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Sergii Secundant, Manuel Sánchez-Rodrigez

JOHANN NIKOLAUS TETENS' CRITICAL FOUNDATIONS OF THE FIRST PROJECT FOR THE REFORM OF METAPHYSICS

Johann Nikolaus Tetens (1736–1807) is a famous German philosopher whom historians of philosophy usually characterize as an empiricist. Interest in his philosophy increased after it became known that Tetens' book had been lying open on Kant's desk while he was writing the Critique of Pure Reason. [Hamann 1824: 83] Kant's deep interest in Tetens' book is confirmed by Kant's letter to Marcus Hertz (KA X: 232) and his other letters.

We also owe the characterization of Tetens as an empiricist to Kant, who writes in his Reflections: "Tetens untersucht die Begriffe der reinen Vernunft subjectiv (Menschliche Natur), ich objectiv. jene analysis ist empirisch, diese transcendental."[1] (KA XVIII:23) The image of Tetens as an empiricist, a "German Locke", was cemented by W. Uebelle, who in his monograph characterizes Tetens as a "psychologist", as an "eclectic", and as an unproductive and non-systematic philosopher. [Uebele 1912: 211-212] Although attitudes towards Tetens have changed greatly in recent years, the vast majority of historians of philosophy consider Tetens to be the most prominent representative of German empiricism, and Uebelle's book to be an important and "rare source." [Sellhoff 2015: xiv-xv]

The main object of this article will be *Thoughts on Some Reasons Why There Are So Few Settled Truths in Metaphysics*,[2] one of Tetens' early works, in which he formulated his first program of philosophical reform, and the main subject will be the critical foundations of his program of the reform. The main tasks are to clarify the tradition within which Tetens' (metaphysical, methodological and epistemological) views were formed, and the critical foundations of his program for the reform of philosophy.

1. Mathematics and Metaphysics. The Problem of Distinctness in Metaphysical Notions

Jan Classen[3] Tetens was born on September 16, 1736 in Tetenbühl, North Frisia, to the family of an innkeeper and grain merchant, Jacob Tetens, who was noted for his religious

[1] Tetens examines the concepts of pure reason subjectively (human nature), I objectively. The former analysis is empirical, the latter transcendental.

[2] From now on we will briefly refer to this work as "Thoughts".

[3] He received the names Johann and Nikolaus 15 years later at school when he moved to the Latin class.

beliefs. On May 23, 1755, Tetens entered the University of Rostock. In 1757, he moved to Copenhagen, where he studied theology. In 1759, Tetens returned to Rostock to receive his master's degree, and in 1760 his doctorate. In the autumn of 1760, he began teaching at the newly founded Friedrichs University or Academy in Bützow, located in the duchy of Mecklenburg. As an invitation to his lectures, he published in the autumn of the same year *Thoughts on Some Reasons Why There Are So Few Settled Truths in Metaphysics*,[4] in which he expounded his ideas for the reform of philosophy. In addition to philosophy, he continued to teach mathematics, and from 1763 physics as well. Tetens's rapid career and early maturity as a scientist were explained by the strength of his religious feeling, the depth of his knowledge in the field of mathematics and metaphysics, and his good understanding of the situation that had developed in philosophy.

1.1. Tetens' "Thoughts": Their Main Themes and Tasks. In the middle of the 18th century, the situation in German universities was characterized by a fierce struggle between the Wolffians and the eclectics who became the main propagandists of English empiricism in Germany. In this situation, the question of why there are so few settled truths in metaphysics fits perfectly into the problematic nature of a tradition oriented towards mathematics, and was poignant, given the resistance that Wolff's reform of philosophy met with from the eclectics. In *Gedancken über einige Ursachen, warum in der Metaphysik nur wenige ausgemachte Wahrheiten sind*, Tetens' main focus is on its fundamental science—ontology. This interest in ontology is explained by the fact that, according to Tetens, "Ontologie, wie die theoretische Mathematik, ist eine Wissenschaft, in welcher aus willkürlich bestimmten Begriffen die Eigenschaften hergeleitet werden"[5] [Tetens 2012: 143], but the difference between them is that "in der einen alles ausgemachten Wahrheiten sind, in den andern das mehreste und wichtigste zweifelhaft und streitig ist"[6] [ibid.] The search for the reasons for this difference becomes one of its main tasks. The second, no less important task is to explain why in applied mathematics and natural sciences, which are constructed through the connecting of theoretical mathematics with experiments, we arrive at certainty more often than in the rest parts of metaphysics (cosmology, the theory of the soul and natural theology), which "must be constructed through the connecting of ontological truths with principles of experience." [ibid.]

