Technology as a new Language of Communication between the Human Being and the World

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Abstract

This essay for the inaugural issue of *Technology and Language* is based on an analysis of the 'epistemological turn' in modern cosmology and modern science, more generally. In view of another epistemological turn towards technology and a combinatorial approach to the creation of artefacts, the question regarding the languages of science and technology suggests itself. – When human beings relate to the world, they effectively address the world or talk to it, and the world talks back. This communication proceeds in different registers. It may have started in the idiom of myth. With the emergence of philosophy, a first language with a rational or methodical way of addressing the world came into being. Philosophy was superseded by the emergence of the language of science, and as of today, the language of technology comes into being and claims predominance.
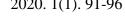
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Аннотация

Данное эссе для первого выпуска журнала *"Технологии в инфосфере" ("Technology and Language")* основано на анализе "эпистемологического поворота" в современной космологии и современной науке в целом. В связи с очередным эпистемологическим поворотом в сторону технологии и комбинаторным подходом к созданию артефактов напрашивается вопрос о языках науки и техники. Будучи связаны с миром, люди обращаются к нему, говорят с ним, и мир дает им ответ. Эта коммуникация может быть выражена и записана по разному. Язык философии был первым языком рационально или методически обращающийся к миру. На его смену пришел язык науки, а затем конструирующий мир язык технологии, который сегодня становится доминирующим.

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INTRODUCTION

Throughout history, humans have demonstrated an amazing capacity for adaptation, this Darwinian criterion of evolution that complements natural selection. Quite conventionally, such forms of adaptation could be called "languages" in which the human spoke to the world, and with which the world spoke to the human. Their list is well known: myth, religion, philosophy, science.

If we take a look at the history of mankind retrospectively, we will see that, diachronically, the indicated languages of communication between the human and the world emerged in exactly the sequence of predominance from myth to science. It is also easy to see that any horizontal (synchronic) cross-section of human culture – mainly Mediterranean (European) culture – over the last 2-3 millennia reveals different combinations of the named languages and their share in the culture of a particular people. It is also easy to see that only "philosophy" and "science" are rationally expressed languages in this list. Let's briefly show this.

THE EMERGENCE OF THE LANGUAGE OF "PHILOSOPHY"

It is well known that the very term "philosophy" was introduced by Pythagoras. Literally, the word philosophy (ἡ φιλοσοφία) means "love for wisdom". But why did Pythagoras need this term, if there were people-sages (ὅι σοφοί) among his contemporaries and predecessors, who in his time personified knowledge (wisdom) about the world and man? We all remember their names: Thales of Miletus, Bias of Priene, Pittacus of Mytilene, Solon, Cleobulus, etc. Observing the world around them, they came to amazing generalizations and conclusions: "Time is the wisest of all things that are; for it brings everything to light" (Thales), "It is for wise men to foresee, before the difficult things come, so that they do not happen, it is for the brave to face them, should they happen" (Pittacus), "Choose the course which you adopt with deliberation; but when you have adopted it, then persevere in it with firmness" (Bias), etc. These conclusions were generalizations of everyday experience. Were they needed by the contemporaries of the sages? Certainly, they were, but experience is evolving and, consequently, with its change, generalized conclusions were forced to change. It was precisely this *instability of generalizations of ordinary* (basically *sensory*) experience that apparently did not suit Pythagoras. As a mathematician, he dealt with the nature of such objects as numbers, points, lines, planes, figures, etc., which do not directly depend on sensory experience. These objects are related to *intellectual experience*. But the demands of intellectual experience are of an entirely different nature. *Consistency* has always been and remains the main requirement justifying their feasibility. Their feasibility, in turn, required the observance of such requirements for the language as unambiguity, non-metaphoricity, non-emptiness of the designating term, etc. It is clear that the statement of Heraclitus that

"one cannot enter the same river twice" looked rather like a metaphor in comparison to a rigorous proof of the Pythagorean theorem on the ratio of the sides of a triangle.

So, precisely in order to set himself (and his school) aside from the sages (ὅι σοφοί), Pythagoras introduces the term "philosophy". He believed that one should distinguish *demonstrative* (justified, evidence-based) knowledge from *non-demonstrative* (not justified, not proven) knowledge.

That is why philosophy, in its original ancient Greek form, lays the foundation for all future European rationality. I agree that the term „rationality" can be understood very broadly. However, in these pages I will use it in the meaning of "*reasonable* grounds, ways, methods and tools that a person uses in his relationship with the world (nature and society)."
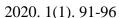
Of course, the rationality that accompanied a person's daily life was extremely important, but it was, as they say, "ordinary rationality." Its peculiarity lies in the fact that it never asks the question of "what is rationality in itself?", or "what is the difference between rationality and irrationality?" Ordinary rationality is always "dissolved" in everyday life or, as they say today, is not perceived. It is quite another matter when there appear people asking these questions. They consider "rationality" consciously. It is for this type of people that the "intellectual" accompaniment of any human activity becomes an independent subject of research. They consider intellectual activity ("rationality") as a *method* by which humans relate to the world. We quite consciously compare this "method" with the "language" in which a person addresses the world, and in which the world responds. And it was this type of people who led humanity to the emergence of the first form of "science" or, if we use the Greek name – "Philosophy."

The philosophy of ancient Greece for the first time gives the validity to knowledge with the help of "logical proof." Philosophy should now not only generalize the facts of everyday experience, but *prove*, that is, *deduce strictly some true statements from initial true statements using the necessary nature of logical consequence*. It was a *qualitative leap* in the relationship of a person with the world, dramatically different from what "ordinary rationality" provided.

