

# A NEW INTERPRETATION OF LEIBNIZ'S PROJECT FOR *CHARACTERISTICA UNIVERSALIS*

## 1. Opening

The task of this paper is to give a new, catholic interpretation of Leibniz's concept of *characteristica universalis*. In § 2 we shall see that in different periods of his development, Leibniz defined this concept differently. He introduced it as "philosophical characteristic" in 1675,<sup>1</sup> elaborated it further as *characteristica universalis* in 1679, and worked on it at least until 1690.<sup>2</sup>

Secondly, we shall see (in § 3) that in the last 130 years or so, different philosophers have advanced projects similar to that of Leibniz, not always referring to him, at that. These very projects, we claim, threw some light on what Leibniz idea of *characteristica universalis* could be; or, in more positive sense, on how could it be reconstructed in a more workable way. Unfortunately, they failed to answer the question what exactly Leibniz's philosophy was.

Finally, despite the fact that Leibniz's concept of *characteristica universalis* impressed generations of philosophers who tried to make sense of it, the result is that in the more than 300 years after it was introduced, it was never used in the scale its author dreamed of. This fact sets out the next objective which we are going to pursue in this paper: we shall try to find out (in §§ 4 and 5) how this concept can be interpreted in more practical form. The first to clearly state this task was Frege. In the Preface to the *Conceptual Notation*, he noted: "[Leibniz's] idea of a universal characteristic, a *calculus philosophicus* or *ratiocinator*, was too ambitious for the effort to realize it to go beyond the mere preparatory steps. ... But even if this high aim cannot be attained in one try, we still need not give up hope for a slow, stepwise approximation."<sup>3</sup>

## 2. Leibniz's Idea of *characteristica universalis*

### 2.1. Philosophical characteristic / *characteristica universalis*

First variant of the project for a new language was set out in a letter of Marin Mersenne to Descartes. Mersenne's idea was simply of *pasigraphy*: a general language which helps to

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<sup>1</sup> In "de arte inveniendi". (A VI, 4. 428–32)

<sup>2</sup> Cf. Schneider (1994).

<sup>3</sup> Frege (1972), p. 105.

understand all languages. In his answer to Mersenne from 11 November 1629, Descartes found this project rather interesting. In addition, however, he discussed a much wider variant of it: a project for *ideography* which mirrors human thoughts. It should be connected with a *mathesis universalis* which will construct anything thinkable as calculation. “The greatest advantage of such a language would be the assistance it would give to men’s judgment, representing matters so clearly that it would be almost impossible to go wrong.”<sup>4</sup>

Descartes, however, repudiated this project as utopian. The problem is that we can realize such a language in practice only if we guarantee certain order. Above all, “all the thoughts which can come into human mind must be arranged in an order like the natural order of the numbers”. Secondly, “the order of nature would have to change so that the world turned into a terrestrial paradise”. Descartes’ conclusion was that this “is too much to suggest outside fair-lyland”.

In Leibniz’s archives, an excerpt of Descartes letter is preserved, together with Leibniz’s commentary on it (A VI, 4. 1028–30; C, 27–8), which shows that he knew these deliberations of Descartes very well. Leibniz however was more optimistic than Descartes. He claimed that every science and discipline, and even every concept and thing, has its own character(s). Moreover, Leibniz believed that such languages, indeed, in quite rudimentary form, already exist. Thus “the model of a machine expresses the machine itself, the projective delineation on a plane expresses a solid, speech expresses thoughts and truths, characters express numbers, and an algebraic equation expresses a circle or some other figure”.<sup>5</sup> Another example of such a language is the language of logic with its forms.<sup>6</sup>

Leibniz further claimed that *characteristica universalis* must orient itself on the example of mathematics. In particular, he acknowledged the unique position of numbers: They are precise characters which enable exact, algorithmic thinking. Other academic disciplines, and also parts of public discourse, have to establish such languages in the future. This will make their subject clear and distinct.