As you can see, Tetens draws a parallel between theoretical mathematics and ontology, on the one hand, and, on the other, applied mathematics and the other sciences that are part of metaphysics, which he obviously regards as applied. The latter, by analogy with applied mathematics, must be constructed by connecting ontological truths with experience. Thus, he sets himself two tasks: 1) to find the reasons for the sertainty of mathematical truths and accordingly the unsertainty and debatability of metaphysical truths, and 2) to find out whether it is possible to achieve in ontology and other (applied) parts of metaphysics the same sertainty that exists in theoretical and applied mathematics. This second task for him

[4] *Gedancken über einige Ursachen, warum in der Metaphysik nur wenige ausgemachte Wahrheiten sind, als eine Einladungs-Schrift zu seinen den 13ten October auf der neuen Bützowschen Academie anzufangenden Vorlesungen, entworfen von Johann Nicolaus Tetens*, Bützow und Wismar: Berger und Boedner, 1760

[5] "Ontology, like theoretical mathematics, is a science in which the attributes of things are deduced from concepts determined by choice." [Tetens 2022: 51]

[6] "In the one all the truths are settled, while in the other the majority, and the most important ones, are doubtful and contentious." [ibid.]

actually comes down to investigating whether and how ontological truths can be applied to experience.

1.2. The Problem of the Distinctness in Ontological Notions. Quite in the spirit of Wolff, he asserts that "in der Ontologie rührt der Mangel ausgemachter Wahrheiten grösstentheils von Versäumniß des wesentlichen in der mathematischen Methode her."[7] [Tetens 2012: 144] Tetens sees one of the main reasons why there are so few settled truths in metaphysics and especially in ontology in "das verworene und dunkle in den Begriffen" (the confusion and obscurity in concepts). [ibid.] The concepts of theoretical mathematics, in sharp contrast to the concepts of metaphysics, are distinguished by their distinctness (Deutlichkeit). Many philosophers of the 17th and 18th centuries pointed out this difference between the concepts of mathematics and metaphysics. They, however, gave different reasons explaining why mathematical concepts were more distinct and metaphysical ones less so.

Tetens begins his critical analysis of these views on the reasons for the distinctness of mathematical concepts with the most widespread view, according to which the main reason for the distinctness of mathematical concepts is their simplicity. In the 17th century, the search for the simplest concepts became one of the most important tasks of philosophers, largely due to Galileo, who was close to the Paduan school and considered the method of analysis and synthesis as the main scientific method.

Joachim Jungius and methodical tradition. In Germany, the origins of this view were laid by Joachim Jungius (1587–1657), whom Leibniz placed on a par with the most outstanding philosophers of his time, such as Francis Bacon and René Descartes. The idea of a critique of reason as a necessary prerequisite for the reconstruction of the sciences actually belonged to Francis Bacon. Like Bacon, Jungius believed that the senses do not deceive, but reason does. Unlike Bacon and English empiricism, which considered the senses as a source of reliable knowledge, Jungius considers sensory knowledge to be uncertain (and therefore unable to serve as a reliable basis for scientific knowledge), and the inductive method is incapable of giving us universal and necessary knowledge, since

> *Inductio primaria* semper incomplete est, cum singularia numero infinita sint, infinita autem intellectus hominis transire non valeat.[8] [Jungius 1957: 168]

He supposes the collection and generalization of sensory data (phaenomena) to be an important and necessary precondition for the scientific study of nature, but insufficient, since a phenomenon is something sensually indefinite (sensile confusum). In *Praelectiones physicae*, Jungius defines a phenomenon as a complex whole (totum complexum), in which sensually perceived objects are given in the form in which they exist in reality without any dogmatic prejudices of the intellect (absque ullo praejudicio intellectus dogmatico). [Meinel 1984: 23] As a "sensory indefinite" and "complex whole," phenomena need to be defined and broken down into simple elementary components. He argues that only in this case can they serve as the basis for certain knowledge of reality. Jungius emphasizes that "e distincta sive discreta, non confusa experientia, uti reliquae scientiae, ita physica quoque extruenda est."[9] [Jungius 1679, pars.2, sec. 1, 5] The causes of universality and necessity

[7] In ontology, the shortage of settled truths stems primarily from neglect of the essential elements of the mathematical method. [Tetens 2022: 51]

[8] The primary induction is always incomplete, since the particulars are infinite in number, but the infinite understanding of man is not able to pass.

[9] "Both physics and all other sciences must be built on the basis of precise, or discrete, and not vague experience."

of knowledge, according to Jungius, should be sought in reason. The problem of the sertainty of scientific experience becomes the main problem for Jungius, and the methodical reconstruction of the rational backgrounds of scientific experience is his most important task. In his opinion, not metaphysics, but mathematics should be the basis of all the natural sciences. Those mathematical sciences that rely on fewer principles and are therefore more precise than physics act as an "apodictic propaedeutics" (propaedeusis apodictica) of physics and are called by him "protophysics" (protophysica).