It was this necessity of the logical proof that Pythagoras insisted on, thereby showing that the statements of the Greek sages, although valuable to people, were nevertheless not strictly proven. Such a system of comprehending the world – understood as a new and singular language – became dominant for almost a whole millennium. On the basis of the philosophical tradition (essentially *analytical*) laid down by Pythagoras, a whole culture was formed, which is still alive today, but which, due to various circumstances, had to change, especially with the advent of biblical values in Europe.

After the end of Antiquity (5th century AD), it took approximately one millennium to establish the power of these values. By the 15-17th centuries, they were established in European countries almost everywhere.

However, the crisis of these values leads to an amazing result – the emergence of the *Renaissance of Antiquity*, and its "humanism" (15-16 centuries) is affirmed as its ideology. It should be admitted that this new "Antiquity" was no longer the same as the original one. Biblical values dramatically change its core, leaving the outer shell intact: *in the era of humanism, a symbiosis of Greek philosophical rationality and the biblical strategy of conquering nature is created*.

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THE EMERGENCE OF THE LANGUAGE OF "SCIENCE" (NEW EUROPEAN SCIENCE)

During the Middle Ages rational methods, and above all mathematics, were considered secondary, because their tools did not lead to the salvation of the soul. This situation changes dramatically in the era of humanism. Mathematics is recognized as the language of the "book of nature" (G. Galilei). What is the result? On the basis of this symbiosis, a new phenomenon is emerging – "new European science", which now takes on the mission to perform a no longer religious, but "secular eschatological project". *Science undertakes to accompany and implement historical progress, that is, it undertakes to make a person's life happy and prosperous*. It is easy to see this in the project of Rene Descartes, which he describes in his "Discourse on Method".

So, the main features of the transformation of the old rational language (philosophy) into a new one can be summarized as follows:
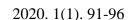
1) *Mathematics* (exact formal methods in general) *becomes the main language of the theoretical description of nature*.

2) *Experimentally obtained data on the essential properties of natural objects and processes become the empirical framework of science*.

3) *The main method (language) of new European science is the discovery of the forces and laws of nature and their further use for the benefit of the human.*

It was during this period (by the end of the 18th century) that science, having at its disposal the indicated tools, became the dominant form, and in fact, a new language of man's relationship to the world. This is evident not only in its outstanding achievements, but also in the ongoing process of its institutionalization.

We can safely say that the entire 19th century and the first half of the 20th century were a period of the unconditional triumph of science: the creation of the theory of electromagnetism gave humanity a new source of energy – electricity; creation of a relativistic theory and a theory of the structure of matter gave atomic energy. This list of scientific achievements can be continued further. Science, which undertook to implement a progressive project – "finding an earthly paradise" – produced colossal results, but it did not succeed in making a person completely happy. Indeed, along with the benefits of civilization, science has brought with it a great many of its evils.

However, the belief in the unconditional triumph of modern European science as an institution, and scientific new European rationality as its basis, was undermined by the questions: "What is the nature of objects of science (for example, mathematical)?"; "What is the nature of the laws discovered by science (for example, physical)?"; "Is scientific knowledge itself justified or are all its provisions of the convention that we accept on a contractual basis?" The list of these questions can be continued further.

The inadequacy and unsatisfactory nature of such a justification, which began to reveal itself approximately from the end of the 19th century and especially at the beginning of the 20th, laid the foundations for the process that would later be called the "crisis of scientific rationality". It can easily be seen in the titles of the works that reflect this process: "The Crisis of European Sciences and Transcendental Phenomenology" (Husserl, 1936/2012); "Farewell to reason" (Feyerabend, 1987), etc.

However, if we look closely at this crisis of scientific rationality, we will be forced to admit that it is much more complex than just a "crisis of foundations". In order to present this complexity more vividly, let us reproduce once again one of the essential characteristics of science, its main method:

"... *the discovery of the forces and laws of nature, and their further use for the benefit of the human ...*"

After all, it was precisely the leadership of science in using this *method* (in fact, the *dominant language of communication between the human and the world*), in comparison with other languages (forms of knowledge), that ensured its dominance over these forms!

Now let's ask an unexpected question: what is starting to happen with the method of science in the second half of the 20th century and the first decades of the 21st? The answer is obvious: *modern science discovers less and constructs more*. All this allows us to say that in the modern world, "science", understood as the language of communication between man and the world, is gradually losing its dominance.

THE EMERGENCE OF THE LANGUAGE OF "TECHNOLOGY"

The dominant language in the relationship between man and reality is being replaced by a new form – technology! Whether science wants it or not, like the other forms (philosophy, religion, myth) it is forced to adapt to the new leader – to ensure the feasibility of its main method. And in fact, if a matured humankind that grew up on the discoveries of science, does not yet have enough of those laws and sources of energy which were provided by science, then it is simply forced, for its own preservation, to create and design new ones. The main result of the changes that have occurred is that:

1) *Technology is gradually becoming the dominant form of human relations to the world, or, in the terms of this essay, a new language for human relations to the world.*

2) *The main method of technical relations is the construction of a new nature, or simply redesigning of nature*, and its further use for the benefit of humanity.

From this, naturally, it follows that rational human languages such as "philosophy" and "science" acquire (or will acquire in the near future) a subordinate position in relation to the language of "technology": *they will all be called upon to serve technology as the dominant mode of the human relationship with the world*.

The most intriguing question in the current situation is, from my point of view, the question of whether "technology" is the *last* language of human communication with the world? "The last" in the sense that humans, with the advent of the unrivaled dominance of technology, may themselves cease to be *natural beings* in the sense in which Aristotle (trans. 1991) spoke about in Physics, B 1.

I dare hope that the upcoming events will not leave this question unanswered...

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