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# THE DEVELOPMENT OF LEIBNIZ'S CONSIDERATIONS IN JOHN YENCH'S PROJECT

In the title above it is a declared conviction that John Yench's universal language (Idirl) has its provenance in G. W. Leibniz's project. The problem is thus located in a precisely determined conceptual framework: what is, or should a universal language be? However, in order to ask responsibly whether Yench's modern-day project is a development of the considerations of this German philosopher. It is first required to define how the term "universal language" is used in this text. This will enable us to explore the topic clearly and unambiguously and make it possible to present the *Inter-Disciplinary International Reference Language* as a continuation of Leibniz's idea.

In philosophical or linguistic literature the term "universal language" often appears in different contexts and therefore a coherent definition is difficult to reach. At the moment the first questions about the origins of language arose, there also arose questions about the causes of the multiplicity of languages and of evaluating their variety. Along with the first contacts with *other* language users our language begins to become a barrier – an inaccurate, malfunctioning tool. Both cognition and communication (which are legitimized by language) prove to be imperfect.

In European Culture a dual attempt to cope with this problem has appeared. The first was reconstruction: the Adamic language (a return to the order of Paradise and the language received from God) or the reconstruction of the protolanguage (inspired by comparative linguistics). Obviously each of these attempts originated from completely different understanding of the origin of language. Although it should be noted that it is meant to be a return to, with certain reservations, a natural language.

When these two kinds of reconstruction are compared, then some terminological problems appear. In professional literature the linguistic projects of e.g. Leibniz, John Wilkins or George Dalgarno are (sometimes interchangeably) designated: universal languages or perfect languages. However, this is

imprecise because not every perfect language has to be a universal language – and sometimes perfect languages were understood (even by their constructors) as not ultimately universal. One example of an attempt to reconstruct this situation will be discussed in detail: The reconstruction of the Adamic language and certain nationalistic hypotheses associated with this imply the perfection and universality of this language. Nevertheless, the reconstruction of protolanguage (within the confines of comparative linguistics) presumes the universal character of these languages (on the assumption of the monogenetic hypothesis) but do not imply the paralanguage's perfection, which was very often considered as wholly imperfect.

The second means of dealing with the multiplicity of languages, which the projects of both the thinkers in the title belong to, is connected with the construction of a language. Such projects are often called artificial languages, which causes some misunderstandings. It is possible to come across the view that all languages are artificial, because "they emerge in society and undergo its active influence".[1] Or, as Barbara Stanosz considers: "the detailed construction of any language is not biologically determined; it is invented – for better or worse – by our ancestors, and in this sense all human languages are 'artificial'".[2]

However, it must be stressed that determining which language projects are constructed languages (as opposed to those which are reconstructed), is not an easy task. There is a problem even with such projects as: cosmic languages, mathematical languages and logical languages. Also any attempt at systematizing constructed languages can add many problems and uncertainties because it is possible to divide them from many points of view: whether they are pasigraphical (universal writing and alphabet) or pasilalical projects (designed also for speech).[3] It is possible to distinguish them into unilinguas or paninterlinguas – the first term concerns languages which are intended to be the sole language in general use; the second concerns common languages which would function on a basis of full equality of rights with natural languages.[4]

In the division below a different set of characteristics, in order to situate the considerations of Leibniz as well as to indicate the degree to which John

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[1] M. Susskin, *Paninterlingwa. Powszechny język międzynarodowy*, PWN, Warszawa 1990, p. 16. (fragment translated by E. K.).

[2] B. Stanosz, *Wprowadzenie do logiki formalnej*, PWN, Warszawa 2006, p. 91. (fragment translated by E. K.).

[3] See about this distinction: M. Jurkowski, *Od wieży Babel do języka kosmitów*, KAW, Białystok 1986, p. 34.

[4] See M. Susskin, op. cit.

Yench's project is a continuation of the thought of the German philosopher, has been used.

