

KANT'S REEVALUATION OF MONADOLGY: A HISTORICAL - PHILOSOPHICAL PUZZLE

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INTRODUCTION

In the *Critique of pure reason* (1781), as is well known, Kant offers a schematic presentation of Leibniz's philosophy, interpreted as a paradigmatic case of conceptual "amphiboly", where the fundamental distinction between the conditions of sense knowledge and intellectual knowledge is missed: accordingly, Leibniz's mistake would consist in handling phenomena, i.e. the objects of sense, as if they were 'things in themselves', modeled on pure intellectual cognition. Among other theses, the monadological view would directly arise from this mistake: more precisely, from the idea that simple beings would be prior to composite ones, and their intrinsic properties would be basic with respect to their external, i.e. spatial, relations (KrV A 260/B 316).

This devastating attack to Leibnizian philosophy appears without any change also in the second edition of the *Critique* (1787), and since then it has shaped the standard reading of Kant's critical reception of Leibniz's philosophy. Still, between these two dates, one can find a quite different evaluation of Leibniz's stance, in Kant's work devoted to the critical foundation of physical science, the *Metaphysical Principles of Natural Science*.

In fact, in *Remark 2 to Proposition 4* Kant approaches Leibniz's view to his own, which is presented, in its turn, as the correct interpretation of the monadological insight of his eminent predecessor, against the common reading of the so-called Leibnizian-Wolffian school (MAN, AA 4: 505-508, trans. pp. 217-219).

This attempt at sharply distinguishing the 'true' Leibniz from his followers is taken again

by Kant four years later, in his polemic with one of these Leibnizean epigones, Eberhard: thus, in *On a discovery*, Kant goes as far as to state that his own ‘critique’ is the true ‘apology’ of Leibniz (ÜE, AA 8: 248-249, transl. p. 334).¹

In the case of the last discussion, of course, the rhetoric or strategic attitude adopted is likely to play a major role in determining Kant’s assessment, with his rather strained assimilation of Leibniz’s stance. Such motivations, while not to be excluded, should not be as decisive in explaining the sense of the first reference in the MAN, in a doctrinal, not polemical context. As a matter of fact, Kant’s true motivations, and the global sense of his reassessment of Leibniz’s stance, raise several questions.²

In what follows I shall reconstruct, first of all, the general argumentative line of Kant’s *Remark*; in so doing, I shall limit myself to evoke in a very schematic manner the underlying historical-philosophical scenario. In the second part, I shall focus especially on the questions raised by Kant’s reevaluation of Leibniz and try to give a coherent account of it.

1. A COMPLEX REMARK

Between mathematics and metaphysics: infinite divisibility in the MAN and behind

Proposition 4 of Kant’s *Dynamics* in the MAN proves the infinite divisibility of matter: a debated issue at the boundaries between mathematics, physics and metaphysics. Whereas the mathematicians assumed the infinite divisibility of geometrical extension and space, the application of this property to physical extended things was intensively disputed; in particular, metaphysicians in the Leibnizian tradition usually emphasized the need of relying on some simple, indivisible elements in order to ground the reality of bodies.

In the Wolffian version of Leibnizianism monads were introduced exactly with this aim; accordingly, monadology received a decidedly physical interpretation: Wolff, indeed, left explicitly aside Leibniz’s originary characterization of monads through mental predicates, by substituting their representative activity through purely physical forces.

One of Kant’s earlier works, the *Physical Monadology* (1756) turned out to be firmly rooted, already by its title, in this tradition.³ Kant, however, in that work tried to reconcile monadology with the contrasting data and claims of mathematical knowledge: a task the more urgent, as the monadological account, so far prevailing in German philosophy, was then under strong pressure due to the success of Newtonian science. Thus, few years before an essay contest of the Berlin Academy had given occasion to a large debate on the topic; the prize had been won by a pamphlet which totally disqualified the monadological view.⁴ Leonhard Euler, one of the most important mathematicians of the century and also one of the inspiring figures of this attack, in several writings argued vigorously on behalf of the reasons of mathematics against the ‘sophistic arguments’ of metaphysicians.⁵ According to Euler, Newtonian space has

an objective reality insofar as it is presupposed by the laws of mechanics, and its properties – infinite divisibility included – are necessarily shared by things in space, or bodies. Hence, monadology has to be simply given up.

Faced with this clash of theories, the young Kant in 1756 looked for a middle way, by pursuing the difficult task of reconciling Newtonian and Wolffian claims. In order to preserve his physical monads from infinite divisibility, he claimed that they fill space only through their dynamical activity: accordingly, the expansion of their activity sphere would not imply a divisibility of their substance.

Bearing this background in mind, it is evident how *Proposition 4* of the MAN does represent, first of all, a disavowal of Kant's own pre-critical solution. The main point of the theorem, in fact, is to show that the divisibility of space *does* imply that of material bodies and of their 'substance', so that the way out suggested by the *Physical Monadology* is entirely blocked and the simplicity of its alleged 'elements' is dissolved.

One might think that this result had been already firmly acquired by Kant since his final abandonment of the Leibnizian (relational) theory of space and its substitution with the view of space as a subjective form of sensible intuition, hence at least since the *Dissertation* of 1770 and, obviously, the *Transcendental Esthetics* of the first *Critique*. This, however, would miss another key point of Kant's move in the MAN. In a first *Remark*, in fact, he stresses that proving the infinite divisibility of space – the bedrock of mathematical argument – does *not* immediately entail that of material substance, by itself and without further argument. Material substance, indeed, does not fill space simply through its existence/presence, but through its dynamic activity. Accordingly, dynamical considerations are fundamental, in the MAN like in the *Physical Monadology*. Only, now the reality of force is no longer contrasted by Kant to the phenomenal nature of space, but is entirely shifted to the phenomenal level. Notice that the proof of *Proposition 4* is independent of the results of transcendental idealism; it defeats the thesis of the earlier physical monadology by remaining fundamentally on the same ground.

This point – I mean, the impossibility of extending immediately the mathematical properties of space to matter - is taken again at the beginning of our *Remark 2*, where Kant warns:

To be sure, mathematics in its internal use can be entirely indifferent with regard to the chicanery of a misguided metaphysics, and can persist in the secure possession of its evident claims as to the infinite divisibility of space, whatever objections may be put in its way by a sophistry splitting hairs on mere concepts. However, in the application of its propositions governing space to the substance that fills it, mathematics must nonetheless accede to an examination in accordance with mere concepts, and thus to metaphysics. The above Proposition is already a proof of this. *For it does not necessarily follow that matter is physically divisible to infinity, even if it is so from a mathematical point of view ... For so far it cannot be proved that in each of the possible parts of this filled space there is also substance...* Thus something without which this proof could not find secure application to natural science was until now still missing in the mathematical proof, and this deficiency is remedied in the above Proposition (MAN, AA 4: 505-506).⁶

In this way, Kant marks its distance not only from his earlier monadological stance, but also from Euler's typical move of immediately applying the properties of Newtonian space to

the actual material bodies.

Once clarified this point – hence having established where mathematics needs to be integrated by philosophical arguments (“metaphysical”, but in the sense of his critical metaphysics), in order to project infinite divisibility into material things (or phenomena) – Kant can well pass to the proper point to be made in *Remark 2*, that is to say to the defense of infinite divisibility against some further unjustified objections possibly coming from (old) metaphysics:

Now, however, when it comes to the remaining metaphysical attacks on what will henceforth be the *physical* Proposition of the infinite divisibility of matter, the mathematician must leave them entirely to the philosopher, who in any case ventures, by means of these objections, into a labyrinth, from which it becomes difficult for him to extricate himself, even in those questions immediately pertaining to him [...] (MAN, AA 4: 506).⁷

The usage of the terminology of ‘labyrinth’ contains a clear reference to a way of characterizing the problems of the continuum, whose popularity went back chiefly to Leibniz himself.⁸

What are the possible philosophical objections Kant has in mind? As he goes on to illustrate, the infinite divisibility of a given physical whole – to which one is committed, as a result of *Proposition 4*, if one accepts the infinite divisibility of space – would entail the possibility of achieving an infinite totality: a task, however, which is held to be contradictory. The premise of the inference is that, if a whole is given, also all of its parts must be given. Kant observes that this assumption certainly holds for ‘things in themselves’, and only for them. As a result, the philosopher, in order to avoid the *reductio ad absurdum*, is faced with a dilemma: (a) either giving up the infinite divisibility of space, or (b) admitting that material beings are not things in themselves.

