The book “Brain, Mind, and Social Factors” is an attempt to understand the degree of influence of social factors on the mental and physical health of people, the causation in mind and brain interaction, and the influence of moral thinking on decision making. It examines the clash of social and inborn moral values and the dependence of social life upon the development of human abilities for cognitive and creative thinking.

Key words: brain, cognition, comparative thinking, consciousness, creativity, empathy, gene, inborn moral values, mental structure, mind, mirror neurons, moral thinking, near-death experience, neuron, neuroscience, power, social conflict, social disease, social factors, social norms, social neuroscience, social stress, socio-politico-economic structure, theory of mind (ToM)
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Introduction

The studies of social conflicts show that moral anger makes a human disregard financial or material loss and endanger his own life. First comes the feeling of being treated unfairly, then moral anger, and after that social conflict and violence. According to social neurosciences, such as neuroeconomics, neuropolitical science, neuroscience and law, and neurosociology, a human has inherent neuromorality as a species, and he cannot but react angrily at unfairness: neuromorality is a genetic characteristic of his brain, and fairness is his inborn moral value of social life. A human simply becomes ill from the feeling of unfairness towards him: the psychic reaction changes, serious diseases attack the body, the personality deforms, and his behaviour becomes uncontrollable and violent because his inborn moral code is under the pressure.

Though inborn moral thinking is an undeniable fact, neuroscience cannot explain the mechanism of transformation of neural activation into thoughts, which could become the foundation for the materialist position on neuromorality of the brain. Hardly anyone will admit that his morality is in his toe, finger, hair or any other cell of the body including a neuron of the brain, and that this cell is capable of deontological or consequentialist moral discussion. Apart from that, our occasional experience of paranormal phenomena increases doubts that the scientific materialist explanation of mind and brain goes well with what we know about ourselves, and what we feel. The dualist position seems to be much more logical for the explanation of mind and brain. To be a dualist means to believe that a human being has a material (biological) substance, which can be explained by physical laws, and he also has a mental substance, which cannot be explained by physical laws. A neuroscientist using dualist ontology on brain and mind can be an atheist, and, on the contrary, a neuroscientist using materialist ontology can be a religious man. Considering mind and brain as independent substances, we can study and give the conceptual explanation to the treatment by mental energy, placebo effect, telepathy, and clear consciousness and sense perception without involvement of organs of sense perception and activity in the brain during the near-death experience, and many other psychic phenomena. What is more important is that such separation has a practical and beneficial result for human health and the development of science. Instead of a denial that there is a separate mental energy capable of organizing the work of neurons in the brain, we will study and use this energy to our advantage.

Why does academic science deny what clearly exists in reality? What is the reason?
A scientist is a human who is like all of us subject to general ideology existing in the world at his time, dependent on financial resources, and influenced by his university education and life experience. All these things determine his choice of study, conclusions, and ontological and epistemological positions. The power elite,
i.e. a small group of people controlling a disproportionate amount of wealth and political power, defines the political and economic management of the state and state subsidies for scientific research and culture. The basis for power elite membership is institutional power arising from the organizational structure of society.

It is easier to understand and to govern people if a human being is considered simply as a specific type of animal world. The human mind, inborn moral values, permanent desire of cognition, critical thinking, the need for social facilities to satisfy human creative thinking can be easily ignored in this case. A human being becomes only as a means for someone’s political and financial aims instead of being an end in itself. However, if human mental substance is permanently suppressed and not satisfied, catering for biological needs, as a farmer caters for his animals, will not help to avoid either social conflicts or social diseases because the laws of human nature are violated.

The structure of “Mind, Brain, and Social Factors” is the following: the book is divided into three chapters and has a double introduction and conclusion. The allegorical introduction and conclusion repeat some of the main ideas but in the form of scientific fiction.

The first chapter “Social Science Often Tells Lies” is conceived to show that science is not an independent and self-regulated sphere. Society puts forward the questions for a scientist to study, and a scientist is influenced by general ideology of society. General ideology is based on certain axioms for a given society, which are not doubted. However, some time later, new axioms for social life and a human being appear and are used to organize a socio-politico-economic system. What was considered as a scientific fact is discarded as fake knowledge after the change of political course. Such phenomena are studied by the sociology of knowledge and sociology of science. Social disciplines are highly dependent on political and economic aims of the power elite. The knowledge concerning a human being and the organization of society, i.e. economic and political system, is controlled by power with the help of ideological postulates presented as universal axioms. The first chapter gives some examples of such metamorphoses.

The second chapter “Contending Hypotheses on Mind and Brain in Neuroscience” focuses on the problem of brain and mind. The mainstream hypothesis on brain and mind is based upon the materialist conception that a thought follows the activation of neurons in the brain, so it is the brain which causes thinking process. However, the opponents of this hypothesis, who are called non-materialist neuroscientists, insist that it is the thought that activates neurons and creates neuronal patterns in the brain. The discussion of brain and mind has been lasting for many centuries in philosophy. The development of technologies gives possibility to study the brain more closely and to continue the discussion in neuroscience. There were many cases when people were revived with the help of new technologies, and these people tell us about their near-death experience
(NDE), which demonstrates that their sense perception was not based on the organs of sense perception, and their consciousness did not depend on the functioning of the brain. New neuroscientific facts confirm that the mind organizes the work of the brain, cures the brain, and changes the size of material neurons and the release of neurochemical substances. Near-death experience proves the independent existence of consciousness from the brain. So we have many reasons to question the wide spread materialist hypothesis on brain and mind and turn our attention to the alternative ones.

The third chapter “The Individual and Society” connects the doubts about the scientific truths in social sciences of the first chapter with the materialist and non-materialist neuroscientific discourse on brain and mind of the second chapter and puts forward the idea that societies use the wrong model of a human being, and hence the wrong economic, political and social organization of society because the needs of human mentality are disregarded, and human biology is placed on the pedestal.

My ontological position is dualist: there are two separate but interacting substances - mental (mind) and biological (brain). Such dualist ontology gives possibility to explain the influence of mind upon brain logically. My epistemological approach is structuralist: social phenomena, which we can observe and register, are caused by the structure within which the phenomena exist. In fact, my approach is double structuralist: there is (1) a socio-politico-economic structure and (2) the laws of inborn human mentality, which form our mental structure. These two structures are in conflict in modern society. All social clashes and diseases, which we can observe in our everyday life, result from the deep conflict of these two structures: inborn mentality and an artificially created socio-politico-economic system.

If we admit the existence of two substances: mental and biological as an axiom, the society is to be reorganized on other principles than those that exist in the world at present.

I suggest the following principles for reorganization:
1. A human being has equally important mental (mind) and material (biological) substances, which interact with each other and with social and natural surroundings.
2. Mental substance organizes brain work, and the brain organizes automatic neurobiological processes in the body.
3. Both mental and biological substances exist according to their own laws and have certain characteristics, which should not be disregarded because they are important for the survival and health of these substances.
4. The mind needs the realization of certain processes (moral, critical, comparative, creative thinking) to be in the healthy state as well as the biological body needs food, water, physical exercises, and rest to stay alive and fit.
5. Mental substance includes certain social feelings typical for a human being, such as love, respect, friendship, etc., which are connected with the biological
functioning of the body and brain. For example, sad thoughts for a long time lead to depression and the malfunctioning of endocrine and immune systems, and then to serious diseases, and then to an early biological death. In other words, there can be certain social factors due to the wrong sociopolitico-economic structure, which cause mental distress followed by the diseases of the body and brain. Such cases should be referred to as social diseases because they are caused by social factors.

6. If the needs of the human mind are unsatisfied, there is the rise of social conflicts, criminal cases, suicides and nervous breakdowns in the society. Human frustration finds its expression in drugs, alcohol, sex abuses, and wild and inexplicable behaviour of seemingly normal people. And again, we deal with social diseases revealing in individual or group behaviour and caused by social factors.

7. We can observe only undesirable human behaviour, but we cannot see the conflict between two structures: our inborn mental structure and socio-politico-economic structure. It is the conflict of these two structures that is reflected in our behaviour.

8. We cannot change inborn mental and biological laws, but we can adjust the artificially created socio-politico-economic structure to them.

The main points of my hypothesis of the conflict between the inborn mental structure and the artificially created socio-politico-economic structure are the following:
- the inborn mental structure is in conflict with the artificially created socio-politico-economic structure;
- this conflict of structures brings about human frustration and social diseases caused by social factors;
- the use of the wrong materialist model of a human being leads to the disregard of his mental needs;
- the dualist model of a human being will draw the attention to the needs of his mental substance and to the creation of a suitable socio-politico-economic system.
Allegorical Introduction

Anastasia Ivanova, a lecturer of the university, was sitting in her armchair and looking at the photos taken in Great Britain, Germany, and France. She had to admit to herself that she hadn’t seen a lot of happy people there in spite of the firm conviction of her Russian friends that people lived happily and were prosperous only in the West. “How sad! Is there any country in the world where people have a fair social and economic system, a government which does not act against their citizens, and politicians who do not lie?” reflected Anastasia. While thinking about human life and happiness Anastasia fell asleep and had a strange dream. In her dream she met an extraterrestrial, who arrived from another planet and wanted to know all about humans.

He asked Anastasia, what the purpose of human existence was on Earth. Anastasia said that she did not know exactly, but she thought that the purpose, perhaps, was just life itself.

*Alien:* But why do people live so badly and unhappily? Maybe, their purpose is unhappy life?

*Anastasia:* Some people by nature prefer to feel miserable and unhappy, regardless of what they have.

*Alien:* Why?

*Anastasia:* I guess because they are lazy and envious, and optimism demands more effort and energy than pessimism.

*Alien:* Are there any others?

*Anastasia:* Yes, there are. There is the second type of people and the third, and the fourth, and fifth. People of the second type are creators. They try to do something for people to make them happy, but there are insurmountable obstacles: the wrong socio-politico-economic system and corruptive political power.

*Alien:* And what do the others do?

*Anastasia:* The third type is happy to have a quiet life without much thinking and questions. They are like cows, which are content with grass and crib, adore their owner, trust him completely, even when he is taking them to the slaughterhouse.

*Alien:* And the fourth?

*Anastasia:* There are not a lot of people belonging to the fourth type, but they are very active, aggressive, and greedy. They try to grab and keep as much money and power as possible, and they always dominate over other groups. However, they are not as happy as they are thought to be because they want more and more money and power, and the others in their group want the same and try to grab property and power from them as much as possible. They call it competition and impose their values on other groups.

*Alien:* And the fifth?

*Anastasia:* The fifth are clever people, but they are not energetic enough to fight for their ideas. They are analytical observers, and their happiness is the happiness of the observer who knows that everything will pass and disappear in the course of time: joy and sorrow, power and wealth.
Alien: And you? What group do you belong to?
Anastasia: To the most numerous - to the second one.
Alien: And what prevents the most numerous group to create a better social system?
Anastasia: They have tried so many times. They created new social systems, laws, made revolutions, but the fourth aggressive and greedy group seized power in the end, introduced the practice based on their own understanding of life, and spoilt everything making the rest as unhappy as before.
Alien: And what does the first group suggest?
Anastasia: They criticize all that they have and all that they will have. They prefer grumbling and waiting for other people to improve their life.
Alien: And the third?
Anastasia: The third one does not have one’s own ideas, they always listen to the people from the fourth group and obey them.
Alien: And the fifth?
Anastasia: The fifth says that the world has always had all these types of people, therefore, nothing should be done.
Alien: And if people were told that life on Earth is only the beginning of life, and in heaven, the life will continue, based on different laws - love, equality, knowledge, beauty, kindness, sympathy, understanding, and the more you love and do for people on Earth, the higher level you will have in heaven?
Anastasia: It has already been tried. We call it religion. But the fourth group managed to take religion in their hands as well. It has established churches, interprets the scriptures in their own way to monitor and manage people on behalf of God, and has brought even the thoughts of people about God under control. They order people to communicate with God only through their intermediaries - priests.
Alien: And do you have any other faith in anything else?
Anastasia: Yes, we do. People believe in science.
Alien: What is it?
Anastasia: Science explains how the world is arranged, and even though it denies later what it has said before, people still trust it.
Alien: If science is your second religion, why hasn’t it explained scientifically, that a human is not only a biological body, but also has a soul, and the soul cannot live according to biological laws? The soul needs love, creativity, knowledge, otherwise it will die. If the soul dies, a person will never be happy either on Earth, or in heaven. So the soul is the most important thing that needs to be protected. Why don’t your scientists study spiritual substance and don’t speak of its importance to humans?
Anastasia: Because our scientists represent all five above-mentioned types of people, and science is also controlled by the fourth type of people through the Academy of Sciences. Scientists cannot study what they want and how they want because the Academy requires them to recognize only a material biological body of a human otherwise they will lose their job and status.
Alien: And you? Do you also think that you have no soul?
Anastasia: No, I do not think so, I have a soul.
Alien: And other people?
Anastasia: And the others, whom I know, think the same.
Alien: Then what does your science explain?
Anastasia: It explains its own scientific world. And in the real world there is everything - a soul, which loves and suffers and a free spirit, which is not subordinate to anyone.
Alien: But why is your free spirit so unnoticeable in your life?

At that moment, the phone rang and Anastasia woke up. But some thoughts got stuck in her mind. Indeed, there are so many kinds of people, who want quite different things in their life. Is it possible to make all of them happy in one social, economic, political, and cultural space? If people had an opportunity to choose a certain political and economic organization of the society according to their natural inclinations and separate themselves from other types of people, would they be happy? Would the fourth group of aggressive and greedy people attack them wherever they might live – in the other state, continent, and planet in order to exercise power over them? Would the future generation of one group split into five types again?
How should the concept of life be defined - according to the biological life of a human body, or the consciousness of the universe?
Will we be doomed to be unhappy until we have reconsidered our concept of a human being? What is a human being?
What is possible to do for a happier social surrounding than it is now?
Chapter 1

Social Science Often Tells Lies

Michel Foucault: “Your question is: why am I so interested in politics? But if I were to answer you very simply, I would say this: why shouldn’t I be interested? That is to say, what blindness, what deafness, what density of ideology would have to weigh me down to prevent me from being interested in what is probably the most crucial subject to our existence, that is to say the society in which we live, the economic relations within which it functions, and the system of power which defines the regular forms and the regular permissions and prohibitions of our conduct. The essence of our life consists, after all, of the political functioning of the society in which we find ourselves. So I can’t answer the question of why I should be interested; I could only answer it by asking why shouldn’t I be interested? Not to be interested in politics, that’s what constitutes a problem” (Chomsky, Foucault, 2006).

The French philosopher Michel Foucault was sure that power (political, economic, ideological, and religious) permeates all aspects of our life. Science is important for the power because knowledge itself is power. The more you know, the more you can control. Scientific research is supported by the power only if it helps to preserve and increase its influence and construct a necessary “reality” in the minds of citizens through the choice of objects for study, scientific definitions, and theories. Thus, as we know, some scientific knowledge is regarded to be “legitimate” in a certain historical period, though denounced later, but some knowledge has to wait for its “legitimacy” for many years. The concepts, definitions, classifications, and conclusions introduced by science become powerful instruments to manage society, and through discourse (through knowledge) the power molds the citizens best suited to fulfill governmental policies and practices.

According to Foucault, since the 18th century western nation-states have built their policies on the scientific concept that a human being belongs to a biological species with certain biological features, which can be used for management by governments. Even a special term “biopower” was coined. Indeed, we can see that the priority is given to human biological needs: food, shelter, sex, sports, and the expression of basic instincts to fight for possession and territory. The mental needs such as general higher education, creativity, criticism, inborn morality are ignored or blocked. Instead of the efforts to satisfy people’s mental needs, the power increases the number of prisons, passes new laws to punish the critically-minded, introduces new concepts such as extremism, terrorism, and humanitarian intervention, implements technological achievements to suppress political demonstrations, increases the fees for higher education and decreases the salaries for teachers, or scientifically proves that schoolchildren will
be tired if to give them homework or teach a full range of subjects, however, it
does not concern those schools where parents can pay for their children to learn as
much as possible for the profound education so that they may enter the best
universities to become the power elite in the future.

Neuroscience has turned to be a useful instrument for power: the direct influence
over our mentality is its aim, and neuroscientists are to give recommendations how
to do it.

On July 17, 1990, the U.S. president George H.W. Bush proclaimed the 1990s to
be the Decade of the Brain, and financial resources were allocated for the research
in neuroscience. The USA headed the process of globalization and needed to know
how to deal with the employees of foreign countries, and what kind of discourse to
organize. In 2013, the U.S. president Barack Obama announced an initial $100m
investment to shed light on how the brain works because this “knowledge will be
transformative”. The project called “Brain Research Through Advancing
Innovative Neurotechnologies” (or BRAIN) was to begin in 2014 involving such
important state institutions as the National Institutes of Health (NIH), the Defense
Advanced Research Projects Agency (DARPA), and the National Science

Such new branches of interdisciplinary social study as neuroeconomics,
neurosociology, neuroscience and law, neuropolitical science, neurotheology, etc,
sprang up in the USA. The “biopower” is transforming into “neuropower”.

The research in neuroscience usually starts under the noble pretext of health care or
the defence of a nation, but paradoxically finishes with the practice of damaging
the health of the very nation. For example, the invention by the U.S. Military of a
Ray Beam, which makes the enemy feel “quite hot”, but do not kill them, has
turned out to be “quite good” for national strikes and political demonstrations
(Reilly, 2012).

