

MOZART'S WINDOW

(afterword: an optimistic scenario)

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The luxury of consciousness arrives together with the depressing pendant: humans are conscious of their mortality. It is only the not-knowing when death will come round can make us feel occasionally happy.

Our faith in fate supports our living, it being represented in religions. Throughout the entire history of humankind, the evolution of faith has consisted in improving the theological instructions as to how we have to live our lives. The categorical nature of the principal instruction "Serve gods" (and later - Serve God) has always been 'washed off' by a set of 'eternal problems' engendered by our conscious existence: Why are we conscious? Why do we have to suffer from our fears? And, eventually, the main question: Do we live "the way we live" or is there an ultimate, if unknown, aim in our lives? In simpler words - what for?

In search of answers and instructions, humankind has developed faith and culture for thousands of years. Later on, another mechanism of search was added - science. It was quite recently that science entered a period of explosive development, but it has radically changed the way of our life, but did not alter its basic realia: we all are mortal and the eternal questions remain unanswered.

In the past, the human imagination used to place body and spirit, those specific entities, through which "I" was supposed to interact with gods, into different parts of the human body (blood, heart, etc). Eventually, we have come to the conclusion that "I" is located in the head. Is there actually something special in the conscious mind? Quite recently has science answered the question in the affirmative.

1. Our Brain Is Shaped by the World. And the Other Way Round!

According to science, life originated several billions of years ago as a unicellular organism capable of self-reproducing. That was our so-called First Common Ancestor. Computer modelling based on the elementary principles of statistical physics indicates that the molecule which is capable of reproducing itself makes the evolution a most probable way of development. The mutations of self-reproducing molecules are random; some of them offer their bearers advantages in the struggle for survival and get solidified in nature in this fashion. There are hardly any serious arguments to disprove Darwin's theory.

Take a butterfly: hardly has it left its chrysalis when it knows that it has to fly to a flower. The image of a flower has been engraved in its brain already; it knows everything it should know how to live - "instead of" the ability to learn. Accordingly little is its ability to adapt - it takes multitudes of generations to produce changes in the brain aimed at definite flowers.

A newly-born chicken, the descendant of dinosaurs, can get adapted a lot better. Upon hatching, it takes the first moving object it sees for its mother. Its brain demonstrates a new qualitative feature - the ability to rewire itself.

Rats who grow up in their holes were compared with the ones who grow up in man-made "kindergartens". The latter animals appeared to be a lot cleverer, as there were considerably more links between the nerve cells of their brain. It is because the mammalian brain is shaped by the world. The ability of mammals to adapt is, accordingly, more flexible.

As soon as it opens its eyes, a human baby (or Kay - a general name used by some philosophers) finds itself at a children's playground arranged for it by previous generations. Kay is the inheritor of culture. This gift from the past is promptly fixed in the tabula rasa of its brain.

Our bodies are encoded in molecules inherited from our biological ancestors, while the rewiring of our brain is determined by the conscious activities of previous generations. Owing to this feedback, the world keeps changing fast, and we keep adapting to those changes as fast. People's brain is being shaped by the world; the world is being changed by people.

2. The Aim Is to Survive

Consciousness gave birth to culture. Culture gave birth to science. Evolution has been going on for billions of years, while culture engendered by science is changing from year to year. Successes in

science can make one dizzy, even if it may seem that the time of great discoveries is over. In physics, we go out of our way trying to fathom the structure of matter, but we cannot afford to produce mighty instruments necessary for further cognition. Einstein's dream to develop "The Theory of Everything" in terms of physics remains unaccomplished; and who knows whether it can ever be accomplished. To better understand complex systems we have originated the theory of Chaos and the theory of catastrophes. Take a popular example: a butterfly flaps its wing - and a grain of sand starts moving downhill. The grain involves more and more other grains in its movement, and it ends up in an avalanche. The fate of a big mountain turns out to depend on microscopic changes in the parameters of the model. The application of the Chaos Theory to complex systems, like, for instance, the atmosphere, demonstrates that only short-term forecasts can be reliable. So, any efforts to look into the distant future are essentially futile.

Science is no longer obvious. The results obtained in its ever-growing number of fields cannot be explained within the framework of common sense; the whole set of verbal metaphors gives no support here. Moreover, a number of fields in science have reached their natural limits, which also means the limits for humankind. For example, the relativity theory proves that star flights are unrealistic.