Constructed universal languages are created by individuals or groups of people. From the beginning they have designated functions and roles (true cognition and/or unlimited communication), are ahistorical and not spontaneous. The universal character of such projects depends on the degree to which people can learn and use such a language. All such projects can by divided into two main classes:

1) Universal *a priori* languages – whose vocabulary is not based on existing (national) languages. The grammar and vocabulary of such projects are based on philosophical reasoning and try to categorize the whole of human knowledge and experience.

2) Universal *a posteriori* languages – whose vocabulary is based on existing (national) languages. Such languages have simplified grammar and do not try to categorize the whole of human knowledge.

Almost all the attempts at creating universal languages made thus far were connected with constructing philosophical languages (in first half of the XIX century) and the XVII century is sometimes called the age of such languages (because of the number of constructed projects). Since the creation of the first a posteriori language *Volapük* (in the second half of the XIX century) which gained international prominence an era of international a posteriori languages began.

The projects of the thinkers in the title – Leibniz and Yench – are a priori languages. However, the *Idirl* project published in 2003 is peculiar against the background of other modern ideas. The activity of a priori language constructors almost entirely ceased along with the appearance of the first a posteriori languages. All activity in this area has been based on natural languages – suffice it to mention The International Auxiliary Language Association (IALA) founded in 1924, whose first director of the Department of Linguistic Research was Edward Sapir, or the *Toki pona* language, which was intended to confirm the truth of the linguistic relativity hypothesis (Sapir-Whorf hypothesis).

Presenting the full development of Gottfried Wilhelm Leibniz's view on universal language and his considerations on the role of language in his metaphysical system is beyond the scope of this text. So, of necessity we must limit ourselves to a description of the most important elements.[5]

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[5] See an interesting and exhaustive study about the role of language in philosophy of G. W. Leibniz: H. Święczkowska, *Harmonia linguarum. Język i jego funkcje w filozofii Leibniza*, Białystok 1998.

The German philosopher has never presented a completed project of a universal language. However his ideas exerted a strong influence on subsequent constructors. From beginning of his scientific activity the idea of creating a universal language accompanied him. Unlike his predecessors (who mainly saw universal language as a tool for the exchange of information and a means of improving travel and trade) it is possible to find in Leibniz's projects a sensitivity to religious issues and universal language (as instrument of discovering truth) could serve the achievement of peace and European unity.[6]

Leibniz knew the projects of George Dalgarno or John Wilkins when he sketched different attempts at constructing universal languages.[7] He also referred to the work of Descartes as mentioned in a 1629 letter to Mersenne. The project which he spent his entire life working on was a powerful philosophical-linguistic construction. The overall shape of Leibniz's project is presented by Umberto Eco as a set of four major aspects:[8]

1) identification of a system of primitives, organized in an alphabet of thought;
2) the elaboration of an ideal grammar, of which simplified Latin is one example;
3) the formulation of a series of rules governing the possible pronunciation of the characters;
4) the elaboration of a lexicon of the real, which would automatically lead to the formulation of true propositions.

The German philosopher realized the diversity of natural language but he considered that each national language to be the expression of an interior language of thoughts. Through research on existing languages it is possible to reach the structure of mind and single out primary ideas through universal language.

In 1666 Leibniz published the dissertation *De arte combinatoria* and obtained the degree of doctor of philosophy. He wrote that all concepts (even compound ones) are only combinations of simple concepts. These concepts (just as words are compounded from letters) are extremely differentiated combinations.

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[6] U. Eco, *The Search for the Perfect Language*, trans. J. Fentress, Blackwell Publishing, 1995, p. 271.

[7] In the III vol. of *New Essays on Human Understanding* Leibniz wrote: "Perhaps there are some artificial languages which are wholly chosen and completely arbitrary, as that of China is believed to have been, or like those of George Dalgarno and the late Bishop Wilkins of Chester". G. W. Leibniz, *New Essays on Human Understanding*, Cambridge University Press, 1996, p. 279.

[8] See U. Eco, op. cit., p. 270.