Neuroscience, in particular, is engaged in finding out how to force a human to
work more and better and bring more profit, how to suppress the demonstrations of
protest, and how to influence a human brain quickly and in mass.

Neuroscientists suggest that oxytocin, or a version of oxytocin, should be efficient,
even if given nasally. This medical result started a political discussion: Could it be
used outside hospitals? A person, for example, a terrorist with hostages, will treat
anyone as his friends after inhaling it. However, it can be also used for a forcible
alteration of the minds of political opponents without their awareness.

The military power encourages pilots and soldiers to take medicine to prolong
waking hours, forget their own cruelty, not to feel pain and remorse and kill more
and more other humans (Mind Wars, 2007). However, if the normal work of a
brain has been changed, and inborn moral values have been destroyed, these
soldiers, after resign, will hardly turn into normal citizens without serious medical
treatment.
The human brain and mind have always been the targets of the power as much as all social concepts connected with them. Foucault analyzes the change of social attitude to madness, depending on political and economic situation in the course of history (Foucault, 2006). Centuries ago, mad people could walk freely anywhere and could even be respected for their strange talk, which was often understood as a bold prediction. As soon as industrialization started, and the accumulation of capital required the increase of working people and working hours, all non-workers (vagrants, prostitutes, mad people) became out of law and were sent to prison or workhouses. Later, mental asylums were created and inability to work became the main criterion of mental disease and treatment in the mental asylum (Foucault, 2006).

Since that time, legal euthanasia has been introduced in some western countries, which allows doctors to kill their helpless patients legally because these patients will never work and increase capital. To make it more acceptable, the concept “euthanasia” has been humanized, and the dictionary describes euthanasia as “the act or practice of killing someone who is very sick or injured in order to prevent any more suffering”\(^1\). But we know that people can rationalize any cruelty as Nazis did in World War II.

Many people suffer from the loss of their beloved and say that they would prefer physical suffering or death, however, no legal euthanasia is offered to them, because they are physically fit and can participate in the accumulation of capital. The human life is assessed in proportion of profit it brings to the owner of capital. Moreover, working people by themselves think that the biological exploitation of their organism and spiritual exhaustion are a social norm and morally praiseworthy. Healthy people willingly endanger their health by taking medicine in order to improve their work performance and to deserve social approval. Though the drug “amphetamine” was invented mainly for patients suffering from traumatic brain injury and the daytime drowsiness symptoms of narcolepsy, now it is used as a performance enhancer by normal people (students, businessmen, pilots, etc.). After you stop taking amphetamines, you have a whole range of problems including anxiety, depression, psychosis, suicidal thoughts, excessive sleeping, etc. (Mind Wars, 2007).

The famous German philosopher Immanuel Kant in *The Critique of Practical Reason* says that it is a moral duty to take care of oneself, and a human should not be considered as a means for someone’s aim, even for his own (Kant, 1965). Are the social norms moral in the society if people disregard their own health to deserve its approval?

It is a typical situation nowadays when an employee works overtime to be praised by his boss and does not hurry home to perform his family duties and to restore his mental and physical health. The working day is so long that he has neither strength,
nor time to enjoy the life and to satisfy his own mental and spiritual needs outside his working place.

Do we need, indeed, to work so long to provide ourselves with food and other necessary things? If there are billionaires and homeless beggars in the society, isn’t this economic system absurd? A bad economic system means a bad political system because limited economic resources are not distributed in the right way, and any distribution is a political question. The society organized in such a way is doomed to have social conflicts. Why do we pay the police to suppress social riots if the socio-politico-economic system itself provokes social conflicts?

The present scientific description of a human makes a human think about himself in the terms of a biological species. If a human is categorized as a biological species what for to give him time for mental development and spiritual needs after working hours, or why not kill him on the patient’s bed if his body cannot produce goods? If a human is just a biological body he does not need anything except food, clothes, shelter, shops, fitness clubs, sex and sports.

Mainstream materialist neuroscience says that the activation of neurons in the brain brings about thoughts, and that the will-power and self-consciousness are illusions, and that a human being only has electro-chemically activated neurons in the brain, and the activation is caused by his biological needs and instincts.

Having placed a human under such a biological rubric, power elites, nevertheless, introduce a moral norm of hard work. It seems illogical because morality does not have anything in common with biology: biology deals with instincts, reflexes and the survival of the biological body, but morality presupposes a moral choice and sometimes a conscious sacrifice of life, which contradicts the biological instinct of survival. If there is no free will, there can be no choice of moral behaviour.

To explain such contradiction somehow, materialist neuroscientists introduced a new concept. It is an inborn moral instinct of a biological body due to evolution: one had to perform moral acts to save the life of tribal men, and one had to sacrifice his own life for a human species to survive, so such moral altruism has come to us with genes. But if people with high morality died for the sake of others less moral, they could not pass their “moral” genes to their off-springs, and these genes could not come to us. If the general discourse in society whirls around a human being as a biological species, and everything is explained within Darwin’s hypothesis, then a “one-dimensional man” comes on the stage.

Herbert Marcuse in *One-Dimensional Man* writes about “one dimension” which was created for a man without the dialectical discourse of contradictions in the society. A man uses “the ritualized concepts”, which have become “immune against contradiction” (Marcuse, 2002: 92). Democracy, for example, is thought to be the secret ballot, one-man-one-vote, etc. “Thus, the fact that the prevailing mode of freedom is servitude, and that the prevailing mode of equality is superimposed inequality is barred from the expression by the closed definition of these concepts in terms of powers which shape the respective universe of
discourse” (Marcuse, 2002: 92). The political discourse sometimes lacks logic and
has “monstrous” content, and it is led in Orwellian language (“peace is war” and
“war is peace”) where “a political party which works for the defense and growth of
capitalism is called ‘socialist’, and a despotic government ‘democratic’, and a
rigged election ‘free’” (Marcuse, 2002: 92). But what is more important, as
Marcuse remarks, that now such one-dimensional concepts have become a private
opinion and generally accepted by public.

So the same phenomenon seems to happen with such concepts as “terrorism”,
“globalization”, “free market”, “rational actor”, and “moral genes”. There is no
public discourse, and a “one-dimensional” understanding is being pushed into our
minds by mass media controlled by power.

For example, a human, according to the mainstream economic theory of Rational
choice, on which the economic and social system is based in many countries, is a
self-interested rational actor consistently maximizing his profit. Criticizing this
definition, the Nobel laureate Amartya Sen argues that consistency, which is
supposed to characterize rationality, can characterize irrationality as well if a
person consistently continues doing the wrong things to achieve his aim; rationality
cannot serve as an equivalent to maximization of self-interest either. “To consider
universal selfishness as a requirement of rationality is patently absurd” (Sen, 2005:
16). However, mainstream economic theory considers the behaviour irrational if
the actor rejects the maximization of his self-interest in decision making due to
moral values and emotions. Meanwhile cognitive neuroscience declares that no one
can escape moral thinking and emotions: the structures of the human brain
typically involved in moral thinking are constantly engaged in the process of
decision making as well as the structures responsible for emotions. Therefore, we
can conclude that there are no purely self-interested rational people unless they
have some pathology of the brain. Then why do we use the Rational choice theory
for constructing economic system of our society if the majority of people have a
normally functioning brain?

Lynn Stout points out that mainstream economics substituted Homo Sapiens by
“Homo Economicus” (Stout, 2008). Stout compares the symptoms of
sociopathy from the American “Diagnostic and Statistical Manual of Mental
Disorders” (2000: 701-702) with the basic characteristics of a human in
mainstream economics. She comes to the conclusion that “Homo Economicus”
serving as a basis for mainstream economics and our economic system is a
sociopath, who has no pity or remorse, and who wants to lie, cheat, break his
promises, neglect duties, take advantage and exploit. The Manual says that an
individual is considered a sociopath if he or she shows three of the following seven
characteristics (Stout, 2008: 159):

1. Failure to conform to social norms with respect to lawful behaviors as indicated
by repeatedly performing acts that are grounds for arrest; 2. Deceitfulness, as
indicated by repeated lying, use of aliases, or conning others for personal profit or
pleasure; 3. Impulsivity, or failure to plan ahead; 4. Irritability and aggressiveness,
as indicated by repeated physical fights or assaults; 5. Reckless disregard for safety of self or others; 6. Consistent irresponsibility, as indicated by repeated failure to sustain steady work or honor financial obligations; 7. Lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated, or stolen from another.”

_Homo Economicus_ has five of the seven symptoms of sociopathy:

“Lack of remorse (item 7)? Obviously; why would _Homo Economicus_ feel bad just because he hurt or misled another, if he advanced his own material welfare? Irresponsible and reckless disregard for the safety of others (items 5 and 6)? _Homo Economicus_ feels responsible for, and cares about, no one but himself. Deceitfulness (item 2)? _Homo Economicus_ is happy to lie any time it serves his interests. Failure to conform to social norms with respect to lawful behaviors (item 1)? Whenever and wherever the police aren’t around describes _Homo Economicus_” (Stout, 2008: 159).

Stout mentions that the economic students at the senior courses at the University, if compared with other students, show different results in many experiments: they are closer to the type of _Homo Economicus_. She wonders whether the years of studying economics based on the model of _Homo Economicus_ made them believe in this model and behave accordingly, or it is because at the very beginning these students had such characteristics, so they chose economics.

Stout is worried by the enthusiasm of applying the _Homo Economicus_ model to other spheres of life and to all types of social problems, “Are people cheating on their taxes? Increase the fine for tax evasion. Are students failing to learn to read? Tie teacher pay to test scores. Are corporate executives shirking rather than working for shareholders? ‘Incentivize’ them with stock options” (Stout, 2008: 158).

Stout’s conclusion of sociopathological features of the present economic system is supported by Zak’s experiments.

The neuroscientist Paul Zak studied 212 subjects making trusting decisions. The more oxytocin (a neurochemical indicating attachment and trust) was released, the more trust the participant felt towards his partner. 98% of subjects demonstrated the following interdependence: the higher the oxytocin level was, the more the participant shared money with the person who initially had also shown trust in him. However, 2% of subjects did not show a typical reaction, they were untrustworthy. Their brain produced a surge of oxytocin, but they kept “all or nearly all the pot of money they controlled” (Zak, 2008: 267-268). In other words, they behaved as mainstream economics predicts: “a self-interested rational actor consistently maximizes his profit. Zak says that these 2 percent of people are roughly equal to the percentage of sociopaths in the population. His two percent of subjects in the experiment, indeed, had psychological elements of sociopaths as reported.

If some concept or theory is introduced into life, for example the theory of Rational choice, people start behaving like sociopaths because the economic system based
on such a theory forces them to do so. By analogy, women were killed in the Middle Ages because the church introduced the concept of a “witch”, and it became a social fact because the concept had institutional support. Here are some more examples of concepts which turned into social facts.

The World Bank became an active agent of global governance and introduced the concept “good governance” in international political discourse (Selby, 2003). “Good governance” was presented as a technical and apolitical project based on scientific achievements and promoting high quality management. However, it was the instrument of a new policy under the name of “globalization”. The networks of new epistemic societies began to disseminate the ideas of neo-liberalism and free market as “good governance”, but in fact, that “good governance” was good only for the new policy of global governance. The project of global governance was meant to overcome resistance to neo-liberal ideas from the existing hegemonic centres of power such as states by redistributing power among many structures that were less powerful than states and promoted the following: the privatization of state-run enterprises, partnership of public and private sectors, appearance of new forms of regulation and surveillance, increase of interdependence of states, penetration of foreign policy into domestic economic and political affairs, and the practice of foreign humanitarian interventions and financial discipline. This “neo-liberalism” was scientifically proved to be a good economic management of a nation-state and was called “good governance”. Soon literature on “unavoidable” globalization (as a natural process of social development) appeared in many countries. International scientific conferences and research groups followed the suit. In the end, the general public got convinced that “globalization” is an unavoidable process and they must be in a hurry to join it. However, some time later, after the disastrous results of this project for some economies, criticism became more vociferous. Scientists began writing about a carefully planned globalization by the power elites of highly-developed countries, and that it was a planned policy, but not a natural “unavoidable” process, and was started too early for some countries, and carried out for the benefits of the highly-developed countries, which organized the process. Globalization (the restructuring of capitalist production) has increased the social power of employers and investors, reduced the power of governments, communities, and citizens, created a new form of democracy based on democratically unaccountable concentrations of private power by transnational companies and banks. “The net worth of world’s two hundred richest people increased from $400bn to $1 trillion in just four years from 1994 to 1998” (Coyle, 2000: 8). Globalization caused “deepening social disparities in and between countries owing to current tendencies and the institutional shape given to globalization” (Kennedy, Messner, Nuscheler, 2002: 185). “By the late 1990s the fifth of the world’s population living in the highest-income countries had 86 percent of world GDP… while the poorest fifth had only about 1 percent” (Rupert, 2000: 146).

Marsh and Furlong believe that it is “the discursive construction of globalization that effects government economic policies, rather than the ‘real’ processes of
globalization”, and that the UK, for example, was not locked into globalized political economy at all, though there was a “significant increase in regionalism in pattern of trading and a globalization of financial markets” (Marsh, Furlong, 2002; 35).

Speaking about Swedish economy and globalization Magnus Ryner argues that “the crisis was fundamentally political in nature” in Sweden, and that “the neo-liberalisation of Swedish social democracy itself played a decisive role” (Ryner, 2002: 1). The crisis was caused by “political practices of social democratic elites, pursuing a particular kind of neo-liberal strategy”, which allowed the political elite to introduce a topic of discussion under the name of unavoidable globalization and the necessity of changing the economic system, and then, indeed, they changed economic practices. Ryner comes to the conclusion that if the economic practices can be changed at a political will, we can also change the present economic practice for something better, which will be consistent with “traditional commitment to social citizenship and de-commodification” in Sweden (Ryner, 2002: 1). Ryner explains that the old successful Swedish model (Rehn-Meidner model) was revised and adjusted to new economic trends in the 1970s and was called “Wage Earner Funds Plan” made by the same economist Meidner who was a co-author of the previously successful model, but it was never implemented as it had been first suggested by Meidner. It was a political act to prevent the implementation of the model because it could lead to the gradual socialization of the means of production (Ryner, 2002).

So the scientifically based discourse of “unavoidable globalization” and “good neo-liberal governance” helped to convince general public not to prevent the realization of restructuring plans by the world power elites. The creation of a “one-dimensional man” proved to be very useful for the power: people did not question the concept “neo-liberalism” though the main principle of liberalism was violated. The basic old principle of liberalism – politics and economics must be separated - is being broken by the international financial institutions of liberal governance, such as the IMF and the World Bank, which give financial loans but impose socio-political and economic conditions (Dougherty, Pfaltzgraff, 2001).

The concept “terrorism” has a similar function in the one-dimensional world. Everyone knows that “terrorism” is derived from the word “terror”, i.e. something which frightens us and involves deaths of innocent victims on a large scale. Why don’t we call the members of our governments and law-makers terrorists if their decisions terrify the majority of us and cause the deaths of our citizens killed either in the military operations in another country or in the civil war, or during the protest demonstrations, or due to the wrong social policy in ecology, health protection, and the satisfaction of human mental needs? The wrong policy makes a huge part of the population nervous, ill, and people gradually die from serious diseases. Isn’t it a large-scale prolonged terrorism against the population?

The Kiev coup d’etat brought a new elite to power through violence in the Ukraine in February 2014 (demonstrations started in November), and two months later,
under the pretext of the anti-terrorist operation that illegal power moved the Army to the Southeastern part of the Ukraine where people did the same – local coups d’etat because they did not want to live under the new government. Where do we deal with terrorists, in Kiev or in the Southeast of the Ukraine? Hasn’t a word “terrorist” become a “chameleon” in the political game?

Neil Clark, a British journalist, wonders why the U.S. government warned the legal Ukrainian authorities not to use force against the protestors in Kiev and called them pro-democratic though “some of them were neo-Nazis who were throwing Molotov cocktails and other things at the police”, but a few weeks later, the U.S. government declared that people occupying government buildings in the Southeast of the Ukraine are not “pro-democracy protestors”, but “terrorists” or “militants”.

“Why was the occupation of government buildings in Ukraine a very good thing in January, but it is a very bad thing in April? Why was the use of force by the authorities against protestors completely unacceptable in January, but acceptable now? I repeat: I’m confused. Can anyone help me?” (Clark, 2014).

The U.S. well-known scientist Noam Chomsky speaks about a prevailing discourse on terrorism in the USA. He distinguishes governmental terrorism of the U.S. (the U.S. actions against other countries) and intergovernmental (the NATO actions against other countries) in his conversation with Achcar (Chomsky, Achcar, 2007). Chomsky says that if the government declares a war on terrorism, as the U.S. government did under Reagan’s administration, it means it is planning itself to undertake massive international terrorism. In this case, the problem of definition of terrorism arises: what to consider terrorism so that to avoid getting under the same category by yourself. Chomsky uses the definition given in the U.S. Code: “terrorism is the calculated use of violence or threat of violence to attain goals that are political, religious, or ideological in nature… through intimidation, coercion, or instilling fear.” (Chomsky, Achcar, 2007: 1). But applying it to the policy of the USA it turns out that “the United States is a leading terrorist state, and that the Reagan administration in fact was engaging in extensive international terrorism” (Chomsky, Achcar, 2007: 2). The U.S. policy-makers are trying to invent the operative definition of terrorism which would include the idea “terror is terror in the standard sense if you do it to us; but if we do it to you, it’s benign, it’s humanitarian intervention, it’s with benign intent” (Chomsky, Achcar, 2007: 2). Achcar also reminds that the European Union’s definition of terrorism in June 2002 was an attempt to expand the concept and included “causing extensive destruction to a Government or public facility … a public place or private property likely to … result in major economic loss”, or even “threatening to commit” any such destruction. Achcar points out that such definition could have encompassed anyone struggling for global justice including environmentalists fighting against an experimental agricultural field with genetically modified organisms or peasant protestors destroying McDonald’s restaurants.

