and time are inconceivable as well as imperceptible*

—[T]he original representation time ... cannot be given through concepts... on the contrary, such concepts must themselves rest on immediate intuition. (A32/B48; see also B160n.)

—*formal intuition* gives unity of representation... it precedes all concepts, though to be sure it does presuppose a synthesis not belonging to the senses which yet first makes possible all concepts of space and time... the unity of this a priori intuition belongs to space and time, not to the concept of the understanding. (B160n.)

—But that space which is given metaphysically, i.e. originally but merely subjectively, is *infinite* which (because there are not many of it) cannot be brought under any concept which would admit of a construction, but rather contains the ground of the construction of all possible geometric concepts. It may therefore only be said that it consists in the pure form of of the sensible mode of representation of the subject as intuition a priori; consequently in this, as an individual representation, is *given* the possibility of all spaces which go into the infinite. (AA 20, 419-21)

—Space and time, subjectively considered, are forms of sensibility; but in order to form a concept of them as objects of pure intuition (without which nothing whatever could be said of them), an a priori concept of a composite, hence of the composition (synthesis) of the manifold, is required, and thus synthetic unity of apperception in the combination of this manifold. This unity of consciousness in accordance with the distinctness of intuitive representations of objects in space and time requires distinct functions to combine them, which are called categories. (*Progress in Metaphysics*, AA 20, p. 276)

##### 5. *Space and time are products of pure synthesis/composition in productive imagination* (see also #12)

—One can and must concede that space and time are mere thought entities and creatures of the imagination. But because they are the essential form of our sensibility and the receptivity of its intuitions whereby in general objects are given to us, and because the universal conditions of sensibility must at the same time necessarily be a priori conditions of the possibility of all objects of the senses as appearances and so agree with these, they are not fictitiously invented by the imagination but underlie all its compositions and creations. (*On A Discovery*, AA 8, 203)

—Space is not an a priori concept but an intuition, which precedes concepts. For where indeed are synthetic a priori judgments supposed to come from? and what kind of object then is represented if space is yet no object?

Space is itself a synthesis a priori. (AA 18 §5876, 1783-4).

—Space and time are of course not objects of intuition, but merely its *subjective forms*. They do not exist apart from representations and are given only in the subject; i.e. their representation is an act of the subject itself and a product of the imagination for the sense of the subject. Yet, their representation is the cause of the object in appearance (*phænomenon*), not derived (*repræsentatio derivativa*) but original (*originaria*). (AA 22, 76)

—Space and time are products (but primitive products) of our own imagination; hence, they are generated (*geschaffene*) intuitions in that the subject affects itself. (AA 22, 37)

—The imagination (*facultas imaginandi*), as a capacity of intuitions even without the presence of the object, is either *productive*, i.e. a capacity of the original exhibition of the object (*exhibitio originaria*), which precedes experience; or *reproductive*, the derivative exhibition (*exhibitio derivativa*), which brings back a previous empirical intuition. *Pure space and time intuitions belong to the first sort of exhibition.* (*Anthropology* §28: 1790s)

##### 6. *Sensibility includes imagination*

—Sensibility, as belonging to the cognitive faculty, is sense and imagination; (the understanding: concepts). *Intuition.* (AA 15 §229; see also §223 & §225, as well as *Anthropology* §15)

—To empirical intuition belongs *sense*; to pure intuition *imagination*. The latter is the capacity for intuition even in the absence of objects. Both together, sense and imagination, constitute the sensibility. For intuition without relation to an object is mere sensation and intuitions cannot be referred to an object except through categories. (AA 18, p. 473)

7. *Space and time are not fictions but principles of intuition* (see PFM Pt. I, Rem. 1)

—[Space] is not *imagined* [*eingebildetes*] (*ens imaginarium*). For it is the actual, unique condition of the representation of actual external things. (AA 17 §4673, p. 639: mid 1770s)

—Time is actual as *form* of inner sensibility; it is thereby opposed to the fictitious (*ficto*). (AA 18 §5320)

—Although *time*, posited in itself and absolutely, is an imaginary entity (*ens imaginarium*), it is nonetheless a true concept and a condition of intuitive representation, extending to infinity in all possible objects of the senses, insofar as it concerns the immutable law of the sensible as such. (*1770 Inaugural Dissertation* §14,6)

8. *Space and time are essential to the possibility of synthetic a priori judgment* (see B73)

