

# LEIBNIZ' UNIVERSALISM

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**Abstract:** *The idea of this article is meant to illustrate that Leibniz's Universalism transcends the encyclopaedism of his thinking. Therefore, universalism has the capacity to underpin and unify diverse interests; it expresses the endeavour toward inclusion, integration, and redefinition of the universe of knowledge and action, the thirst for knowledge to the maximum extent.*

*I have tried to elucidate Leibniz's universalism both by projects with a theoretical and philosophical character, and by reference to the practical and applied valences of his thinking. Thus, in Leibniz's work (and this is "Universalism") stand together "ars", "scientia" and "philosophia", the practice and theory.*

*Mainly, the universalism of his concerns is supported by his activities as a mathematician, lawyer, naturalist, engineer, and geologist, united under the structure of a thinking that is focused more on discovery than invention.*

**Keywords:** *universalism, encyclopaedism, metaphysics, universal science, principles, pre-established harmony, God.*

Philosopher, mathematician, physicist, historian, diplomat, poet, and inventor, in a brief formula, a scholar, and also a scientist, a literary man and a great thinker, GW Leibniz (1646-1716) was one of the modern world's most prolific minds, through his universalism showing his polymath personality type, reference not only for the century in which he lived, but for all time.

*On the verge of the eighteenth century, in his **Status Europae incipiente novo secul** - Hans Poser specified at the Leibniz Congress in 1994 - Leibniz wrote: "Finis saeculi novom rerum faciam apernit" - for us, and for the millennium that begins, the same thing is true, as we all are facing the same tasks, namely to make a real Europe: to intertwine the old with the new, in order to resolve the crisis of order ... Leibniz and Europe - this means so much more than a Congress topic, asking us to resolve an issue on the threshold of the millennium to come.<sup>1</sup>*

It is noted from the outset that Leibniz was a universal spirit not only in a literary sense, but also by its cultural behaviour in his time. During his travels (quite a few, in fact) to France, England, Netherlands, to Vienna and Italy, Leibniz personally knew the most prominent scientists of his time, who are among the

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<sup>1</sup> H. Poser, *Leibniz und Europa. Einführung in das Kongressthema, in: Leibniz und Europa. VI. Internationaler Leibniz Kongress, Hannover. 18. bis 23. Juli 1994: Vorträge, II. Teil, 1995, p. 16.*

roughly 1,100 intellectuals that were in correspondence with him. In addition, the circulation of his ideas was encouraged by the fact that his writings (as well as his enormous correspondence) were composed in a lofty French language, namely the courts and diplomacy. Some of these texts (especially philosophical and scientific) have been written in a neo-Latin, which was the international language of scholars of his century.

Furthermore, it has been ascertained that he easily wrote in Italian and read in English. In his correspondence, in many posthumous writings, are emphasized in a remarkable manner the volume and multiplicity of themes, of personal and epistolary contracts with the most significant personalities of science and politics in Europe at that time, without forgetting in this European context its relations with China. With his concerns for a “*characteristica universalis*”, he had in mind the Chinese writings, and without being in China, he knew it “*better than his contemporaries, because he believed that the truth lies much deeper than we could think.*”<sup>2</sup>

The idea of Leibnizian universalism was well caught by Dilthey, based on an authentic real history of modern culture:

*Leibniz - Dilthey wrote - is the universal spirit that the new European nations have generated till Goethe. If the highest benefit of the philosopher is to bring, the culture of an era, to a consciousness and to a systematic clarity, thus enhancing the powers of these cultures, then, no other thinker, from Plato and Aristotle, has done it so comprehensive and so creative, that this great German philosopher. The powerful forces that coexisted in the culture of the seventeenth century – namely: the Greek idealism of Plato and Aristotle, the purifying Protestant Christianity and the new science of time based on knowledge about nature, - have come into harmony in this spirit endowed with a deep capacity for comprehension and prospect. It seemed that the nature itself aimed him for this titan work.*<sup>3</sup>

Although widespread in many writings, although presented from a special point of view according to the person to whom it is addressed, his ideas make a whole. His theses, the arguments that support them, moreover, the examples and figures of speech in which he illustrates them, remain constant from the moment when his philosophy comes to maturity. The complexity grows, new areas are continuously attached, but the essence of his ideas remains unchanged. From the string of the greatest metaphysicians of the seventeenth century, Leibniz is distinguished by his complexity: he is “*the most comprehensive mind, the most inventive spirit, the widest personality.*”<sup>4</sup>

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<sup>2</sup> Zhu Yanbring Changginikg, *Leibniz auf den Weg nach China. VI. Internationaler Leibniz Kongress - Leibniz und Europa*. Hannover, July 1994, apud Al. Boboc, *Considerations on the reception of Leibniz's work in the contemporary world*, Bucharest University, Philosophy, 1995, p. 13.