And still, we have a hope for the New World. The achievements in new biology can arouse euphoria: the Molecule which encodes life has been deciphered, and biological evolution is on the point of giving way to biological revolution, frightening as this news may seem. In other words, natural history has lost its importance, and we only witness history. The question "Is the conflict-mutilated humankind ready to subordinate its destiny to its own will?" is nothing but rhetorical. Judging by the present state of affairs, the immediate future promises to present an unending global challenge pregnant with anthropogenic disasters and terror. All this is rooted in the utterly unstable and heterogeneous humankind. Thanks to science, we can now assess the scope of the challenge: the minds (brains) which have developed (have been wired) in different cultures cannot think in one and the same way. We are neither worse nor better than others, we are merely different.

So, is humankind doomed, like dinosaurs, or does it have another future? We are constantly struggling to survive. Have we got our "per aspera ad astra - through thorns to stars" in this struggle?

I suggest playing a game with our own mind. In the ancient heathen world, we were surrounded by numerous gods, such as the god of fire or even the god of the first scream. Let's call our Molecule (the one we co-exist with as a code and its embodiment) the goddess of life. We remember that the Molecule seeks self-reproduction. Scientists call it the "survival machine". In this respect, the Molecule, to use a vogue word, is entirely "egoistic". By improving its outcome in the art of adaptation It has invented (since we are playing a game, I do not use the inverted commas) a conscious brain.

Some scientists claim that consciousness is a random invention. Others avoid commenting not to fall into the heresy of creativity or into absurdity of "labour turned an ape into a human". Meanwhile, as a part of living nature, conscious creatures can't but take part in the egoistic survival; as social creatures, they have to take advantage of their collectivism. Let's try to find out where our "survival toolkit" is hidden.

3. The Omega Point

A human becomes a personality by saying "This is I". The notion of self-identity remains life-long. Say "Life is cinema, with ME starring" - and quite a few of us will agree with that. Modern science faces no problem in finding out which parts of the brain comprise our "movie theatre"; its basic mechanisms of functioning have been identified and are under study. But science has not (yet?) fathomed the "miracle" of reflection, which we keep admiring: While watching a film, I perceive myself as the one who is watching.

Not only people but also apes are able to recognize themselves in a mirror. However, we have advanced substantially farther: we are amazed by the picture of our standing between two mirrors; the infinity opens in those innumerable reflections with myself in it. To what extent this "I" is one's own master?

A Hasidic wise man asserts: "The worst thing an evil can do to humans is to make them forget that they are God's children." Mysticism aside in our times of science, we'll put it like this: We are (just!) the children of the Molecule which is proudly calculating the amount of its biological heritage. The number of hypothetically possible combinations in the links between human brain cells appears to exceed the number of atoms in the Universe. Regrettably, a rat could have said the same thing about itself. However, a rat has considerably fewer links in its brain than we do, which, in all probability, accounts for its inability to speak or think consciously.

Thus, I am conscious. I'm going to test my gift again and again by trying to think about something outstanding and examining the process. The result is obvious: asking myself how I'm thinking I have to answer "I don't know". Proper or not, our thoughts come to us as finished items. In different languages, we say "A thought came to me." In solving a problem, one can feel at last that the solution is on the verge of coming up - and occasionally it does come up, with a characteristic feeling known as "aha effect". But it may fail to come up; in this case the only thing you can do to help your "own" thinking is to knock on a virtual wall.

The heuristic nature of the process of thinking has urged quite a few psychologists to conclude that our conscious will is but an illusion, while consciousness presents a kind of supplementary phenomenon which accompanies the functioning of the brain. We have to be humble: our posh personal computers (PCs) are beyond the Wall, even if they are placed on our shoulders. When Kay opened his eyes to see the children's playground, his brain was already tuned into proper perception of the surroundings. Psychologists find little difficulty in registering the appropriate exploratory behaviour of newborn babies. The multipurpose set of motivations and emotions makes the foundation of innate instincts and unites us with all living things. Swallowing the built-in bait of orgasm, we give a new life to our genes. Directed by the instinct of breadwinners and masters, we also feed our parental instinct by seeking to create the most favourable conditions for our descendants' development.