The move of giving up the infinite divisibility of space, however, is blocked by the unshakable force of mathematical proof. Therefore, only option (b) – unpalatable as it may be for common sense – can allow an escape from the difficulty: if material things were not be taken as things in themselves, but as mere phenomena for our sense experience, then their division could (and need not) to be held as completed, but as an indefinitely potential one, where parts are given only in the progress of division itself.

It is worth noting that the impossibility of admitting infinite divisibility is not argued for in the same way as in the thesis of the Second antinomy, but by relying directly on the properly critical view concerning the difficulty of conceiving the totality of an infinite regression. Alternative (b), for its own part, clearly echoes the transcendental solution to the Second antinomy. So far, so good. It is only then, in the third step of this complex reflection, that the explicit consideration of monadology comes to the fore, with the qualified reference to Leibniz and the distinction drawn between a good and a bad way of taking ‘monadology’.

Who is the 'great man'? A hypothesis

In the passage from the MAN, the exposition of the transcendental solution is followed without interruption by an intriguing historical reference:

A great man, who has contributed perhaps more than anyone else to preserving the reputation of mathematics in Germany, has frequently rejected the presumptuous metaphysical claims to overturn the theorems of geometry concerning the infinite divisibility of space by the well-founded reminder that space belongs only to the appearance of outer things. But he has not been understood (MAN, AA 4: 507).⁹

This figure of eminent mathematician would have anticipated the way out of labyrinth presented by Kant in the preceding lines, and consisting in distinguishing the level of things in themselves from that of phenomena.

Some reflection is in order about the identity of this 'great man'. Although many identifications have been proposed, the most credited among interpreters is with Leibniz himself – most of all, given that in the rest of our text his thought is presented as being in tune with the correct intuition attributed to the 'great man'. Still, the structure and wording of text does not give a fully convincing evidence. Another candidate, however, who at first sight might correspond at best to the qualification of a man who 'preserves the reputation of mathematics in Germany', that is Euler, can hardly harmonize with the stance ascribed to this figure. Admittedly, Euler had championed more than anyone else the mathematical view of space against philosophical challenges based on the problems of continuum; but he was far from endorsing, to this aim, the phenomenal nature of space. On the contrary – while being actually puzzled by the ontological status of space – he repeatedly defended, especially in his most popular writings on the topic, its objective reality, required and confirmed by the unshakable necessity of mathematical evidence and the success of mathematical physics. Thus his position could hardly be presented in this way.

What about Wolff? The fact that he could hardly be considered a great mathematician is not a decisive objection, insofar as Kant's expression is more nuanced: even if not a great mathematician, Wolff might well be considered as a person who had contributed to German mathematical culture. From the point of view of the position which is attributed to him, however, the identification turns out being problematic, for quite opposite grounds as in the case of Euler.

Differently from Euler, in fact, he actually maintained that space has a phenomenal status; but his aim was clearly that of defending the metaphysical view of corporeal substance against the implications of mathematical claims, and not conversely. Briefly, it would be quite implausible, and directly opposed to Kant's clear intention, to credit him with the "correct" sense of phenomenism that Kant has in mind.

A more promising candidate could be a mathematician of Kant's time, Abraham Gotthelf Kästner (1719-1800). While not a 'great mathematician' like Euler, he also could well deserve, even better than Wolff and others, the title of a person who "preserves the reputation

of mathematics in Germany”, through his activity as an author of successful textbooks and his work in the history of mathematics and in several fields of scientific-mathematical inquiry. As is well known, Kästner is cited as an influential source in these fields in several of Kant’s works, of both the precritical and critical period. Moreover, Kästner was involved in defending Leibniz’s heritage; in this role, he will be also involved in the anti-Kantian enterprise of Eberhard’s *Philosophisches Magazin*.¹⁰ But even in this context, his confrontation with Kant will remain moderate and constructive. In a way, Kästner could well figure as an ideal connecting figure in an attempt of a closer dialogue with the Leibnizian tradition.

Could we find in Kästner the interventions Kant seems to refer to (he speaks about frequently rejected attacks to mathematical knowledge)? To my knowledge, the German mathematician refers to the mathematical-philosophical discussions about the continuum at least in two of his most popular works, the *Anfangsgründe der Arithmetik, Geometrie etc.* and the *Anfangsgründe der Analyse des Unendlichen*:

*It is not necessary, to be involved in the metaphysical inquiries about space and continuity. The concept of geometrical extension is an abstract concept, which remains perfectly sound, independently of how one wants to think about those issues. One has to accept a continuous filling of space, provided one ignores the particular structure of the things which fill this space. Conversely, however, nobody is warranted in shaping metaphysical concepts according to the geometrical ones, or in applying the infinite divisibility to physical extension, only because it belongs to the geometrical one (Kästner 1758, *Die Geometrie, Erklärungen*, 3, p. 177).¹¹*

That geometry should draw infinity from the natural science, this is so wrong, that on the contrary people tried to put infinity into nature by way of reasoning, drawing it from geometry. I have already said what I think about these reasonings. The ancient philosophers already got involved in aporias by those inferences, so that Fromond gave the title of ‘Labyrinth’ to a book where he collected many of these thoughts. Biancani warned ... that the inquiry concerning indivisible beings and their presence in nature must be carried out according to different principles than those of geometry: *a warning, that several adversaries of monads should have read, before publishing mistaken inferences as if they were geometric proofs [...]* (Kästner 1761, pp. XII-XIII).

The opening lines of these quotations can well match with Kant’s *Remark*: in particular, the literal wording of the first is echoed in Kant’s passage. Still, although as a mathematician Kästner is interested in preserving the basic concepts of geometry from dialectical attacks, his main concern, especially in the second quotation, seems directed against the extension of mathematical conclusions to the physical or metaphysical field, rather than conversely.

As much ambiguous is another occurrence, even more interesting for our concern, insofar as it appears in Kästner’s *Preface* to the Raspe edition of Leibniz’s work:

That the real universe is quite different from how it appears, is a truth one can no longer doubt since Descartes ... Leibniz’s metaphysics always appeared to me to be grounded on this principle. Those who blame it for some allegedly impenetrable obscurity ... claim that the way by which Mr. Leibniz conceived the origin of extension is unexplicable. They argue through some geometrical proofs for the absurdity of considering the body as a sum of points. How can one charge with this absurdity the man, to whom continental Europe owes the calculus? ... Leibniz did not want to build up the body from his simple beings; only he wanted to give an account of the phenomenon of extension by saying that

we represent confusedly to ourselves a big number of non-extended beings. The telescope shows us some clusters of stars, where only some spots of light appear to the naked eye. This spot is not made up of stars like a whole is made up of its parts: it is an appearance, which offers itself to eyes that are too weak to be able of distinguishing the stars. These are Leibniz's elements. Is it not true, that those who have criticized them by geometrical reasonings, which Leibniz doubtless was able to make as well as they are, simply lost their efforts?¹²

Notice that, if the *Preface* is a somehow short and hurried text, we possess a parallel text by the same Kästner, where the same considerations are exposed for a bit more at length: his eulogy of Leibniz, published in 1769.¹³ In both texts, Kästner is clear in attributing to Leibniz a view of extension as a phenomenon. Moreover, he emphasizes the need of distinguishing this phenomenal extension from the physical (or metaphysical) grounding reality composed of simple beings, that is to say of Leibnizian monads. As we shall see, this line of thought harmonizes with the favourable interpretation Kant wishes to give of Leibniz in our *Remark* of the MAN. At the same time, Kästner's reading of Leibniz seems firmly committed to the view of sensible knowledge of phenomena as a form of confused knowledge – a view targeted by Kant. It is important to note, however, that this view is distinguished by Kästner from any idea of a part-whole relationship between the 'confused' appearance and the postulated simple beings.

In any event, also in this case the possible reference to Kästner is not devoid of problems. All this prevents us from a sure identification; still, I find possible, and even probable, that Kästner be the figure Kant is referring to.

Anyway: if one prefers to stay with the prevailing identification with Leibniz – what I do not wish to categorically exclude¹⁴ – one should feel at least as much as strange as in the case of the Leibnizian Kästner, to attribute to Leibniz himself – the undiscussed inspirer of all later 'monadists' – the aim of introducing his own theory in order to defend mathematical knowledge against metaphysical claims; especially if one considers that every scholar in Kant's time knew his vigorous criticism against the adequacy of "mathematical philosophy" in his discussion with Clarke. True enough, in the course of our inquiry we shall find some possible Leibnizian occurrences which might justify Kant's presentation.