<sup>3</sup> W. Dilthey, *Studien zur Geschichte des deutschen Geistes*, in: *Gesammelte Schriften*, Bd.III, 4. Aufl., Vandenhoeck und Ruprecht in Göttingen, 1969, p. 25.

<sup>4</sup> C. Floru, *Leibniz in: The history of modern philosophy*, vol. I, From Renaissance to Kant, Bucharest, 1937, p. 481.

According to some commentators, we must admit that the combinatorial analysis, at first a manipulation technique promoted, at the end, to the rank of universal doctrine, it served as a liaison tool.

*The whole problem of Leibniz's systematically philosophy is presented as an infinite load. Therefore, we should pursue all our ways of thinking only to hope to reach the general idea; fortunately, Leibniz' "system" is thus made that, without cease, and in one motion, he is moulding and explaining himself, he is creating himself and he is describing that creation.*<sup>5</sup>

*Assumption was made that Leibniz, as he himself often said, has drafted and published*

*only "samples" of his work. But he could not make such claims unless he had a full sense of the "totality" of that creation. Actually, if we want to consider Leibniz's palaeography, which is constructed of several layers, in a way that in the final draft a text might "forget" the number of paragraphs that were deleted and left out in the final versions. These suppressed texts, unpublished writings, unsent letters, reveal a well thought and important material, which is a censored speech, but a voluntary one.*<sup>6</sup>

Such a perspective methodology is articulated for the research of Leibniz's work, Leibniz who was great in all disciplines in which he asserted himself, not only a comprehensive spirit, but in fact a creator, with extensions that are preceding their action even today. He hoped to systematically cover all we know and all we can design that might be possible to achieve in any field. Precisely for such coverage, becomes important the synthesis between mathematics, logic and metaphysics into a comprehensive system of principles. As Hegel stated – "*what is important for Leibniz lies in principles, the principle of individuality and in the abstruse thesis*"<sup>7</sup>. In fact, Leibniz "*is, above all, 'a man of principles'*", he is "*the philosopher who used the largest number of principles*" and also he "*introduced the largest number of new principles in the philosophical theory*"<sup>8</sup>.

We believe that such views are generated by the diversity of ideas and areas explored by the German thinker, by the originality of his thoughts.

*Toute la philosophie de Leibniz est, en chaque question, la découverte d'une sorte d'algorithme qui joue, mutatis mutandis, le rôle de l'algorithme infinitésimal dans le calcul de l'infini*<sup>9</sup>.

In mechanics, the law of energy conservation, which must be aware of the unlimited series of bodies mechanical changes; in metaphysics, the notion of individual substance, "the pre-establish harmony" which is the law of connection between these individual substances; in theology, the divine attributes, the power of understanding which is the law of essences, the will or the option for much

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<sup>5</sup> M. Serres, *Le système de Leibniz et ses modèles mathématiques*, Tome I, Paris, P.U.F., 1968, p. 3.

<sup>6</sup> A. Robinet, *Leibniz face à l'avenir de son oeuvre*, in: *Leibniz Werk und Wirkung*. VI. Internationaler Leibniz Kongress. Vorträge. Hannover, 14. bis 19. November 1983, p. 648.

<sup>7</sup> G.W.F. Hegel, *History lectures of philosophy*, vol. I, Academy Ed., 1964, p. 520.

<sup>8</sup> Ortega Y. Gasset, *L'évolution de la théorie déductive. L'idée de principe chez Leibniz*, Paris, Gallimard, 1970, p. 10.

<sup>9</sup> Emile Bréhier, *Histoire de la philosophie*, Tome II: *La philosophie moderne. Le XVII-e siècle*. P.U.F., Paris, 1968, p. 211.

more, which is the law of existence, the force (the power), which is the law of a fragment of the essence of the existence.

All these concepts, so different in appearance and origin, have only the meaning to introduce everywhere the intelligibility of the infinite, which the infinitesimal calculus brings it to geometry.