Although mathematics is a model of rationality and rigor for all other sciences, it itself needs a justification for its rationality. Traditional logic, like metaphysics, is a reflexive science and, as such, cannot form the basis of either physics or mathematics, since it does not provide "direct knowledge." The task of criticism is to clarify these foundations of mathematical rationality and rigor and, in accordance with them, to reconstruct, as far as possible, all other knowledge. Jungius sees the reasons of the sertainty and rigor of mathematics in the clarity of its concepts and reasonings, which is achieved due to the fact that mathematics uses the simplest concepts and operations of intellect. Jungius calls these further indivisible concepts "protonoemata", and the science about them—"protonoetic philosophy": "*Protonoetica Philosophia* dicitur, quia omnem intellectu operationem resolvit usque in protonoemata, i.e. irresolubiles notions."[10] [Jungius 1968: 256]

Jungius proceeded from the assumptions that such simple concepts can be obtained through analysis and that their number was finite. Both of these assumptions were questioned. These doubts could only arise within the framework of a methodological tradition oriented toward the rational justification of scientific experience. Leibniz had already come to the conclusion that this method was inapplicable to empirical concepts due to the infinite divisibility of phenomena. In search of a way out of the "labyrinth of the continuum", he came to the discovery of differential calculus.

Tetens' solution to the problem of distinctness of metaphysical concepts. Tetens' approach with regard to this problem somewhat differs from that of Leibniz. Although he maintains that all the concepts of geometry and arithmetic "can be reduced to the simple ideas of extension, magnitude, part, line, point, boundary, etc.", he nevertheless notes that "in diesen einfachen Ideen kan freilich sehr vieles sehr verworrenes vorgefunden werden, aber sie sind höchst klar, und dies ist zum Zweck genug."[11] [Tetens 2012: 145] He explains this feature of mathematical concepts by the differences that exist between these sciences:

Wir haben eine anschauende Erkenntnis derselben, indem wir sie aufs klärste mit der Einbildung uns vorstellen. Dahero wird die Gegeneinanderhaltung dieser Begriffe so leicht, und es wird dem Verstande eben so unmöglich sich Verhältnisse derselben anders zu denken als sie sind, als sie der Einbildung wird, das was sie sich als rund vorstellet, zugleich als viereckt sich vorstellen. Dahero ist es auch ist auch ungezweifelt richtig, wie es nicht sein würde, wenn unser Verstand in den Begriffen noch etwas dunkeles und verworrenes entdeckte, welches in den Beweis einen Einfluß hätte.[12] [ibid.]

[10] "It is called Protonoetical Philosophy, because it resolves every operation of the intellect down to the protonemata, i.e. irresolvable ideas."

[11] "In these simple ideas there may indeed be found much that is very confused, but they are extremely clear, and this is enough for the purpose." [Tetens 2020: 52]

[12] We have an intuitive knowledge of these things in that we represent them to ourselves with the greatest clarity using the imagination. For that reason, the comparison of these concepts is so easy, and it is just as impossible for the understanding to think their relations other than they are, as it is for the

Tetens asserts the intuitive nature of mathematical knowledge on the grounds that the mathematician uses imagination and his mind is entirely based on imagination. Thanks to this, he represents with the greatest clarity not only his objects, but also their relations. Since the mathematician's reason is entirely based on imagination, what is impossible for his imagination is also impossible for his reason. According to Tetens, although this clarity of mathematical concepts does not guarantee their simplicity, it is sufficient for the mathematician to draw equally clear and rigorous conclusions from them. This clarity and ease of mathematical demonstrations is achieved due to the fact that mathematics does not investigate the internal nature of its objects, but boundaries itself to the analysis of their quantitative relationships. Thus, to prove that two sides of a triangle are greater than the third, according to Tetens, nothing more is required than a clear concept of a line. Here nothing depends on whether we imagine a line as the boundary of a surface or, on the contrary, as a trajectory traced by the movement of a point. The mathematician does not need to know the internal nature of the line and the way it is generated, a thing that would undoubtedly be necessary if we wanted to obtain an even clearer concept. [see ibid.] Tetens admits that mathematics does not give a perfect understanding because it does not completely resolve its concepts and does not fully prove their properties; this is a task not for mathematicians but for metaphysicians. For the mathematician it is enough if only the confusion of concepts does not prevent us from representing their mutual relations with the greatest clarity. Therefore,

> Wenn die Mathematiker ihren Begriffen die gröste Deutlichkeit beilegen, und den reinsten Verstand in denselben suchen, so muß dies nur relative, in Absicht nemlich auf die Beweise der Säze zu verstehen sein, den dazu diese Grundbegriffe so deutlich als sie sein können.[13] [ibid.: 146]

It is different in metaphysics. Here, on Tetens' account, we have no right to use confusing words on the assumption that their meaning is common knowledge, for there may still very easily remain something confused in these words, which another may interpret differently. This means that we cannot apply the mathematical method in metaphysics, since the ideas that are most simple in mathematics still belong to the most complex in ontology. In order to avoid misunderstandings and disputes that inevitably follow from this, Tetens recommends to follow Wolff who required that attention be paid to the origin of concepts. Thus, he connects this requirement with Wolff and not with Locke, and he does this with the aim of finding simple concepts. He considers such an investigation of the origin of concepts to be the most useful in ontology, for "in der Wissenschaft, welche der ersten und allgemeinsten Grundsäze der menschlichen Erkenntiß lehret, die Begriffe weit reiner und deutlicher sein müssen, als in der Mathematik erfordert wird."[14] [ibid.: 147] To find out what meaning Tetens puts into the requirement to investigate the origin of concepts, one should turn to Wolff, to whom he refers. If one does this, one will easily see that Tetens, in his solution to the problem of simple concepts, follows mainly Wolff. He draws his main ideas from Wolff's treatise "On the Difference between Metaphysical and Mathematical Notions" (1731).