Phenomenon: an equivocal term

Whoever the 'great man' might be, his correct intuition was focused on the attribution to space of a phenomenal status. But this idea, according to Kant, could be, and had been historically understood in two different ways: a misleading one, which had been so far the common one, endorsed by 'monadists', and the correct one (and Kantian), attributed also to the 'great man' himself:

[a] This proposition was taken to be asserting that space appears to us, though it is otherwise a thing, or relation of things, but that the mathematician considers it only as it appears. [b] Instead, it should have been understood as saying that space is in no way a property that attaches in itself to anything at all outside our senses. It is, rather, only the subjective form of our sensibility (MAN, AA 4: 507).¹⁵

As a consequence of assumption [a],

Because of this misunderstanding people went on thinking of space as a property also attaching to things outside our faculty of representation, but such that the mathematician thinks of it only in accordance with common concepts, that is, *confusedly* (for it is thus that one commonly explicates appearance). Accordingly, the thesis of infinite divisibility – a property demonstrated with mathematical evidence, starting from distinct notions – has been attributed to allegedly ‘confused’ concepts (MAN, AA 4: 507).¹⁶

In this way, the mistaken ontological evaluation of space and of its ‘phenomenal’ nature turns out to be tightly bound to the fundamental error of the Leibnizian-Wolffian school in the field of the theory of knowledge, already denounced as a crucial element in the amphiboly mistake: that is to say, the view of sense knowledge as a kind of ‘confused’ version of the intellectual one, instead of as the product of a wholly different source.

The battle of interpretations, therefore, concerns the way of understanding the ‘phenomenality’ of space. Kant is eager to clarify a crucial point: the ‘monadists’ invoked phenomenality, on which also his own solution relied – but evidently, in a quite different sense.

Kant’s words (“is thus that one *commonly* explicates appearance”) seem to echo a precision Wolff had been eager to make, when qualifying extended things as ‘phenomena’. In his *Cosmologia generalis*, he explained that he used ‘phenomenon’ in the ‘common’ sense of what is an object of sense perception, *that is to say* is perceived confusedly. And this – Wolff continued – in order to accurately distinguish this technical, metaphysically neutral sense of ‘phenomenon’, from the view of post-Cartesian idealism, challenging the reality of extended things:

We have put this proposition in order to show in which sense one could, and even should admit that extension and continuity are phenomena, and to avoid the suspicion of idealism; given that idealists take ‘phenomenon’ in a quite different sense, as that which only seems to exist, while not having any reality outside our mind. And idealists make this mistake ... because they do not explain this term in a distinct way, or they give it a meaning which is far from the commonly received one (Wolff, CG, § 226).¹⁷

Interestingly enough, Wolff observes that precisely those who ignore the ‘phenomenal’ (in his “correct” sense) character of extension, promoting it to the status of substance (Cartesians are clearly meant), expose themselves to the victorious challenge of idealism, because of the difficulties of thinking of the composition of continuum.

Monadology: good and bad

The final step of *Remark 2* leads back view (a) to a bad interpretation of Leibnizian monadology, while reading Leibniz’s original intuition, instead, in sense (b):

The ground for this aberration lies in a poorly understood monadology, [a theory] which has nothing at all to do with the explanation of natural appearances, but is rather an intrinsically correct Platonic concept of the world, devised by Leibniz, insofar as it is considered, not at all as object of

the senses, but as thing in itself, and is merely an object of the understanding, which, however, does indeed underlie the appearances of the senses (MAN, AA 4: 507).¹⁸

The concept of an intelligible world in Plato's style, sharply distinguished from the sensible one, was a leading idea for Kant; it had been positively used by him in the 1770 *Dissertation*, and now is used to interpret Leibniz's world of monads.¹⁹ Emphasis is laid, above all, on the neat division of the two plans: monads on one hand and phenomena on the other. Leibniz would have essentially endorsed this distinction, and the related irreducibility of space to the underlying metaphysical framework of simple substances.

According to Kant, in fact, the order of coexistence of Leibnizian monads would not represent the true nature of space, but only an intelligible order somehow corresponding (in no better specified way), at the monadic level, to the spatial framework for phenomena. In this way, the illusory escape of monadists rejected in the note to the *Second Antinomy* – I mean, their reliance on the alleged ontological priority of simple substances over space, within the framework of a relational theory²⁰ – is prevented. And this, despite the fact that in the *Amphiboly* Kant had attributed to Leibniz exactly such a view.

Therefore, Leibniz's idea, so far as I comprehend it, was not to explicate space through the order of simple beings next to one another, but was rather to set this order alongside space as corresponding to it, but as belonging to a merely intelligible world (unknown to us) (MAN, AA4: 508).²¹

Moreover, Leibniz would have interpreted the distinction in the sense of two ways of thinking of a world, hence taking the phenomenal nature of space in sense [b] above. Thus, ultimately, he would have anticipated Kant's own solution, pointing to the role of space as a subjective form of our experience:

Thus he asserts nothing but what has been shown elsewhere: namely, that space, together with the matter of which is the form, does not contain the world of things in themselves, but only their appearance, and is itself only the form of our outer sensible intuition (MAN, AA 4: 508).²²

It is worth comparing our *Remark* with the later characterization of Leibniz's monadology in the final pages of Kant's polemical essay against Eberhard. This conclusion of *On a discovery* is the text where the 'Kantian' image of Leibniz is most emphasized – this time, certainly, also for tactical and polemical grounds:

It is really believable that Leibniz, the great mathematician, held that bodies are composed of monads (and hence space composed of simple parts)? He did not mean the physical world, but its substrate, the intelligible world, which is unknown to us. This lies merely in the Idea of reason, and in it we must certainly represent to ourselves everything we think as a composite substance as composed of simple substances ... He infers nothing from this, however, concerning sensible beings. He wishes these latter to be considered as relative to a special mode of intuition, of which we are only capable in regard to knowledge which is possible for us [...] (ÜE, AA 8: 248).²³

It is easy to see, how all motives we have found in the MAN are taken again: the

opposition of the ‘great mathematician’ Leibniz to the nonsense of physical monadology (by the way, a rhetorical turn of phrase which strongly echoes that of Kästner in his *Preface*); his alleged endorsement of a Platonic view, where an intelligible framework is accurately distinguished from the sensible one; the validity of the monadological inference at the level of things in themselves, and the causal-explanatory gap between the two levels; finally, the reference of the distinction to our cognitive faculties.

The attribution of such a view to Leibniz, however, cannot help to appear strained: even if one could grant him the distinction, and the phenomenal character of bodies in space, it looks difficult to deny the foundational and explicative value he claimed for his monads with respect to the related phenomena. Apparently, the expressive connection, or the “well-foundedness” of phenomena, is Leibniz’s central insight which gets lost in Kant’s reading. Nor seems the ideality of space stated by Leibniz in the Clarke correspondence to be the same as that which is proper of Kantian subjective space.

How could this ‘charitable’ (and annexing) reading of Leibniz seem plausible to Kant, or could be made plausible by him? First of all: why was he interested in putting forward this interpretation, and in detaching Leibniz from his commonly received image?

2. RESHAPING LEIBNIZ’S PORTRAIT

Behind physical monadology: Monads versus Atoms

First of all, we can wonder about what could in principle attract Kant’s attention on the discrepancy between Leibniz’s original doctrine and his allegedly authorized heirs. A first clue was offered by Wolff’s admission of his distancing from the master with his physical interpretation of monadology, at the expense of Leibniz’s characterization of monads as representative centres.²⁴

Now, the *Remark* to the Thesis of the *Second Antinomy* in the *Critique of pure reason* shows that Kant was well aware of this ordinary deviation of Wolff and was eager to distinguish the consequent standard usage of monads made by contemporary ‘monadists’ within the cosmological field (a usage for which he would prefer the label of ‘atomism’) from the proper (Leibnizian) sense of ‘monad’, which should be rooted, instead, wholly on the ground of ‘apperception’ (i.e., self-knowledge), hence of the philosophy of mind.²⁵ Here and only here, and not in the problem of the composition of matter, one can find, according to Kant, the bedrock intuition – admittedly illusory – lying behind the philosophical quest for simplicity.²⁶

Interestingly enough, if we come back to the text of the *Amphiboly* bearing all this in mind, we realize that Kant also there was careful in presenting the core of the monadological view according to the original Leibnizian intuition: thus, he emphasized the mind-like character of monads, given that their internal predicates cannot but be representative states. And his speculative reconstruction of Leibniz’s monadology was based on the intrinsic/

extrinsic dialectic, without reference to the problem of the constitution of material substance. More precisely, Kant envisaged also the physicalist interpretation of monadology, but only as a kind of derived or subordinated specification of the more general concept, applied to substances in general: “Thus Leibniz made of all substances, which he represented to himself as noumena – *and even of the constitutive elements of matter* - ... some simple subjects, endowed with representative force - in a word, some monads”.²⁷

In the context of the *Amphiboly*, of course, emphasis was laid on Leibniz's mistaken claim of knowing things in themselves. But the comment to the *Second antinomy* has shown us what, in the original Leibnizian approach to monadology, was still appreciable for Kant in his critical period: I mean, its detachment from physical issues and its essential autonomy with respect to the cosmological problem.