In fact, Leibniz's famous doctrines, his dynamism, his theory of life, liberty and contingency theory - are the corollaries of his unique thinking, without risking that they sometimes present an issue clearly disconcerting. In addition, if these concepts are the product of the same thinking, it doesn't mean that they are embedded in a consistent system, where it would be easy to connect them to one another. For example, between his dynamism and his theory of substance, there is not a link that usually can be seen, considering that the monad concept is derived from that power. Indeed, each of these two concepts, at their origin, has independent considerations, which have undergone the same thought.

A common character of these concepts is that, unlike the clear and distinct ideas of Descartes, they are by no means subject of an intuition, but they are presented as conclusions from the analysis of the two universal principles that are true for all things, the principles which the Cartesians deny their fecundity. These two great principles are: the principle of identity: A is A, where A is a certain term and the principle of sufficient reason: for every fact there is a reason, for that is so and not otherwise. This foundation takes the form of a priori demonstration that rests on the nature of the subject and predicate terms, used in the formulation of the fact.

And it must be added the principle of continuity and the principle of undiscerning identity.

Leibniz formulates the first principle based on mathematics, but this starting point did not prevent him from noticing the continuity of universal validity, in fact, of the change, of the evolution in the nature:

*In the universe, under a metaphysical reason, all are in such a connection that the present always hides future inside, and any given state cannot be explained in a natural way than just through the state that preceded it.<sup>10</sup>*

The continuity principle stands, for a philosopher, above all doubts, and it could serve to establish several important truths, in the true philosophy, philosophy that rising above the senses and above the imagination is searching for the origin of the phenomena into the intellectual regions.<sup>11</sup>

There is much more,

*in the nature there cannot be two individual things that differ only numerically; at least we need to be able to show the reason why they are different, this reason needs to be searched in the difference between them.<sup>12</sup>*

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<sup>10</sup> G.W. Leibniz, *Hauphschriften zur Grundlegung der Philosophie*, vol. II, F. Meiner, 1924, apud C.I. Gulian: *Introduction in the history of modern philosophy*, Romanian Encyclopaedic Ed., Bucharest, 1974, p. 131.

<sup>11</sup> G.W. Leibniz, *Regarding the principle of continuity*, in: *Philosophical Works*, translated by C Floru, Bucharest, Scientific Ed., 1972, p. 59.

<sup>12</sup> G.W. Leibniz, *The first true*, in: op. Cit., p. 43-44.

Thus, the principle of undiscerning identity is formulated, like a separation of the continuity principle.

In fact, in the concatenation of the principles, made by the commentators<sup>13</sup> into a systematization that has become a classic, it is necessary “*the principle of undiscerning identity*”:

*Il faut toujours – Leibniz specified - qu'autre la différence du temps et de lieu il y a un principe intern de distinction (subl. n.), et quoiqu'il y ait plusieurs choses de même espèce, il est pourtant vrai qu'il n'y en a jamais de parfaitement semblable: ainsi, quoique le temps et le lieu (c'est-à-dire le rapport au dehors) nous servent a distinguer les choses que nous ne distinguons pas bien par elles-mêmes, les choses ne laissent pas d'être distinguables en soi. Le précis de l'identité et de la diversité ne consiste donc pas dans le temps et dans le lieu, quoiqu'il soit vrai que la diversité et choses est accompagnée du temps et du lieu, parce qu'ils amènent avec eux des impression différentes sur la chose: pour ne point dire que c'est plutôt par les choses qu'il faut discerner un lieu ou un temps de l'autre, care d'eux mêmes ils sont parfaitement semblables mais aussi ce ne sont pas des substances au des réalités complètes.<sup>14</sup>*

Between “the first truths” this “principle” acts as a differentiation in unit and as delimitation between the physic and the metaphysic order. Because the perfect similarity has its only place in the “incomplete” terms, as when we consider only the figures and neglect the figurative matter, so two triangles are considered identical, in geometry, although such two material triangles cannot be found anywhere<sup>15</sup>.

Therefore, despite its diversity, Leibniz's philosophy promotes a sense of homogeneity. This depends, among other things, on the fact that the author seeks to model all the specific fields of philosophy by the same principles. Related to these, first are *the principle of the supreme good, the principle of continuity and the principle of perfection*.