However, the universal characteristic is more general, and also more important, than mathematics. In fact, mathematics—algebra and arithmetic—“are but shadows”<sup>7</sup> of it: despite the fact that they are its best existing examples. It is important to underline that this was the first program for a single formal discipline after Aristotle introduced logic as a second formal dis-

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<sup>4</sup> All citations in this and in the next paragraph are from Descartes (1977), pp. 12–13. (AT I 81–2)

<sup>5</sup> Leibniz (1678), p. 207. (A VI, 4. 1370; GP VII, 263)

<sup>6</sup> Here we can note in advance that what we are going to suggest in III, § 3, is just another such a language.

<sup>7</sup> Leibniz (1678/9), p. 6. (A VI, 4. 264; GP VII, 185)

cipline, parallel to mathematics.<sup>8</sup> Similar programs were fully developed only at the turn of the twentieth century by Frege and Russell.

## 2.2. “Let us calculate!”—two types of analysis

Leibniz hoped that his program will help to solve any problem via calculation, so that every paralogism will become nothing but an error by calculation. In this way, also the dispute between the schools will become superfluous: “our characteristic will reduce the whole [the disputing arguments] to numerical terms, so that *even reasons can be weighed*, just as if we had a special kind of balance.”<sup>9</sup>

Perhaps the most interesting point in Leibniz’s project (we shall return to it in § 4) was his insistence that this art would be especially valuable in realms in which scientific procedures cannot be applied directly, but in which we advance by *conjecturing* and by estimating the degrees of what is probable. Such examinations we need characteristically in medicine, in military art, and in politics. By them we speculate which way to follow.

This conception shows that despite its similarity with Descartes’s philosophy, Leibniz suggested an alternative to the Cartesian type of analysis. In fact, his conception was that analysis is of two kinds. The common type (Cartesian) analysis advances by leaps (*per saltum*) and is used in algebra. It consists of “division of difficulty in several parts”. (A VI, 3. 671; GP VII, 83) “The other [type of analysis] is special and far more elegant but less known; [Leibniz] call it ‘reductive’ analysis.”<sup>10</sup> The reductive analysis<sup>11</sup> is especially practical when we must resolve problems in practice, by conjecturing. In some places, in “*Ars inveniendi*”, in particular, Leibniz expresses the difference between the two kinds of analysis, discriminating between analysis and combinatory: “Analysis is a study which dissects the object with greatest possible exactness. ... Synthesis or combinatory consists in that in order to explain an object, we add other objects.” (A VI, 3. 429; C, 167) Galileo—this creative mind—preferred the combinatory, Descartes preferred the analysis.

We should conclude this section with the remark that because Leibniz’s project for *characteristica universalis* followed, in different occasions, these two quite different kinds of analysis, it was patently ambivalent.

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<sup>8</sup> Cf. Milkov (1997), i, pp. 50–1.

<sup>9</sup> Leibniz (1678/9), p. 9 (A VI, 4. 269; GP VII, 189), italics mine.

<sup>10</sup> Leibniz (1679), p. 233. (A VI, 4. 544; GP VII, 297)

<sup>11</sup> It was called by Kant “regressive analysis”. Cf. Peckhaus (2001), (2002).

### 2.3. The turn in Leibniz's conception of *characteristica universalis*

Around 1679 Leibniz started to speak of his *characteristica universalis* as of “a certain new language that some people call Adamic language, and Jacob Böhme calls ‘nature language’ ”.<sup>12</sup> He also connected it with the language of Cabbala and with the *characteristica* of the “magicians”.<sup>13</sup> Leibniz now claimed that “if we have an exact *language* (called also *Adamic language*), or, at least, a *really philosophical script* in which the concepts can be abridged to something like an *alphabet of human understanding*, then all that reason deduces from data could be found *by a kind of calculation*.” (A VI, 4. 911; GP VII, 199)

In another formulation, Leibniz's idea was “that one can devise a certain alphabet of human thoughts and that, through the combination of the letters of this alphabet and through the analysis of words produced from them, all things can both be discovered and judged”.<sup>14</sup> This will be both a succinct and a more generalized analysis of human thoughts.

How is this turn in Leibniz's project for *characteristica universalis* to be explained? Our guess is that this new formulation of the idea for universal characteristic was nothing but taking sides in the dispute of the second half of the seventeenth century between the Teutonic philosophy, on the one hand, and the “mechanic philosophers” Baco, Descartes, and Locke, on the other hand.