A 'Reflexion' on Leibniz

Also Kant's own development on this topic, from the precritical period until the MAN, is marked exactly by his abandonment of physical monadology, with its core idea of taking monads as the basic building blocks of bodies, or corporeal substances. His critical reflection, from the antinomy chapter to the MAN, ends up with dissolving this view, in all its versions – his own earlier dynamical one included, as we have seen in *Proposition 4* of his *Dynamics*.

In Kant's *Reflexionen* on the topic of composition and simplicity, during the preparatory years before the *Critique*, one can follow the emergence of this train of thought, guided by the irreducibility of the phenomenal level to the metaphysical one – a basic intuition already stated in the *Dissertation* of 1770, but further worked out with the deepening of the critical standpoint.²⁸ A major role in this process – decisive for his mature theory of space and time and its application to the antinomy problems – was played by the reflection on the contrasting mereological properties of ideal wholes on one hand, that are logically prior to their parts, and actual wholes on the other, whose parts are prior to them: in Kant's terminology, 'analytic' and 'synthetic' wholes, respectively. This contrast was explained by the irreducibility of the respective sources of knowledge and confirmed, in its turn, this irreducibility, hence the impossibility of blurring the logic appropriate to things in themselves and that appropriate to phenomena. From this perspective Kant commented, in his *Reflexionen*, the sections of Baumgarten's *Metaphysics* devoted to the simple-composite polarity, and began to disentangle the mixing of the two levels presupposed by the standard monadological approach.

Interestingly enough, in the context of one of these *Reflexionen* one can find an explicit reference to Leibniz's thought about phenomena. The passage is worth quoting at length:

Leibniz's sentence, according to which bodies are phenomena, does not tell anymore than that the idea of body is an idea of sense, whose underlying intellectual substratum is unknown to us; that is to say, it is an idea which does not express anything but a notion arising from the relationship of some unknown substances with the sensitive way of knowing. If this notion is taken as if it were intellectual, then we say that it is a substantial phenomenon [phaenomenon substantiatum]. If one abstains from this, however, then bodies, taken as phenomena, are not made of simple elements, that is to say if one divides according to the concept of space the division has no end. True enough, if this is taken

according to intellectual knowledge, then it is made up of monads. *But this assumption does not determine any consequence, that is to say it cannot work as a principle of empirical knowledge.* It is simply required that the connection of the soul with bodies is different not objectively, but only according to the form of its knowledge, from its connection with simple substances in general ... Space, however, is the formal element in phenomena; if, instead, it is taken as the true way of conceiving the connection among substances, then it must be said to be an intellectual phenomenon, and in this case it is put beyond the scope of sense knowledge.

If sense knowledge, while not changing its species, is extended to infinity, it remains sensitive; accordingly, we can never find empirically that bodies are built up simple elements; therefore *monads are useless in physics, and also in metaphysics their usage is only negative*, in order to avoid that, by taking phenomena for the true of objects, the axioms of sense knowledge become, as it were, intellectual (Refl 4500, AA 17: 574-575).²⁹

Given the nature of this text – a scattered remark, with no wider context – it is difficult to say, whether and to which extent Kant is attributing to Leibniz himself some of these ideas, or – more probably - is simply developing his critical considerations, starting from Leibniz's thesis about the phenomenal nature of bodies. Anyway, the fact that it develops his reflection starting precisely from there is very interesting for our concern.

Kant suggests here a kind of 'minimalist' interpretation of Leibniz's view of bodies as phenomena, which turns out to be compatible with his own theory of space as the form of sense knowledge: as a matter of fact, we are faced here with the reading that will be decidedly attributed to the author of *Monadology* himself by the later *Remark* of the MAN.

Admittedly, Kant is well aware that this is not the only possible interpretation – maybe not that of Leibniz himself: his phenomena can be taken as if they were substantial things, hence as the object of intellectual knowledge. And this, clearly enough, from Kant's point of view, opens the road to the amphiboly, or worse to the misunderstandings of physical monadology; while the other reading points to a clear-cut distinction between metaphysics and physics.

We have already seen Kant stressing, in the *Critique*, the objective divergence between Leibniz's mind-like monads and the Wolffian approach of physical monadology. Combining this with the other relevant clue offered by the *Reflexion* above, one might conclude that the seeds for an attempt at systematically distinguishing Leibniz from his allegedly legitimate heirs were already on place. But this makes the question the more urgent: why did Kant in 1786 decide to make this distinction explicit, and even to attribute to Leibniz the prefiguration of his own view?

A possible 'Kantian' Leibniz? Some textual hints for a critical reassessment

At this point, one can hardly avoid wondering, which *direct* knowledge did Kant actually have of Leibniz, over and above what had been filtered through the German *Schulmetaphysik* in which his philosophical training had took place? More specifically: given that in 1786 he had already worked out his fundamental critical reading of Leibniz's philosophy, can we explain his reassessment in the MAN through a reading of some Leibnizian texts which he had previously

ignored, or neglected?

Here we are faced with a fact: surprising as it may be, Kantian scholars make us sure that we not have any precise information available about Kant's reading of Leibniz's texts. We know well of some of them he certainly read, e. g. the Leibniz-Clarke correspondence; for some others, we have no clear indication; in general we are not able to date any reading.

In this condition, it turns out very difficult to individuate any plausible textual basis for Kant's apparent change of judgment in the MAN. What we can do, is to consider all Leibnizian texts edited at the time of the composition of the MAN, hence in principle accessible to Kant: fundamentally, besides obviously those which appeared already during Leibniz's life – the *Theodicy* and all writings published in the periodicals – the Clarke correspondence quoted above, the *Monadology* and the other pieces to be found in some collections: the one edited by Des Maizeaux (1720), the important German edition by Raspe (1765), which revealed to the learned public the *New Essays*, and the Dutens edition (1768), by then the largest one of Leibniz's works. It is easy to see, how all these works were in principle accessible already before Kant's critical turn. No further textual discoveries or editions came out in the following years; but we cannot exclude, of course, that between the composition of the *Critique* (hence, also of the *Amphiboly*, which should represent, according to Kant's scholarship, one of the oldest layers of the work) and that of the MAN, Kant came across some previously unnoticed Leibnizian texts. Anyway, all that would be barely conjectural.

In this situation, our question has to be reformulated in this way: is there, in the set of Leibnizian writings in principle accessible to Kant, some text which could have justified, if not inspired, his new assessment in the MAN? I wish to stress that I am not making here an issue of factual sources, but I wish only to consider which texts could have objectively provided a basis for Kant's interpretation, without entering the (apparently undecidable) question of his actual reading of any of them. Still, this search distinguishes itself from a quite general theoretical comparison with Leibniz's thought, insofar as it intentionally confines itself within the scope of the texts historically available in 1786.

Dan Garber, who tried to make, instead, a general objective comparison, concluded that it makes few sense to wonder whether Kant's "charitable" interpretation of monadology was correct, insofar as Leibniz did not have, for his own part, any firm view on the topic; as far as the relationship of monads with bodies is concerned, many different layers cross together in his thought, without maybe never finding a final decision³⁰ – although at Kant's time the very limited availability of Leibniz's texts and the hegemony of the standard reading, coming essentially from the *Monadology* and its Wolffian reception, could obscure this situation.

Now, although the scope of my verification is much more limited than Garber's, insofar as I do not consider the mass of Leibniz's writings unpublished at the end of the eighteenth century, still also in the relatively small group of texts available at that time one could have detected the trace of different trains of thought, some of which potentially alternative to the standard 'Wolffian' interpretation. In what follows, I wish to present a selected sample of texts which could have offered to Kant some powerful hint to a 'fresh look' to Leibniz's heritage,

beyond the filter of Wolffian tradition and potentially more in tune with his own intuitions.