One of the most important elements of our PC tuning is compassion. We shudder at witnessing other people's sufferings, we sigh at seeing someone else sigh. The most recent scientific data show that compassion is built in the brain stronger than consciousness (it is small wonder, though, since social behaviour is also characteristic of animals. This makes a scientific basis for "categorical imperative." By using this term, Kant postulated the existence of an innate mechanism which recommends us not to do harm to other people (this, however, does not rule out the existence of an innate mechanism of the opposite type, as, for instance, the ability to defend oneself against evil, aggressiveness, etc.)

Compassion is based on our ability to imagine other people's thoughts and emotions. While reflecting, it is not difficult to notice that "I" is just the closest in the multitude of more or less predictable characters that inhabit one's inner world.

Contemporary psychologists term our ability to "read thoughts" "the theory of mind." It is almost always put into practice unconsciously, as unconsciously as any conversation goes on (in case it is not an interview at a public prosecutor's office.)

Lightheartedly, we call each other a "personality" and are preoccupied with the issues pertaining to free will. Meanwhile, it is obvious that we are free, but on a leash which we can feel as soon as we attempt to control the process of our own thinking. Each of these attempts is only pleasant at the moment when you give up in order to feel the luxury of your automatically witty mind. For we belong to the same species as Mozart, whose brain used to pour out music in torrents, or as the creators of quantum mechanics, who dared to transcend experience-based visual imagination. Chess-players (as it still happens) can defeat powerful computers; fast-calculating conjurers can extract the root of billions in no time at all. We, as automatically thinking intelligent brains, number billions. We are all connected (and separated) by the principal communication tool - language. We are connected because we can communicate, and we are separated not only because there are different languages, but also because even if one and the same language is used in communication, people belonging to different walks of life can fail to understand each other as their brains have developed under different conditions..

Natural history enables us to trace the development of ideas: from photo sensitivity to the eye, from the paw to the wing, from directions engraved in a simple brain to learning and, eventually, to the highest, so far, achievement - consciousness. In prehistory, some of the cells of the First Common Ancestor could survive easier in colonies, thus initiating multicellular organisms. In the course of time, a lot of multicellular organisms chose the social way of survival as the best one. Probably, by analogy with this way of development, our wise men prophesy the next stage of uniting. According to their views, our socium, so fragmentary at present for various reasons, will merge to comprise the Universal Mind in future. This prophecy links Teilhard de Chardin, theologian and archaeologist, with V. Vernadsky, geochemist and biologist. The names for that Future are one better than another - "The Omega Point", "noosphere", etc. This romantic note inspires the desire to dream about our prospective Universal Mind not only fighting off any impending dangers and eliminating all blind alleys, but also finding answers to our eternal questions..

Is there a "road-map" showing the way to the Omega point? Are we going along the right road? Proposals to unite brains with the help of silicon microchips are on the surface, but they are utterly naive due to biological actualities.

May our conceptions be still immature? Are we close to the verge of cognition - the Wall? Let's try to look into the available localities.

4. Metalanguage

A thought has come up. For it to become accessible - for "I" and for others, Urbi et Orbi — it has to turn into words. It is a very subtle moment when "I" perceives one's own consciousness. Every sentence, if not every word, evokes a number of images and ideas - the "culture hypertest" of language. Anyone can test oneself: just utter a word and watch the chain of associations which occur immediately.

Interpersonal differences in human experience can only emphasize their similarities. Lev Tolstoy once exclaimed, "How different all people are, but, by God, how similar, too!" Both parts of his statement are reasonable, because one thought can take a different verbal shape in different minds and acquire its own meaning "depending on circumstances." "A thought expressed is but a lie," as the Russian poet Tyutchev put it. Each of us is incarcerated in a solitary ward of one's mind and tries to shout, until heard by a fellow prisoner.

All these and other thoughts come out of the PC beyond the Wall; it only opens its windows to communicate with conscious "I"; sometimes when requested, but, unfortunately, more often than not, all on their own. However, a sequential code of words, so scarce in information, would suffice to form a socium with all its consequences, science included.

The comprehension of language limits sends us a very important signal: we have outgrown this way of interpersonal communication. At the same time, both the heuristic nature of thinking ("Aha!") and our everyday experience in conscious existence (as, for instance, the ability to act faster than to speak) indicate that our PCs handle a language of some higher level, with complexity and fullness beyond words. Actually, this is language made of thoughts instead of words. Let's call it "metalanguage."