### 2.4. Its connection with *philosophia teutonica*

This point brings us to Leibniz's project for reforming the philosophy of his time which we are going to discuss in this section.

Leibniz has rightly noted that the method of the new philosophers, of Baco and Descartes, in particular, was directed, above all, against the old method of scholastics to receive knowledge by inference. Following Newton, Locke presented Baco's method systematically, and so developed it further. For him, the perception, which is limited to the immediately existing reality, is the most important and fundamental source of knowledge.

This method was opposed by Leibniz's landsman Jacob Böhme (both were born and raised in Saxony) who gave the start of what was later called *philosophia teutonica*. In Hegel's judgment, “for Jacob Böhme the contents of doing philosophy is intrinsically German, for what characterizes and specifies him, is the ... Protestant Principle, which put the mental world into

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<sup>12</sup> Leibniz (1678/9), p. 5. (A VI, 4. 264; GP VII, p. 184)

<sup>13</sup> Apparently, this turn was occasioned by Leibniz's encounter in 1679 in Herford with Francis Mercury van Helmont, a leading Christian Cabbalist. Cf. Coudert (1995), p. 36.

<sup>14</sup> Leibniz (1678/9), pp. 6–7. (A VI, 4. 265; GP VII, p. 185)

its home [*Gemüt*] (into its concept) and contemplates, knows, and feels in its own self-consciousness all that which usually is outside”.<sup>15</sup> In short, this Principle led Böhme to begin to consider reality as a concept: to embrace the belief that the subjects investigated had their idiosyncratic laws of developing. It is easy to see that this idea was not far away from Leibniz’s dream of idiosyncratic characters, which truly present every thing of reality and every concept.

Leibniz was against the “new philosophers”, or “excessively materialistic philosophers”, or against “mechanical philosophy”. In other words, he was against Galileo, Descartes, Hobbes, Jungius—against the new reductionists who, “having revived Archimedes’s use of mathematics in physics ... thought that everything in corporeal nature should be explained mechanically” (“*Elementa rationis*”, GP VII, 343). Incidentally, this kind of criticism became a leitmotiv in the German philosophy between 1781 and 1933. In particular, it was expressed by many German philosophers like Kant, Lotze, Husserl, Rehmke, Leonard Nelson.

### **3. Orthodox Interpretations of *characteristica universalis***

In this section we shall pass in review some interpretations of Leibniz’s programme for *characteristica universalis* made in the last 140 years.

#### **3.1. The Programme for perfect language**

Scarcely any other philosopher did so much in order to revive Leibniz’s project for *characteristica universalis*, understood as consisting of idiosyncratic characters, as Frege. Frege, as well as Wittgenstein, after him, developed Leibniz’s project for logic of concepts further.

Frege, in particular, criticized Boole’s logic in that it refused to speak of the content of logical formulae.<sup>16</sup> Most importantly for us, Frege put his criticism of Boole in Leibnizian terms.<sup>17</sup> In “Boole’s Logical Calculus and the Conceptual Notation” (1881) he emphasised the fact that while Boole’s project aimed to develop a technique or a skill, which will help to solve the logical tasks automatically (the logical laws were transformed by Boole into algorithms), Leibniz was interested in the content of logical formula, in the being. In “On the Aim of the Conceptual Notation” (1882) Frege was even more explicit:

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<sup>15</sup> Hegel (1836), pp. 301 f.

<sup>16</sup> Similar criticism was also advanced by Husserl. Cf. Husserl (1979).

<sup>17</sup> Frege’s knowledge of Leibniz has as a source mainly Trendelenburg (1867).