Consider, first of all, some passages from Leibniz's writings related to the discussion with Pierre Bayle on the 'new system' and on pre-established harmony. These texts could have attracted the attention of a reader like Kant, given that pre-established harmony had been intensively discussed in his philosophical background, and was still a historical model well present in his reflection. Moreover Leibniz, in his *Remarks* on Bayle, chiefly devoted to the article *Rorarius* in the second edition of Bayle's *Dictionary*, takes briefly into account also another famous article devoted to Zeno's paradoxes. Bear in mind that Bayle's strategy in this article aimed at dissolving the reality of Cartesian extension, by relying on the apories of continuum. Wolff probably had in mind exactly this background, when he warned that rejecting the phenomenality of extension in the only acceptable sense amounted to being committed to the 'bad' sense of phenomenality, implying the loss of reality for extension: in a word, being committed to idealism.

On the contrary, Leibniz advances here, to escape from Bayle's aporia, a sense of 'phenomenon' different from the 'standard' one envisaged by Wolff, and closer to that which was relevant in the discussion about post-Cartesian 'idealism':

what is real in extension and motion consists only of the ground of order and of the succession of phenomena and perceptions according to a rule. Academics and Sceptics on one hand, as well as those who tried to contrast them on the other, seem embarrassed chiefly because they looked, in the sensible things outside us, for some greater reality than that which is proper of well regulated phenomena (Dutens II, 78-79).³¹

A present-day reader knows that this is not an isolated idea, but the expression of a train of thought worked out by Leibniz in many contexts: I mean, a kind of decidedly phenomenistic approach, according to which the only sense of reality open to us has to be found in the coherence of our perceptions, or in the possibility of connecting them according to the spatiotemporal order and some lawlike patterns. It hardly needs to be emphasized, how much this kind of approach can be held to anticipate some Kantian intuitions - although Kant himself could ignore almost all of these texts, maybe except for some suggestive hint, like this one.

Leibniz then goes on to consider the nature of space and time, as typical examples of ideal continua:

I acknowledge that time, extension, motion, and the continuum in general, as we understand them in mathematics, are only ideal things, that is, they express possibilities, just as do numbers ... But to speak more accurately, extension is the order of possible coexistence, just as time is the order of possibilities that are inconsistent but nevertheless have a connection... But space and time taken together constitute the order of possibilities of our entire universe, so that these orders - space and time, that is - relate not only to what actually is but also to anything that could be put in its place, just as numbers are indifferent to the things which can be enumerated. This inclusion of the possible within the existent makes a continuity which is uniform and indifferent to every division. It is true that perfectly uniform change, such as the mathematical idea of motion, is never found in nature any more than than are actual figures which possess in full force the properties which we learn in geometry ... Yet the actual phenomena of nature are arranged, and must be, in such a way that nothing happens which violates the law of continuity, which I introduced into philosophy

... or any of the other most exact rules of mathematics. On the contrary, things can be rendered intelligible only by these rules [...] (Loemker, 583).³²

We find here the same definition of space as order of coexistence that will occur in the discussion with Clarke; but here it is inserted in a context which illustrates better the sense of the 'ideality' Leibniz attributes to it. Far from implying a dependence of space and time on things, Leibniz presents them as 'orders' of possibilities, which impose to the created things the conditions for their existence and intelligibility.

Nor seem these mathematical notions to be associated here to confused perceptions; on the contrary, their heuristic and explanatory power is contrasted to the limits of our perception. Instead of talking about confusion, rather Leibniz connects his view of space and time as 'ideal' notions with his general view of mathematical concepts as useful 'fictions', worked out within his discussion on the ontological status of infinitesimals:

Although mathematical thinking is ideal ... this does not diminish its utility, because actual things cannot escape its rules. In fact, *we can say that the reality of phenomena, which distinguishes them from dreams, consists in this fact. However, mathematicians do not need all these metaphysical discussions, nor need they embarrass themselves about the real existence of points, indivisibles, infinitesimals, and infinites in any rigorous sense*" (Loemker 583-4).³³

These lines connect, again, the role played by space, time and mathematical concepts with the peculiar sense of the reality of phenomena, which already emerged in a preceding quotation. Also the will of preserving mathematics from metaphysical discussions is suggestive.³⁴ Remember how a difficulty for the attribution to Leibniz himself – but also to a 'Leibnizian' like Kästner – of the view of Kant's 'great man' was the characterization of the latter as a defender of mathematical knowledge against metaphysical worries and concerns: what seemed, at first sight, more proper to the Newtonian adversaries of Leibnizian philosophy. As a matter of fact, Leibniz's vindication of the merely phenomenal status of mathematical extension had been commonly read by his heirs (and their adversaries) as a way of diminishing its ontological value, on behalf of monadological metaphysics. But here we have a text where Leibniz, the great mathematician, explicitly vindicates the autonomy of mathematics *and its philosophical relevance*, and we can see how it was objectively possible to think seriously of him, the father of monadology, as being engaged in defending the rights of mathematical knowledge on the issue of infinite division against philosophical objections, like the classical Zenonian ones related to the 'labyrinth' of continuum.

If Kant could have known the detail of Leibniz's solution of the continuum apories, he would have apprehended that it was based on a neat distinction of the level of mathematical continuum from that of actual things; and this distinction, in its turn, was based on a mereological analysis close to that which played a major role in Kant's own reflection on space and time, his mature view about them and its application to the antinomy problems. I am thinking to Leibniz's contrast between ideal wholes that are logically prior to their parts on one hand, and actual wholes, whose parts are prior to them: in Kant's terminology, 'analytical' and

‘synthetical’ wholes, respectively.

As a matter of fact, some texts where Leibniz made this distinction explicit had been edited by the time of Kant. Even if the de Volder correspondence, or some text from the Foucher correspondence – where this topic emerges in the clearest way – were still unpublished, we should not forget, in fact, that the Dutens edition included a significant number (thirty) of letters to Des Bosses. Consider this passage from the letter of July, 31, 1709:

[...] Space is something continuous, but ideal, whereas mass is discrete, indeed an actual multitude, or a being of aggregation, but one from infinite unities. In actual things, simples are prior to aggregates; in ideal things, the whole is prior to the part. *Neglect of this consideration has produced the labyrinth of the continuum* [...] (LR, 141).³⁵

Once again, we have no independent objective element to adjudicate the possibility that Kant was acquainted with the des Bosses correspondence. As is well known, it involved some exoteric and theologically-minded metaphysical issues, like that of the *vinculum substantiale*, presumably very far from Kant’s interests; still, beside this metaphysical hypothesis – and, more interestingly, in neat alternative to it – the exchange presented, especially in its latest stage, some of the most relevant developments of the phenomenist line of thought that already popped up in the discussion on the new system and elsewhere. Thus, in the letter of June 16, 1712:

I regard the explanation of all phenomena solely through the perceptions of monads agreeing among themselves, with corporeal substance excluded, to be useful for a fundamental investigation of things. In this way of explaining things, space becomes the order of coexisting phenomena, as time is the order of successive phenomena [...] (LR, 255).³⁶

Moreover, Leibniz in the same letter is crystal-clear in excluding monads themselves from space, and in emphasizing that they are not ingredients, but conditions of phenomena:

there is no absolute or spatial nearness or distance between monads. To say that they are crowded together in a point or disseminated in space is to employ certain fictions of our mind when we willingly seek to imagine things that can only be understood (ibidem).³⁷

Finally, he repeats, once again, that only in this way one can escape from the ‘labyrinth’ of continuum:

No extension or composition of the continuum is involved in this account either, and all the problems about points disappear. As I tried to say somewhere in my Theodicy, the difficulties concerning the composition of the continuum should warn us that we need to conceive things very differently” (ibidem).³⁸

In these letters Leibniz contrasts this type of view with the hypothesis of a more robust ontological status for *aggregata*, or corporeal substances. The resulting contrast between mere phenomena on one hand, and *phaenomena substantiata* on the other, objectively recalls the alternative envisaged in Kant’s own reflection, and in his interpretation of Leibniz’ ‘*sententia*’

about bodies and phenomena. On this point, Kant – differently from Leibniz - has certainly decided against the substantializing of phenomena, by embracing the opposite reduction of (material) substance to the status of phenomenon (“*substantia phaenomenon*”).

Kant should have been somehow aware of the plurality of alternative suggestions potentially present in Leibniz's texts, before and beyond their scholastic systematizing. In any event, our sketch of a possible way through some texts which already had come to light during the century after Leibniz's death shows that Kant's sympathetic (and self-assimilating) reading of Leibniz could have found some good textual basis in the writings of the founder of monadology.