Speaking about subnational terrorism (terrorist groups in the USA) Chomsky thinks that there is a serious threat of terrorism inside the USA mainly from jihadis,
trained by the United States in Afghanistan, and that it had started earlier than on September, 11, 2001. In spite of many books and articles written about the threat of terrorism and U.S. intelligence estimate of the likelihood of terrorist disaster in the USA, it has never been a high priority for the U.S. government to protect their citizens, and the clearest example of it is the invasion of Iraq because one could expect beforehand that it would increase the threat of terror for the U.S. citizens in the end. No country has such military potential as the USA, so nobody is going to confront the USA on the battlefield, they will choose other means: development of a terrorist system and nuclear weapons. Any war started by the USA will create training grounds for professionalized terrorists, and it is not difficult to foresee the future: the spread of professional terrorists all over the world including the USA (Chomsky, Achcar, 2007).

Another example is Syria. The Syrian regime disliked Islamic terrorists and provided the United States with valuable intelligence. However, it is much more important for the U.S. government to destroy Syria as part of the region that has independent policy than to think about the protection of its own citizens from terrorists. Successful defiance of the U.S. domination is “like some storekeeper not paying his protection money. You can’t accept that, because then other people would get the same idea, and the system of domination and control would erode” (Chomsky, Achcar, 2007: 8).

Thus, we see that the U.S. power itself provokes the future spread of world terrorism and endangers their own citizens, just for adding another field for domination and enrichment of itself. No wonder that governmental officials responsible for such criminal political decisions are so afraid of Wikileaks, Assange, Snowden, anti-globalists, and environmentalists, who reveal their real purposes and names and break a one-dimensional space of discourse.

The one-dimensional understanding of the advantages of “free market” economy brought many economically less-developed societies to catastrophe. Criticizing market fundamentalism Noam Chomsky speaks about “free market theology” and says that though it is taught in economics departments, nobody in the business world believes it for a second. “It’s the ideology which has been forced on the Third World, which is one of the reasons why it’s such a wreck, but which rich countries have never accepted for themselves. They’ve always insisted on and demanded massive state intervention and protectionism, with the U.S. usually leading the pack, since 1800” (Chomsky, 1996: 36). Chomsky points out two main problems, which he connects with the breakdown of the Bretton Woods system in the 1970s: the appearance of transnational corporations, which have grown into incredibly powerful private tyrannies and the extraordinary growth in financial capital. The Bretton Woods system helped to regulate exchange, and about 90% of capital in international exchange was real economy related to investment and trade and 10% was speculative. However, by 1994 there was approximately 90% speculative and 10% real. Chomsky says that economists know that the popular mantra “Public sector is bad and private sector is good, so the private sector must
be enlarged” is nonsense, but they allow drilling this idea into the heads of non-specialists.
The privatization of the water system under Thatcher in Britain made prices and profits go up and service go down because it is not cost-effective to deliver water to scattered or small communities, and, besides, it won’t improve the GNP, so people can go to “the centre of the town and pick it up with buckets” (Chomsky, 1996: 121).
The privatization of state sectors in Russia rapidly created the number of millionaires and billionaires, decreased wages and worsened social conditions for the rest of the population, provoking suicides especially among middle-aged men, the collapse of school education, medical service, science and culture, raised the price for houses, water and electricity supply without any improvement of the service at all. So the shift to the private sector was, indeed, good, but only for several millionaires and only in trade and financial spheres.

We can see that what is considered a well-established knowledge confirmed by science sometimes turns out to be a scientific myth and, if implemented into social life, a danger for society. Quite often, such knowledge is supported and spread by the power elites anxious to reach their own goals. The fixed concepts and terms, which are widely used and not discussed, or theories, which are not doubted, make things easier for the manipulation of minds. Science depends upon the power, which allocates money for research and salaries for living. The Academy of Sciences is part of the power system: it controls knowledge and certifies it, and if a scientist discovers something that is contrary to the well-established knowledge and if this knowledge can shake the foundation of the power, the Academy of Sciences will never acknowledge his ideas to be scientifically valid, especially in the field of social sciences.

There is such a branch of science as the sociology of science, which studies the functioning of science as social institution, the role of scientific community in the society, and the dependence of science on the socio-cultural conditions determining scientists’ choice of the object of study, behaviour, values, and preferences. The sociology of science also studies the influence of science upon social development and relations. The social function of science can vary in the course of history and have three main directions: (1) cultural and ideological, forming the outlook of people (e.g. Copernicus’s heliocentric model of the universe in astronomy, which placed the Sun, rather than the Earth, at the centre, changed people’s outlook on many things in nature); (2) technological and productive (e.g. the invention of steam engines, or the use of nuclear processes to generate heat and electricity); (3) socially constructive for creating economic, political, and social systems (e.g. the implementation of “neo-liberal” ideas of “good governance” in the process of globalization).

To believe in scientific hypotheses and then to implement them into real life the society must be ready for such hypotheses. Mulkay describes the social conditions
why Darwin’s hypothesis “The Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life” was willingly supported by public though there was no scientific proof or any analogy between the life of animals in wild nature and the artificial breeding of domestic animals. Darwin refused to change the term “natural selection” in his hypothesis, which was used in the practice of the controlled selection of domestic animals by breeders in Great Britain because it allowed him to make the unquestioned connection between these two different worlds. The general cultural atmosphere was favourable for bold discoveries and theories in Britain at that time. Darwin had access to “a wider range of biological evidence than ever before, by his having sufficient income to devote himself entirely to science, and by his membership of a distinct sub-culture which had already produced several evolutionary theories” (Mulkay, 1983: 101). Darwin lived in the society which had already accepted the idea expressed by the natural theologian Paley that everything including all small details was conceived by God and had some purpose and the idea expressed by the geologist Lyell, who insisted on the principle of uniformity in nature (the same processes operate today, which shaped the earth in the past). However, the most powerful idea which determined the cultural atmosphere in Darwin’s time of the early 19th century in Great Britain was the idea expressed by the Anglican priest and demographer Malthus, who announced that without wars, famine, epidemics, revolutions, and the elimination of the poor and inept by hunger and poverty, the uncontrolled growth of population in geometrical proportion was to bring humanity to hunger on the earth because the means of substance increased only arithmetically. So all those social misfortunes are beneficial for the humankind and will always exist. His theory became the style of thought for people and helped to suppress the pricks of conscience and to ignore the sufferings and deaths of the poorest at the beginning of industrialization with its hard competition, fierce struggle for resources and hard life for the majority of people. Darwin used Malthus’s idea and applied it to the selection of biological organisms in nature as the natural selection of the fittest. Malthus’s theory dominated over the minds of people until the late 1870s; it seemed to be true for that historical period. However, under the influence of Henry George’s socialist interpretation of society and his political economy, the British naturalist, explorer, anthropologist, and biologist Alfred Wallace proposed another theory with the opposite meaning: willing cooperation and reforms are important social forces, which can substitute the struggle and competition and promote social changes. Wallace also believed in the non-material origin of human mentality. Wallace declared that Malthus’s theory could not explain a wide range of social and political questions. The appearance of welfare states with the emphasis on the care for the poor showed that Wallace was right, and Malthus’s “natural law” that only “the fittest survives” in the society is a false supposition. In the social world, everything depends on the socio-politico-economic organization of life and on the political will to have a welfare state. Though Malthus’s hypothesis perished two centuries ago, Darwin’s hypothesis is still the style of thought nowadays. Even moral thinking is presented as an
Mannheim showed that natural events differ from social ones in his sociology of knowledge (Mannheim, 1952). The accumulation of the laws about nature takes place in a straight line: the previous laws are not denied, but corrected by new discoveries because the natural world is universal and unchanging. But a cultural product cannot be studied in economics, politics, sociology, etc., by the same methods of natural science (detached observation, static concepts) because any cultural product bears the meaning which the user attaches to it (e.g. what is democracy, good governance, etc. can be understood in different ways). This meaning cannot be observed in the same way as real objects in the natural world. Everyone who uses a cultural product attaches a certain meaning to it. Thus, the same term can have different meanings in the course of history and for different people (Mannheim, 1952).

If our knowledge, or discourse, is limited and controlled, or channeled into one-dimensional space, we do not even question the theoretical concepts applied to our social life. We continue to explain inborn morality within Darwin’s paradigm because it is a style of thought at present.

Here we have come to the question of ontology (what exists?) and epistemology (how can we know that it exists?).

According to Marsh and Furlong, ontology can be foundationalist (a phenomenon exists independently of our imagination and perception of it, it is “out there”) and anti-foundationalist (we do not believe that this phenomenon exists independently because all social phenomena are socially constructed and determined by the time or other circumstances influencing our interpretation) (Marsh, Furlong, 2002).

If a religious man believes that God punishes people for their evil actions and explains some social phenomenon as God’s punishment, he has foundationalist ontology. His ontological foundation is his belief that God exists “out there” independently of anyone’s desire and punishes people for misbehaviour. His further study of the social phenomenon will be based on this belief, and he will choose the matching epistemology for proving that it is, indeed, so.

Marsh and Furlong offer the following categorization of epistemological approaches:

1. positivist (we can establish real world through empirical observation like in natural sciences using methods of natural sciences: collecting observable facts, using statistics, and arriving at some conclusion about the causal relationship between one social phenomenon and the other one; this causal relationship will be called a law, which can be used for predicting a similar phenomenon in the future);
2. interpretivist (people are affected by the social constructions of “reality” and one can never find laws governing social relations, one can only compare different interpretations made by people in the course of history and choose the most suitable and closest to the reality);
(3) structuralist (it combines a positivist approach, i.e. direct observation, causal relationship and predictive models, but it highlights the existence of structure, which can be unobservable, but which can produce a crucial effect upon the observable events, so just collecting observable facts will not help to find causal relationship, one should try to find the structure first). Marsh and Furlong use the term “realist” instead of “structuralist” epistemology, but their realist epistemology presupposes the existence of structure, so the term “structuralist” will make the things clearer.

There is obvious difference between social life and natural phenomena. People are reflexive. They analyze, think over, improve, or worsen social relations. They can change social structure, but cannot change physical laws of nature. Social structure depends on people’s activities, and it is shaped by people.

A religious man with foundationalist ontology while studying, for example, social conflicts will try to find the connection between the faith in God and the events in a human life. He would probably use a structuralist approach where the lack of faith is a structure, which determines social conflicts, and then he would calculate the observable facts, show causal relationship, and predict future events.

If a neuroeconomist believes that all people belong to the Homo Economicus type, he has foundationalist ontology. Evidently, his choice of epistemology will be either positivist or structuralist. If he chose positivist epistemology to prove that he is right he would collect the observable facts of human behaviour coinciding with the description of Homo Economicus and would count the number of people who behave like that out of 1000, or more people. Then he would make experiments combining the reaction of participants on some economic situation and the tomography of the brain during these experiments, or he would use neurochemical analyses or some other tests. He would try to find the neurophysiological and neurochemical relevant data confirming that all normal people, indeed, behave according to the description of Homo Economicus.

If a neuroeconomist chooses structuralist epistemology he will have to find a structure first, which produces a crucial effect on the observable phenomena, and he will have to try altering the structure to see if it, indeed, influences the events.
and to what degree, calculate the observable facts, deduce a law and create a predictive model.

I would choose foundationalist ontology in this case. I believe that there are some people, who have natural characteristics of Homo Economicus and typical neurophysiological work of brain, but they are a small portion of the total population. Their psychological characteristics are, evidently, close to sociopathology. There can be some other people (the second category of people) who have such characteristics, but the explanation will be different: it is the influence of the structure.

My epistemological approach would be structuralist. It is the existing socio-politico-economic structure that affects people and forces them to acquire sociopathological characteristics of Homo Economicus due to: (1) the neuroplasticity of the brain (neuroplasticity means that the functioning neuropatterns and the physical characteristics of neurons change if the neurons repeat the same activation regularly under regular social circumstances); (2) mirror neurons (they are special neurons in the brain, which get activated involuntarily if we see other people moving, or expressing their feelings); (3) empathy (we catch involuntarily the feelings of the observed people, and approximately the same brain structures get activated); (4) Theory of Mind (TOM) (people have the ability of guessing, or building “the theory of mind”, i.e. what the other one thinks about, and how he will react and feel if we do certain things); (5) genetic expression of some genes, which “keep silence” until some social circumstances arise.

As I said before, this second category of people acquires the characteristics of Homo Economicus as a result of socio-politico-economic structure. Thus, the calculation of the number of people with the characteristics of Homo Economicus will not help to clarify the picture and to answer the question whether all people are naturally Homo Economicus. The experiments should envisage the influence of the structure.

Because neuroeconomics is an interdisciplinary field it is also important to know what the ontological position of a neuroeconomist is upon mind and brain. Does he think that first comes the activation of neurons and then a thought (materialist position), or vice versa, first comes a thought and then the activation of neurons and that there are two substances – mind and brain (dualist position), or perhaps, all matter has consciousness of its own (panpsychism), or all matter has consciousness coming from God (pantheism).

The chosen ontology on brain and mind will demand a certain epistemology, which will lead to the choice of the suitable methodology (principles of study) and methods fitting this methodology.

A typical layout of present neurostudies in neuroeconomics is the following: Materialist ideology: materialist position on brain and mind (there are only neurons in the brain; thoughts follow the activation of neurons and can be considered as a new property of activated neurons).
Foundationalist ontology: the characteristics of Homo Economus coincide with the characteristics of normal people.

Positivist epistemology: a researcher must have enough people to study, he is to calculate the number of people among them who have the characteristics of Homo Economus, study the brain work of these people related to some economic situations, compare the data, and come to the conclusion whether Homo Economus represents the majority of people.

Methodology: a researcher is to choose the principles of study (and methods) bearing in mind that the activation of neurons causes the appearance of thoughts.

Methods: the main one is the scanning of the brain, i.e. tomography of different kinds under experimental conditions connected with the economic tasks; the additional flow of blood to certain parts of the brain shows the higher activation of these parts, so they are connected with certain thoughts and feelings.

Theory: the use of theories must not contradict the ontological position of the researcher. He may create his own theory, which will show regularity of some events and will predict the behaviour of Homo Economus.

Implication of theoretical conclusions: if there is a theory showing, explaining, and predicting the regularity of events (human behaviour as Homo Economus), then the socio-economic and political life of the society will be structured on the lines of this theory. Selfish, rational, indifferent to pricks of conscience and sympathy, Homo Economus is interested only in material things, his mind is a biological function of the brain, so the policy of the state is to take care of his body and ignore his cognitive, critical, creative and moral mental needs. If education does not bring money, it is not valuable by itself, and the state will not allocate money for it; if creative lessons at school are not connected with his future profession, which will bring money, they must be excluded from the school curriculum; if someone tries to criticize the social system or expresses moral anger at the political and economic governmental decisions based on this theory, he must be punished and sent to prison because he is divergent from Homo Economus.

Social science often tells lies but presents them as scientific facts. Here is a typical example. A researcher at the conference speaks about the necessity of differential approach to the cost of an average basket of consumer goods and services because one social group spends more money on food, clothes, cars, the second group on books, theatres and museums due to professional interests and education, and the third one on sports and entertainment due to the age, etc. It means that some social group does not need the goods and services in this average basket, but needs other things, which can be very expensive for them. The researcher presents the calculations and her conclusion. Her colleagues begin to discuss the details of the research.

However, her study misses the most important thing, i.e. the influence of social structure. The preferences of people depend on the policy of the state. In fact, the preferences of people are formed by the policy of the state. If there were no theatres in the neighbourhood, and the child never sang in the choir, and never played any musical instrument because instruments were very expensive, or...
because there were no factories to produce them, and music lessons were not included in the list of school obligatory subjects because there were no teachers to teach due to their low salary, etc., how could the child get the preference of opera and ballet theatres and philharmonic halls? Illiterate people will never understand why the educated ones enjoy reading books, and books will never be in their consumer baskets because the policy of the state does not cover the education of all people.

It is a cunning science if we take only one aspect without consideration of the whole picture. The most favorite way of putting everything upside down is to take a segment of the problem, keep silence about the whole system from which this segment was taken, or to ignore the causal influence of the structure on events we observe.

As far as social neuroscience is concerned, the mainstream position on human mind and brain is materialist at present: the activation of neurons brings about thoughts. Is it, indeed, so? Is there anybody who has proved such materialist conclusion by the observation and description of the mechanism by which the activation of neurons transfers into a thought? Haven’t we got again in the one-dimensional space without the dialectical discourse of materialist and non-materialist positions on brain and mind?

The second chapter deals with some of the most prominent mainstream and alternative hypotheses on brain and mind.
Chapter 2

Contending Hypotheses on Mind and Brain in Neuroscience

“Because it seems to me certain that it will always be quite impossible to explain the mind on the basis of neuronal action within the brain, and because it seems to me that the mind develops and matures independently throughout an individual’s life as though it were a continuing element, and because a computer (which the brain is) must be programmed and operated by an agency capable of independent understanding I am forced to choose the proposition that our being is to be explained on the basis of two fundamental elements. This to my mind, offers the greatest likelihood of leading us to the final understanding toward which so many stalwart scientists strive” (Penfield, 1975: 80).