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imagination to represent that which it represents as round as being at the same time square. [Tetens 2022: 53]

[13] When mathematicians themselves ascribe the greatest distinctness to their concepts, and seek in them the purest understanding, this must be understood only relatively, namely, with respect to the proofs of the propositions; since for this its fundamental concepts are as distinct as they can be. [Tetens 2020: 53-54]

[14] In the science that teaches the first and most general principles of human knowledge the concepts must be far purer and more distinct than is required in mathematics. [Tetens 2022: 56]

1.3. Locke and Wolff: The Problem of the Origin of Notions. At the very beginning (§ 1) of his treatise, Wolff stresses the importance and necessity of distinguishing metaphysical concepts from mathematical ones, since in recent times many philosophers have appeared who "arrogantly mix metaphysical ideas with mathematical ones to the detriment of truth and the progress of the sciences, and no less than others lead into a labyrinth that ultimately leads directly to skepticism." [Wolff 1770: 485] Wolff admits that this difference between metaphysical and mathematical concepts, which he has already explained quite clearly in his *Metaphysics* and *Transcendental Cosmology*, is self-evident not to everyone, but only "to the attentive reader and expert in mathematics…especially when he has examined more deeply (intimius perspexit) the faculties of the soul, known to us from psychology, in terms of the knowledge of those things that are accessible to human knowledge, and their use." [ibid.: 485] Among these conditions for understanding this distinction, the most important is the last one, which needs comment. First of all, it should be noted that Wolff does not use the term "psychology" in the narrow "positivistic" sense. He calls any study of the soul and its faculties *psychology*, regardless of the methods of research. As is known, Wolff distinguishes between rational and empirical psychology. In addition, from psychology we learn only about those faculties that the soul possesses. However, Wolff's requirement for a "deeper" study of the faculties that we know from psychology indicates the inadequacy and limitations of psychological research from the point of view of the tasks that he sets for himself. An assessment of Tetens' contribution to philosophy must obviously be made in the context of Wolff's studies.

The study of the soul's faculties is interesting to Wolff primarily as a research of the sources of concepts, on which the nature and diversity of concepts depend. Such research was required by Parmenides and Plato, and practically all philosophers, including Leibniz and Wolff, have been engaged in this. Wolff distinguishes three main faculties: the senses (sensus), which are not capable of perceiving changes or actions of the soul, the imagination (imaginatio), which replaces the senses in the absence of sensitivity, and the intellect (intellectus), "by means of which we not only obtain concepts of those things that are perceived by the senses, but also by reasoning obtain those that, on the contrary, would be subject to our knowledge, and first of all we attain knowledge of universals that are free from the senses and imagination. [ibid.: 486]

Having considered the main types and functions of the faculties, Wolff proceeds to an evaluation of their cognitive faculties, in which it is easy to see a polemic with Locke. According to Wolff, the senses represent their objects in a confused manner (confuse), and, therefore, without the help of the actions of the intellect, are not capable of providing even a shadow of concepts. Moreover, "things perceived by the senses do not seem to be what they really are" (sensu percepta alia apparent, quam quæ sunt) [ibid], This means that senses cannot represent their objects adequately. Already openly referring to Locke, Wolff points out a third defect in his theory: the concepts of sensible qualities, to the great detriment of science, are considered by Locke as simple, as if they could not be resolved into other, simpler ones, which would have to be resolved ad infinitum before reaching the primitive ones." (Inde est quod Lockio notiones simplices visæ fuerint, quasi in alias simpliciores non resolubiles, quæ in infinitas resolvendæ, antequam ad primitivas pervenias, magno sane scientiæ detrimento) [ibid], Trying to explain this prejudice, Wolff comes to accuse Locke of reviving the occult qualities of the scholastics:

> For this prejudice arises from the fact that abstract ideas of things are transformed by the power of imagination into the image of the sensible and are considered in an intelligible way to be in themselves inexplicable, such as the occult qualities of the scholastics. [ibid.]

Wolff' intention is to prove that without the help of intellect we cannot obtain distinct concepts. Since only with its help do we arrive at distinct concepts of things, even those devoid of any senses, the question of the legitimacy of such concepts arises. For proving their legitimacy, Wolff proposes to investigate their origin or the way in which concepts are formed. This is necessary in order to find out whether the imagination participated in its formation. If it turns out that it did, then such a concept is not allowed. Wolff regards this as the main task of criticism. Exceptions are mathematical concepts, which cannot be obtained without imagination.