Note: a forced polarity

As we have seen, the ‘good’ interpretation of monadology envisaged by Kant is crucially committed to a neat dichotomy between the metaphysical level of monads and the phenomenal one of bodies. In Kant's view, the physical world is detached from its metaphysical ground and entirely delivered to the phenomenal level. Mathematical idealities, like space, are the inner tissue of phenomena. In Leibniz, however, one could detect – besides some texts apparently endorsing a kindred view – a more complex layering: that is to say, the acknowledgment of an intermediate, properly ‘physical’ level between the metaphysical groundfloor on one hand and mathematical idealities on the other. From the mereological point of view, a third type of whole is recognized: physical wholes are *actually* infinitely divided.

But this means that Leibniz – the great mathematician – while being well aware of the need of avoiding the apories of the continuum, would have not subscribed to Kant's argument against real infinite divisibility, as it appeared in the *Remark* of the MAN. According to Leibniz, in fact, Kant's objection, based on the impossibility of achieving an infinite totality, does fail. In his view, the givenness of an infinite multiplicity is not prevented by the impossibility of considering it as a whole; and the apories of infinite number are neutralized by simply denying that such a number does exist.

Still, Kant does not consider (maybe, does not know) these subtle aspects of Leibniz's thought, which he could have hardly appreciated. If he had known them, he would have probably taken all this as a further proof of the coexistence in Leibniz's thought of several contrasting trains of thought on the matter, included those which could give occasion to the profoundly mistaken ‘physical’ reading of his monadology.

Between amphiboly and apology: a lost Platonic paradise

A question is still open: if Kant's reassessment of Leibniz's stance was dictated by serious theoretical appreciation – and all the more, if we were even to concede that he actually drew some elements from a closer reading of some Leibnizian text - why is there no trace of anything of the sort in the second edition of the *Critique*, where the *Amphiboly* is repropounded without the smallest change?

Once again, of course, one might look for an answer by appealing to tactical motives, that is to say to the opportunity of presenting his own philosophy as a radical alternative to an older one. Moreover, the familiarity of public with the *Schulmetaphysik* as the authorized version of Leibniz's philosophy would have discouraged the recourse to subtle distinctions, where it was worth sketching a schematic but also pregnant contrast between two philosophical approaches.

Despite appearances, however, Kant's judgements can be acknowledged as globally coherent also from a strictly philosophical point of view. Let me reconsider: in the MAN he had emphasized how Leibniz's stance could (and should) be accurately distinguished from the physical monadology of the Wolffian tradition: his monads could not be held as the elements of corporeal substances.

The view criticized in the *Amphiboly* was already not identified with that mistaken doctrine attributable, rather, to the Wolffian reading: a view which turned out to be wholly incoherent. On the contrary, the core of the *Amphiboly* view laid exactly in the construction of a purely intellectual world: something perfectly consistent in itself, even necessary according to the logic of pure understanding, but not to be taken as a real knowledge of our world.

Now, in the MAN this view of an intellectual world had been presented as the central move for a correct reading of monadology. But then, how to conciliate the persistent negative evaluation of this central element, with the seemingly positive one it received in the MAN? ³⁹

An answer seems to be immediately to hand: the amphiboly denounced the blurring of plans, whose distinction was the decisive aspect in the positive interpretation of monadology. But this blurring, in its turn, depended on a crucial mistake in Leibniz's theory of knowledge.

Now, this alleged Leibnizian mistake was one that was held by Kant to persist also within the most 'charitable' reading of Leibniz; even together with its aspect potentially most approaching to his own view, namely the reduction of space and its phenomenal order to some structural features of our way of perceiving. According to Kant, in fact, Leibniz's admittedly subjective view of space was still open to a fatal interpretative ambiguity, insofar as it could be read in the sense of the doctrine of sensibility as a 'confused' version of intellectual knowledge .

Consider the later occurrence of the 'Kantian' reading of Leibniz in *On a Discovery*. After praising the aspects of the monadological intuition quoted above, Kant points out – admittedly, in a slightly oblique way - to a problem:

We cannot, therefore, be disturbed by his explanation of sensibility as a confused mode of representation, but rather must set in its place another one which is more in accordance with his purpose. Otherwise his system will contradict itself. The acceptance of this error as a deliberate and wise precaution ... can hardly be regarded as a contribution to the glory of the master (ÜE, AA 8: 248-249).⁴⁰

In the preceding discussion in *On a Discovery*, in fact, Kant always assumed that his 'Leibnizian' adversaries – and in this case, apparently, Leibniz himself - endorsed this fundamentally mistaken view of sensibility, hence they considered phenomenal knowledge as a kind of confused perception of a real, intelligible multiplicity. By the way: ironically enough,

while Kant was striving to credit Leibniz with some of his own views which the latter would have hardly subscribed to, he insisted in seeing the main obstacle to their full agreement in a theory – that of the ‘confused’ nature of sense perception – whose attribution to Leibniz himself is at best controversial, if not totally misleading.⁴¹ Still, in this case Kant saw a real continuity between Leibniz and his Wolffian followers. A text like Kästner’s *Preface* to the Raspe edition, for instance, could confirm this reading insofar as – while rejecting the ‘physical’ interpretation of monadology⁴² – it professed that view of sensibility.

At the same time, Kästner’s way of presenting the topic of confused perception (by the way, a term which he does not use) could support a reading which capable of distinguishing it from the view attacked by Kant. Kästner, in fact, does insist on the leap between the appearance of extension and its real basis in simple beings: in his Leibniz-minded metaphor, remember, the perception of each single star is not a part of the resulting confused appearance, but only its objective basis.

Let this be as it may, the conclusion of Kant’s last passage is important: he is well aware that Leibniz’s “system”, as such, cannot be assimilated to his own, if not at the price of freeing it from the compresence of some elements which are objectively contradictory.⁴³

But the inadequacy of historical Leibniz’s stance has another aspect. One should not think, indeed, that the ‘Platonic’ world envisaged by Leibniz, even once accurately distinguished from the phenomenal world, was a metaphysical possibility viable to Kant. As observed above, in Kant’s reading Leibniz would have arrived, at best – that is to say, after being cleaned up from his inadequate view of sensibility – at the stance illustrated by the 1770 *Dissertation*.⁴⁴ But of course, this was no longer Kant’s critical stance. Thus, the egological approach to the simple referred to in the Antinomy was for him certainly more defensible and consistent than the cosmological approach from the composition of matter; but ultimately it was not able to provide any true metaphysical knowledge, as the criticism developed in the *Paralogism* chapter shows.

In any event, Kant could well think of having pointed to some Leibnizian motives and ideas which hinted at, or prefigured some of his own solutions, but were still intertwined in Leibniz with other contrasting ideas, and located in a globally pre-critical context. And in a sense, we can say that this insight was basically right.

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ABSTRACT: In the *Amphiboly* chapter of the *Critique of Pure Reason*, as is well known, Kant launches a devastating attack against Leibniz's philosophical framework. Some years later, however, in a *Remark* in his *Metaphysical Foundations of Natural Philosophy*, he suggests a positive appreciation of Leibniz's monadology, by sharply distinguishing it from his Wolffian allegedly heirs and assimilating Leibniz's originary intention to his own view. This re-evaluation will be confirmed in the polemics against Eberhard, although meanwhile Kant had re-proposed his *Amphiboly* without any correction in the second edition of the *Critique*.

This intriguing reassessment of Leibniz's view poses to interpreters several puzzling issues, both conceptual and historical – concerning Kant's intentions, the viability of his 'charitable' reading of Leibniz and his possible textual basis – which I try to clarify in my paper.

KEYWORDS: Kant – Leibniz – Monadology – Leibnizian-Wolffian philosophy – Infinite divisibility

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NOTES

1 See also Allison 1973.

2 Useful remarks have been made to this passage in the excellent comments and studies devoted to the MAN. See Pollok 2001, pp. 251-273; Friedman 2013, pp. 143-170, and the comments to his translation in CK. A detailed and very valuable study specifically devoted to the problem of Kant's reassessment is Pecere 2013 pp. 7-41. See also Pecere 2007. Although these contributions provide a very good account of the text, I think that the problems involved are worth some further inquiry. See also, on Kant's reevaluation of Leibniz, more in general, Jauernig 2008.

3 MoPh, AA 1: 473-487. On the *Physical Monadology*, see the classic Adickes 1924; Sarmiento 2005; Malzkorn 1998 (the last considers also the relationship between the early work and the MAN).

4 It is the Academy Prize of 1747. For this debate, see Palaia 1993; Pasini 1994, pp. 107-163.

5 For Euler's writing related to the Academy prize, anonymously published, see *Considérations sur les éléments des corps, dans lesquelles on examine la doctrine des monades et l'on déclare la véritable essence des corps*, now in Euler s. III, vol. 2. Euler devoted several other writings to the problems of the nature of space. His most popular attack against monadology is contained in his *Letters to a German Princess*, published some years after Kant's conciliatory attempt.