My aim was different from Boole's. I did not wish to present an abstract logic in formulas, but to express a content through written symbols in a more precise and perspicuous way than is possible with words. In fact, I wished to produce, not a mere *calculus ratiocinator*, but a *lingua characteristicistica* in the Leibnizian sense.<sup>18</sup>

Based on this claim of Frege's, in the 1960s Jørgen Jørgensen and Jean van Heijenoort were anxious to underline that language is not to be confused with calculation.<sup>19</sup> Unfortunately, the Jørgensen–van Heijenoort thesis is simply not true.<sup>20</sup> For: (i) Leibniz's *characteristica universalis* was intrinsically connected with algorithmic and so with calculation.<sup>21</sup> (ii) In other places Frege himself insisted that his conceptual notation is both *calculus ratiocinator* and *lingua characteristicistica*, “with equal emphasis”.<sup>22</sup>

Similarly to Leibniz's program for *characteristica universalis*, Frege's program for conceptual notation was a program for *ideography*: a means for graphical representation of ideas (concepts). Indeed, Frege's idea was that the conceptual notation should serve for “perspicuous representation of the forms of thought”.<sup>23</sup> The perspicuity of the symbolism is to be achieved by the spatial relations of the symbols. This is exactly what Frege aimed at by inventing his eccentric symbolism.<sup>24</sup>

The idea of perfect symbolism was also leading in Wittgenstein's *Tractatus*. In 6.122 Wittgenstein reached the conclusion that in such a symbolism, “we can in fact recognize the formal properties of propositions by mere inspection of propositions themselves”. This belief, in fact, followed—via Frege—Leibniz's idea of *characteristica universalis* which claimed that “a complex chain of proof is to be fixed in one single formula, so that one could grasp the proof in a single glance”.<sup>25</sup>

There were also further similarities between Leibniz's and Wittgenstein's programmes: (1) Leibniz's “*ars characteristicistica* is the art to build, and order, symbols, in such a way that these

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<sup>18</sup> Frege (1882/3), pp. 90–1.

<sup>19</sup> Cf. Jørgensen (1960), Heijenoort (1967).

<sup>20</sup> For criticism of Jørgensen–van Heijenoort thesis cf. Milkov (1997), i, pp. 299, 415; Peckhaus (2004).

<sup>21</sup> Cf. Schneider (1994), p. 218.

<sup>22</sup> Frege (1897), p. 242.

<sup>23</sup> Frege (1881), p. 89.

<sup>24</sup> Cf. Milkov (1999), p. 43.

<sup>25</sup> Peckhaus (1997), p. 31.

are in same relations as the thoughts which they represent”.<sup>26</sup> Similarly, Wittgenstein claimed that “in ‘aRb’ ‘R’ is not a symbol, but that ‘R’ is between one name and another symbolizes”.<sup>27</sup> (2) Similarly to Leibniz, Wittgenstein accepted that besides letters and numbers, characters can be also figures, pictures or models. (3) Typically in Leibnizian manner, Wittgenstein claimed that when we construct graphically correct symbols, all the problems of logic are *eo ipso* resolved. In this sense “we cannot make mistakes in logic” (5.473). (4) Finally, also in Leibnizian spirit,<sup>28</sup> Wittgenstein accepted the principle *simplex sigillum veri* (5.4541).

### 3.2. Ontological characteristic:<sup>29</sup> Wittgenstein’s *Tractatus*

We have already discussed (in § 2.1) Descartes claim that if the order in nature is not guaranteed, the project for *characteristica universalis* will be a no starter.<sup>30</sup> Exactly this condition was fulfilled by Wittgenstein’s *Tractatus*, according to which the world consists of facts that, in turn, consist of objects. Wittgenstein further claimed that his objects are formal concepts (4.1272). This is a hint that Tractarian ontology was logico-ontology: it was the flip side of Wittgenstein’s new, “perfect” symbolism. Exactly this point secured a complete congruence between symbolism and world in the *Tractatus* that Descartes thought impossible.

In more concrete terms, Wittgenstein’s Tractarian ontology accepted that the objects are primitives or indefinables. These are the building stones through the combination of which all things in the world are made. For example, when we see something blue, say, a blue spot in a particular visual field, what we see is a blue extension of a certain size and a certain shape—that is, a certain combination of objects, interwoven in a certain way.<sup>31</sup>

Apparently, this ontology is perfectly congruent with the conceptual notation based on primitive symbols, through the combination of which all other symbols result: a conceptual notation close to that Leibniz dreamed of.

### 3.3. Directly depicting language

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<sup>26</sup> Ibid., p. 32.

<sup>27</sup> Wittgenstein (1979), p. 109.