After many years of work and experiments the neurosurgeon Wilder Penfield changed his materialist position into a dualist one because he could not ignore the clear evidence against the materialist conception of brain and mind.

And, indeed, the knowledge accumulated by parapsychologists about human psychic abilities and the near-death experience contradicts mainstream materialist neuroscience.

Scientists are always on alert when someone wants to introduce a spiritual aspect into the study of brain and mind because they associate it with religion. However, a non-materialist neuroscientist, who studies paranormal phenomena and has dualist ontology on mind and brain, is not necessarily a religious person. You can use dualist ontology, but do not belong to any religious confession and even can be an atheist. On the contrary, you can believe in God, but use a materialist approach in your research. If you are a dualist, you believe in the existence of two separate substances in a human being: biological (material/physical) and mental. You can connect mental substance (mind) with Universal Spirituality, which exists around us, or with a God belonging to some religious confession, or with the Absolute, a non-personal substitute for the concept of God, making us follow the Universal Moral Laws, or with nothing at all. What is important for science is the separation of these two substances and the recognition of the organizing force of mind in brain work. The mind does not depend on the brain but it interacts with the brain. For successful interaction, it is important to have a healthy normal brain. If the brain is damaged, the interaction is cut off, and a human becomes a mindless biological automaton.

There is another important thing to clarify before going further. If I say that I am a dualist, I deny that the human mind can be explained by physics because: the human mind is not governed by the laws of physics; it is not derived from the neuronal work of the brain; it has its own laws and properties lying outside the
physics of material world; it can be studied only indirectly via the influence it produces upon the brain and material world; the effects of such influence can be studied by physics.

The consensus exists among neuroscientists about the data of experiments concerning the structure of the brain itself (how many synapses a neuron has, what kind of neurotransmitters we have, what the role of the brain is in the nervous system, etc.), but there is a divergence in the interpretation of these data when neuroscientists start speaking about the mind and its relation to the brain. They cannot ignore the mind because their findings show that the brain work depends on our thoughts and feelings, and that there is a kind of interaction between mind and brain. Neuroscientists have to choose the ontological position on mind and brain and suitable epistemology before starting their experiments or treatment of patients. However, the majority of neuroscientists prefer to keep silence on this matter due to mainstream materialist ideology and the official position of the Academy of Sciences. And only in an oblique way, while analyzing conclusions and arguments, you can understand their position, which sometimes turns out to be a mixture of materialism, dualism and even panpsychism.

For example, Roger Sperry, who called himself an emergentist and mentalist, created the mentalist theory according to which the mind has its own mental power and forms a neuropattern in the brain, and this overall neuropattern influences the lower level of neuronal work of the brain (Sperry, 1983). This supposition shows his belief in two independent substances. Nevertheless, he declares himself to be an emergentist, but we know that the emergentist theory is epiphenomenalist and belongs to materialist ontology, i.e. neurons produce a thought, and a thought depends on physical and chemical laws governing the activation of material neurons. Hence, the mind cannot have an independent influence on neurons because it follows the activation of neurons. In fact, Sperry’s conclusion is dualist: a thought can organize the work of neurons, and logically the mind has its own independent, but not epiphenomenal life. It looks like his theory recognizes two independent and equally influential substances: material (a neuron) and mental (a thought). But trying to be within the materialist framework Sperry insists on the emergentist character of his theory which, in fact, denies his mentalist stance.

There are two wide-spread materialist theories of mind and brain (a term “physicalism” is usually used instead of “materialism” nowadays):
(1) eliminative or reductive physicalism: all mental and physical events can be explained by physical sciences and their laws. All mental events can be eventually reduced to physics and chemistry; there is no mind, there is only a brain;
(2) “new epiphenomenalism” or non-reductive physicalism: mental and physical events exist as two distinct domains, but the mental events “emerge” from the material neurons of the brain or “supervene” on neurons, i.e. without the brain there is no mind.
One can easily get mixed reading, for example, about property dualism, non-reductive physicalism and panpsychism where mind (consciousness) and brain are discussed. What is the difference between them?

**Dualism of substances** stands aside and asserts that material substance (brain) and non-material substance (consciousness) are principally different and independent substances.

**Dualism of properties** declares that all material things can have different properties: material and non-material, i.e. the brain has material neurons and non-material consciousness. Property dualism emphasizes not an independent and equal existence of material and non-material substances that can exist independently as substance dualism does, but it always describes substance as a material one having material and non-material properties.

**Non-reductive physicalism** actually resembles the dualism of properties. Non-reductive physicalism declares that all material things and physical phenomena can be explained with the help of physical laws but we cannot reduce our explanation of consciousness to physical laws, which we know. Though consciousness can arise only within the brain and depends on the material brain, we cannot explain consciousness so simply like other material things because our physical laws are of lower level, and using the terms of this level it is impossible to explain consciousness. The supporters of non-reductive physicalism are often rebuked for being, in fact, the dualists of properties.

There is also another point of view, which is popular among some neuroscientists, that is panpsychism.

**Panpsychism** asserts that all material things (animate and inanimate: people, trees, dogs, stones, etc.) have non-material consciousness of their own. Meanwhile, substance dualism and property dualism usually mean only people (and sometimes, animals) as having consciousness, so does non-reductive physicalism.

**Pantheism** like panpsychism considers all things, animate and inanimate, to have consciousness but this consciousness is part of God’s consciousness: God is in all and everywhere. In panpsychism all material things, animate and inanimate, have their own soul or consciousness and it is not part of God’s consciousness.

Panpsychism is logically more convenient for science in the explanation of genesis of consciousness.

There is also a quite different ontological position called “functionalism”, which is indifferent to the problem of mind and brain.

**Functionalism** became quickly popular and was thought as the ontology of a new type because it asserts that for the understanding of consciousness it is not necessary to understand what its nature is and how consciousness arises. If a computer performs operations similar to a human brain, then a computer has consciousness. Of course, the critics of this approach, for example Searle, are against such simplified understanding. Searle gives his famous example with a Chinese room, “Imagine that you carry out the steps in a program for answering questions in a language you do not understand. I do not understand Chinese, so I imagine that I am locked in a room with a lot of boxes of Chinese symbols (the
database), I get small bunches of Chinese symbols passed to me (questions in Chinese), and I look up in a rule book (the program) what I am supposed to do. I perform certain operations on the symbols (answers to the questions) to those outside the room. I am the computer implementing a program for answering questions in Chinese, but all the same I do not understand a word in Chinese” (Searle, 1998: 11).

On the other hand, Searle declares that consciousness is a characteristic of the brain and “consciousness is a natural, biological phenomenon. It is as much a part of our biological life as digestion, growth, or photosynthesis” (Searle, 1998: xiii). He concludes that if the brain is a biological thing, then the mind must be also biological, i.e. the mind is a physical property, but on the other hand, as a non-reductive physicalist and emergentist, he insists that consciousness is different from material things, and that it is a mental property of the brain. In other words, the logic of his conclusion is the following: consciousness is a mental property but it is the result of brain work, therefore, consciousness is a physical (biological) property because the brain is physical. This conclusion seems strange. Mental properties do not turn into physical ones just because they are connected with the brain.

Similarly, we can find the reference to biology in the statements by the neuroscientist Fransis Crick, a reductive physicalist (materialist), who proposed the hypothesis that our joys, sorrows, memories, the sense of personal identity and free will are factually the workings of a huge number of neurons and other molecules. He seems to deny that it is a human who decides what to do, and asserts that neurons decide themselves. It is a typical reductive materialist position in neuroscience. Szasz warns us that it is not a harmless thing if a human passes the possibility of exercising free will to his anterior cingulated cortex of the brain, because the concept of responsibility will be destroyed in this case. The concept of responsibility is based on the free will of a human himself but not on the work of his anterior cingulated cortex (Szasz, 1996).

Damasio, a neuroscientist and a reductive physicalist, puts an end to the evasive talks on brain and mind and says plainly that if you think that it is not your brain that decides but you, you are not a materialist, because it is only your brain, which you have, and it produces mind (Damasio, 2006).

Speaking about criminal justice the reductive materialist and biologist Richard Dawkins compares the heads of criminals with malfunctioning computers saying that when a computer malfunctions, we do not punish it but we track down the problem and fix it by replacing a damaged component. The non-materialist neuroscientist Beauregard comments ironically that Dawkins speaks about “we” who will fix and about a criminal as “it” which will be fixed by us (Beauregard, O’Leary, 2007).

So we can foresee that such a position in neuroscience will lead to the situation when the power elite will consider itself to have the right to “fix” those who disagree with the power on the ground that their brains malfunction and cannot fit the existing political and economic system.
Beauregard, a dualist, points out that if free will is an illusion and there is only good or bad neurophysiology of the brain, the idea of evil and good disappears. We are left only with our desires and dislikes. If citizens have no free will, no soul, no moral understanding, and mind is an illusion, and consciousness is a biological property of a brain, the government can logically dehumanize citizens and deal with them as a farmer deals with livestock “without assuming that they have moral understanding and a higher purpose than that one determined by the farmer” (Beauregard, O’Leary, 2007: 118). Mario Beauregard is also sure that the brain is “an organ suitable for connecting a mind to the rest of the universe”, and by analogy, “Olympic swimming events require an Olympic class swimming pool. But the pool does not create the Olympic events; it makes them feasible at a given location” (Beauregard, O’Leary, 2007: xi). He accuses materialist science of playing the role of ideology: anything that contradicts materialist ideology is denied as non-existent. Such materialist science distorts the description of reality.

We see that the divergence of opinions among neuroscientists is great. Fransis Crick (Nobel laureate) and Antonio Damasio are reductive physicalists; Rodger Sperry (Nobel laureate) is a non-reductive physicalist; John Eccles (Nobel laureate), Wilder Penfield, Mario Beauregard, and Charles Sherrington (Nobel laureate) are dualists; Pim van Lommel is a panpsychist.

The nature of consciousness has been discussed for centuries. Perhaps, the greatest contributor to the brain-mind problem was the famous French philosopher René Descartes (1596-1650), who said, “Cogito ergo sum” (“I think, therefore I am”) and who proposed substance dualism according to which there are two independent separate substances – mental and material. If an object is destroyed and disappears, and our physical organs of sense perception cannot be used, i.e. we cannot see or touch the object, we continue to have it in our minds. It still exists in our minds though it does not exist in a physical world. The mental substance (thoughts and feelings; a soul) can exist independently of the automatically functioning physical body (Descartes’ automaton). A human body has material properties but mind does not. Descartes thought that the pineal gland of the brain was the place where the mental substance communicated with the body.

*The dualists are usually accused of:* (1) admitting the existence of two independent substances, which requires the explanation how they can interact; (2) being inconsistent, i.e. material substance (human organism) is explained by cause and effect relationship (material relationship), but, on the other hand, dualists explain physical changes of a material thing (brain) caused by mental substance (thoughts) (material and non-material relationship); (3) classifying feelings and thoughts as mental substance, though the nature of feelings is different from the nature of purely cognitive abilities (thoughts); (4) ignoring the fact that dualism contradicts the scientific thesis of continuity and consistency in nature, because dualism declares that there are two substances, so it means that a human being has two

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beings; (5) dualism as an outlook does not match a scientific way of explaining things because it has religious and mystical connotation.

**Objections:** (1) neither dualists nor materialists can describe the mechanism of interaction between thought and neuron (dualists’ failure), or how a thought appears in the process of the activation of a neuron (materialists’ failure); (2) dualism simply confirms what exists in reality, i.e. cause and effect relationship of dual kind because of the complexity of a system. A human body is a biological automaton when no reflection is demanded (material relationship), for example, blood flow and the work of a heart. The neurosurgeon Penfield describes the phenomenon of automatism (an act performed unconsciously) during epileptic seizures, when a human can move (walk, drive a car) as usual, but he is not aware of his moving (walking, driving a car) because his consciousness is switched off (Penfield, 1975). It reminds us Descartes’ automaton. On the other hand, cognition and creation demand a high level of consciousness and reflection, which allows mental causation (material and non-material relationship), for example the treatment of physiological and mental diseases with the help of a patient’s imagination; (3) cognition and feelings are different things, but they can never be separated as the materialist neuroscientist Damasio demonstrates us because emotions and feelings are present in all cognitive decisions, and there cannot be a successful cognitive process of decision making without an emotional component. Moreover, even the body participates in cognitive processes according to Damasio: the memory of unpleasant emotions and neurochemistry caused by the previous wrong decision helps to avoid bad decisions in the future (Damasio, 2006); (4) apart from a biological material brain, which does not even feel any pain while being cut by a surgeon and the content of consciousness when we think about something, there is also an awareness of the content of our consciousness, i.e. the registration of what we are thinking about, and whether it is high time to go to the doctor and treat our brain if it does not work properly. Who diagnoses the problem of the ill brain in this case? Logically, it cannot be the brain itself, it must be an independent mental substance analyzing the work of the brain (until the brain is severely damaged and the awareness is lost, because the connection itself between two substances is lost); (5) the recognition of two substances (material and non-material) is not necessarily connected with any religion: one can be an atheist and dualist at the same time. However, if science (sciences study the real world) does not include the fact that the non-material mind changes the work of the material brain as brain scanning shows, then such science has been transformed into ideology. Ideology typically creates a distorted picture of reality in accordance with its aims.

The materialists claim that: (1) thoughts and feelings are neurobiological phenomena of firing synapses in the brain; (2) there is only the work of the brain. Soul, spirit, free will, will power, and mind controlling the matter are illusions resulted from the electrical charges in the neurons of the brain. Psi-phenomena do not exist; (3) the purpose and meaning of a human life is creating adaptive
biological mechanisms for survival (the philosopher of mind Daniel Dennett, the biologist Richard Dawkins, the neuroscientist Francis Crick, and many other materialists); (4) the brain is organized by the genome, and the genome was shaped by natural selection. The human being is one of biological species like other animals and shares 95-99% of his DNA with a chimpanzee.

**Objections:** (1) materialist neuroscientists have not found the mechanism of the transformation of neuron firing into a thought and cannot give a scientific description of it. Thus, all their assertions are invalid; (2) placebo effect, near-death experience (NDE), telepathy, mental healing, and art therapy show that thoughts change neurophysiological and neurochemical characteristics of the brain and then the work of the whole organism. Jeffrey Schwartz, a non-materialist neuropsychiatrist, treats obsessive-compulsive disorder (intrusive and unwanted thoughts) by giving his patients mental tasks for shifting their thoughts to another area. And then, brain scannings show the changes in their physical brain (Schwartz, 1999; Schwartz, Begley, 2002). First goes the thought, which activates neurons, and then the changes in the brain. Beauregard, a non-materialist neuroscientist, also treats his patients suffering from phobias by reorganizing their thoughts, which change the brain work (Beauregard, O’Leary, 2007). He demonstrates with the help of brain imaging techniques that women can voluntarily control their level of response to sad thoughts, and men are able to control the response to erotic films at free will. Placebo effect has been used for centuries. With the help of art therapy and guided imagery, patients can be cured even of cancer (Findlay, 2008). The studies of NDE demonstrate that people can perceive the world without firing synapses and without organs of sense perception (brain does not work and heart stops functioning) (Lommel, 2010; Atwater, 2007; Holden, Greyson, James, 2009; Moody, 2005; Beauregard, O’Leary, 2007). Even one of such cases can question the materialist explanatory model of a human being due to its complete inadequacy; (3) if compared with a chimpanzee or other animals, biological adaptation and biological survival do not demand from a human to have intellectual life in the fields of abstract thought – literature, philosophy, art, music, science – accumulated for thousands of years. If people do it, and materialists cannot answer why, a logical conclusion is that materialists have the wrong understanding of the human nature; (4) though a human shares 95-99% of his DNA with a chimpanzee, it does not make him 95-99% of a chimpanzee (Beauregard, O’Leary, 2007). A chimpanzee does not have abstract thinking necessary for sharing the intellectual life with us. Perhaps, the question is not in the biological DNA, which is important for our material substance, but *in the difference of non-material (spiritual, mental) substances* as Beauregard suggests (Beauregard, O’Leary, 2007).

If the nature of a human being is wrongly described (similar to a chimpanzee’s), you can never understand why people create the works of art and *what should be done for the right organization of their social, economic, and political life in the society*. Whatever elaborate technologies and super modern technical devices or a new branch of physical science, for example quantum physics, you might use, you
will never answer the above-mentioned questions concerning the human mind within the materialist framework, “If we are barking up the wrong tree then we shall not find what we are looking for no matter what kind of ladders we use” (Beloff, 1990a).

Materialist neuroscientists do no give up and put forward an improved model of brain and mind within non-reductive physicalism. Non-reductive physicalism has the category of emergence (emergence of a new property of the brain, which is our mind; this property cannot be reduced to terms and concepts of a physical brain and explained by physics at present) and the category of supervenience (a thought appears thanks to firing synapses of neurons, but the appearance of a thought depends not only on firing synapses but also on many other factors; a thought supervenes on them).

The supervenience doctrine shows that the activation of neurons in the brain, i.e. in the neurophysiological field (property G in the field A) is followed by a thought in the psychic field (property F in the field B) only under certain circumstances (C) (X and D belong to circumstances C) (Fig. 1).

The supervenience doctrine shows that the activation of neurons in the brain, i.e. in the neurophysiological field (property G in the field A) is followed by a thought in the psychic field (property F in the field B) only under certain circumstances (C) (X and D belong to circumstances C) (Fig. 1).