> The notions which geometry accepts are confused, and, therefore, they do not define the terms they need, nor, where they want to explain them, do they resort to what is perceived by the senses, and form imaginary notions which consist in the appearance of distinctness. [ibid.: 486]

He explains this feature of mathematical notions by their subject, namely, "geometers investigate only the quantitative side of things (quantae res sint), and not what they are." [ibid.] This feature also allows mathematicians to use confused concepts that are considered clear enough for their purposes.

For this reason, Wolff forbids the transfer of the concepts of geometers into metaphysics, since not only do they prove sterile there, but—to the extent that what seems to be is taken for what really exists—such an uncritical transfer of concepts leads us into errors and ultimately we fall into a labyrinth from which, in his opinion, there is no clear exit. This prohibition may seem strange, given his original idea of reforming philosophy on the model of the mathematical method. In this case, however, he follows Leibniz, who was always skeptical about simply copying the form of the mathematical method, and saw the basis for the sertainty of mathematics not in its form, but in the clarity and consistency of its reasoning. He also requires a similar clarity of reasoning in philosophy, especially in the philosophy of science. To this end, Leibniz requires that the conditions of the formation of a concept and its requisites be investigated. Such an investigation, aimed primarily at identifying the rational foundations of a concept or theory, often acquired a critical character when it became clear that imagination had participated in the formation of a concept or theory. Leibniz called such concepts "impossible fictions." For him, striking examples of such fictions are the doctrine of atoms, Locke's concept of substance, and the Newtonian concept of space and time. His polemics with Descartes, Locke, and especially Samuel Clarke are clear examples of the application of this method of criticism. Examples of such an analysis are also given by Wolff. The greater part of his treatise is devoted to the distinction between the mathematical and metaphysical meaning of terms that are used both in mathematics and in metaphysics. Wolff actually gives a critical analysis of the disputes regarding such notions as: extension (extensio), body (corpus), space (spatium), place (locus), time (tempus), movement (motus), driving force (vis motrix), force of attraction (gravitas) and infinite (infinitum). Wolff's analysis, however, focuses on how participants in these debates reason. As a result, he comes to the conclusion that it is unacceptable for a philosopher to think the same way a mathematician does:

> But if a man has spent the greater part of his life in geometry and calculus, and has not only made imaginary ideas habitual to himself, but has also applied them to mathematics with some success, he does not at all reflect on the difference between imaginary and real ideas, and so easily convinces himself that things are as they seem, unless some obvious absurdity immediately betrays itself. [ibid.: 486]

This excerption clearly shows that Wolff was not a naive realist. Here he answers the critical question posed by Leibniz: on what reasons do mathematicians and natural scientists identify imaginary ideas with real, and believe that things are as they seem to them? Wolff sees this reason in the fact that the imaginary concepts with which mathematicians are accustomed to deal find successful application in experience.[15]

2. Tetens' Project for Resolving the Problem of Distinct Notions

Tetens follows Wolff closely, clearly recognizing and accepting the critical grounds of his argument. He claims that "the number of simple empirical concepts cannot be determined", and questions "whether it is possible to specify a precise list of those concepts that become simple through abstraction." [Tetens 2012: 151] In support of his words, Tetens refers to numerous controversies regarding the simplicity of such concepts as substance, causality, space and time, and others, and in this regard he offers his own project for resolving these disputes:

> Will man die Streitigkeiten, welche hierüber entstanden, entscheiden; so ist es am besten, daß man auf die Empfindungen zurück gehe, aus welcher der bestrittene Begrif entstanden ist, und genau beobachte, was man sich vorstellet, wenn man diese Idee in den Gegenständen gewahr wird.[16] [ibid.: 152]

The editors of the English translation of his early works believe that it was Hume's works that influenced Tetens' approach to solving this problem, and to confirm this they cite a similar passage from Hume's *An Enquiry Concerning Human Understanding* (1748). They pay attention only to Hume's require to seek the senses from which the concept arose. This, indeed, unites Tetens and Wolff with Locke and Hume. But this is where the similarities end. The differences concern fundamental things. Wolff and Tetens pursue other goals than Locke and Hume: the former want to improve metaphysics by purging it of concepts that are a figment of the imagination, and the latter want to prove its uselessness. Locke and Hume consider the external senses as the source of reliability and basis of reality of all knowledge, while for Wolff and Tetens the presence of the corresponding sense is proof only of reality, not reliability, and this only concerns empirical concepts, not all concepts. Locke and Hume require the reduction of concepts to external senses, while Wolff and Tetens are alien to reductionism. For them, external senses are only one of the components or requisites of an empirical concept, and besides not the most important requisite of it. As can be seen from the above-quoted passage, Tetens is interested in internal sensations, internal experience. He is interested in the question what a scientist imagines when he ascribes reality to his subjective ideas, cons idering them as properties of things outside his consciousness. This which had already been formulated by Leibniz, becomes the main one for Tetens.