His ideal is metaphysical, if not even religious. Knowing the secrets of nature, in other words after Leibniz, the knowledge of God and his ways is the only way for humans to improve their lives and to perfect themselves as humans. The idea of God is the great idea of his philosophy. From the *Petit discours de la métaphysique* (1686) and to *Principes de la nature et de la grâce* (1714) it remains the same in almost identical wording. All his metaphysical system is illuminated by the same idea.

“*Nihil est in intellectu quod non prius fuerit in sensu, intellectus ipse.*” From this ineist, Leibniz concludes the ontological argument, moral, and logical-mathematical, about the existence of God. With this certain conviction

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<sup>13</sup> Ortega Y Gasset (op. cit, p. 10) offers a "list with principle": "1. Le principe des principes; 2. Principe d'identité; 3. Principe de contradiction; 4. Principe de la raison suffisante; 5. Principe de l'uniformité, ou principe d'Arlequin; 6. Principe de l'identité des indiscernables, ou principe de la différenciation; 7. Principe de continuité; 8. Principe du meilleur, ou de ce qui convient; 9. Principe d'équilibre, ou loi de justice (principe de symétrie dans les mathématiques actuelles); 10. Principe de l'effort minimum, ou des formes les plus parfaits". Following this sequence: Except for the second and third, all the principles in this list are Leibniz's original creations. "

<sup>14</sup> G.W. Leibniz, *Nouveaux Essais sur l'entendement humain*, Paris, Flammarion, 1935, p.182.

<sup>15</sup> G.W. Leibniz, *The first true*, p. 44

Leibniz is not questioning the existence of God as Thomas d'Aquino, or R. Descartes, he is trying to gain access to deity by exploring all the possibilities of human knowledge. Therefore, Leibniz is interested in what the laws of the world could reveal, on one side, and how to improve it, on the other side.

“*Je ne méprise rien facilement, excepté des Arts divinatoires, que ne sont que des tromperies tous puvres*”, he says<sup>16</sup>.

*The idea of increasing or renewing sciences or even more, the project of a “universal science” proves and illustrates the orientation of the German thinker towards universalism.*

We often speak of Leibniz's universality as his endeavour to unify in all and everywhere: in philosophy, where he tries a reconciliation of the moderns and ancients; in the church, where he strived for a reconciliation of Catholics with Protestants; in culture, where he militated toward a reconciliation between philosophy and religion; in politics, where he aimed to a harmony of the Christian nations in Europe<sup>17</sup>. As stated “*almost all Leibniz’s work is directed towards the triumph of Christianity. This triumph, however, could not be assured, he thought, without a return to unity*”<sup>18</sup>.

We think it would be only fare to keep for this theory the name of harmony, brought into circulation by several of Leibniz’s commentators, while retaining for universalism the quality to fundament and unify concepts, no matter how diverse and encyclopaedic they are.

For Leibniz the universalism is called *the propensity towards extended knowledge*. It was a universal genius. Every fields of knowledge influenced his thinking, but the result is not eclecticism, but a new way of thinking.

In many ways, he was, without realizing it, a precursor. He had an extraordinarily inventive spirit, with sights over the future of science development. Some of the philosophical concepts that he used served as predictions for concepts that will become fundamental to atomic physics or to psychoanalysis, but especially for mathematics.

Indeed, at least initially, he was not under a direct influence of Descartes, the idea of a *scientia generalis* emerged from the same method to bring forward the mutual dependence of problems from the different plans, and to determine successively some of the problems from the other, using only the principles with a universal value.

For Leibniz ***Scientia generalis*** comes to an end of his all technical and methodological developments, it is, as outlined in detail in “Leibniz-Forschung”, the central theme of the elaborations of the great scholar and philosopher. Specifically, ***Scientia generalis*** was design to serve the Encyclopedia of a demonstration, but is different than this, as different as, a tool is, for example,

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<sup>16</sup> J.E. Erdmann, *God. Guil. Leibnitii, Opera philosophica quare extant latina galica germanica omnia*, Berlin, 1840, apud C. Noica, *Open concepts in the history of philosophy at Descartes, Leibniz, and Kant*, Humanities Ed., 1995.

<sup>17</sup> Kuno Fischer, *Gottfried Wilhelm Leibniz*, in: *Geschichte der Philosophie*. Vol. III, edition a V-a, Heidelberg 1920, p. 6.

<sup>18</sup> E. Bréhier, *op. cit*, p. 236.

against the creation made by it; **Scientia generalis** itself should include two parts: *ars iudicandi* and *ars inveniendi*, both came from antiquity as signs for the complementary parts of logic<sup>19</sup>.