—Space and time themselves are nothing other than forms of the composition (*Zusammensetzung*) of the objects of sensation; hence, if all composition were eliminated nothing would be left over. The unity of consciousness in this composition, insofar as it is considered universally, is the pure concept of the understanding. (AA 18 §5926, 1783-4)

—Synthetic a priori cognition is possible because there are two *intuitus a priori*: space and time, in which a synthesis of composition is possible a priori. The two objects are *quanta* and indeed *originaria*. All concepts of *quantis* may be constructed in them, i.e. given a priori in intuition... The *universale* is here given in the *singulari* in intuition, and the universal of synthesis considered in the *singulari*. (AA 18 §5593, 1770s or early 1780s; see also §§ 5585, 6349 & 6357)

—*Hume* has already performed the service of adducing a case in point, namely the law of causality, by means of which he put all metaphysics into difficulty. What would have happened had another formulated this difficulty in universal terms?... “How is a priori cognition possible from synthetic judgments?” Cognition is a judgment out of which arises a concept having objective reality, i.e. a concept to which a corresponding object can be given in experience. However, all experience consists of an intuition of an object, i.e. an immediate and individual representation through which the object is given for cognition, and of a concept, i.e. a representation mediated by a mark common to various objects whereby the object is thought. – Neither of these modes of representations constitutes a cognition by itself; and if synthetic a priori cognitions are to be given, then there

must be a priori intuitions as well as a priori concepts, the possibility of which must be discussed before anything else; and then their objective reality must be proved by [showing that] their use is necessary in respect of the possibility of experience. (*Progress* AA 20, 266)

—The first thought from which the faculty of representation proceeds is the intuition of itself and the category of the synthetic unity of the manifold, i.e. of pure (not empirical) representation which precedes perception under the a priori principle, how are synthetic a priori propositions possible? *The answer to which is: they are contained by way of identity in the unconditioned unity of space and time as pure intuitions...* — These forms [viz. space and time] lie a priori in the faculty of representation and are actually the real in the subject from which the cognition of the object can alone take place (*Forma dat Esse rei*). The possibility of a system of perceptions as belonging to the unity of experience is at the same time the ground of the coexistence of perceptions and succession of appearances which these can produce and which already have their place a priori in the understanding. — That the forms in the synthesis of intuition and the principles of its unity at the same time contain the *construction* of these concepts as in mathematics — this is an analytic proposition according to the principle of identity. No Theaetetus, no skepticism, can work against it. (AA 22, 11)<sup>1</sup>

—How are synthetic a priori propositions, i.e. how is a metaphysics of nature possible? Answer: through the representation of objects in space and time (*coexistentia et successio*) as in one relationship of the subject to itself as an object within appearance, hence according to a formal principle of combination. (AA 22, 67)

9. *Do not confound the space presupposed by geometry with the space it constructs (a particular risk when interpreting “formal intuition” at B160n. and PFM, Pt. I, Rem. I)*

—Metaphysics must show how one can *have* the representation of space, but geometry teaches us how to *describe* a space, i.e. exhibit (not by drawing) in representation a priori. In the former, space is considered as *given*, prior to

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<sup>1</sup> Hegel seems to have grasped this point (on the basis mainly of B160 + n.): "How are synthetic judgments possible a priori? The problem expresses nothing other than the idea that in the subject and predicate of the synthetic judgment — the former the particular, in the form of being, the latter the universal, in the form of thought — the heterogeneous are concomitant a priori, i.e. absolutely identical... One catches sight of this idea through the shallowness of the deduction of the categories. With respect to space and time, it is not where it ought to be, in the transcendental exposition of these forms, but only in the sequel, when, in the deduction of the categories, the original synthetic unity of apperception finally comes to the fore, and is recognized as the principle of figurative synthesis, or the forms of intuition [re: *formal intuitions*]; there, space and time are conceived as synthetic unities, and the productive imagination, i.e. spontaneity and absolute synthetic activity, as the principle of sensibility which previously had been characterized only as a receptivity." (*Faith and Knowledge*, p. 297) It may be doubted whether Kant should, or even could, have made this point clear in the Aesthetic: as he remarks at B160n., this unity belongs to sensibility, yet it is founded on the understanding; it thus relates to a sense of “understanding” prior to the division between aesthetic and logic, namely, understanding as the faculty of the unity of apperception. This faculty could not be elucidated until the subjective transcendental deduction of the categories, the brief of which is to explain the possibility of the understanding itself, and therefore even of logic (see B131 and B133-4n.).