It should be noted that Locke was very popular in Germany, especially among the disciples of Christian Thomasius. They were characterized by the spirit of criticism and they were more inclined to empiricism than other eclectics, and therefore quickly adopted Locke's empiricism and criticism. They accused Wolff of dogmatism, and Wolff, who at

[15] The relationship between Tetens and Wolff is examined in more detail, albeit from a different perspective, in an excellent article by Achim Vesper. [Vesper 2014]

[16] If the disputes that have arisen over this are to be settled, then it is best to trace one's way back to the sensations from which the disputed concept has arisen, and to observe exactly what one represents to oneself when one becomes aware of this idea in the objects. [Tetens 2022: 60]

first also positively perceived Locke, had to justify himself. By the early 1730s, when Wolff's treatise *On the Difference between Mathematical and Metaphysical Notions* appeared, this struggle had reached its peak, and by the early 1760s, when Tetens's "*Thoughts*" appeared, it had not subsided. It is therefore very significant that Tetens, who was already well acquainted with Locke's works, comes to the defense of Wolff and Leibniz, and proposes using the "genetic method" to resolve the disputes between Wolff and his opponents:

> Wenn man auf eben die Art untersucht, wie wir durch die Empfindung zu der Idee des Raums, des Orts und der Zeit gelangen; so wird man urteilen können, ob die Wolffianer Begriffe von diesen Dingen zu verwerfen sind oder nicht.[17] [Tetens 2012: 153]

Tetens is convinced that disputes in philosophy arise mainly because philosophers associate different concepts with the same words, and he sees in this the second reason why there are so few settled truths in philosophy. The enquire of the genesis of concepts is necessary to eliminate the disputes that arise because of the polysemy of words. As an example, Tetens cites the concept of the monad that became the subject of numerous disputes among his contemporaries:

> I do not believe that anyone would have called into doubt the possibility of the emergence of bodies out of immaterial parts or unextended simple things, as conceived by the champion of monads—just as little as one doubts that a plurality can be generated out of unities—if they had cared to attend more precisely to the concepts which that philosopher connects with the words *immaterial*, *simple*, *unextended*. [Tetens 2022: 61]

As can be observed from this example, Tetens sees one of the main tasks of criticism in clarifying the meaning of words by investigating the mode of obtaining concepts that philosophers associate with a certain word. Neither Locke nor Hume seriously deal with this, but Leibniz did. In order to be understood, he tried to speak to each opponent in a language he understands. This became one of the main reasons for the misunderstanding of Leibniz's philosophy by his contemporaries, a misunderstanding that Tetens had already encountered. The above example and other examples in which Tetens defends other fundamental principles of Leibniz's epistemology and metaphysics show that he fully adheres to the methodical tradition of philosophizing. This also concerns the central position of Leibniz's epistemology and metaphysics, namely the doctrine of the representative power of the soul, which was fundamentally unacceptable to empiricists:

> Seine vorstellende Kraft war das nichts anders, als die innerliche Kraft jeder Substanz, alle ihre Veränderungen, und folglich ihre Verhältnisse gegen alle übrige Theile der Welt, woraus diese können erkannt werden, selbst zu wirken.[18] [Tetens 2012: 160]

Pointing out that it is impossible to achieve the same unambiguity in metaphysics as in mathematics "as long as there is disagreement about what the standard (die Richtschnur) should be according to which the meaning of words is determined and tested" [ibid.: 156], Tetens regards his method as one of the "auxiliary means by which squabbles over words can be eliminated." [ibid.] Contrasting it with the method of definitions, he does not require a specific concept to be associated with a word, since this usually gives rise to dis-

[17] If one investigates the precise manner in which we attain the idea of space, of place, and of time through sensation; then one will be able to judge whether the Wolffian concepts of these things are to be rejected or not. [Tetens 2022: 61]

[18] Its representational power was thus nothing other than the inner power of each substance to itself bring about all of its changes and consequently its relations to all other parts of the world, from which those other parts could be known. [Tetens 2022: 68]

putes. Tetens suggests first clarifying the sense in which a philosopher uses a certain word. However, clarifying the meaning is only a necessary condition for a correct assessment of the philosopher's argumentation, but it is not sufficient to eliminate disagreements. It is also necessary to clarify whether a given concept is a figment of the imagination, as Leibniz and Wolff required. This question directly concerns the problem of the reality of metaphysical concepts.