Such “*scientia*” contains, as a part of its, “*characteristica universalis*” on which he intended

*to reduce the surface structure of the common language ... to the deep structure of the philosophically language, designed to provide an accurate picture of the actually contents expressed in the sentence, and further to develop a new Organon, a tool designed to bring science, through the mathematical certainty, to a new kind of **Encyclopaedia** ... which, in theory, should never be closed.*<sup>20</sup>

More, we can talk about “*a Leibnizian world*”, “*a scientific world that is organized as a program*”, but also “*a philosophical world*” brought through **The Monadology**, both “*worlds*” with a position “*that gives them theoretical - gnosiological perspective, but also ethical, metaphysical and theological*”; the thesis of “*the world rationality*” involving also the problem of “*the practical reason*”<sup>21</sup>. In Leibniz's work - and this is the “*universalism*”, stand together “*ars*”, “*scientia*” and “*philosophia*”, practice and theory.

Leibniz's sustained concern to determine a universal science is not just a product of Leibniz's harmony, the harmony which pushed him to reconcile and unify everywhere and everything, that lead him to seek the fundamental harmony of the spirit with himself as result from considering particular sciences, but also is a product of the universalism of an age, an universalism which, sometimes more than its encyclopaedism, seemed to characterize it.

Methods, fundamentals, unitary metaphysical principles – this kind of things the era of Descartes was looking for, which was extended to be Leibniz's era.

Therefore, it seems that Leibniz is, above all, a man of time. And, indeed, its solidarity with the age is proved in every way beyond doubt. Here is the beginning of the wisdom of his philosophical perspective, from taking into consideration the meaning that those tendencies acquire into his thoughts, which ordinary and not without reason, are on the account of the time, in which the philosopher lived. Here are for example the drafts of universal language. He is thinking of creating a language that has a logical basis, by analysing and breaking down the concepts. The idea of this “*ideographic alphabet*”, as it was called, it will lead the philosopher to the idea of “*the real characteristic*” where it should translate through the suitable characters the structure and the relations of the concepts. The searched language not only would have had a practical use but even a scientific one<sup>22</sup>.

The new fact, which actually would remain characteristic for the rationalist orientation that Leibniz brings it, is his abiding urge to seek towards a combinatorial science. Starting with his first work **Disertatio de arte**

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<sup>19</sup> H. Schepers, *Scientia generalis. Ein Problem der Leibniz-Edition*, in: *Tradition und Aktualität. V. internationaler Leibniz-Kongress*, Hannover, 14.-19. November, 1988: Vorträge, p. 352.

<sup>20</sup> *Ibidem*, p. 354.

<sup>21</sup> J. Mittelstrass, *Philosophie in einer Leibniz-Welt*, in: op. cit, p. 277, 278, 283, 284.

<sup>22</sup> Couturat, *La logique de Leibniz*, Alean, 1901, p. 281.

**combinatoria** to the end of his life, Leibniz thinks he can do a craft to obtain in a systematic way, through guided mathematical combination, a new knowledge from elements that were given in advance.

From *De arte combinatorial*, a leading commentator, Couturat<sup>23</sup>, says that Leibniz keeps the idea of reducing all these concepts to some simple ones, even primitive, to give them a sign or a name or to “combine” them in order to achieve the true art of invention.

That being said, the philosopher effort would have turned in three directions: first was the determination of the fundamental concepts, a determination that would require a systematic inventory of all concepts of various sciences, which were likely to be made due to a demonstrative "encyclopaedia". On the other hand, was the effort to name these concepts through appropriate characters (the chemical notation from today, Couture<sup>24</sup> says, or the one that was given by the philosopher himself to the infinitesimal calculus, these can be examples in this certain sense), which direct us to the "*universal characteristic*" project, the project that is akin with that of a universal language, based on the very nature of material things.

The idea of a "*characteristica universalis*" is crucial in Leibniz's projects, which has the function of "*a universal language of science in general*", and is worthy as "*verum organon scientiae generalis*", as "*an instrument or medium, which serves to the general science*", which in turn, "*ties the strictness of a demonstration with the light of invention*"<sup>25</sup>.

Through "*the postulate of algorithms of the scientific language*" mentioned here, Leibniz anticipates the ideas that are reviving today in the treatment of "*artificial intelligence*"<sup>26</sup>, which justifies in greater measure, the idea of sustainable action belonging to Leibniz's thinking.