He thought that each compound concept can be reduced to simpler concepts by its definition and in this way it is possible to achieve indivisible components. These components through applying the appropriate calculus will serve to encompass all of human knowledge. He considered that the set of simple concepts is complete and constitutes an "alphabet of thoughts" which can be arranged as in calculus. Leibniz presented a sketch of combinatorics and a means to establish numerical calculus. He treated combinatorics as a "science of possible forms or objective structures".[9] Using this method, and simple concepts, people can construct totally true sentences. Through the discovery of simple concepts and a method of fitting them together people can make a foolproof tool for acquiring knowledge and to model the order of ideas contained in the mind. Leibniz tried to construct a practical language but arrived at a language intended only for logical calculus, which over time became the language of modern symbolic logic. The philosopher rejected semantics and reduced his language to pure syntax. He considered that his project could be applied anywhere where reasoning could be employed.

Leibniz wrote in the *Preface to the General Science*:

It is obvious that if we could find characters or signs suited for expressing all our thoughts as clearly and as exactly as arithmetic expresses numbers or geometry expresses lines, we could do in all matters insofar as they are subject to reasoning all that we can do in arithmetic and geometry. For all investigations which depend on reasoning would be carried out by transposing these characters and by a species of calculus.[10]

The dissertation included only the general principles of the calculus. In 1679 Leibniz wrote the treatise *Elementa characteristicae universalis* in which he presented trial constructions inspired by mathematical symbolics. He developed the principles presented in *De arte combinatoria* and suggested the use of prime numbers to mark simple concepts.

Leibniz noticed that a language based on the art of combinatorics could create problems. In the work *Lingua Generalis* he suggested replacing the nine Arabic numerals with the first nine consonants of the Latin alphabet. He wanted to use vowels to mark the decimal unit.

But such experiments did not give him what he intended: the discovery of the calculus of thought – a universal language which would be consistent

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[9] H. Święczkowska, *Harmonia linguarum*, op. cit., p. 134. (fragment translated by E. K.).

[10] After N. Jolley, *The Cambridge Companion to Leibniz*, Cambridge University Press, 1995, p. 234.

with the system of ideas. Leibniz was discouraged by the lack of progress in constructing a universal language so he tried solve the problem differently.

He entered the ongoing debate on the reconstruction of the language of Adam: he argued that the priority of language doesn't imply its perfection. However, Adam received language from God, so it must have been a perfect language which underwent a process of decay. He explained this ambiguity through the doctrine of inborn ideas – Adam, as the first man, was made aware of all ideas through the grace of God. However current natural languages are a result of the work and effort of everyone.

Leibniz also considered rebuilding natural language. He wanted to construct a universal Latin grammar which would combine the advantages of different languages' grammars. In one letter Leibniz writes that the new language, which he was planning, would be a continuation of the sign system included in the Chinese *I Ching*;[11] however while working on this he visibly drew away from his purpose.

Leibniz's dream finally crystallized in the project called *characteristica universalis* which is connected with another of his ideas: a calculating machine (*calculus ratiocinator*) which would be a tool for creating an encyclopedia of all human knowledge. The project had to be based on the rationalized principles of Chinese ideograms because, as he wrote, progress in the art of reasoning depends on signs and that ideas of things cannot be clearly perceived by mind. So signs (characters) are used to replace them.

Leibniz considered that if a language as precise as that of Adam was constructed or at least a true philosophical writing founded on the "alphabet of human thoughts" it would be possible to conduct a process of under standing using a kind of calculus, in exactly the same way as problems are solved In arithmetic or geometry. He believed that the realization of this project was possible if he could assemble a group of scholars for cooperation.

He thought that then he would be able to create the first stage of such a calculus, which would contain axioms in the form of ontological statements.[12] Only in this way could mankind gain a new instrument which would intensify the power of thoughts more than the microscope or telescope intensified the power of our eyes.[13]

From the beginning Leibniz wanted to construct such a language as would discover the order of the system of ideas and would be a useful instrument to expand knowledge. However, he came to the conclusion that

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[11] U. Eco, op. cit., p. 285.
[12] M. Gordon, *Leibniz*, op. cit., p. 100.
[13] U. Eco, op. cit., p. 281.

people cannot arrive at prime concepts – they never will be certain that it is not possible to further reduce it into its component parts. Therefore, it is necessary to use those concepts which are most general and which people can recognize as "primary".