<sup>28</sup> Cf. A VI, 4. 959; GP VII, 179.

<sup>29</sup> The term is of Barry Smith; however, he uses it in different sense—as characteristic which is a mirror of reality. Cf. Smith (1992), p. 49.

<sup>30</sup> Many authors of today are also conscious that “how a finally acceptable directly depicting language will look, will clearly depend on what the world is like.” Ibid., p. 58.

<sup>31</sup> See on this interpretation Milkov (2001).

Leibniz's program for *characteristica universalis* was also revived in another form: in Otto Neurath's idea of artificial language he called *isotype*. The problem with it was that isotype is rather naïve language which was mainly designed for practical purposes: to make it possible that "all men can participate in a common culture and [to make] the canyon between educated and uneducated people ... disappear".<sup>32</sup> This point explains why isotype has no quantifiers and no logical connectives: it is a rather naïve language.

Recently, a program for a directly depicting language was also launched by Barry Smith. His hope was that it "will enable us to represent the most general structures of reality".<sup>33</sup> It will not use sentences or propositions but maps, diagrams or pictures. Smith further claimed that

in a properly constructed characteristic language ... the structures of diagrams will as far as possible be dictated by the structures in reality they are designed to represent. [Furthermore, such a language] is concerned with the depiction of what actually exists, ... not merely with what is general but also with what is particular. ... Our diagrams will in fact almost all of them incorporate proper names in the ordinary sense as constituent parts. It is from these that they will inherit their primary relation (be anchored) to reality.<sup>34</sup>

Unfortunately, the latter point of Barry Smith's project for *characteristica universalis* contradicts that of Leibniz. Indeed, the authentic Leibniz's "characters are proper names of concepts, or of that what presents general concepts";<sup>35</sup> they are not proper names of individuals.

It is important to note that, similarly to Neurath, Smith developed his project for practical purposes: in his case, for ontological underpinning of programs of artificial intelligence. (Smith's final objective was to develop an "ontological language".<sup>36</sup>) To this purpose, the "directly depicting language seeks high representational adequacy, even at the expense of low expressive adequacy".<sup>37</sup> This point sets out the disadvantages of Smith's variant of *characteristica universalis*: it can not treat time and change, and also such items like propositional attitudes, probabilistic machinery, vagueness.

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<sup>32</sup> Neurath (1973), p. 225.

<sup>33</sup> Smith (1992), p. 48.

<sup>34</sup> *Ibid.*, pp. 51–2.

<sup>35</sup> Arndt (1967), p. 75.

<sup>36</sup> Cf. Degen *et al.*, (2001).

## 4. Some Catholic Interpretations of Leibniz’s Project: Characters as Forms

Philosophers of today, more than three centuries after Leibniz raised his programme for *characteristica universalis*, are unanimous that it “appears as a more or less unattainable goal”.<sup>38</sup> In the same time, however, as we have seen in § 3—philosophers repeatedly try to revive it.<sup>39</sup> In fact, in this paper we follow the same objective. For this purpose, however, we are going to make it a rather free interpretation. We are encouraged in this endeavour by the already mentioned (in § 2) fact that Leibniz himself advanced alternative, even competing conceptions of *characteristica universalis*.

Main point in Leibniz’s concept of *characteristica universalis* is the claim that it will be especially helpful in regions in which conjectures prevail—above all in “propositions of civil or natural history, in the art of investigating natural bodies and thinking persons, and, especially, in public life, in medicine, in jurisprudence, in military art and in state governing” (A VI, 4. 913; GP VII, 201); in other words, in all those realms where we *conjecture*, or *speculate*.

But what can help in such cases if truth be told? Our answer is: a clever, or judicious, *intuition* that we willingly verify with reality. But how could an encyclopaedia of universal characters help in developing a clever intuition? Our hypothesis is that this job can be accomplished by a *compendium of forms*. In what follows, we are going to support this claim with examples from the philosophical practice of Moore, Russell, and Plato.

### 4.1. Moore and Russell

Similarly to Leibniz, Moore claimed that mistakes in ethics have the same roots as mistakes in mathematics: “Certain it is that in all those cases where we found a difference of opinion, we found also that the question had not been clearly understood. ... It is as with a sum in mathematics.”<sup>40</sup> When the questions are well put, we can calculate the right answer without much ado. The only difference between ethics and mathematics, in this respect, is that ethics is much more complex and so, the practice of calculation in it is much more difficult.