The property G is in the field A. The property F is in the field B. D is connected with the property G in the field A and belongs to the conditions C (“conditions” – a dotted line). Here, in the figure, it is supposed that D is already present in C. If X is present and interacts with the property G in the field A, certain conditions C are formed (necessary conditions include both D and X), and then G will be followed by the property F in the field B. In this case, they say that the property F in the field B supervenes on the property G in the field A, if there are all necessary conditions C. For example, G is a neuron and F is a thought.

The rain X (instead of rain there can be cultural habits or social factors in decision making) brings about the activation of neurons G, reminding an unpleasant feeling of being wet when you came out without an umbrella, and then a thought F arises: “I should take an umbrella”. This thought supervenes on the rain and memory of being wet when you came out without an umbrella. There are necessary conditions C for the appearance of thought F, which follows the neuropattern G connected
with the previous experience, for example rain $X$. The thought follows the activation of neurons. In other words, a certain neuropattern $G$ was formed when I got wet without an umbrella, and now, every time when I see rain $X$, my neuropattern $G$ is activated by rain $X$. Rain creates the conditions $C$ for the supervenient thought $F$ about the necessity of taking an umbrella. Such scheme of interrelations reflects both dependence (a thought depends on the activation of neurons) and irreducibility (a thought is not reduced to the level of a physical neuron: a thought is from the other field $B$) and gives the possibility of taking into account the influence of culture or other circumstances upon the appearance of the thought.

The non-reductive physicalist Nancey Murphy (she has put forward a supervenience hypothesis) does not approve Sperry’s idea (a non-reductive physicalist and mentalist) that the emergent property of brain (a thought) is powerful agency. Sperry’s main idea is that a new emergent mental property governs the central nervous system, i.e. consciousness becomes a powerful force, which emerges from neuronal organization and then controls it. Murphy denies the causal effect of supervenient thoughts (Murphy, 2009). Murphy suggests a new understanding of causality: a “triggering cause”, which causes direct physical consequences and a “structuring cause”, which directs or structures physical processes (Murphy, 1999). Electric impulses go along neurons according to the physical laws of ions (triggering cause), but these impulses depend on the structuring cause, i.e. the number of participating neurons, the quantity of neurotransmitters, the strength of the impulse, thus, creating necessary conditions $C$ for the transformation of the impulse into a thought. She thinks that the mental process follows certain neuropatterns of neuronal activation, and that the mental process does not have independent force as Sperry asserts.

James Jones, a psychoneuroimmunologist and dualist, remarks that in the example with the rain, Murphy as though tries to defend mental causation but, in fact, she denies it because she does not consider it as a real cause for actions (Jones, 2005). The thought about taking an umbrella is connected with the previous experience, therefore it is the example of learning. But how does a thought make us do new things without our previous experience? How can our mind control or treat the neurophysiology of the brain if we have decided to reprogramme it with new thoughts at free will?

The critical remarks on non-reductive physicalism (emergent and supervenient hypotheses) can be summarized as follows:

1. Non-reductive physicalism resembles property dualism because irreducibility, in fact, means the recognition of dualist conception in the form of dualism of properties. If consciousness cannot be described by using the terminology and the measurements of physics, as we do for the description of material objects, then consciousness, in principle, something quite different from material substance. Non-reductive physicalism seems to operate with two substances: material and non-material;
2. There is a faulty logic in non-reductive physicalism. Materialist scientists struggle to preserve the principle of continuity in nature asserting that there is only one ultimate reality and it is the physical world, but they also say that mind is another domain which physics cannot explain. If the supporters of non-reductive physicalism have a monist materialist conception of the world, then all phenomena, including thoughts, must be considered as material by them. They cannot be monist materialists and speak at the same time about irreducibility of the mental to the material (physical);

3. There is a certain irrationality of the conclusions in non-reductive physicalism: the mental cannot suddenly arise from absolutely non-mental stuff (a thought from a biological neuron). It is irrational thinking. The emergent property must have something in common with the properties from which it appears, for example to have atomic or subatomic common elements. A thought must have something in common with a neuron so that it might appear out of it and could be called an emergent property of a neuron. But a thought and a neuron have no common structural components, have quite different nature, cannot be described in the same categories and terms of physics;

4. We know that no scientific theory can claim to be a complete theory, which explains the world correctly. It also concerns the monistic materialists’ explanation of the human being;

5. Scientific assertions are socially created, and the interpretation of the observable facts depends on theoretical framework, which can be, in its turn, under the influence of general ideology;

6. It is impossible, in principle, to use materialist philosophy, on which non-reductive physicalism is based, for the explanation of the awareness of your own content of consciousness. It leads automatically to dualism. We have as though two consciousnesses: the first one is what I think about, and the second one is that I know what I think about and control my thoughts. It is impossible to create a brain map of neurophysiological activity for the second one, i.e. the awareness of the content of consciousness. Such awareness of your own consciousness is outside the field of biological organization of systems (Jones, 2005);

7. There are not enough experimental data to come to the conclusion that the mind can be explained within the materialist framework;

8. Physicalism, both reductive and non-reductive, creates a paradoxical situation. According to physicalists mind is epiphenomenal: first goes the activation of neurons, and then a thought. Thus, it means that it is our brain that studies the brain, in other words, neural cells themselves study neural cells.

James Jones, practicing and teaching in the area of psychoneuroimmunology for many years, considers that non-reductive physicalists’ account of consciousness as an emergent or supervenient property is not adequate to the data of psychoneuroimmunology (Jones, 2005). He notes that clinical hypnosis is very effective in treating anxiety, chronic pain, stress-related disorders. He makes his patient imagine that they are warming their hands over fire, and it increases the blood flow to their hands, and blood vessels dilate, which helps to relieve vascular...
headaches. It is possible to remove warts by making a patient believe that they have disappeared. A patient just imagines what is said by the doctor, it is purely a mental act (image) on the patient’s part, but physiological changes happen. Jones speaks about human capacity to control one’s brain waves by shifting brain wave pattern via biofeedback without hypnosis at one’s own will, and to control a heart rate, skin conductance, musculoskeletal tension as well. Meditation can produce an impact on such basic physiological functions as brain hemispheric lateralization, immune system, and basic reflexes (Jones, 2005).

The mental level is considered by non-reductive physicalists as springing out of a lower neural level and dependent on it. Some of them think that the emergent higher mental level begins to influence the work of a lower level like in all similar processes in other spheres: the higher level cannot exist without a lower one but after appearing, it acquires its own properties and starts producing influence upon the lower one. Jones remarks that such influence is possible only to a certain degree because the macrosystem cannot change the elements of the microsystem on which it is based and from which it originates (Jones, 2005). However, with the brain and mind the story is a bit different. Mind (thoughts) can change the quantity of dendrites and protrusions from the branching end of an axon and along it, can strengthen the synapses, force the production of protein for neurons, can change the amount of neurotransmitters in synapses and the neuropaths of activation, can shift neurochemical balance in the brain and the production of hormones in the organism, and can worsen, or improve the work of endocrine and immune systems of the organism. The mind not only influences the work of the brain, but changes the elements of the microsystem.

James Jones critically analyzes non-reductive physicalism and points out that in order to be logical non-reductive physicalists have either to weaken their non-reductive position, which will make them undistinguishable from reductive physicalists, and which will contradict the clinical evidence, or to strengthen their non-reductive position about mental causation as a force on its own, but in this case, they will violate the physicalists’ doctrine of the closure of the system of nature, which demands all the events to be explained on the basis of physical sciences (Jones, 2005).

Wilder Penfield (1891-1976), a neurosurgeon and a dualist, says that the fact that human consciousness can study its own brain and the content of consciousness contradicts, in principle, the logic of all material world. As soon as we start studying our own biological organism and get aware of the content of our own consciousness, we stop being biological species like other animals.

Penfield operated and treated epileptic patients. While operating or examining the altered portions of brain in which the epilepsy-producing discharge began after electrical stimulation, he preferred to speak with his patients and ask what they felt or thought when he touched the brain. The patients preserved the consciousness throughout the procedure and helped to identify the altered portion of the brain. The brain itself is not sensitive and cannot give rise to pain. Penfield used only
local analgesic injected into the scalp before making the incision (Penfield, 1975). Penfield comes to the conclusion that in the brain there is the place of the highest integration of consciousness and body, and this place is not in neocortex, as all think, but in the upper part of the brain stem - diencephalon. He actually discovered two brain mechanisms in the diencephalon: (1) the highest brain-mind mechanism, which is essential to the existence of consciousness, and (2) the automatic sensory-motor mechanism (a “computer”), which is essential to the sensory-motor coordination. It is important in what place an epileptic discharge occurs and where it goes. “When an epileptic discharge occurs in the central cortex in any of the sensory or motor areas, and if it spreads by bombardment to the higher brain-stem, the result is invariably a major convulsive attack, never, in our experience, an attack of automatism. On the other hand, as mentioned above, a local discharge in prefrontal or temporal cortex may develop into automatism” (Penfield, 1975: 40). In other words, if the first mechanism in the diencephalon (the highest brain-mind mechanism) is damaged by epileptic discharge coming from the prefrontal, or temporal cortex, the human automation replaces conscious behaviour, and the man is incapable of admiring the beauty of nature, experiencing happiness, love and compassion because “the automation is a thing that makes use of the reflexes and the skills, inborn and acquired, that are housed in the computer”) (Penfield, 1975: 47). The person may wander about aimlessly, go home, or drive a car, but he has a complete amnesia what he has been doing. Penfield’s description of human mindless automation sounds like Descartes’ automaton, i.e. a human body without a spiritual/mental substance.

Penfield describes an interesting episode from his practice. His patient suffered from epileptic attacks, and the discovered area was very close to the major speech area. In order to avoid a mistake during the forthcoming operation, which could

Fig. 2. The main parts of the adult brain.

In the figure (the right hemisphere of the brain from the inside; the forehead is on the left) there is the forebrain consisting of (1) neocortex, (2) diencephalon, (3) midbrain; and the hindbrain, consisting of (4) pons, (5) medulla oblongata, (6) cerebellum.
cause permanent aphasia, Penfield tried to find the exact speech area and touched the brain with a stimulating electrode. The brain is not sensitive, and the patient did not realize what made him speechless (the electrode had touched the special spot and thus had blocked the speech ability). The patient was shown a picture of a butterfly and was asked to give the name of it. The patient could not. “Then he snapped his fingers as though in exasperation. I withdrew the electrode and he spoke at once” (Penfield, 1975: 52). The patient said, “Butterfly”, and added that he could not get that word “butterfly”, so he had tried to substitute it with the word “moth”, but failed. The patient could not speak, but he understood what was in the picture, i.e. a non-verbal concept of a “butterfly”. He did not understand why he could not pronounce “butterfly” and turned to another similar non-verbal concept “moth” at his will, and his mind approved the choice, but he could not pronounce a new word again because the speech area was still blocked. The patient called on two brain-mechanisms alternately and at will (Penfield, 1975: 52).

A lot is done automatically and with the help of reflexes by the man, but what the mind does cannot be explained by any neuronal work and neuronal mechanisms as Penfield concludes. He supposes that the mind has its own energy, and this energy differs from the energy of neurons. The mind directs the brain, and the highest brain-mind mechanism performs the role of a messenger, connecting mind with brain (Penfield, 1975).

Penfield gives another example of his patient from South Africa. When the patient understood what was going on (the touch of the electrode had caused an unexpected reaction), he exclaimed in amazement that for him “it was astonishing to realize that he was laughing with his cousins on a farm in South Africa, while he was also fully conscious of being in the operating room in Montreal”. The mind of the patient was independent from the reflex action (the touch of the electrode and laughter). He was fully conscious that he was in the operating room and wondered why he remembered the farm in South Africa and laughed (Penfield, 1975: 55).

When Penfield made another patient move his hand because he touched a certain place in the motor area of the cortex by an electrode, the patient said that it was not him who moved the hand but it was the doctor, who forced him to do it. Penfield arrives at the conclusion that it is impossible to find any place in the brain where electrical stimulation makes the man believe that he did the action at his own will or find the place the touch of which makes the man take decisions (Penfield, 1975: 76).

In the end, Penfield had to admit the existence of two independent and interacting substances, “For my own part, after years of striving to explain the mind on the basis of brain-action alone, I have come to the conclusion that it is simpler (and far easier to be logical) if one adopts the hypothesis that our being does consist of two fundamental elements” (Penfield, 1975: 80).
The sociologist of science Mulkay says that when the analytical framework alters, so does the meaning of observation and the statements that were formulated within the previous analytical framework (Mulkay, 1983). Rodger Sperry (Nobel laureate in neuroscience) writes that in the 1950s-1960s in materialist science it was banned to use consciousness or mentality to explain phenomena because consciousness and mentality were considered to be a subjective domain, which did not yield objective facts for sciences. And only in the 1970s, it became possible to speak about the mind as a cause of physical changes in the brain (Sperry, 1983). The mental process began to be considered as a force capable of regulating biochemical and biophysical processes.

Thus, we can arrive at the conclusion that factual claims of science are dependent on theory and not permanent in meaning.

Sperry remarks that if science before the 1970s was dehumanized because it disregarded human values, now it becomes possible to reunite the theory of human values with other sciences (Sperry, 1983).

Sperry considers that the reason of ignoring mental force in favour of a human brain lies in the social system and its ideology. However, the causal force of idea is as real as the force of a molecule, cell or neural impulse. One idea interacts with another idea, and one person passes his ideas to other people, and these ideas bring objective changes to the physical world. Sperry declares that the study of mental force is the most important matter in science though it is not as accessible as we want and that to dismiss mental force in a scientific theory of brain and mind means an unscientific approach to the problem. He complains that materialism has penetrated all spheres of our life distorting reality, and the majority of scientists, about 99.9%, even dualists, continue to ignore the mental force and the influence of consciousness upon the brain (Sperry, 1983: 30). It is our mind which is in “the driver’s seat” pushing and pulling biophysical and biochemical processes in the brain. Though the more primitive electrical, atomic, molecular, cellular, and physiological forces can be switched on or off, they are necessary for normal functioning of a higher level – mental processes (Sperry, 1983). Sperry considers that mind activates brain matter as much as the organism makes its components (organs, cells) function.

Here are some interesting examples, which question materialist conception on mind and brain.

The British neurologist, professor John Lorber studied the cases of hydrocephalus and gives the example of a student of the University who had IQ 126, higher than the middle level and socially was quite normal, he even was awarded a degree in mathematics with the best mark, but this student, nevertheless, hardly had brain at all. Lorber recalls, “We saw that instead of the normal 4.5-centimeter thickness of brain tissue between the ventricles and the cortical surface, there was just a thin layer of mantle measuring a millimeter or so. His cranium is filled mainly with cerebrospinal fluid” (Lewin, 1980: 1232). Thus, the question arises: Is the brain so important for the mind at all?
The cardiologist Pim van Lommel writes about the case that happened with a nurse at the coronary care unit where he worked. The ambulance brought in a cyanotic, comatose man of 44. The man received “artificial respiration with a balloon and a mask as well as heart massage and defibrillation” (Lommel, 2010: 20). Then, before intubating the patient, the nurse removed the upper set of dentures and put it on the crash cart, and they continued extensive resuscitation. Ninety minutes later the patient had a sufficient heart rhythm and blood pressure, but he was still ventilated and intubated. He remained comatose. In this state he was transferred to the intensive care unit for further treatment. A week later, that nurse came into the ward to distribute the medication to the patients, and she suddenly heard the voice of that patient. He recognized her at once and asked her to give him back his denture. He said, “Yes, you were there when they brought me into the hospital, and you took the dentures out of my mouth and put them on that cart; it had all these bottles on it, and there was a sliding drawer underneath, and you put my teeth there” (Lommel, 2010: 21). The patient turned out to have seen his body from above and to have been watching nurses and doctors resuscitating him while lying on the bed in a comatose state. He said he had been afraid that they would stop resuscitating him, and he had made several unsuccessful attempts to tell them that he had been alive.