The philosopher wrote that primary concepts could not be preceded by *characteristica universalis* because this language was not to be a precise instrument of expressing thought, rather it was to be a calculating machine which would serve to find these thoughts.

Already Leibniz's purpose was not the construction of such a language which would discover the system of the order of ideas. He desired to create a logically perfect language which would lead from the known to the unknown (as in mathematics) through the application of calculus to characters.

He considered that signs (characters) did not have to be put in place of some concept but should be used instead of it. *Characteristica universalis* was not to help with reasoning – it was to substitute it.[14] It would be a kind of mathematical calculus and the result would be isomorphic with the order of ideas (and so with the world) because Leibniz thought that God was a mathematician.

In the *Preface to the General Science* he wrote:

> I dare say that this is the highest effort of the human mind, and when the project will be accomplished it will simply be up to men to be happy (...). It is one of my ambitions to accomplish this project if God gives me enough time.[15]

Leibniz did not manage to fully complete his project. Those scholars which continued the ideas of the German philosopher headed towards logical semantics and formalization of the language of mathematics.[16]

He had no outstanding followers which could continue the project of constructing the universal language. In this way Idirl (the Inter-Disciplinary International Reference Language) – John Yench's[17] project merits discussion as a modern a priori language. The book in which the project is included: *A Universal Language for Mankind* was published in 2003 but the author has been working on artificial language since the middle of the XX century.

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[14] Ibidem, p. 282.

[15] After R. Chrisley, S. Begeer, *Artificial Intelligence: Critical Concepts*, Taylor & Francis, 2000, p. 192.

[16] The project anticipated programs of formalization of mathematical language as well as modern considerations on artificial intelligence.

[17] John Yench was an American writer (born in Russia, raised in China).

Idirl is typical of an a priori language project which sets up classification on the basis of "things" existing in the world; grouping them into eighteen categories (e.g. matter, form, relation, place, law). The key idea behind the project is that "the sound sequence of a word reveals its meaning, and there is no need for a dictionary".[18] The base categories on which Idirl is based are selected arbitrarily because, as Yench wrote, as yet it is not possible to get "God's point of view". Eighteen categories have been selected so as to construct a self-indexing language and they are based on Kant's categories: *quantity, quality, relation, modality*. Construction and organization of the project consisted in carrying out three main postulates: the creation of a rational phonemic system, basic semantic meaning – morphemes, principles of grammar.

Yench directly referred to Leibniz as his precursor. He wrote:

> Idirl theoretically does more than Leibniz expected of his vision. Leibniz referred to combinatorial analysis as a script but Idirl is also a speakable language. Applied to this day, Idirl is designed for voice command, of computers and of servo-mechanisms.[19]

Idirl's author considered that the German philosopher did not pore enough over the nature of human language and a purely mathematical approach was not conducive to its exploration. Yench has suggested that he has managed to realize Leibniz's dream "approaching the idea from a combined phonemic-semantic view".[20] Phonemic – because pronunciation will be consistent everywhere; semantic – because the ordinary expressions used by people would carry the intended sense. He thought that Leibniz in his dissertation was writing about construction of a universal language in which "... words would explain themselves. The 'letters' (phonemes) making a Word would tell you its meaning".[21]

In his dissertation Leibniz only lay the foundations of his ideas. The application of the art of combinatorics did not serve making words self-explanatory. First, Leibniz wanted to reveal the "alphabet of human thoughts" which could model the system of the order of ideas and permit the creation of wholly true propositions. What is more, he never wanted to make "self-explanatory words". Second, in *De arte combinatoria* Leibniz did not

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[18] J. Yench, *A Universal Language For Mankind*, Writers Club Press, New York 2003, p. 99.