Does it mean that metalanguage is locked in our crania and we can only see the results of its usage decoded by words? Or is it already available in some protoform for its further, conscious now, application, research and development? Here is a rhetorical question-riddle:

- What makes it possible for us to communicate "with fullness unattainable for words?" What makes it possible for us to share our feelings, emotions, images and ideas which are too sophisticated to be expressed verbally?

It is Art.

The author must apologize to the reader, if the reader has failed to feel the affirmative effect in this place. It would mean that the author, unfortunately, has failed to use metalanguage. A corresponding statement, either written or sung, for that matter, would have obtained the same link with the object

of description as a flame has with its engendering spark. The rudiments of metalanguage are with us since birth; there is no need to teach a baby how to laugh or cry. Non-verbal messages our faces produce (emotions, in the first place) are created, sent and perceived subconsciously.

The rudiments of metalanguage were with us when we started drawing mammoths on the walls of our caves. Looking at our pictures, we used to empathize with the course of hunting.

I'll try to make myself as clear as possible. A movie and its annotation, a novel and its synopsis - what is the difference between a work of art and its description? This very difference comprises a message in metalanguage, in case there is a message of art in the work in question. As a matter of fact, all the time we keep using both languages, but one of them belongs to the part of our PC which is "beyond" the Wall, and, as such, is subconscious.

When the time for consciousness to appear came up, our "survival machine" introduced language in addition to initial metalanguage. For thoughts expressed in words to be heard, the Wall emerged as the limit of the conscious "I".

We are bilingual, so we have access to our own mind, as well as to each other's minds. Thanks to this mutual "glutinosity" billions of people make Socium.

The development of languages has to bring us to the emergence of the Universe Mind.

Noosphere, the Omega Point are the names given by wise men to this emergence.

Playing on the game of Molecule-Goddess let's put forward a hypothesis: that is its project. We know the criterion of success, it is survival. While living, we contribute to the future; owing to culture and brain properties, human experience gets accumulated. As long as our mind is the product of general human experience gained by previous generations, it is time we send a virtual greeting to all people who have already passed away. As long as the receptacle of mind, the brain, is the product of molecular trial-and-error experiments "on the bones" of all living creatures, let's send greetings to them all, including dinosaurs, of course, -"Here we are - all together!"

The generator of ideas, infectious metalanguage promises us the merging of compassionate minds.

5. Windows In the Wall

Thanks to science, we who live in the XXI century are great sceptics (the author is no exception). A sceptic will make an objection, "Yes, on the one hand, art may be able to inspire us with feelings and emotions, but, on the other hand, which of human activities is more subjective?" At the time of globalization, millions of people sing the same songs, but those millions and those songs are various, and we cannot fathom why a particular song is chosen out of many others. Just go and ask - and you'll hear thousands of reasons.

No prompt comes in from behind the Wall, just some preliminary considerations. Nowadays, scanners make it possible to watch three-dimensional pictures of brain activities in real time. The access to "functional dynamics" of the brain work has opened the new options immediately; interestingly, they are surprisingly applied rather than scientifically fundamental. However, for the sake of sophistication, those new approaches are referred to as new sciences. For instance, neuroeconomics helped explain, in terms of involving different brain structures, why small winnings at a casino can bring about more excitement than the acquisition of a whole estate after a chain of long, well-planned efforts. Paradoxically, but with this scientific achievement in hand, we can better understand ancient Romans and send them our virtual greetings (too bad, we can't tap each other on the shoulder). Once upon a time, a big crowd gathered in Ancient Rome to listen to St. John Crysostom who preached the innovative ideas of Jesus Christ (incidentally, they present one of the most brilliant examples of using metalanguage). So, according to Tacitus, the crowd listened to Crysostom until the pre-announced horse races started. Everybody rushed to watch them. Another science, neuroaesthetics, is meant, among other things, to answer the question of choosing certain particular songs by the masses of people. This science analyzes the activities of the brain while perceiving art. For example, it appears that a face with an emotional expression on it is subconsciously paid more attention to, even if it is placed in the background of the picture. Likewise, a word loaded with emotion mitigates our ability to remember other, less expressive words. As it is always the case in science, those results and their interpretation are sure to be doubted sceptically. Sceptics can resort to other approaches (like a direct identification of neuronal

chains responsible for decision making), but their goals are the same, and the brain is cognizable. So, we are approaching the ability to assess the depth and modality of emotions and impressions, together with the ability to formulate the meaning of those emotions and impressions in the decision-making process. "To assess, to define" means "to process scientifically", doesn't it? Yes, the science of interaction with the Windows in the Wall seems to be on the go.