At another level is the art of combinations, who is taking, finally, a logical character: to a given subject find all possible predicates, to a given predicate find all appropriate subjects.

In abstract, says the same Couturat<sup>27</sup>, Leibniz's principles or logical postulates are:

- 1) all our thoughts are composed of several simple ideas (there is "*an alphabet of human thought*");
- 2) the complex ideas emanate from the simple ones through a uniform and symmetrical combination, analogous with the multiplication in mathematics.

In short, Leibniz's abiding concern is - and this was often pointed out - to reduce the philosophical knowledge to a sort of calculus. Thus, even in his first work, entitled *Disertatio de arte combinatoria* (1666), written at the age of 19, are shown some of the most significant principles of Leibniz's universalism, as he understood it.

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<sup>23</sup> Ibidem, p. 75.

<sup>24</sup> Couturat, *op. cit.*, p. 80.

<sup>25</sup> M. Schneider, *Leibniz Konzeption der Characteristica universalis zwischen 1677 und 1690*, in: *Revue internationale de Philosophie*, nr. 2 (1994), p. 214.

<sup>26</sup> *Ibidem*, p. 236.

<sup>27</sup> Couturat, *Opuscles et fragments inedits de Leibniz* Alean, 1903, p. 99.



The guiding idea in *Disertatio de arte combinatoria* is that the number is something as universal as possible, applicable over the whole field of metaphysics. Leibniz says “*Falso autem scholastici creditere numerum ed sola divisione continui oniri, nec ad incorporea applicare posse*”. Therefore, according to our philosopher, the number is applying even to incorporeal things<sup>28</sup>.

From this results that the use of it is much larger than usual, the restriction to arithmetic is not justified. It would rather be returned to the metaphysics principles of general science: “*Cum igitur numerus sit quidam universalissimum, merito ad Metaphysica pertinet.*” Leibniz added here something very valuable for our exposure: “*Si Metaphysica accipias pro doctrina eorum quae omni entium generi sunt communia*”.

Thus, the metaphysics is, for him, the science of common elements among all varieties of entities. It is not so much a science of principles as much as a fundamental one, it is not added nor does exceed the others sciences, but it includes them through the universal that it finds in them.

As shown in *Discours de la métaphysique*, the system is only the synthesis between “*the universal mathematics*” and “*metaphysical individualism*”. On this basis we understand that “*the individual substance*”, whose nature “*is to have a definition so complete that is sufficient to contain and to allow us to deduce from it all the predicates of the subject to which this notion is attributed*”<sup>29</sup>. Furthermore, “*any substance is a whole world and as a mirror of God, or of the Entire universe, each substance expresses in its own way*”...<sup>30</sup>

Therefore, in Leibniz's system, “*everything is controlled by the infinity of the world and by the impossibility to discover any reality that is not infinite in its own way.*” The man himself, as a “*mirror of the universe*”, “*an image of God*”, is participating at this “*creative force of divinity*”<sup>31</sup> which engages the value, however, exemplary of the individual man, somewhat in the spirit of modernity.

From the beginning, universalism finds expression in the thinking of Leibniz; even if it hasn't got the shape of the discipline that he will later try to establish, it has the shape of metaphysics – more or less traditional.

According to Leibniz thoughtfulness, the universal language is solidary from the beginning with that science of causes, that will subsequent signify for him the universal science.

But as of now, the metaphysics is not the only representative of this way to substantiate sciences: mathematics itself is nothing but the quantity science of various disciplines, hence, a kind of a fundamental science of things, a universal mathematics, with a limited meaning (the science of quantity and not of order nor measure) that it is first acquired from Descartes.

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<sup>28</sup> Leibniz admits this from a special reason. He adds: “*est enim numerus quasi figura quaedam incorporea, arta ex unione entium quorumcumque, v. g. Dei Angel, Notus quei simul sunt quator*”, Erdmann Ed., p. 8, apud C. Noica: *Open concepts in the history of philosophy*, Humanities Ed., 1995.

<sup>29</sup> G.W. Leibniz, *Metaphysical dissertation*, in: *Philosophical writings*, I, p. 76.

<sup>30</sup> *Ibidem*, p. 77.

<sup>31</sup> O. Becker, *The greatness and the limitations of mathematical thinking*, Bucharest, Scientific Ed., 1968, p. 165.