[19] Ibidem, p. 19.

[20] Ibidem, p. 11.

[21] Ibidem, p. 1.

use "letters" but rather he used numbers which represented simple concepts. Thirdly, Leibniz did not identify graphic signs (letters) with smallest structural unit of speech (phonemes). Yench, in relation to Leibniz's considerations, referred only to the ideas included in *De arte combinatoria*. It seems that he did not acquaint himself with the subsequent writings of Leibniz, such as *Horizon de la doctrine humaine* or *Lingua Generalis* in which Leibniz developed his considerations.

Yench wrote that many modern attempts at constructing a universal language failed, because a posteriori projects are entangled with the same problems as natural languages. Also he criticized some of the purposes which the languages' constructors assumed: unification of scientific terminology and the achievement of world peace. He considered that a new language is a way to enrich human life. He needed a new language because:

> I wanted to know the name of the grass on which I trod; I wanted to understand the different textures of rock and their histories (...) I wanted to be sure that my ideal language would be versatile enough for poetry and humor.[22]

The first task in constructing the project was to cope with how to write the phonemes in the new language. Yench proposed "a phonetic formation" to get through this problem (something corresponding to Mendeleev's table of elements in chemistry). This formation would create a connection between ideas. Adjustment of phonemes would lead to a sound or printed word and would communicate their meaning. Such a language would not need a dictionary and the system of morphemes would need no syntax if "a phonetic formation" would be established in a "natural" and logical way. Yench considered that "the morphs would supply the mood, the tense, the number, the case, the person, the gender, the aspect and the punctuation".[23] He assumed *implicite* that universal meanings really exist. However, much modern research has shown that identifying even an elementary group of such universals is an extremely difficult undertaking.

The technical side of Idirl is quite highly-developed and complex. Yench's considerations are supported by questionable argumentation and examples. Idirl was to be a constructed language, which, however, has the characteristics of the language of paradise. Yench, creating the words of the New language, assumed further that they are names not merely by convention but as a result of the relationship between the sound of the name and

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[22] Ibidem, p. 4.
[23] Ibidem, p. 11.

the meaning of the thing. He believed that due to the curse of the Tower of Babel language experienced a "break" between sound and meaning. Yench's project was to be a remedy in which "words mean what they mean".

Yench's idea should be read rather as writing down the dream of a language which could solve all human problems than an authentic project. In "the utopia of a universal language" a step forward was to be a posteriori languages which abandoned "the ballast of artifice". However Idirl appears to be a step backwards. Yench repeatedly emphasized that his project is more perfect than Leibniz's project. Such an opinion is highly unfounded. From the very beginning both "constructors" have a completely different idea about how such a project should look and they wanted to realize different purposes by it. Yench's dream was never Leibniz's dream.

Leibniz desired to create a language based on the system of ideas contained in human minds. It would constitute a calculus which is used instead of names in the process of reasoning. However, he came to the conclusion that it is not possible to indicate simple concepts (Yench considered that Idirl's words are just such concept-roots which incorporate the roots of all languages). The German philosopher abandoned this idea and spent time on a language project which would lead from the known to the unknown through its perfect calculus.

Idirl's strongly underlined destiny as a tool for international communication conflicts with Leibniz's opinion that artificial languages can no more aspire to the role of a universal language of communication than that of a philosophical language in which is possible to express the logical relationships between concepts.

## Abstract

The purpose of the article is to present John Yench's a priori language as a continuation of Leibniz's idea. Before I proceed to show the project of the Inter-Disciplinary International Reference Language, I would like to discuss the development of Gottfried Wilhelm Leibniz's view on artificial languages. I will try to show the evolution of Leibniz's universal language: from its ideal conception to a tool which formalizes the whole of human knowledge. Also, I will show Leibniz's influence on further ideas of artificial language. I will compare his projects with Yench's language – *Idirl*. An analysis of Idirl's main assumptions will be useful to show the degree of continuation of Leibniz's ideas in the a priori language of John Yench.