receiving any determination conformable to a definite concept; in the latter, it is considered as *constructed* (*gemacht*). In the first, space is *original* and there is only one (singular) space; in the second, space is *derived* and there then exist spaces (many); but, with regard to those spaces, the geometer must, in agreement with the metaphysician and as a consequence of the fundamental representation of space, admit that they can only be thought as parts of the single, original space. Now one cannot denominate a magnitude in comparison with which every specified homogeneous magnitude is equal only to a part anything other than *infinite*. Hence, the geometer, just like the metaphysician, represents the original space as infinite and indeed as infinite//given. For the space-representation (and beyond that time as well) has in it (*an sich*) something peculiar (*Eigenthümliches*) the like of which can be found in no other concept whatsoever: that all spaces are *possible* and thinkable only as parts of a single (*einzig*) space. Now, if the geometer says a line, however far it has been drawn, can always be lengthened still farther, this ... means: the space in which I describe the line is greater than any given line which I may describe in it; and so the geometer grounds the possibility of his task (*Aufgabe*) of increasing a space (of which there are many) into the infinite on the original representation of a unitary (*einigen*) infinite *subjectively given* space. It agrees perfectly with this that the geometrical and objectively given space is invariably *finite*; for it is only given by being *made*. But that space which is given metaphysically, i.e. originally but merely subjectively, is *infinite* which (because there are not many of it) cannot be brought under any concept which would admit of a construction, but rather contains the ground of the construction of all possible geometric concepts. It may therefore only be said that it consists in the pure form of of the sensible mode of representation of the subject as intuition a priori; consequently in this, as an individual representation, is *given* the possibility of all spaces which go into the infinite. (*Comments on a Dissertation by Kästner*, AA 20, 419-21)

—Synthetic a priori cognition is possible because there are two *intuitus a priori*: space and time, in which a synthesis of composition is possible a priori. The two objects are *quanta* and indeed *originaria*. All concepts of *quantis* may be constructed in them, i.e. given a priori in intuition... The *universale* is here given in the *singulari* in intuition, and the universal of synthesis considered in the *singulari*. (AA 18 §5593, 1770s or early 1780s)

—Space is represented as mathematically infinite, i.e. not as we could extend a line ever farther (that would be *indefinitum*) but the *ens imaginarium* we call 'space' is itself infinite. Mathematical infinity underlies the extending of lines; [it is] the possibility of magnitudes, which is given in my being able to advance into infinity. The possibility of the advance is only *indefinitum*. (AA 18, 644-5; see also AA 22, 420-1)

## 10. *The infinity and non-composite character of space and time*

—Space is represented as mathematically infinite, i.e. not as we could extend a line ever farther (that would be *indefinitum*) but the *ens imaginarium* we call 'space' is itself infinite. Mathematical infinity underlies the extending of lines; [it is] the possibility of magnitudes, which is given in my being able to advance into infinity. The possibility of the advance is only *indefinitum*. (AA 18 p. 644-5; see also AA 22, 420-1)

—*Compositum* is that whose parts can precede the composition and do not arise only through composition and combination... *Spatium est quantum, sed non compositum*. Because space does not arise as a result of the positing of its parts but the parts are only possible through space; so too time. (AA 17 §§4424-5)

[NB: A **quantum** is a whole but not necessarily the sum of its parts (its parts may be by limitation only: true only of metaphysical pure space and time, not geometrical: see A24-5/B39, A31-2/B47, and B71); a **composite** is a whole that is the sum of its parts, i.e. a mathematically determinate **extensive magnitude** (see A162-6/B202-7)]

—The whole of the objects of intuition — the world — is merely within me (transcendental idealism). (AA 22, 97)

11. *Time has wider scope than space (see also A34/B50 and B427) , although space, as the form of perception through sensation, is the material of all intuition (see B67)*

Not all that is in time is at the same time in space, e.g. my representations; but all that is in space is in time. (AA 18 §5653, p. 309)

12. *Space and time entail not only (imaginative) synthesis (see #4 above) but also (apperceptual) unity (composition), i.e. space and time depend on understanding (qua faculty of the unity of apperception) as well as imagination and sense. [See A99-100, A107, B136n., B160n.]*