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<sup>37</sup> Smith (1992), p. 53.

<sup>38</sup> Rutherford (1995), p. 227.

<sup>39</sup> Among the philosophers who tried to do that, but whose efforts we would not discuss here, were Franz Brentano and Edmund Husserl.

<sup>40</sup> Moore (1903), p. 145.

In fact, the idea that “if all conceptual confusions are eliminated, we would see the truth and would agree with it, is essential for [early] analytic philosophy”.<sup>41</sup> Then we will reach the point at which we can calculate. That though was expressed by Russell this way: we can start to calculate when we reduce philosophical problems to logical, more precisely, to problems of logical forms.<sup>42</sup>

Russell claimed further that rigorous philosophy is examining the subject under consideration with the help of models, or forms it establishes. Only when such logical models are elaborated—they can be also collected in a special “dictionary”, or encyclopaedia, as Leibniz dreamed of<sup>43</sup>—can we examine the subject under consideration without the aberration of vagueness and misunderstanding. Russell developed this program explicitly in *Our Knowledge*, where he insisted that the new developments in logic suggest fruitful hypotheses (forms) which can be most helpful in investigating different problems of academic interest.<sup>44</sup>

#### 4.2. A digression on Plato

Much before Moore and Russell, Plato introduced *dialectics* as the discipline which is most helpful for gaining wisdom. At first, he claimed that dialectics tests, examines interlocutor’s beliefs and theories; it itself is not a theory but a skill. That is why its knowledge can not be put into words, like the knowledge of the other sciences can. The skill of the dialectician simply supports the ability to better assess arguments and facts under consideration. The dialectician is wiser than other academics, scientists and intellectuals exactly *in this sense* (*Rep.*, 534e). He examines all alternative solutions of the problem under analysis, and decides which the most appropriate one is.

This examination, or conjecturing (cf. Leibniz’s balancing), is a kind of calculation,<sup>45</sup> based on well-established facts and arguments. It is also a procedure similar to Leibniz’s reductive analysis, or combinatory (cf. § 2.2).

In his early dialogues, Plato elaborated manuals for this *Art of Discourse*. In fact, they were nothing but verbatim reports of eristic matches. This practice was based on the belief that “tried argument-sequences can be learned by heart and studied for their strength and weakness, and

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<sup>41</sup> Milkov (1997), i, p. 196.

<sup>42</sup> Cf. Russell (1903), § 47.

<sup>43</sup> Cf. A VI, 3. 430; C, 169.

<sup>44</sup> Cf. Russell (1914), p. 68. At other places (see e.g. Russell 1912, chapter 15), Russell claimed that training in rigorous philosophy can be also helpful for discussing matters of public interest.

<sup>45</sup> In ordinary usage, too, conjecturing is conceived as a kind of “calculation without numbers”.

the successful ones can, *en bloc*, become parts of the common repertoire of all who may ever debate the same thesis.<sup>46</sup> In fact, they were similar to the chess matches of today. Indeed, chess-players are typically trained by memorizing patterns of different combinations which later can be used in similar situations. In the same way, Plato believed that memorizing different forms of dialectical argumentation is an irreplaceable instrument for preliminary training in philosophy.

Unfortunately, in his mature years, i.e. in *Republic*, Plato started to conceive dialectics as a search of special truths, or super axioms. Finally, in and after *Philebus*, he replaced this discipline by the theory of *forms*. He also accepted that forms pertain to a special aspect of reality which is truer and more exact.

## 5. Epilogue

Summarizing the philosophical practice of Moore, Russell and Plato, we would like to correct Leibniz's project for *characteristica universalis* as resulting in compendia or encyclopaedia of selected forms. In fact, such are nothing but some typical philosophical discoveries, for example, Hermann Lotze's discovery of values and their connection with logic, Franz Brentano's discovery of intentionality, or J. L. Austin discovery of speech acts. At the same time, we accept that we learn such logical forms in the way Plato taught heuristics: through their industrious mastering.