The NDE (near-death experience) of Pamela Reynolds was described in many books. She had a giant aneurysm in one of her cerebral arteries near the brain stem. Reynolds was operated by the neurosurgeon Dr. Robert Spetzler at the Barrow Neurological Institute in Arizona, who lowered the temperature of her body to 50 degrees Fahrenheit. She was on a heart-lung machine because she had cardiac arrest, and all her blood was drained from her head to prevent the burst of aneurysm and cerebral hemorrhage. She had her NDE during brain surgery. And what is important for science is that the activity of her brain stem and cerebral cortex were constantly monitored, and the loss of brain function during her NDE was documented: her electroencephalogram was silent, her brain stem response was absent, and blood did not flow through her brain. However, Pamela had a full capacity of consciousness and the sense perception without the functioning organs of sense perception due to the loss of brain function at all. After the operation, she described in detail what had been going on in the operating room. She heard sounds and had a brighter and more focused vision than normal; she was surprised at some actions of the doctors and their instruments. She thought in her NDE that she had not expected them to do what they did during the operation, she heard what nurses and doctors talked about. She got into the tunnel and went to the light. Then she met her grandmother who called her and had a clearer hearing than usual. She saw figures of light, and she recognized some of her diseased friends and relatives. It was soul-to-soul communication without putting thoughts into words. The more she was there, the more she wanted to stay in this light. But her uncle (he and her grandmother had died by that time) brought her back to the body. She said that her coming back into the body was like diving into a pool of ice water (indeed,
her frozen body was very cold at that moment) (Lommel, 2010; Atwater, 2007; Holden, 2009).
Janice Miner Holden calls such a phenomenon of sense perception during the NDE, as Pamela had, “apparently nonphysical veridical NDE perception” (Holden, 2009: 186). She analyzes the cases of nonphysical veridical NDE perception and comes to the conclusion that 91.9% of the stories of such perception turned out to be true after verification, 6.3% with mistakes and 1.8% were not true.
Atwater describes the changes, which usually occur after the NDE. The changes concern both psychology and physiology. The value system and the attitude to life change (Atwater, 2007). The NDErs cannot forget the flow of light during the NDE with the strong feeling of all-encompassing sympathetic energy full of understanding and unconditional love. Communication during the NDE is telepathic, and the knowledge comes in bunches as soon as they think about something that they want to know.
Holden, Greyson and James report that between 1975-2005 approximately 55 researchers and research groups in North America, Europe, Australia, and Asia published at least 65 studies involving 3,500 people, who had NDEs. The researchers described different types of NDE, the life of people after their NDE, or both (Holden, Greyson, James, 2009: 7).
Holden draws a conclusion that nonphysical NDE perception exists because objective reality of their experience was confirmed. Thus, consciousness (perception, thoughts, memory, feelings, emotions) can function outside the physical body during the reversible death. It follows logically that consciousness is potentially capable of continuing after the irreversible physical death. The most important thing worth of our close attention is the message brought us by NDErs regarding the meaning and purpose of human existence. The NDErs assert that “developing the capacity of love and acquiring knowledge are both the purposes and the most appropriate pursuits of human existence” (Holden, 2009: 188).
Holden thinks that such understanding of life, the purpose of life and consciousness can promote the commitment to more humane personal choices and humanitarian public policy, and that the results of the studies of near-death experience (NDE) will benefit experiencers themselves, humanity, and earthly existence at large. The results of studies will revolutionize human understanding of humanity and will have far-reaching implications for our life (Holden, 2009).
Do we, indeed, need the accumulation of money, career competition, social status, if the purpose of life is the development of love and knowledge? Does our social, political, and economic system match such a purpose of the humanity, which the NDErs revealed?

There are different physiological and psychological theories trying to explain the phenomenon of the NDE and among them: oxygen deficiency in the brain when the brain stops functioning; carbon dioxide overload; chemical reaction in the brain when ketamine produces hallucinations; endorphins release under the stress, which makes the man feel peace and well-being; psychodelics causing some unusual effect; the release of DMT (dimethyltryptamine), a psychoactive natural substance
produced in the pineal glad of the brain and giving a sense of out-of-body experience, lucid and accelerated thoughts, a sense of unconditional love; electrical activity similar to epileptic seizure originating in the temporal lobe, which can create mystical feelings, visual hallucinations, a sense of detachment from the body; electrical stimulation sometimes causing the vision of light, dreamlike experience, memory from the past; psychological fear of death; other psychological problems (depersonalization, dissociation), fantasies and delusion (after medication) bringing about the components of the NDE.

However, summing up the discussion and arguments for and against these hypotheses, both Lommel and Atwater (Lommel, 2010; Atwater, 2007) remark that there are some serious reasons to refuse from these materialist hypotheses trying to explain the NDE because:

1. not all people who had a clinical death had also such an experience (seeing a tunnel, light, dead relatives, sometimes dead pets; having an out-of-body experience and watching the doctors and nurses in the room; feeling love, sympathy and understanding coming from the divine light; having an easy acquisition of knowledge, a panoramic view of their life, and at the same time feeling what the other people felt dealing with them);
2. it is not necessarily to be clinically dead to have such an experience; one can have it with a functioning brain and a heart beating normally;
3. NDErs do not have hallucinations (hallucination means seeing an unreal event), they speak about the true events, which can be verified and confirmed;
4. the values and the purpose of life become different after the experience;
5. NDErs have also some long-lasting psychological and physiological changes after the experience;
6. none of experiments with psychodelics, medication, carbon dioxide overload, electrical stimulation, etc., gives such an experience as NDErs have. The NDE cannot be brought about by medication. On the contrary, medication prevents patients from having such an experience.

In the clinical practice, the treatment of physiological diseases of the body and brain by our mind gives unbelievable results. Brain scanning shows that “expectancies of sensory stimulation or internal imagery seem to share the same brain circuits as sensory stimulation or external images” (Findlay, 2008: 212). Art therapy uses images on the paper as a recording of the internal state of a patient with which it is possible for a doctor to work: to direct the internal imagery towards convalescence by manipulating with images on the paper, paints and symbolic representation of the patient’s problem, and by showing him healthy processes to copy. The image on the paper made by a patient influences the work of the brain, and thus, the whole organism. It regulates emotions and affects the activated hypothalamus-pituitary-adrenal (HPA) axis stress response, and, therefore, art therapy can help to restore the immune system. If the HPA is damaged by a prolonged stress, its chronic activation produces a strong negative effect on the immune system: the thymus gland shrinks (thymus, bone marrow,
spleen and lymph nodes are the main organs of the immune system) because the formation of new lymphocytes that constitute the thymic tissue reduces. The reduced immune activity allows cancer cells to multiply and divide without fighting with the immune system.

Findlay reports, “Visualization training for participants with diseases that depress the immune system showed increases in neutrophils (WBCs) over a 90-day period in 20 patients with cancer, AIDS (acquired immune deficiency syndrome) and viral infections” (Findlay, 2008: 213). The training included 30-minutes of audio training with verbal suggestions, relaxation, and visualization instructions. Participants were instructed how to create self-healing mental images matching their disease. Visualization and meditation help to get significant improvement in treating dermatomyositis and immune microvasculopathy disorder.

Findlay describes the case of a 38-year-old patient, called Jim, who had thyroid cancer (the tumor of 12mm by 5mm by 5mm). Jim decided to use imagery as part of his holistic treatment (imagery, traditional psychotherapy, recommendations of a Chinese herbal doctor, raw food diet, physical exercises, relaxation, and breathing techniques) instead of the removal of his thyroid and a lifetime of chemically regulated endocrine treatment. He came to the art therapy room every week for the eight-month period. With the help of relaxation technique Jim discovered the self-healing images (that was sunlight and healing light for Jim). The sunlight and healing light became his core images first on the paper and then in clay. He chose coloured clay and “the kinesthetic action of rolling out dots and twisting tendrils of light in colored clay became an almost ritualized practice in each session” (Findlay, 2008: 217). At one session, he made a small life-size pink ball of his tumour. Jim used green and yellow clay for showing how the light was eating up the pink ball. Jim became very emotional because he visualized, created, and experienced the annihilation of his tumour. The art therapist showed him biological images of the working of his killer cells and macrophages of the immune system, and Jim became even more emotional because of the accuracy of his spontaneous images. Three months after his holistic treatment and sessions, his tumour reduced by 28%, and six months later by 60%, and a bit later, when he visited his regular doctor, who had originally diagnosed him, the doctor did not find any remnant of the cancer.

Art therapy helps to treat complex post-traumatic stress disorder (C-PTSD) (King-West, Hass-Cohen, 2008) and Alzheimer’s disease (Galbraith, Subrin, Ross, 2008). The mental force of imagery regulates the work of our biological body and brain.

Meditation is especially helpful in controlling our neurochemistry and very effective in treating mood disorders and depression. Yoga-nidra increases dopamine in the brain by 65%. Dopamine stimulates positive thoughts, pleasurable experience, increases the sense of well-being and sensory imagery (Newberg, Waldman, 2009: 55). The level of serotonin changes during such types of meditation as mindfulness, vipassana, insight, and transcendental meditation. The release of serotonin enhances visual imagery and sensory experience. Yoga that
involves breathing and stretching shows an increase of gamma-aminobutyric acid (GABA) in the brain by 27%, which helps to treat depression and anxiety (Newberg, Waldman, 56). Yoga can decrease migraine headaches, a risk of cardiovascular disease. It can even reduce the symptoms of schizophrenia (Newberg, Waldman, 2009: 161).

“Visualization, guided imagery, and self-hypnosis are specific variations of meditation and are effective in maintaining a healthy brain” (Newberg, Waldman, 2009: 160).

The neuroscientists Newberg and Waldman carried out an experiment to see how meditation affects the brain. They used Kirtan Kriya tradition, which included breathing, sounds, and movements (conscious regulation of one’s breath and movements of the fingers together with the pronunciation of sounds).

The participants practiced it only 12 minutes a day during 8 weeks. They were promised that such practice would improve their brain work. One of them, Gus, wanted to improve memory and attention. After 8 weeks, Gus improved his results by 50% in the tests, others by 20%. If before training, it took Gus 107 seconds to do the task, after training for 8 weeks it took him only 68 seconds. The scanning of the brain showed a significant increase of neural activity in the prefrontal cortex (clearer thinking and focused attention upon the task), anterior cingulate cortex (better emotional regulation, error detection, learning and memory), basal ganglia (better control of body movements and emotions), and thalamus (better sensory perception) (Newberg, Waldman, 2009: 28-29).

It means that without medication and less than for two months the work of neurons was changed due to the property of neuroplasticity of the brain and the practice of meditation.

Functional magnetic resonance imaging (fMRI) and positron emission tomography (PET) of the brain reveal permanent changes in distributing activity in certain parts of the brain as a result of cognitive therapy and placebo effect in the treatment of depression (Lommel, 2010). In other words, the thought of having the right treatment causes objective changes in brain functioning. Placebo triggers the same effect as medication or electrical and magnetic stimulation but without negative side effects. Thoughts change neurochemistry of the brain. Isn’t it an opposite phenomenon to materialist assertions in neuroscience?

Placebo effect was observed even in the patients suffering from Parkinson disease: some areas of the brain released more dopamine than usual, and it reduced muscle stiffness. fMRI reveals the activation of prefrontal cortex due to positive expectations, which alters the process of attention. Attention is directed at recovering (Lommel, 2010). “Placebos usually help a percentage of patients enrolled in the control group of a study, perhaps 35 to 45 percent. Thus, in recent decades, if a drug’s effect is statistically significant, which means that it is at least 5 percent better than a placebo, it can be licensed for use” (Beauregard, O’Leary, 2007: 141).
Beauregard gives an example for the illustration of placebo effect (Beauregard, O’Leary, 2007: 140). Janis Schonfeld, a forty-six-year-old interior designer was thinking about suicide when she saw a poster inviting to try the new generation of antidepressants. She enrolled in a drug study at UCLA. The EEG of her brain was made, and she started taking those new pills. The pills worked well, though she had nausea as a side effect, but she had been warned about it by her nurse. Schonfeld recovered from her depression completely. On her last visit, the doctor told her the truth. Neither Janis, nor the nurse had known that Janis had been in the control group and taken sugar pills, i.e. placebo. However, the recovery was genuine and the doctor confirmed it. “But the only drug she had received was an immaterial and immortal substance – hope” (Beauregard, O’Leary, 2007: 141). The patient’s mental belief in medicine and thought of recovery worked wonders. Neurophysiology and neurochemistry of the brain became better thanks to positive thinking.

Lommel concludes that consciousness cannot be regarded as the product of brain function. “In fact, sometimes the opposite seems to apply: the mind influences brain function, both in the short and long term as a result of the empirically proven principle of neuroplasticity” (Lommel, 2010: 224).

Lommel uses the ontology of panpsychism for the explanation of brain and mind problem and some concepts of quantum physics. He supposes that the holistic interpretation of the world, in which everything is connected and entangled, suits best the explanation of many phenomena of consciousness. Besides entanglement, Lommel uses another concept of quantum physics - nonlocality (placeless and timeless interconnectedness). He thinks that nonlocality and entanglement can explain an NDEr’s experience of nonlocal instant connection with other people’s consciousnesses as though by telepathy. As soon as NDErs thought about the past or present, and sometimes future, they got there instantly in their NDEs. NDErs sometimes preserve the unusual ability of telepathic communication after the NDE and even without their desire. Such ability is called heightened intuitive sensitivity.

Quantum is the smallest amount of energy. It is a subatomic level of particles where particles exist in a certain portion - “quantum”, characterized by discontinuous interaction. Quanta have a complementary nature and can appear as waves or as particles. Due to their wave property, spatially separated particles are linked together (entangled) and can be fully described only as one whole. While measuring a wave a researcher chooses one of the probability waves, and his choice is called a collapse of wave function (also called collapse of the state vector or reduction of the wave packet). The collapse of wave function means that there is no probability left any more because the wave has already been chosen by the observer for measurement. The measurement depends on the observer himself because there is an entanglement between him, the particles he measures, and the device for measurement at the subatomic level. That is why some physicists are sure that it is the observation that creates reality. In other words, it is the process of
the man’s observation that creates reality, or more exactly, it is his consciousness that determines what reality he experiences. Such concepts of quantum physics as wave-particle complementarity, entanglement, nonlocality, probability waves, and an observer’s influence on the particles during measurement helped to create the Quantum Holographic Theory of the world. However, this holographic theory will have worse explanatory possibility for NDEs than quantum concepts themselves as Lommel remarks (Lommel, 2010).

A holographic photo is a two-dimensional photo (made on the special film or photographic plate) in which it is not possible to see the image that we saw in reality. For example, we have taken a holographic photo of an apple with the help of a special device, but instead of the image of this apple, we can see only some lines encoding the image in the holographic photo. If the coherent laser light is directed at this film (or plate), a three-dimensional image is reproduced anywhere we like, and we see our apple. The holographic film can be cut into pieces, but each small piece will reproduce the image of the whole apple if the laser light is directed at it. The waves from the object interact and create an interference pattern, which stores the information about the object. This information is imprinted on the film (or photographic plate).

So here, we come across a crucial difference: the information is not stored in the air (field itself) like in quantum physics but in the film (field’s physical medium). So the holographic explanation of the world will differ from the explanation of the world in quantum physics itself where the information is stored nonlocally as wave functions in nonlocal place, i.e. everywhere. This information is available anywhere at anytime and instantaneously (faster than the speed of light). When, for example, two particles as parts of the whole react dependently on each other, being far away from each other and instantaneously, a holographic theory seems to be not suitable for the explanation of a nonlocal connection of them (Lommel, 2010).

In holography the information is stored in a holographic film and can be retrieved from it at any location with at most speed of light, but not faster. The holographic world theory says that what we see is not how it is in reality. We simply see a three-dimensional image, which we have chosen to see. Here arise several questions: what constitutes a “holographic film” in our real life? What is a “device” for retrieving the image from the “holographic film”? Is it our brain, which works as a “device”? Who or what creates the real world to be seen later as a “holographic” image?

Though some concepts of holography can be useful for the explanation of the world by analogy as much as the concepts of quantum physics in general, it is doubtful that either of them can be taken literally for the explanation of consciousness.

Lommel’s panpsychism is based on the following ideas. Nonlocal space could be called the absolute vacuum, which has no time, structure, and in this empty space
all elementary particles and basic constituents of matter do not exist separately but as one whole. This space has an infinite number of possibilities and can be the foundation for consciousness. Consciousness has “a primary presence in universe, and all matter possesses subjective properties or consciousness” (Lommel, 2010: 246). All matter, or any physical reality, is formed by nonlocal consciousness. Nonlocal consciousness fills nonlocal space. Physical systems have phenomenal properties at intrinsic level (nonlocal space), so they possess subjectivity (certain degree of consciousness).

The light behaves like a particle, and its speed ranges from zero to the speed of light, but it behaves also like a wave with the speed ranging from the speed of light to infinity. During the observation, the particle’s speed goes to zero and its corresponding phase speed is infinite. It is at that time that multidimensional nonlocal space reduces to our three-dimensional physical world, space and time. It is called a “wave function collapse”. It results in an instantaneous entanglement “with everything in universe, including nonlocal aspects of consciousness” (Lommel, 2010: 247).

Lommel supposes that information from different fields is transferred with the help of resonance (the vibration with the same frequency and phase). Such vibration exists even at the smallest subcellular level as electron spin resonance and nuclear magnetic resonance.

Lommel refers to the lab studies (Julsgaard et al., 2004; Matsukevich, Kuzmich, 2004; Chaneliere et al., 2005), which prove that there is the transfer of information between matter and light via the spin of electron and nuclear spin resonance based on nonlocal entanglement. The studies showed nonlocal therapeutic effect when morphine was placed between the brain and the pulsing magnetic source. The effect was similar to that when a patient took morphine directly into the body. Lommel thinks that besides the brain, perhaps, DNA (deoxyribonucleic acid) has the function of the interface in each cell in the process of nuclear spin resonance between the organism and nonlocal consciousness. Lommel considers that consciousness cannot be localized in any concrete place, either in the brain, or DNA or wherever else. Consciousness is nonlocal (it is everywhere) in the form of waves of probability, therefore consciousness cannot be measured or demonstrated in the physical world. He believes in continuity of consciousness, which exists independently of the body, due to its belonging to nonlocal space and quantum entanglement. Nonlocal consciousness is the source of our “waking consciousness” when people are aware of their thoughts, ideas, feelings. Lommel distinguishes different types of consciousness. The waking consciousness represents only a small part of nonlocal consciousness.