6 "Die Mathematik kann zwar in ihrem inneren Gebrauche in Ansehung der Chicane einer verfehlten Metaphysik ganz gleichgültig sein und in sicherem Besitz ihrer evidenten Behauptungen von der unendlichen Theilbarkeit des Raumes beharren ... allein in der Anwendung ihrer Sätze, die vom Raume gelten, an die Substanz, die ihn erfüllt, muß sie sich doch auf Prüfung nach bloßen Begriffen, mithin auf Metaphysik einlassen. ... Denn es folgt nicht notwendig, daß Materie ins Unendliche physisch theilbar sei, wenn sie es gleich in mathematischer Absicht ist ... wofür nicht bewiesen werden kann, daß in jedem aller möglichen Theile dieses erfüllten Raumes auch Substanz sei ... Also fehlte doch bisher dem mathematischen Beweise noch etwas, ohne welches er auf die Naturwissenschaft keine sichere Anwendung haben konnte, und diesem Mangel ist in obstehendem Lehrsatze abgeholfen worden".

7 "Was nun aber die übrigen Angriffe der Metaphysik auf den nunmehr physischen Lehrsatz der unendlichen Theilbarkeit der Materie betrifft, so muß sie der Mathematiker gänzlich dem Philosophen überlassen, der ohnedem durch diese Einwürfe sich selbst in der Labyrinth begiebt...".

8 The metaphor, however, was not coined by him. When adopting it to qualify the continuum problem, he usually referred to a book of the theologian Libert Fromond. Fromond's book is still quoted in Kästner's *Preface* to the Raspe edition of Leibniz (see below).

9 “Ein großer Mann, der vielleicht mehr als sonst jemand das Ansehen der Mathematik in Deutschland zu erhalten beiträgt, hat mehrmals die metaphysischen Anmaßungen, Lehrsätze der Geometrie von der unendlichen Theilbarkeit des Raums umzustossen, durch die gegründete Erinnerung abgewiesen: daß der Raum nur zu der Erscheinung äußerer Dinge gehöre; allein ist er nicht verstanden worden”.

10 See his essays in Eberhard’s magazine: Kästner 1790, and Kant’s related comments in AA 20: 410-423. For all this, see Fichant 1997. I was encouraged in taking seriously the hypothesis of Kästner by a hint in a paper by Michel Fichant.

11 “Es ist nicht nötig, sich hie in metaphysische Untersuchungen des Raumes und der Stetigkeit einzulassen. Der Begriff der geometrischen Ausdehnung ist ein abstracter Begriff, welcher richtig bleibt, wie man auch sonst diese Dinge sich vorstellen will. Man muß eine stetige Ausfüllung des Raumes annehmen, sobald man auf die besondere Beschaffenheit der Dinge, welche den Raum ausfüllen, nicht sehen will. Aber gegentheils ist niemand berechtigt, die metaphysischen Begriffe nach den geometrischen zu richten, oder die Theilbarkeit ohne Ende, der physischen Ausdehnung beyzulegen, weil sie der geometrischen zukommt. Bey dieser findet sie statt, weil ihr allgemeiner Begriff der Teilung keine Grenzen setzt. Wo jeder Theil durch nichts als die Größe und den Ort, von andern unterschieden ist, da kann man aus jedem Theile, Dinge die nicht völlig eben den Ort einnehmen, eben die Größe haben, neue Theile, machen. In der Natur aber finden wir, daß sich die Theile von einander durch mehr Dinge als durch Ort und Größe unterscheiden, und also könnte hie etwas die Theilung ohne Ende hindern, die in der Geomtrie verstatet ist. Die natürliche Logik, und selbst Beyspiele der Geometrie zeigen, daß Bestimmungen aus einem allgemeinen Begriffe statt finden, die ein besondere nicht zulässt”.

12 “Que l’univers réel soit toute autre chose que l’apparent c’est une vérité, dont il semble qu’on ne doit plus douter depuis Descartes ... La métaphysique de Leibniz m’a toujours paru fondée sur ce principe. Ceux qui lui reprochent une impenetrable la trouveroient très claire pour peu qu’ils voulassent se defaire de certains préjugés assez semblables aux especes intentionelles, que Descartes avoit à combattre. Ils soutiennent que la maniere, de laquelle Mr. Leibniz a conçu l’origine de l’étendue ne sauroit s’expliquer. Ils prouvent par des demonstrations geometriques, comment il est absurde de regarder le corps comme une somme de points. Peut on charger de cette absurdité celui, à qui tout le continent de l’Europe doit le alcul de l’infini? ... Ce n’est pas le corps que Ms. Leibniz compose des estres simples, c’est le phénomène de l’étendue, dont il croit rendre raison, en disant que nous nous representons confusement un grand nombre d’etres non-étendus. Le telescope nous decouvre des amas d’étoiles, où l’oeil ne voit que des taches lumineuses. Cette tache n’est pas composé des étoiles comme le tout l’est des parties: c’est une apparence, qui s’offre à des yeux trop foibles pour distinguer les étoiles. Voici ce que sont les Elemens de Leibniz. Ceux qui les ont combattus par des raisonnemts geometriques, que Leibniz sans doute savoit faire aussi bien q’eux, n’on-pas pas perdu bien des peines?”, in OPLF: *Préface de Mr. Kästner, Professeur des Mathématiques et de la Physique à Goettingue*, p. IV.

13 Kästner 1769. For the exposition of Leibniz’s monadology, see, pp. 11-15. Here also, Kästner see as central insight of the monadological doctrine the idea the fundamental contrast between the real world and its appearance to our sense perception.

14 Other identifications which have been advanced seem to match scarcely with Kant’s indications: Lambert was an illustrious mathematicians, esteemed by Kant, but he does not profess a phenomenistic theory of space; Ploucquet – whose identification with the ‘great man’ has been endorsed by Gerlach in a learned paper, and whose vindication of the nature of space, on the occasion of the Academy prize, is actually an interesting one – could hardly satisfy the role Kant gives to the ‘great man’ in mathematical culture. See B. Gerlach, *Wer war der ‘grosse Mann’, der die Raumtheorie des transzendentalen Idealismus vorbereitet hat?*, in *Kantstudien* 89/1 (1998), p. 1-34.

15 “[a]Man nahm diesen Satz so, als ob er sagen sollte: der Raum erscheine uns selbst, sonst sei er eine Sache oder Verhältnis der Sachen an sich selbst, der Mathematiker betrachtet ihn aber nur, wie er erscheint; [b] anstatt daß sie darunter hätten verstehen sollen, der Raum sei gar keine Eigenschaft, die irgend einem Dinge außer unseren Sinnen an sich anhängt, sondern nur die subjective Form unserer Sinnlichkeit...”.

16 Bei jener Mißdeutung dachte man sich den Raum immer noch als eine den Dingen auch außer unserer Vorstellungskraft anhängende Beschaffenheit, die sich aber der Mathematiker nur nach gemeinen Begriffen, d. i. verworren, denkt (denn so erklärt man gemeinhin Erscheinung) und schrieb also den mathematischen Lehrsatz von der unendlichen Theilbarkeit der Materie, einen Satz, der die höchste Deutlichkeit in dem Begriffe des Raums voraussetzt, einer verworrenen Vorstellung vom Raume...”.

17 “Propositionem hanc ideo apponimus, ut appareat, quo sensu admitti possit, immo debeat, extensionem et continuitatem phaenomena esse, ut ideo in suspicionem Idealismi non incurras, cum Idealistae alio sensu phaenomenon appellent id, quod tantum existere apparet, nihil vero realitatis extra mentem habet: in quem errorem incidunt Idealistae ... propterea quod terminum vel non distincte explicant, vel significatum a recepto alienum eidem tribuunt”.

18 “Der Grund dieser Verwirrung liegt in einer übelverstandenen Monadologie, die gar nicht zur Erklärung der Naturerscheinungen gehört, sondern eine von Leibnizen ausgeführter, an sich richtiger platonischer Begriff von der Welt ist, so fern sie gar nicht als Gegenstand der sinne, sondern als Ding an sich selbst betrachtet, blos ein Gegenstand des Verstandes ist, der aber doch den Erscheinungen der Sinne zum Grunde liegt”.