Apparently, the use of such encyclopaedia or compendia of forms is intrinsically informal—it is a science-cum-practice activity. (The science is the collection of forms, and the practice is their application.) This explains why it can be best applied in such disciplines like medicine, jurisprudence, and military art. Contrary to the conception of forms Plato adopted first in the *Republic*, however, the forms of our *characteristica universalis* have no existential import. They are simply theoretical *models* that help us to find the best solution for every specific problem which we can encounter in practice or in theory.<sup>47</sup>

Paraphrasing Leibniz, we are adamant to underline that this project is not a utopia: parts of it already exist in practice. Thus the judge considers every new case consulting the “characters” /

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<sup>46</sup> Ryle (1966), p. 198.

<sup>47</sup> In this sense we used Wittgenstein's theory (model) of subject as divided into empirical, metaphysical and willing, for solving the problem of the meaning of life. Cf. Milkov (2005).

forms of the justice codices; the medical doctor diagnoses his patients consulting the descriptions (the dictionary) of medical deceases; etc.

This interpretation of Leibniz's project of *characteristica universalis* is supported, first of all, by the fact that his first program for universal conceptual notation was realized as a contextual (in sense of Dummett) "calculus of truths", not of individuals.<sup>48</sup> Indeed, Leibniz's initial idea of universal characteristic, first articulated in his 1666 dissertation *Art of Combinations*, was that "just as there are predicaments [categories] or classes of simple notions, so ought there be a new genus of predicaments in which propositions themselves or complex terms might also be set out in a natural order."<sup>49</sup> Similarly, for Moore and Russell logical forms are truths, not individuals.<sup>50</sup>

Secondly, our interpretation of Leibniz's project for *characteristica universalis* as heuristic means for conjecturing is supported by Leibniz's insistence that it must help to reach "proofs beyond quantities". Helpful to this purpose are the various forms of the logicians, but also the "metaphysical forms", or the metaphysical proofs of the degree and intensively of *forms* (A VI, 4. 910; GP VII, 199).

Thirdly, our interpretation can be also supported by the fact that Leibniz often expressed rather catholic views as of what *characteristica universalis* can achieve. In difficult cases it can simply help to choose the most reasonable position. Of course, nobody can guarantee that it will be the winning one; it is just more probable that it will be the winning one. (cf. A VI, 4. 913–14; GP VII, 201)

Fourthly, Leibniz was adamant that once the universal characteristic would be widely accepted, "nobody will be praised for the precision of his judgment. [...] In such case the skill of correct thinking in a limited time will become no more commendable than is the ability to correctly calculate with big numbers". (A VI, 3. 429; C 168) Similarly, it was often claimed (for example, by Gilbert Ryle<sup>51</sup>) that what Moore, Russell and Wittgenstein achieved in philosophy was nothing but some truisms that remained after them in the philosophical folklore. The point is that these three philosophers did not discover new facts but only suggested new elucidations to facts that are well known to us all. The synoptic vision of these facts emanci-

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<sup>48</sup> Later Leibniz defined *characteristica universalis* as program for calculating individuals. Cf. § 2.3.

<sup>49</sup> Leibniz (1678/9), p. 6. (A VI, 4. 265; GP VII, 185)

<sup>50</sup> In this connection I would like to remind the reader that there are not only dictionaries of words; there are also dictionaries of phrases and sentences. Cf. Palmer (1938).

<sup>51</sup> Cf. Ryle (1937).

pated people from certain sham paradoxes, transforming them into well-known truisms.<sup>52</sup> After this procedure of elucidation, people simply freed themselves from some prejudices and started to think correctly.

Finally, this interpretation explain how philosophical education functions. When studying the classics of philosophy, we learn different models, or different “metaphysical forms”. We often master these models, without to realize which exactly they are and who was their originator—in the same way in which we use different techniques of, say, skiing, without exactly to know who brought them to us and when. Similarly, using the good of well-selected *characteristica universalis*, or a proper thesaurus of philosophical discoveries of the past, we can achieve the skill of correct thinking that lies at the bottom of the good philosophical education.

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<sup>52</sup> Cf. Milkov (1997), ii, p. 535.

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