3. The Problem of Reality of Metaphysical Notions

Leibniz and Wolff did not ignore the problem of the reality of notions, but in solving it they proceeded from the fact that the subject of knowledge must be the possibility of things. This can explain the fact that the problem of the reality of notions for them was closely connected with the problem of their distinctness. In his article "Reflections on Knowledge, Truth and Ideas" ("Meditationes de cogitatione, veritate et ideas" (1684), Leibniz gives a classification of ideas and knowledge (cognitionum), dividing them into obscure (obscurae) and clear (clarae), confused (confusae) and distinct (distinctae), inadequate (inadaequatae) and adequate (adaeqatae), symbolic (symbolicae) and intuitive (intuitivae) (LA VI,4: 585-586). In the same article he writes that the possibility of an object can be proven in two ways: *a posteriori*, based on the reality of the thing or on its actions, or *a priori*, based on its concept, "when we decompose concepts into their requisites, with other concepts the possibility of which is known, and when we know that there is nothing incompatible in them" (ibid.: 589-590). Leibniz notes that "this happens when the way in which the object can be reproduced is known" (ibid.). This article had a huge influence on the young Wolff who often quotes it. It probably prompted him to define philosophy as the study of the possible and to require philosophers to investigate how they are possible, i.e. the way in which they arise or are produced.

Tetens supports the requirement of Leibniz and Wolff to investigate the possibility of concepts. He sees the third main reason for the lack of reliable truths in metaphysics in the fact that philosophers rely in their conclusions about reality on definitions of concepts without first investigating whether they contain hidden contradictions. Tetens points out one serious shortcoming of the a posteriori proof of the possibility of concepts:"Alsdenn erkennen wir nur Möglichkeit einer Sache, aber wir sehen sie noch nicht ein, welches verschiedene Dinge sind."[19] [Tetens 2012: 165] In an empirical concept, we associate only certain properties of a thing, namely those that are given to us in experience and that characterize this specific mode of existence of a thing. Therefore, only in relation to this mode of its existence can one say that it is possible, but not about the thing in general. Leibniz and Wolff were also aware of this. Therefore, in order to prove the possibility of a thing in general, Wolff required complete distinctness of a concept, that is, knowledge of all the features included in a certain concept, believing:

> Erkennet man diese, so erkennet man alles was zu der Sache, welche der Gegenstand des Begriffs ist, erfordert wird. [ibid.: 166]

It is precisely this premise that Tetens criticizes. He notices that such an understanding of the possibility of a thing is characteristic of mathematics, where to prove the possibility

[19] Then we only recognize the possibility of a real thing (einer Sache), but we do not yet understand what different things are.

of the existence of a thing, for example a square, it is necessary to indicate the method of its producing, but such a procedure for proving the possibility of a thing is not suitable for metaphysics, where concepts are formed by definitions and abstractions, and for necessary things it is even impossible to know the method of their origin. He explains this by the peculiarities in the formation of metaphysical concepts:

> In den meisten Fällen ist nur die von einigen sogenannte undeterminirte oder negative Möglichkeit da, welche stattfindet, wenn man einen Begriff nur darum für möglich hält, weil wir zwischen dem was wir darinnen denken, keinen Widerspruch zeigen können.[20] [ibid.: 167]

In metaphysics, the impossibility of the existence of a contradiction is usually deduced from the impossibility of realizing it. Such a conclusion would be justified if metaphysical concepts could be resolved into the simplest ones. But Tetens denies this for two reasons**:**

First, it is extremely difficult to demonstrate the possibility of things in metaphysics because of the multitude of determinations (Bestimmungen) that is found in things, and which must be taken into account in assessing their possibility; whereas in mathematics only one kind of property is observed, extension, which is abstracted from the others: therefore, everything that can belong to them, provided that bodies are only extended, is possible. [ibid.: 168-169]

Second, "it is simply impossible for us to understand from the things themselves or a priori the possibility of those of which we have only a symbolic, but not an intuitive, concept. As long as we have only a symbolic concept of a real thing (einen symbolischen Begriff einer Sache), we do not think of the thing itself (das Ding selbsten) or its positive internal determinations (Bestimmungen), but we imagine some relations of the thing to others or some possibilities of doing or experiencing something and connect them together in such a way that we obtain a concept of the thing by means of which we actually distinguish it from others with respect to these determinations, but we cannot know its true inner constitution". [ibid.: 169]

These two arguments show how Tetens uses the "observational method" to criticize his teachers. In the first case, relying on the differences in the subjects of metaphysics and mathematics, he proves the impossibility of reaching the simplest components of notions in metaphysics by analyzing them, because only some properties of a thing are fixed in definitions. Tetens accuses Wolff of inconsistency, drawing attention to the fact that the latter, on the basis of the impossibility of finding a contradiction in the concept of a certain thing, concludes that it is possible. This argument calls into question the method of definitions and the theory of abstraction, and requires that other methods be sought to prove the possibility of things.

In fact, Tetens requires a broader formulation of the question: he emphasizes the need to formulate the question of the possibility of not a certain thing, but of things in general, and besides, this new formulation of the question must proceed from the critical presupposition: only ideas about things are accessible to us, not the things themselves. For him, this is a question about the reality of our notions. By proving the inadequacy of the traditional method of analysis for resolving this problem, Tetens thereby puts forward the requirement for a fundamentally new method of analyzing concepts.