Music was pouring out to Mozart through a huge Window. The reader is certain to realize that the adjective huge, just like the nouns Windows and Wall, is a pure metaphor.

New Science will give birth to new terms; now we are watching the process at its initial stage. New Science may start with some practical supplements, such as "How to become a creator, including the skill to create art?" In already existing terms, New Science presents that same theory of mind which will acquire a new meaning and a new incentive for development.

6. The Fate of Egoism

The author is a neurophysiologist, not a futurologist. He cannot imagine in salient details what we can face on the way to mastering the inner operational system. There is a suspicion, though, that the world we live in is going to change dramatically. At first, while the metaphor "brain washing" is not entirely forgotten, people will be resisting new practices. But this resistance is doomed: every father and every mother are sure to admire the quick mental development of their little Kay. Is it unbearable that the neighbours' Kay, rather than their own one, happens to be the first to develop. Humanitarian values form the foundation of democracy. Common weal is the prime value. The growing number of Windows in our PCs (which is equivalent to the increase of Windows between our PCs) will considerably strengthen our ability of thought-reading. The notions "sincere" or "honest" will go out of use (even a modern brain scanner makes an excellent lie detector). The ghost of Big Brother comes to mind, but it is just an instance of archaic thinking, as people will grow up honest and sincere from the onset! By creating a collective Big Brother, they will forget the old metaphor..

Perhaps, the union of honest minds makes the only possibility to resist the world in which potentially lethal technologies become generally available. Biological revolution involves the temptation to play a game with the Molecule - and what can be more dangerous? Dark corners should have no room in the educated and, as such, deadly dangerous for themselves minds! Humankind embraces lots of components - culture, race, religion, social strata. Accordingly, new sects will arise and use different dialects of metalanguage. It is only in the considerably distant future that we'll be able to predict what has already occurred to our wise men: that the interpersonal Window will enlarge to such an extent as to make the verbal processor of communication rudimentary, thus paving the way to the Universal Mind.

Since emotions will be common and the faultless conception will become the rule, the differences in gender are sure to undergo extraordinary changes; either they may disappear entirely, or, to add more excitement to the game dictated by science, the number of genders may grow. What future is awaiting the personality? Nirvana of non-existence? The affirmative answer seems of little importance, because a personal death will lose its meaning, just as compassion will vanish together with its boundaries; unbounded compassion is equal to collective egoism. Even now egoism is not necessarily personal in the Molecular Realm (that is, in nature); moreover, it is not even species-specific.

7. What is Going to Happen With Eternal Questions?

Irrespective of the devotion to Darwinism, our imagination keeps running upon difficulties of ascribing all wonders of nature to the "arithmetic" logics of evolution (as far as it is accessible to us today). "God does not play dice" - this famous reaction of Einstein to the incredible world of quantum mechanics is appropriate and quite applicable to the phenomenon of life. On the other hand, the attempt to play the game "God has turned up - what's going to happen with the personality?" results in the emergence of some uninvited Kim Jong Ir in the Window of imagination accessible to the author.

Our narrowness is obvious; we have to defeat it to survive. It seems that just as we will stop feeling

interested in Eternal Questions without even noticing their disappearance, we will stop being separate individuals without noticing the way we have united.

Paradise

And still, the author has a dream. He dreams that the Universe Mind will initiate a special “Programme of Protecting Endangered Personalities” - like the ones protecting animal species and cultural heritage. Some futuristic scenarios describe the future in which thoroughly educated people, having exhausted all possibilities for further cognition, will depart to a virtual Polynesia as the closest resemblance of the idea of paradise (the author, however, would give preference to Bali). There, we would be able to devote ourselves to pleasures built-in by Nature. We enjoy the singing of birds. Incidentally, the fragrance of flowers is immediately likeable; it comprises the innate bliss, and we do not need to learn it. May the preserved ‘I’s’ make a cosy nook for the united PCs which have started being formed in a desperate fight for survival and found themselves on the threshold of Paradise?

Are we not able to drive a car while listening to Mozart?

Let’s go on developing science! How else shall we cross the threshold?

This appeal seems to be senseless: are we not kept on the leash to proceed in the distinct direction?