19 See on this Fichant 2013.

20 See the Remark to the *Second Antinomy*. KrV A 441, 443/B 469, 471: the ‘monadists’ claim that monads and their dynamical

relations are the conditions of the possibility of space. For Kant, however, the reverse is true, given that we know only phenomena, for which space is the possibility condition.

21 “Daher war Leibnizens Meinung, so viel ich einsehe, den Raum durch die Ordnung einfacher Wesen neben einander zu erklären, sondern ihm vielmehr als correspondierend, aber zu einer bloß intelligibeln (für uns unbekannt) Welt gehörig zur Seite zu setzen [...]”.

22 “... und nichts anders zu behaupten, als was anderwärts gezeigt worden, nämlich daß der Raum sammt der Materie, davon er die Form ist, nicht die Welt von Dingen an sich selbst, sondern nur die Erscheinung derselben enthalte und selbst nur die Form unserer äußern sinnlichen Anschauung sei”.

23 “Ist es wohl zu glauben, daß Leibniz, ein so großer Mathematiker! die Körper aus Monaden (hiemit auch den Raum aus einfachen Theilen) habe zusammensetzen wollen? Er meinte nicht die Körperwelt, sondern ihr für uns unerkennbares Substrat, die intelligibele Welt, die bloß in der Idee der Vernunft liegt, und worin wir freilich alles, was wir darin als zusammengesetzte Substanz denken, uns als aus einfachen Substanzen bestehend vorstellen müssen ... davon er aber nichts auf die Sinnenwesen bezog, die er für auf eine besondere Art Anschauung, deren wir allein um Behuf für uns möglicher Erkenntnisse fähig sind, bezogene Dinge, in der strengsten Bedeutung für bloße Erscheinungen ... gehalten wissen will”.

24 See Wolff, CG, § 243.

25 See KrV, A 442/B 470.

26 See also, for this egological foundation of the idea of simple, the *Remark* to the Antithesis of the *Second Antinomy*, KrV A 441, 443/B 469, 471.

27 See KrV A 266/ B 321-322.

28 See for instance Refl 41, AA 14: 153; 3789-3791, AA 17: 293-294; 4061-4068, AA 17: 401-403; 4314- 4318, AA 17: 503-505; 4418-4425, AA 17: 539-541; 4498-4520, AA 17: 573-580; 4830-4832, AA 17: 740. I can only hint at these texts here, without making any analysis of them.

29 *Sententia Leibnitii, quod corpora sint phaenomena, nihil aliud offert, quam quod idea corporis sit sensitiva, cuius substratum intellectuale ignoratur h. e. quod non exprimat, nisi conceptum, qui oritur a relatione incognitarum substantiarum ad modum cognoscendi sensitivum. Quod si habeatur pro intellectu, dicitur phaenomenon substantiatum. Si hoc autem evitetur, corpora ut phaenomena non constant simplicibus, h. e. secundum conceptum spatii dividendo divisio est absque termino. Verum intellectualiter conceptum constat monadibus. Sed hec thesis non influit in consequentia, h. e. non est principium cognitionis empiricae. Verum tantum indigitat, nexum animae cum corporibus non esse obiective, sed tantum secundum formam cognoscitivam diversum a nexu animae cum substantiis simplicibus generatim... Spatium autem est phaenomenorum formale; quod si habeatur pro ipsa reali conceptione nexus substantiarum, dicitur phaenomenon intellectuatum, si nempe ulterius quam ad modum cognoscendi sensitivum extenditur. Si cognitio sensitiva extendatur in sua specie in infinitum, tamen manet sensitiva, ut corpora nunquam deprehendantur empirice constare simplicibus; ergo monades in physica nullius sunt usus, et in metaphysica sunt usus negativi, ut caveatur, ne habendo phaenomena pro reali constitutione obiectorum axiomata sensitiva fiant quasi intellectualia.*

30 See Garber 2008. Garber is reacting here to Anja Jauernig's essay in the same volume, quoted above (note 5).

31 “... ce qu'il ya de réel dans l'étendue et dans le mouvement ne consiste que dans le fondement de l'ordre et dans la suite réglée des phenomenes et perceptions. Aussi tant les Academiciens et Sceptiques, que ceux qui leur ont voulu répondre, ne semblent s'être embarrassés principalement parce qu'ils cherchaient une plus grande réalité dans les choses sensibles hors de nous, que celle des phenomemes réglés”.

32 “Je reconnais que le temps, l'étendue, le mouvement, et le continu en général, de la manière qu'on les prend en Mathématique, ne sont que des choses idéales, c'est-à-dire, qui expriment les possibilités ... Mais pour parler plus juste, l'étendue est l'ordre des coexistences possibles, comme le temps est l'ordre des possibilités inconstententes ... Mais l'Espace et le Temps pris ensemble font l'ordre des possibilités de tout un Univers, de sorte que ces ordres ... quadrent non seulement à ce qui est actuellement, mais encor à ce qui pourrait estre mis à la place ... Et cet enveloppement du possible avec l'Existant fait une continuité uniforme et indifférente à toute division. Et quoique dans la nature il ne se trouve jamais des changemens parfaitement uniformes, tels que demande l'idée que les Mathématiques nous donnent du mouvement, ... neantmoins les phenomemes actuels de la nature sont menagés et doivent l'estre de telle sorte, qu'il ne se rencontre jamais rien, où la loy de la continuité ... et toutes les autres regles les plus exactes de la Methématique soient violées. Et bien loin de cela, les choses ne sauroient estre rendues intelligibles que par ces règles ...” (Dutens; II, 91)

33 “Ainsi quoique les méditations mathématiques soient idéales, cela ne diminue rien de leur utilité, parce que *les choses actuelles ne sauroient s'écarter de leur règles; et on peut dire en effet que c'est en cela que consiste la réalité des phenomemes, qui les distingue des songes.* Les mathématiciens cependant n'ont point besoin du tout des discussions métaphysiques, ni de s'embarasser de l'existence réelle des points, indivisibles, infiniment petits...” (Dutens, II, 91-92).

34 This attitude is confirmed, some lines below, by a final comment on the discussions with de l'Hopital about the status of infinitesimals: “I believe that he has no more desire than I to burden geometry with metaphysical problems” (“je crois qu'il ne

voudra pas, non plus que moy, charger la Geometrie des questions métaphysiques”, Dutens, II, 92; Loemker, 584).

35 “spatium est continuum quoddam, sed ideale. Massa est discretum, nempe multitudo actualis, seu ens per aggregationem, sed ex unitatibus infinitis; in actualibus, simplicia sunt anteriora aggregatis, in idealibus totum est prius parte. Hujus considerationis neglectus illum continui labyrinthum peperit.” (Dutens, II, 287)

36 “Explicationem phaenomenorum omnium per solas Monadum perceptiones inter se conspirantes, seposita substantia corporea, utilem censo ad fundamentalem rerum inspectionem. Et hoc exponendi modo spatium est ordo coexistentium phaenomenorum ...” (Dutens, II, 298)

37 “nec ulla est monadum propinquitas, aut distantia spatialis, vel absoluta, dicereque, esse in puncto conglobatas, aut in spatio disseminatas, est quibusdam fictionibus animi nostri uti, dum imaginari libenter vellemus, quae tantum intelligi possunt” (ibidem)

38 “In hac etiam consideratione nulla occurrit extensio aut compositio continui, et omnes de punctis difficultates evanescent. Atque hoc est quod dicere volui alicubi in mea Theodicaea, difficultates de compositione continui admonere nos debere, res longe aliter esse concipiendas” (ibidem).

39 Notice, however, that the Platonic interpretation of monadology is not necessarily an element which Kant unqualifiedly approves, even in the MAN; I shall explain this later.

40 “wobei man sich durch seine Erklärung von der Sinnlichkeit als einer verworrenen Vorstellungsart nicht stören lassen, sondern vielmehr eine andere, seiner Absicht angemessenere an deren Stelle setzen muß: weil sonst sein system nich mit sich selbst zusammenstimmt. Diesen Fehler nun für absichtliche, weise Vorsicht desselben aufzunehmen ... kann ihnen schwerlich zum Verdienst um die Ehre ihres Meisters angerechnet werden”.

41 See on this Fichant 2014.

42 By the way, by using a wording significantly similar to that of Kant in the final pages of ÜE: “Who can think that such a great mathematician ...”

43 As is well known, in this context Kant explicitly defends a way of interpreting philosophers through free rational reconstruction, according to which the interpreter can understand them better than themselves did.

44 It is important to stress this point, in order to distance from an interpretation like Langton 1998, which, though exciting, in my opinion does not capture adequately the distance of the critical Kant from a pre-critical metaphysics.