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[20] In most cases, only undetermined or negative possibility is present, as it is called by some, which occurs when a concept is regarded as possible only because we can show no contradiction between the things we think therein. [Tetens 2022: 74]

In the second case, Tetens draws important critical conclusions from Leibniz's doctrine of the symbolic nature of our knowledge: 1) since we have only a symbolic concept of a real thing (einen symbolischen Begrif einer Sache), we do not think (dencken gar nicht) the thing itself (das Ding selbsten) or its positive internal determinations (Bestimmungen). [ibid.: 169]; 2) since the metaphysician deals primarily with words, and not ideas, and uses discursive thinking, and not intuition, the direct subject of analysis in metaphysics can only be the meanings of words, or, more precisely, the meanings that philosophers put into them. Tetens was able to draw such conclusions only because he identified mathematical knowledge with intuitive knowledge, and metaphysical knowledge with symbolic knowledge, whereas Leibniz considered mathematical knowledge to be symbolic, since mathematicians also used signs. (LA VI,4: 587) Teten's conclusion about the intuitive nature of mathematical knowledge was based on Leibniz's view of the subject of metaphysics and mathematics, which Wolff also adhered to: mathematics studies phenomena from a quantitative point of view, while metaphysics tries to know substances. Since Leibniz, however, understood substances not as the causes of phenomena hidden behind them, but as something in phenomena that is accessible only to intellect (theirs rational component), he made the conceivable possible (uncontroversial conceivable) the direct subject of metaphysics, and the subject of mathematics—the possible in the imagination. Leibniz did not draw a conclusion about the intuitive nature of mathematics, since he believed that phenomena without a rational component are impossible, but the young Tetens did. To what extent this conclusion influenced Kant is a subject for separate study.

Conclusions

Thus, adhering to the same epistemological and metaphysical principles as Leibniz and Wolff, Tetens discovers contradictions in the methodological basis on which Wolff builds his system, discards the dogmatic side of his methodology (the method of definitions and the theory of abstraction) and tries to further develop its critical side, the idea of an observing method of analysis aimed at eradicating fictitious concepts. Tetens' project for the reform of metaphysics is oriented primarily toward theoretical and applied mathematics. The roots of his concept of experience and the idea of the observing method are to be sought in the "methodical tradition" (Joachim Jungius, Leibniz, Wolff). This tradition was oriented toward mathematics and mathematical natural science, sought rational foundations for scientific experience and attempted to consistently implement the principle of the unity of theory and practice. Although Tetens has been already well acquainted with Locke's *Essays* and the controversies that arose around them, the influence of Locke and English empiricism is not felt in Tetens' first project for reforming metaphysics.

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Sergii Secundant, Manuel Sánchez-Rodrigez

Johann Nikolaus Tetens' Critical Foundations of the First Project for the Reform of Metaphysics

Tetens is usually considered the main representative of English empiricism in 18th-century German philosophy. In order to find out how fair this characterization is, the authors turn to the analysis of the critical foundations of the project of reform of metaphysics proposed by Tetens in his early article "Reflections on Some Reasons Why There Are So Few Settled Truths in Metaphysics" (1760). Having analyzed the arguments of this article, the authors prove: 1) Tetens's project for the reform of philosophy fully fits into the tradition of German "methodical" philosophy, 2) it is based on the methodological and epistemological principles of the philosophy of Leibniz and Wolf, and is aimed at substantiating the basic provisions of Leibniz's metaphysics, 3) Tetens's "observing method" is rooted in the philosophy of Leibniz and Wolf, and not in the tradition of English empiricism.

Сергій Секундант, Мануель Санчес-Родригес

Йоган Ніколаус Тетенс і критичні основи його першого проєкту реформи метафізики

Тетенса зазвичай вважають головним представником англійського емпіризму в німецькій філософії XVIII ст. Щоб з'ясувати, наскільки справедлива така характеристика, автори звертаються до аналізу критичних основ проекту реформи метафізики, запропонованого Тетенсом у його ранній статті «Роздуми про деякі причини того, чому в метафізиці так мало встановлених істин» (1760). Проаналізувавши аргументи цієї статті, автори доводять: 1) Тетенсів проект реформи філософії повністю вписується в традицію німецької «методичної» філософії, 2) він базується на методологічних і епістемологічних засадах філософії Ляйбніца і Вольфа і спрямований на обґрунтування основних положень метафізики Ляйбніца, 3) ідея «методу спостереження» Тетенса коренитьсяся у філософії Ляйбніца і Вольфа, а не в традиції англійського емпіризму.

***Sergii Secundant**, Doctor of Sciences in Philosophy, Professor, Odessa I.I. Mechnikov National University.*

***Сергій Секундант**, д. філос. н., професор, Одеський національний університет імені І. І. Мечникова.*

e-mail: sergiisekundant@gmail.com

***Manuel Sanchez-Rodrigez,** PhD, Profesor Titular, University of Granada (Spain).*

***Мануель Санчес-Родригес**, PhD, титулярний професор, Університет Гранади (Іспанія).*

e-mail: msr@ugr.es