There have also been some attempts made by physicists to create the Unified Field Theory to explain the universe, which would include all known physical fundamental forces and elementary particles. However, the alliance of Einstein’s deterministic theory of relativity and nondeterministic quantum theory is problematic as Saul-Paul Sirag thinks (Sirag, 1985). If the measurement in quantum physics depends on the observer, there must be one observer to create a
unified theory in all the fields. And “what is an ultimate observer? Is it the apparatus on the physicist’s laboratory table? Is it the physicist’s eyes? His optic nerves? His brain? His consciousness?” asks Sirag. (Sirag, 1985, 329). The measurement in quantum physics is influenced by the apparatus and the observer himself because the subatomic particles of his body and of the apparatus interact with the subatomic particles which he measures. Sirag shows Wigner’s chain of influence during quantum measurement as follows: quantum system 1 is measured by measuring device 1 and quantum system 2 is created. Quantum system 2 is measured by a human eye, which influences the measurement of quantum system 2 and quantum system 3 is created. However, the eyesight relies on the brain, so it is the brain, which becomes the “observer” of quantum system 3, which creates quantum system 4. However, we must understand what we are doing, so quantum system 4 interacts with our consciousness and creates system 5. Could it be nonlocal consciousness, which would create quantum system 6? What is the ultimate observer involved in quantum measurement? Sirag supposes that the answer will be important for creating the Unified Field Theory.

There are different points of view among physicists whether quantum physics can be applied to living systems at all. Schrodinger, Bohr, and Bohm thought that it was not possible, and quantum physics could explain only non-living matter. Quantum physics demands coherent and closed systems, but a living system is an open system, and it exchanges information with the surroundings followed by heat loss, respiration, thus creating the loss of information or decoherence. The processes in the brain have more deterministic character, than probabilistic. The brain is a complex dynamic system consisting of 100,000,000,000 neurons and other cells. Complex systems are better to study in the framework of other sciences: synergetics, dynamics, thermodynamics.

However, other physicists and neuroscientists disagree and continue using quantum physics for the explanation. They say that a human choice presupposes the Zeno effect: if the man concentrates his attention on something, the wave function collapse takes place, and only one alternative will be fixed by the choice of the man. If you focus your attention on something, the brain keeps a certain pattern of neuronal activity as long as you concentrate your attention on it. The idea does not decay if you do not ignore it: it continues interacting with the brain. Keeping the idea in mind depends on your free will. By analogy, if a physicist observes quantum particles, they interact with the observer and do not decay or disappear.

John Beloff considers the attempts of the quantum explanation of consciousness and psi-phenomena to be absurd because mentality cannot be explained by physics, in principle, whatever new physical theory you may choose to use (Beloff, 1990a; Beloff, 1990b; Beloff, 1980; Beloff, 1988). He distinguishes two main groups of brain-mind theories based on quantum physics:

(1) communicational theories using the analogy with a radio, radar, or other forms of telecommunication (a brain is a radar);
(2) Observational theories using a special interpretation of the quantum theory (the quantum theory speaks of the observer’s inclusion into the experiment and influence upon the behaviour of subatomic particles unlike the classical physical theory, which forbids the inclusion and subjectivism of the observer; a special interpretation of the quantum theory presupposes that consciousness plays the main role).

(1) The key problem for the communicational theories is that if we try them on psi-phenomena, for example telepathy, they do not explain how the information is encoded by the first person, and how it is decoded by the second one. Physical explanation demands encoding and decoding in all processes of transmitting information (images, written sentences, and sounds). If someone wants to tell the other one about something, he has to write using symbols or to pronounce sounds. In both cases, both of them must know one common language. So it means that in the telepathic session the first person and the second person must know a common language and, in addition to it, a special code for encoding, transmitting and decoding their ideas. But they have never learnt this special code. Moreover, they can exchange meanings without knowing the common language. But it does not eliminate the need of a code known to both of them and a common language if we want to explain telepathy on the basis of physical laws. Beloff points out that we cannot admit that both A and B were born with such knowledge of a code for each object, because new concepts or images have appeared recently, so such transmission of information cannot be explained in the framework of evolution and inborn knowledge. Before speaking about the energy of transmission the question of encoding must be solved. However, there seems to be no possibility of solving this problem with the help of physical explanation.

Then Beloff mentions another problem,: it is neuroplasticity. He says that thoughts are believed to leave neurophysiological traces in the brain. Some even hope to find a neurophysiological trace in the brain for each thought and create a clever apparatus on this principle after mapping all the traces. They think that, perhaps, it is neurophysiological traces that are transmitted in telepathy. Such transmission could be possible to explain by physics because consciousness in this case could be dismissed. However, one should refuse from this idea at the very beginning because of neuroplasticity and other principles of brain work.

When you thought about someone or something yesterday, for example about Mr. Pitt, you had a certain neuronal pattern in the brain. However, it does not mean that tomorrow the same neuronal pattern will be activated when you think about Mr. Pitt again: perhaps, you have known something bad or good about him since that time, and your knowledge and new emotions will activate a neuronal pattern quite different from the previous one when you start thinking about Mr. Pitt. Besides, the neuronal pattern in the brains of Mr.X and Mr.Y will never coincide when they think about Mr. Pitt.
Beloff says that it is a waste of time for physicists to search for the explanation of telepathy in this direction (Beloff, 1990a). Physicists discuss different topics concerning a radar (distance, time), but they do not discuss the main problem which is encoding.

(2) The key problem for the observational theories is that they introduce mentality, which interferes in the experiment as a force capable of changing the state of physical subatomic particles. Beloff calls the observational theories dualistic in disguise: mental substance influences material substance. The observational theories introduce mental concepts, which disqualify them as theories of physics (Beloff, 1990a). The physical explanation cannot but use physical terms and categories: space, mass, energy, measurement, mathematics, physical formulae. If the explanation does not do it and instead of it appeals to consciousness, which cannot be measured, seen, weighed or described with the help of formulae and categories of physics, classical or quantum, this explanation is not within the framework of physics because it deals with intuitive understanding of consciousness but not with the physical description. It simply re-describes something in other terms taken from physics in an abstract way without the confirmation by physical formulae and measurement (Beloff, 1990a; Beloff, 1980). If mental operations are discussed in the terms of information theory, it does not mean that the mind works according to the laws of physics (Beloff, 1990a). However, the “mental functions” of the computer are truly based on the physical laws and information theory. Information theory is part of applied mathematics and it does not explain the mind-brain mechanisms or consciousness (Beloff, 1990a). Psi-phenomena (telekinesis, psychic photography, mental healing, teleportation, materialization, etc.) can be seen in the physical world unlike normal processes of thinking, so physicists and parapsychologists have turned to quantum physics hoping that it will give them the physical explanation of mental processes in the end.

The most popular brain and mind theories among physicists proved to be the observational theory because it gives a chance to show that a man with paranormal abilities can produce an influence upon the physical world and because, for example, telepathy takes place instantaneously, and the quantum theory explains it as an instantaneous collapse of wave function due to the observer’s attention. Beloff is sure that quantum physics, nevertheless, cannot clarify the situation with psi-phenomena because of the above-mentioned unsolvable problems of communicational theories and doubtful application of quantum physics in observational theories. Beloff means a logical problem in the observational theory, i.e. a causal loop. According to quantum physics, the observer produces an influence upon the object. A man with paranormal abilities can do strange things with objects, and it is his psi-influence during the observation. However, on the other hand, it is the moment when he becomes aware of what he knows that counts as the moment of truth. So we understand that we can produce the influence upon the object only after seeing our result and our score in the tests because it is our
understanding (consciousness) that creates reality. Thus, we have a causal loop: the influence of my consciousness comes after the observation of the object. Beloff insists that the only logical explanation of brain-mind problem is radical dualism (dualism of substances) because the domain of mind is radically different from that of matter.

In this chapter, I have tried to present a core argument among neuroscientists and some contending mind-brain hypotheses. I have done it to show that there is no ultimate true knowledge about brain and mind in neuroscience at present. Neuroscience can also tell lies like social sciences.

Perhaps, we consist of two substances, which demand equal respect and have their own laws of existence. However, the construction of socio-politico-economic system in the nation-states is based on the materialist understanding of a human being.

In the next chapter, I will try to show that social conflicts come from our misunderstanding of human nature.
Chapter 3

The Individual and Society

“And all kinds of things go horribly wrong once we don’t reverence the human person as having a worth that is intrinsic, that does not depend on extraneous things such as wealth or status, or race, religion, gender or sexual orientation” (Tutu, 1993).

3.1. Brain, Mind, and Social Stress.

Though consciousness and the mechanism of brain-mind interaction are still inexplicable phenomena, our consciousness, whatever it may be, is capable of studying itself within the framework of human understanding. Our thinking being seems to be a separate substance. It reorganizes the matter – the brain, can cure or damage the brain and the whole organism. It deals with abstract concepts in philosophy, art, mathematics, history, etc., which are not connected with any biological needs of our body. Our thinking being satisfies its own needs using creative, moral and cognitive thinking processes and thus, demonstrating that a human world is quite different from the socio-biological organization of animals.

Mental influence in the mind-brain interaction has been already established in neuroscience, but the point of argument among neuroscientists is the degree of this influence and the source of mental energy.

If mind plays the primary role in human health, prosperity, pleasure and distinguishes us from animals, why don’t we speak about supporting mental health and mental needs in the first place?

Sociocultural factors can damage the mental health of population and lead to the upsurge of abnormal behaviour and diseases. The materialist neuroscientist Antonio Damasio points out the connection between our thoughts and biological health: you can literally die from sad thoughts, because depression damages the immune system (Damasio, 2006). Damasio analyzes the sources of sociopathy, whether sociopathy is caused by inborn anomalous neurophysiology or by sociocultural factors and says that it is important to understand “the degree to which social factors interact with biological ones to aggravate the condition, or increase its frequency, and even shed light on conditions which may be superficially similar and yet be largely determined by sociocultural factors” (Damasio, 2006: 178). Damasio gives the examples of “sick culture” in Germany in the 1930-1940s and in Cambodia during the Pol Pot regime and adds, “I fear that sizable sectors of Western society are gradually becoming other tragic counter-examples” (Damasio, 2006: 179).

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3 This speech was delivered in 1993 before the first general elections in South Africa in 1994 (Archbishop Desmond Tutu’s speech at Graduation Ceremony, University of Cape Town, December 7, 1993).
Damasio is not the only one who has noticed such connection between the neurophysiological state of the brain and sociocultural factors. N.N. Kudryavtseva and D.F. Avgustinovich from the Institute of Cytology and Genetics of the Russian Academy of Sciences in Novosibirsk have studied the expression of genes depending on social factors and insist on using a new model “from behaviour to genes” instead of the traditional model “from genes to behaviour” because it is the social surrounding and social factors that cause the change in gene expression due to the prolonged stress (Kudryavtseva, Avgustinovich, 2006: 33-35). They made an experiment with male mice and studied the state of a mouse after the first meeting with another mouse attacking it and later demonstrating its supremacy over the defeated mouse in a ritual indirect way. During the experiment, two male mice lived in one cage divided into two sections by a transparent partition with holes. The first fight specified them as a winner or a loser. Every day a partition was taken away and the winner demonstrated its aggressiveness and invincibility to the loser. The victim of this aggressiveness acquired depressive behaviour. Attacks could last seconds and had a ritual character, i.e. indirect indication of a possible attack, in other words, the demonstration of hostile behaviour. It could be digging under the partition, damaging the property of the victim, i.e. making a mess of the place that the victim considered its home. The expectation of the unfavourable development of events and social stress lasted for the rest of time. The defeated mouse showed avoidance-approach behavior and social withdrawal for 4 weeks after the experiment even to an unknown mouse. Such behaviour formed under the influence of the negative experience of social defeats is considered to indicate depression. The level of brain derived neurotrophic factor (BDNF) significantly increased in the nucleus accumbens of the brain of the defeated mice for 10 days. Kudryavtseva and Avgustinovich mention other similar studies by American researchers, which show that the transcription of genes in the nucleus accumbens of the defeated mice changes: the transcription of 309 genes increased right after the defeat in comparison with the control group, and the transcription of 127 genes was still higher for 4 weeks after the experiment. Transcription is the first step leading to gene expression. Transcription is the process of synthesis of RNA (ribonucleic acid), or more exactly of messenger RNA (mRNA) with the use of DNA as a template, i.e. the transfer of genetic information from DNA to mRNA (mRNA participates in the synthesis of protein in the process called “translation”). Gene expression is the process by which hereditary information from a gene is transformed into the functional product. This process can be modified at all stages: transcription, translation, and post-translation modifications of a cell. The change of the expression of one gene is connected with the change of the structure and function of the cell and can involve a new expression of other genes in the body. The winning male mice have an increase of tyrosine hydroxylase and dopamine transporter mRNA levels in the ventral tegmental area of the brain (Filipenko, Alekseyenko, Beilina, et al., 2001) and a decrease of kappa-opioid receptor mRNA level in this structure of the brain, if compared with the control mice and defeated male mice (Goloshchapov, Filipenko, Bondar et al., 2005). The changes in the expression of these genes reflect an altered state of opiodergic and dopaminergic
systems in the brain, as a result of repeated experience of victories (Kudryavtseva, Madorskaya, Bakshtanovskaya, 1991). The neurotransmitter dopamine (neurochemical) plays an important role in the reward system producing a euphoric state or pleasure from learning (more victories, more dopamine), meanwhile kappa opioid receptors get activated under the stress (no stress, no activation). The defeated male mice have an increase of serotonin transporter and monoamine oxidase A mRNA levels in raphe nuclei, if compared with the control mice and winners (Filipenko, Beilina, Alekseyenko et al., 2002). During the developing depression of animals (or people) the largest number of changes takes place in the serotonergic system of the brain (Kudryavtseva, Avgustinovich, 2006).

If people are in the state of anxiety, the specific neurochemical changes in the brain have a long-lasting effect, and it mainly concerns the neurotransmitter serotonin at all stages of its metabolism. In the article “Anxiety as a Social Disease” Kudryavtseva writes that at first, as a result of unavoidable stress, the serotonin system is activated, and the level of serotonin and its metabolite rises as an attempt to suppress anxiety and fear (Kudryavtseva, 2004). Due to the prolonged period of the higher release of serotonin, the depletion of the serotonergic system develops and psycho-emotional disorders appear (especially if there is a genetic predisposition). Other neurotransmitters get involved in this process. The damage to the regulatory function of the brain leads to other physiological disorders: the level of testosterone, sexual activity, and reproductive function reduce; ulcers in the gastrointestinal tract appear; response to pain changes; olfaction becomes worse; psychogenic immune deficiency develops, etc. For example, if tumour cells were transplanted into the animals suffering from anxiety, the tumour grew much quicker than in the control group. Social and individual behaviours change even in the situations not suggestive of danger. If animals in the state of anxiety are given possibility to choose either water or ethyl alcohol, the consumption of alcohol increases, and an experimental alcoholism develops (alcohol has anxiolytic properties; anxiolytics are drugs to relieve anxiety). Such changes are followed by impaired learning and socialization (Kudryavtseva, 2004).

If the oppressed male mice are separated from their oppressors and placed in comfortable conditions, the emotional disorder will not disappear for a long time, which testifies deep changes in the organism. Kudryavtseva and Avgustinovich draw attention to the fact that antidepressants improve metabolism of neurotransmitters minimizing the depressive state, but 50% have recurrence of the disease (Kudryavtseva, Avgustinovich, 2006). Kudryavtseva and Avgustinovich put forward the idea that such relapses can be explained by the stability of the new expression of genes.

The new approach “from behaviour to genes” instead of “from genes to behaviour” can help to study the mechanism of genetic involvement into the development of psycho-emotional disorders (depression, anxiety, pathological aggression, etc.) caused by social factors and social stress.
Fig. 3. The structure of a typical neuron in the peripheral nervous system and an axodendritic synapse.

A neuron consists of a cell body (soma) with a cell nucleus (which has genetic information), dendrites (cellular extensions arising from the soma and forming a dendritic tree; dendrites receive an electric impulse from another neuron), and usually one axon (a long, cable-like projection from the soma, which can branch at the terminal; an axon sends an electric impulse to another neuron). The axon between the nodes of Ranvier is covered with white myelin. Myelin is produced by Schwann cells in the peripheral nervous system and in the central nervous system (the brain and the spinal cord) myelin is produced by oligodendrocytes. Myelinated axons are white in appearance, hence the “white matter” of the brain, and the rest of a neuron is grey, hence the “grey matter” of the brain. Myelin is electrically insulating material, and it inhibits charge leakage through the membrane of the axon. The nodes of Ranvier are not covered with myelin and can generate electrical activity. Such a system of covered and uncovered pieces of membrane of the axon allows rapid and efficient “jumping” propagation of action potential (electric impulse) from one node of Ranvier to the next node. The synapse is a meeting point of two neurons with the purpose of conducting an electric impulse. Here is an electrico-chemical axodendritic synapse. Owing to the activation of voltage-gated calcium channels, the synaptic vesicles of the axon of neuron 1 open and a chemical called neurotransmitter goes into the synaptic cleft between neuron 1 and neuron 2, i.e. from the axon of neuron 1 to the dendrite of neuron 2. The neurotransmitter goes to the receptors located on the postsynaptic membrane of neuron 2. The meeting of the neurotransmitter with its receptor will further activate chemical and electrical changes in the postsynaptic membrane of neuron 2.