—*Consciousness of oneself (apperceptio)* is an act whereby in general the subject makes itself into an object. It is yet no *perception (apprehensio simplex)*, i.e. no sense representation (for which it is required that the subject be affected by means of some object, and the intuition becomes empirical), but pure intuition, which under the names of space and time contain merely the form of composition (*coordinatio, et subordinatio*) of the manifold of intuition; with them [arises] an a priori principle of synthetic cognition of the manifold which for just this reason makes the object in appearance representable. (AA 22, 413)

—The *original* act of sense intuition of itself in the subject is at the same time valid for the object, because the latter can be given only through the former and the forms of space and time are identical with the combination of the manifold of these forms into a unity. (AA 22, 16)

13. *Space and time and the categories*

—Space and time are the forms of combination in intuition and serve for applying the categories *in concreto*. (AA 18 §5934, 1783-4)

—Space and time themselves are nothing other than forms of the composition of the objects of sensation; hence, if all composition were eliminated nothing would be leftover. The unity of consciousness in this composition, insofar as it is considered *universally*, is the pure concept of the understanding. (AA 18 §5926, 1783-4, emphasis mine)

—We could never gather together (*zusammennehmen*) a manifold as a manifold in perception without having to do with space and time. But since we cannot intuit these in their own right (*für sich*), we must gather together the manifold homogeneous in general in accordance with concepts of quantity. (AA 23, L20 E30, p. 29 – written by Kant in the margin at A163 of his own copy of the first edition version of the *Critique of Pure Reason*)

—The *categories* ... are nothing other than the *conditions of thought in a possible experience*, just as *space and time contain the conditions of intuition* in this same experience. (A111)

—Space and time, subjectively considered, are forms of sensibility; but in order to form a concept of them as objects of pure intuition (without which nothing whatever could be said of them), an a priori concept of a composite, hence of the composition (synthesis) of the manifold, is required, and thus synthetic unity of apperception in the combination of this manifold. This unity of consciousness in accordance with the diversity of intuitive representations of objects in space and time requires various functions to combine them, which are called categories. These are a priori concepts of the understanding, which, by themselves alone, are indeed not yet *cognition* of an object in general, but are none the less the ground of that which is given in empirical intuition, which would then be experience. The empirical, i.e. that whereby an object is represented as given according to its existence, is called sensation (*sensatio, impressio*); it constitutes the matter of experience and, combined with consciousness, is called perception. To this matter there must be added form, that is, the synthetic unity of its apperception in the understanding... For this purpose, a priori principles in accordance with mere concepts of the understanding are necessary because space and time themselves, as that in which every object of perception must be allotted its place through concepts, are not immediately perceived. These concepts of the understanding demonstrate their reality through sensible intuition, and in combination with such intuition, in accordance with its a priori given form, make possible *experience*, which is an absolutely certain cognition a posteriori. (AA 20, p. 276)

#### 14. *Things in themselves are in no way spatial or temporal*

—[S]pace and time, together with the appearances in them, are nothing existing in themselves and outside of my representations, but only modes of representation, and it is palpably contradictory to say that a mere mode of

representation exists outside our representation. (*Prolegomena*, AA 4, 341-2; see also 374-5)

—To avoid all misinterpretation, it is necessary first of all to explain, as clearly as possible, what our view is regarding the fundamental constitution of sensible cognition in general.

We have thus wanted to say: that all our intuition is nothing but the representation of appearance; *that the things we intuit are not in themselves what we intuit them as being, nor are their relations so constituted in themselves as they appear to us*; and that if we were to eliminate our subject, or even merely the subjective constitution of the senses in general, the entire constitution —all relations of the object in space and time, indeed space and time themselves — would disappear, and that as appearances they cannot exist in themselves but only in us. We are not acquainted with the condition of objects in themselves and severed altogether from this receptivity of our sensibility... The difference of sensibility from understanding ... is manifestly transcendental and concerns ... the origin and content of our cognitions, so that through sensibility the constitution of things in themselves is not only not cognized indistinctly, it is not cognized at all; and as soon as we set aside our subjective constitution, the represented object, with the properties which we accord to it in sensible intuition, is nowhere to be met with, *nor can be met with*, since precisely this subjective constitution determines the form of the object as appearance. (A42-4/B59-62 – emphasis mine; see also A38/B55, B149, A359, A375-6, and A385)