Such a mathematical model has led historians to believe that the plan of universal characteristic agrees less with philosophy than mathematics, and so, Couture<sup>32</sup> says, is explained the fact that nobody have given any importance. However, the quoted commentator shows, this importance is overwhelming in Leibniz's eyes. The biggest gain, which we may obtain through it, is that we are not allowed to perform analysis and demonstrations by a calculation that is analogous to arithmetic and algebra. After all, arithmetic and algebra are nothing but examples of characteristics.

As for the progress that Leibniz has brought in mathematics, the philosopher declared that it is exclusively the result of finding his own symbols to describe the numbers and their relations. This means no more no less that the infinitesimal calculation itself, Leibniz's famous invention, in his opinion is only an example of his universal characteristics. But the area where it operates is far more extensive than mathematics. Do not forget, however, that "*Leibniz's work is essentially an ontology, a philosophy of being, of what in being may be accessible to the spirit of created intelligent creatures.*"<sup>33</sup> The purpose of methodological developments around the mathematics and "*characteristics*" is made however by metaphysics brought by the monad theory. So, "*the hardest problem of Leibniz's metaphysics is the method problem. But Leibniz knows only a single scientific method and it is also unique to mathematics and metaphysics.*"<sup>34</sup>

This also caused extensive concern for logic and language, for the study of words and ideas.

In some notes entitled *De la Méthode de l'universalité*<sup>35</sup> he says about his characteristic:

*C'est elle qui donne les paroles aux langues, les lettres aux paroles, les chiffres à l'Arithmétique, les notes à la Musique; c'est elle qui nous apprend le secret de fixer la raisonement, et de l'obliger à laisser comme les taces visibles sur le papier, en petit volume, pour être examiné à loisir; c'est enfin elle qui nous fait raisonner à peu de frais, en mettant des caractères à la place des choses, pour désemparrasser l'imagination.*

Nothing seems to escape from the authority of this fundamental discipline. And for Leibniz is natural to be so. Any reasoning of the mind is met with certain signs – "*omnis humana ratiocinatio signis quibusdam sine characteribus perfectitur*" – and it's obvious that the mind operates the better the more refined the signs which are serving as a tool, are. Because the signs<sup>36</sup>, he says, are summarizing and helping the progress of thinking.

After he shows some of the these ideas, Leibniz explains what he means by signs in his sketch *Fundamenta calculi ratiocinatoris* "*Signorum igitur numero comhendo vocabula, literas, figuras chemicas, Astronomicas,*

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<sup>32</sup> Praefatio, op. cit, Alcan, 1903, apud C. Noica, *Open concepts in the history of philosophy at Descartes, Leibniz, and Kant*, Humanities Ed., 1995.

<sup>33</sup> A. Rivaud, *Histoire de philosophie*, Tome III, Paris, P.U.F., 1950, p. 444.

<sup>34</sup> S. Martin, *Leibniz. Logik tind Metaphysik*, 2. Aufl., Berlin, W. de Gwyter & Co., 1967, p.205

<sup>35</sup> *Opuscules et Fragments*

<sup>36</sup> Book IV, chapter XVII, in: *Nouveaux Essais...*

*Chimenses, Hieroglyphicas, notas Musicas, stenographicas, aritmeticas, algebricas aliasque omnes quibus inter cogitandum pro rebus utimur.”*

Their variety is not a surprise. It is natural that they reflect the nature of the material that they represent, since they tend to be as "real" as possible characters.

This makes Leibniz add <sup>37</sup>: *“Tanto utiliora sunt signa, quante magis notionem rei signatae exprimunt, ita ut non tantum repraesentationi, sed et raiocinationi inservire possint.”* Reasoning itself is helped by the inspired choice of signs. For him a sign, a symbol, is not just a concept; thus, he integrates it into a calculus system, into an operational system, which is all more rewarding as the various symbols will be well-chosen.

Moreover, choosing the symbols doesn't seem the only problem in the composition of the art of invention; because they symbolize something, and as such, must be determined in advance to all those simple concepts that will have to form the alphabet of human thought, because only from here, by an operational way, to conclude the differential concepts, which will not be anything else than the compound concepts.

Leibniz believed, however, that the determination of the alphabet in question is impossible.

*Mihi ... manifeste apparuit omnes humanas cogitationes in paucas ad modum resolvi tanquam primitivas. Quod si his characteres assignentur, posse inde formari characteres notionum derivatarum.*<sup>38</sup>

As seen, this is the main sentence in ***De arte combinatorial*** his believe that constantly accompanied Leibniz's thinking. He was so rooted in its universalism that he could make the statement<sup>39</sup>:

*On peut même dire que les sciences s'abiegent en s'augmentant, qui est un paradoxe très véritables; car plus on découvre de vérités et plus on est en état d'y remarquer une suite réglée et de se faire propositions toujours plus universelles, don't les autres ne sont que des exemples on corollaires*

And, if we would have asked Leibniz for the inventory of the simple concepts, an inventory without which a characteristic did not make sense to form, of course he would have said that such a thing does not exist yet, but it can be accomplished.

This tool should have been a universal encyclopaedia<sup>40</sup>, in order to portray a collection of human knowledge in all areas, logically grouped after a logical method and starting with the simplest. Since such an encyclopaedia is beyond man's powers, even beyond Leibniz's erudition, the philosopher designs an educated society to develop systematically the inventory of all human knowledge. He even propose, to the Royal Society of London, then to Sciences Academy of Paris, and finally, to the greatest princes of the era - some commentators believe that even to Louis XIV - to take upon themselves such a task. The fact that the philosopher failed to persuade anyone in his venture has no significance. He

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<sup>37</sup> Ed. Erdmarm, p. 93 apud. C. Noica, *op.cit.*, p. 93.

<sup>38</sup> *Fundamenta calculi rationatoris*, Erdmann Ed., p. 93.

<sup>39</sup> *Discours touchant la méthode de la certitude et l'art d'inventer, pour finir les disputes et pour faire en peu de temps de grands progrès*, Erdmann Ed., p. 172.

<sup>40</sup> Couturat, *op. cit.*, p. 100.

believed that his endeavour is possible, and that was enough to keep the thought of his characteristic unaltered.

According with Couturat, it seems that the philosopher realized the difficulties of establishing, of choosing the right symbols, especially when making an attempt to represent the simple ideas - which are the others elements - with the prime numbers of arithmetic, and the complex ideas with the combination of prime numbers, he found that cannot be fully succeeded. After the same commentator, Leibniz does not waive its proposed representation, but tries to use all sorts of symbols such as musical sounds, algebraic signs, and geometric diagrams.

Even in *Nouveaux Essais* he proposed, at one time, a way to communicate through symbolic drawings, which would feed the imagination and would appear, at the same time, as elements of mind in their universality. Moreover, Leibniz's belief was that the languages have a common origin and although our words are not initially completely arbitrary but based on relationships between things and sounds - a work with great many scholarly examples, showing philosophical training. If neither of these tests fails, his disappointments, to the extent that we can talk about them, will never make a difference on the characteristics project itself.

His ideal is to unify the methods and fundamental propositions in a universal discipline, with standards that will be known; his ideal, as he himself explained, is to change the philosophical sects into a community like the one of the mathematicians, where Euclideans, Apollonians and Archimedean are not different.

To determine the boundaries and virtues of such a science is among the first tasks of a researcher who wants to discover the grounds of human knowledge.

Consumed by the universality vocation, the philosopher himself would like to confess:

*As for myself, I love Mathematics because only there I found the signs of innovation art in general. I came to Metaphysics, and I can say that from loving it, I went through all these steps; because I did not realize that true Metaphysic is hardly different from the true logic, I mean the art of invention in general; for in fact, the Metaphysics is a natural theology; God himself is the source of universal goodness and in the same time the principle of any knowledge.<sup>41</sup>*

Even though his projects have not been carried out, his attempt shows a great faith in the human ability to acquire knowledge, in its unique opportunity to reach perfection through the immensity of his knowledge.

*Representing his ideal, Leibniz increased the powers of the human intellect by discovering new disciplines, by revolutionizing the working methods, and by "deepening" the old ones.* The most recent research, concerned with proving the universality of Leibniz's thinking, has emphasized the idea of including in an encyclopaedia the knowledge of the time, especially the expectations in various areas of current concerns, which makes Leibniz a "contemporary of ours" and a

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<sup>41</sup> Dietrich Mahnke, *Leibnizens Synthese von Universal-mathematik und Individual metaphysik*, partea I, Halle 1925, p. 571, nota 140 apud C. Noica, *op.cit.*, p. 65.

presence in aeternum, beyond what marks his contribution in asserting the modernity of European culture.

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