Every day when you open a newspaper or look through the news in the Internet you can find terrible accidents committed by people who are not psychiatric patients, but who behave like those. This abnormal behaviour is usually provoked by unfairness in personal or social spheres of life. Prolonged exposure to stress leads to a new expression of genes and physiological and psychological states of people change, so does their behaviour. Here are some examples from newspapers as an illustration of human reaction to unfairness.
In the Ural region, Russia, an invalid with one arm, the other arm he had lost in 1991 while working in the diamond mines in Yakutia, shot two officials of the Department of Social Welfare in Nizhny Tagil, after being refused in pension increase, and then he shot himself (News: In the Urals, one-armed invalid, 2010). In his suicidal note he accused the officials of the Social Welfare both in the region where he had worked before and in the region where he lived later and also some deputies of the Russian Parliament who “assigned big salaries and pensions to themselves and did not help ordinary people like him”.

To understand his behaviour in 2010 it is necessary to go back to the 1990s.

In the 1990s, in Russia there was a switch from socialism to capitalism, it was a grand scale process of cynical robbery of people under the protection and in favour of those who were at power at that time. In the 1990’s, under the president Eltsin, the major part of state property belonging to all people was transferred into private property of a few. It was done with the help of Egor Gaidar’s “shock therapy” when socialist planned economy was destroyed within several weeks, so were people’s savings, and the realization of Anatoly Chubais’s privatization plan. Anatoly Chubais’s quick privatization plan left the majority, who were not well-informed about the nature of the programme and market economy, with nothing and relatives and friends of the power elite with the acquisition of enormous property. The scheme of privatization was the following.

Vouchers, each corresponding to a share in the national wealth, were issued and distributed equally among people for 25 roubles. They were to be exchanged later into real shares of some enterprise. However, many enterprises in sequence were announced bankrupts under the pretext that their goods were not in demand (though they were in great demand at that time) or because the other enterprise, i.e. their partner, did not supply necessary components in time (it was often a personal agreement between the directors not to supply or delay the delivery of the product in order to start privatization). People were paid no salaries though they continued working every day, or salaries were given with a delay for a month or two, or sometimes six months. The bank credit system did not work as today, and people could not get credit from the bank. The system of unemployment benefits did not exist because all people had had jobs under socialism.

So some months without regularly paid salaries were enough to make people sell their vouchers (i.e. their future property as a part of state property) for a very small amount of money right in the street (the first way). Though the distribution cost was very low (25 roubles), the nominal price of a voucher was 10,000 roubles for the future share, but in 1993, people sold a voucher for 3,000 roubles in the street.

The second way of acquiring property was via special agencies “Voucher Investment Funds”. Voucher Investment Funds were supposed to help people to exchange vouchers into shares. However, the government did not allow those agencies to buy a controlling interest in the profitable enterprises, and they often acquired shares in the non-profitable enterprises, which became bankrupts later, besides some of them got connected with mafia, and in the end only a few survived, the rest disappeared leaving people unaware about the fate of their
vouchers and shares. Some people have been trying to find the traces of these agencies for many years (Kravchenko, 2008).

The third way was to become a share-holder of the enterprise where an employee worked. This way had a sad end either. People who chose the third way did not have salaries in time, and the top management often offered to buy out their vouchers, and many people agreed to sell. Thus, these new capitalists were from “red directors”.

The fourth way was to participate in the auctions. But those auctions were mainly used by Voucher Investment Funds, or by those who had money to buy out vouchers. By the end of 1993 when citizens at last could really get dividends from the shares exchanged for their vouchers, inflation and devaluation of the rouble had eaten the nominal cost of a voucher up to 95%, and people hardly could get any profit. New owners of the enterprises did not want to pay them dividends if they did not bring real money into the production and did not buy new shares for a new price.

A bit later, the government offered a new adventure, which became as much impossible for ordinary people as the previous one. In 1995 the government adopted a loans-for-shares scheme, and auctions were organized. The official aim was to fill up the state treasury with money received as loans from commercial banks. As a guarantee, the state assets of profitable enterprises were offered to those banks. The state did not return money taken as loans in time. The government officials did not even mean to do it at all because it was a conceived scheme of selling the state property to their close friends, relatives, or supporters in business, politics and banks for a very low price. The scheme was as follows: before the announcement of a loans-for-shares scheme, the Ministry of Finances of Russia had put money in the commercial banks equal to the sum of money taken later as loans by the state. Thus, having enough financial resources, those commercial banks won at the auctions to participate in the scheme and were allowed to keep the loans in their own banks in a special account instead of immediately transferring the money to the Central bank of Russia. The money was not transferred by banks at once to the state but in portions. The auctions were organized in 1995, but the time of giving back the loans was also 1995. There was no competition at the auctions, and only at four auctions out of twelve the price rose higher in comparison with the initial price (“Analysis of the processes of privatization”, 2004). So the money given to the state as loans by commercial banks belonged, in fact, to the state and gave the power elite a pretext to sell profitable enterprises to themselves at a very low price. It was due to this loans-for-shares scheme that the class of oligarchs was created in Russia, who actually snatched enormous assets from the property belonging to all people in the Soviet Union.

Many violations were listed in the report “The analysis of the processes of privatization of state property in the Russian Federation for the period 1993-2003” made by the Accounts Chamber of the Russian Federation and published in 2004. The authors of the report came to the conclusion that the government of the Russian Federation did not provide an adequate control over the processes of
privatization and an effective response to abuses and violations in the course of organizing and conducting the loans-for-shares auctions in 1995-1996 years and that the auctions had pretentious character because the banks, in fact, credited the state with the state money (“Analysis of the processes of privatization”, 2004).

The Sociological Centre “Levada” carried out the studies of social opinion and reports the following: in 2000-2007 the percentage of people who spoke for the complete or partial cancellation of the results of privatization fluctuated from 78 to 83%, and only 7-15% were for leaving all unchanged (Kapelushnikov, 2008); 77% think that the owners of big private property did not get it legally, and only 10% think the opposite (Kapelushnikov, 2008).

Social stress lasting from the time of Perestroika since the 1990s has played its role in the increase of suicides and criminality in Russia. In 1995 in Russia, there were 45 cases of suicide per 100,000 people (in the world – 14 cases). Russia became the second after Lithuania (the former Soviet Baltic socialist republic) in the world in the number of suicides. For 20 years (1990-2010) 800,000 Russians committed suicide; it is equal to the population of a town (News: The second in suicides, 2011). The average age for a man committing suicide was 45 in Russia and for a woman – 52. The number of suicides among 15-19 year old children placed Russia on the first place (News: The second in suicides, 2011).

So the invalid’s suicide in Nizhny Tagil and his accusation of the state system and the members of the Russian Parliament are grounded in truth and connected with the abuses of the privatization on the large scale. His long lasting social stress was aggravated by his personal misfortune of losing his arm and job.

There is no post-socialist country according to the polls where the conducted privatization is supported by the majority of population. On average only one fifth of the population in 28 post-socialist countries is satisfied with the results of privatization and does not want any changes. In Poland, for example, only 20.2% think that privatization was conducted fairly. And we read in the newspaper:
- Opposite the building of the Government in Poland a 49-year-old man, a father of three children attempted to commit suicide putting himself on fire because of his difficult financial situation: he had many debts and he was pursued by collectors (News: A resident of Warsaw, 2011).

We see that the poorly organized economic system pushes people to commit suicide. Social values are not based on the intrinsic value of a human being, otherwise the economic system of the society would have protected and helped its weak and poor members. These people were, evidently, so humiliated by the system that this unbearable social pain pushed them to commit suicide.

Studying the problem of humiliation Linda Hartling points out that the depth of humiliation can be so great that it can be compared with an open wound that people remember all their life (Hartling, 2007). Even the loss is forgotten over time, but not humiliation. This is a social pain that resembles a physical one and finds confirmation in neuroscience research. Hartling uses a two-factor analysis:
cumulative humiliation and the fear of humiliation. Suicide may be the cumulative humiliation. She suggests the following chain of events: humiliation => social pain => reduced self-appraisal => impaired self-regulation => increased self-destructive behavior => violence (Hartling, 2007).

Here are some results of polls carried out in 28 post-socialist countries (Denisova et al, 2007; Kapelushnikov, 2008). The question was “what should be done with the privatized property?” and the participants were to choose the answer:

<table>
<thead>
<tr>
<th>Country</th>
<th>nationalize and leave it in the hands of the state</th>
<th>nationalize and then re-privatize using a more transparent procedures</th>
<th>leave privatized assets in the hands of current owners if they agree to pay the full cost</th>
<th>no changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>36.7 %</td>
<td>13.3 %</td>
<td>31.5 %</td>
<td>18.5 %</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>28.8 %</td>
<td>15.8 %</td>
<td>48.3 %</td>
<td>7.2 %</td>
</tr>
<tr>
<td>Estonia</td>
<td>22.4 %</td>
<td>10.7 %</td>
<td>22.6 %</td>
<td>44.4 %</td>
</tr>
<tr>
<td>Georgia</td>
<td>30.9 %</td>
<td>31.9 %</td>
<td>14.0 %</td>
<td>23.2 %</td>
</tr>
<tr>
<td>Poland</td>
<td>22.4 %</td>
<td>20.4 %</td>
<td>37.2 %</td>
<td>20.2 %</td>
</tr>
<tr>
<td>Ukraine</td>
<td>43.0 %</td>
<td>12.5 %</td>
<td>31.9 %</td>
<td>12.6 %</td>
</tr>
</tbody>
</table>

Fig. 4. What should be done with the privatized property?^4

But let us leave the post-socialist countries with all their transition problems and turn to the old and highly developed capitalist countries. The main question is: Are the social values based on an intrinsic value of a human being in these countries?

The USA:
- “Kathy Myers is one of the 1.2 million people living in Michigan without health insurance. After an accident with her dog, Myers withstood a month of intense pain in her right shoulder. Unemployed, uninsured, and unable to afford a doctor to look at her shoulder, she took matters into her own hands. Late last week, Myers, who’s 41, became desperate and shot herself in the same shoulder. Her idea was that by shooting herself she would be in emergency care and force the doctors not only to fix the gun wound, but her previous shoulder problem as well.” However, the doctors gave her anti-inflammatories and treated the bullet wounds without treating her original shoulder injury. “Without insurance, she was unable to get a CT-scan or MRI and was sent home. Now, Myers is still in pain and hasn’t gotten medical attention for her original shoulder injury” (News: Woman shoots herself, 2010).

Understanding the flaws in the medical insurance system, the president of the USA Barack Obama proposed a health care reform (“Obamacare”), which would extend health insurance to 32 million Americans who currently lacked it. But “House Republicans attached a provision to defund the Affordable Care Act, a consistent target of congressional Republicans” (News: House passes spending bill that

^4 an abridged table from Denisova et al, 2007; Kapelushnikov, 2008
defunds Obamacare, 2012). House Republicans voted 42 times to repeal or otherwise undermine Obamacare. Republicans’ winning “the shutdown battle” will also involve other aspects of social life: national parks and museums are expected to be closed (News: House passes spending bill that defunds Obamacare, 2012). It means that there will be no medical care and no access to culture for all people in the USA, which is considered to be a highly-developed democratic country. Medicine for psychoemotional disorders is in the greatest demand in the USA due to social factors: every tenth American adult takes antidepressants, which is 4 times more than 20 years ago (Study: One in ten Americans takes antidepressants, 2011).

The other highly-developed countries of Europe:
The magazine “Spiegel online” (05.09.2011) with the reference to the Dresden Technical University (Technischen Universität) reports that more than 160 million Europeans (almost 38%) suffer from psychic and neurological disorders (Studie: Fast 40 Prozent der Europäer sind psychisch krank, 2011). Having analyzed the data concerning these disorders in the member-states of the European Union, Switzerland, Norway, and Iceland, the researchers found out that the most frequent disorders are the following:
- feeling of permanent fear 14 %,
- insomnia 7%,
- depression 7 %,
- alcoholic and drug dependency more than 4%,
- dementia 30 % among old people after 85.

When socio-economic life becomes unstable and the background anxiety rises, any unpleasant event can lead to the catastrophe (Kudryavtseva, 2004). Kudryavtseva says that if we want to assess the level of well-being in the society we must take into account not only the consumer basket but the psychic and physical health of the population including the level of background anxiety, which is possible to assess using well-known psychological tests. Actually, it is the psychological climate in the society, institute, enterprise, school. She suggests an ideal solution of the problem: the creation of such a social system where social factors do not cause chronic anxiety (Kudryavtseva, 2004). The symptoms of anxiety can be different: from the sharp rise of activity to the sharp fall of activity; inadequate and unmotivated behaviour; torturing expectation of imagined danger and negative feelings; the fear of something unknown. Such internal tension and anxiety can develop into panic and all-consuming fear. Chronic anxiety develops when there is a long-lasting unfavourable and threatening environment. Chronic anxiety becomes the cause of many diseases and abnormal behaviour (Kudryavtseva, 2004). Kudryavtseva comes to the conclusion that anxiety and fear have recently become the main emotions of humanity. They are provoked by unfavourable social factors, and under the long exposure to them these factors cause various psychopathological states, that is why these states can be called “social diseases.”
(Kudryavtseva, 2004). The constant state of anxiety forms the readiness to defend oneself from real or imagined danger. By analogy with the mice, depression struck a human being when he feels all the time that he cannot influence the decisions of the government or law-makers in his own country. And though “making mess with a home place of a defeated mice”, or “digging the hole under the partition”, in other words, undesirable for people laws and reforms do not directly endanger you (no children and health is excellent so you do not have to worry about new laws and regulations in these fields), the constant feeling of being treated like an enemy by your own government and law-makers leads to social stress with the expression of undesirable genes, the transformation of a cell, and the changed functioning of other cells under a constant demonstration of aggression to you, “although ritual”.

What is the point of treating a man with antidepressants if he comes across a stressful situation of poorly organized society every day? There must be such social organization so that positive for the society genetic expression might take place and negative one might have no chance to develop.

The neuroscientist Matthew Lieberman states, “The biological and medical sciences are recognizing that a full accounting of human biology cannot proceed without incorporating the social and emotional factors that modulate the functioning and health of biological systems, and may have played a key role in the evolution of those systems. The social sciences are simultaneously embracing the idea that the social mind cannot be severed from the social brain and body. Ultimately, a full understanding of the social mind depends upon a full understanding of how the brain and body are receptive to socioemotional pressures and produce social behavior” (Lieberman, 2006: 1).

Neuroscience has taken the direction towards social sciences (political science, economics, history, sociology, philosophy, etc.) forming new branches of science such as neuropolitical science, neuroeconomics, neurohistory, neurosociology, neurophilosophy, etc. In other words, the interaction of three levels - social, cognitive and neuronal – is applied to a certain sphere of human activities (Blakemore, Winston, Frith, 2004; Ochsner, Lieberman, 2001). At the social level motivational and social factors influencing behaviour and experience are studied. At the cognitive level researchers study the mechanisms of processing information. And at the neuronal level in the focus of attention there are mechanisms of brain engaged in cognitive processes. The cognitive level is the level that gives the possibility for interdisciplinary mixture of social sciences and neuroscience. The idea is to connect social disciplines engaged in studies of socio-politico-economic system with the individual reaction on such a system.

Nowadays the academic criteria of scientific value of research are based on materialist ontology. So the achievements in neuroscience and social neurosciences have been mainly accumulated within the framework of materialist thinking. Whatever the point of view on brain-mind may be, the majority of researchers
agree that the mind can make the brain work differently, and social factors produce influence upon both mind and brain and, thus, the health of the whole organism. When a neuroscientist studying the work of neurons uses materialist ontology on brain, it is quite helpful because the brain is a material thing. But as soon as he wants to explain the mind, materialist ontology fails and leads a researcher in the wrong direction where he will never find the answer. The understanding of mind-brain interaction is especially important for social neurosciences because the conclusions of social neurosciences will be used in the organization of our social life. The wrong understanding of a human being will be followed by the wrong model of society.

3.2. Theoretical Propositions on Brain and Mind Used in Social Neurosciences.

The main theoretical propositions on brain and mind used in social neurosciences can be grouped in the following way: (1) neurogenesis, neuroplasticity, and memorization; (2) inborn empathic reaction, mirror neurons, and the ability of understanding what the other man can feel and think, in other words, the ability of creating the Theory of Mind (ToM).

*The first group* - neurogenesis, neuroplasticity, and memorization – is connected with the ability of the brain to change. Neurogenesis helps to restore some quantity of neurons instead of those which were destroyed. Neuroplasticity is important for the transfer of the function from some neurons, which were damaged or stopped functioning by some reason, to other neurons and also to teach neurons to function more or, perhaps, less intensely than usual. Memorization is the consolidation of new patterns of neuropaths where neuroplasticity plays an important role.

*The second group* - inborn empathic reaction, mirror neurons, and the Theory of Mind (ToM) – is connected with the involuntary reaction of a healthy brain to social surrounding. Mirror neurons in one’s brain reflect the work of neurons in the other man’s brain if one observes the other man’s movements and emotions. The empathic reaction, as many researchers suppose, is based on the mirror neurons. When a man sees that someone is being hurt, this observing man has the activation of approximately the same areas of neurons in his own brain as though he were hurt too. Such an inborn reaction as empathy leads to sympathy and is important for social interaction.

The Theory of Mind (ToM) is connected with both mirror neurons and empathic reaction. ToM demonstrates a human ability of understanding and guessing the thoughts and intentions of the other man. You create your own theory about the mind of another man on the basis of your own experience.

All above-mentioned biological and psychic phenomena characterize *all normal people with a healthy brain, and they are inborn.*
3.3. **The Clash of Social and Inborn Moral Values.**

All animals living in groups have special rules of social behaviour adjusted to natural environment and survival. Human beings, unlike animals, can create different social organizations to their taste, irrespective of natural surrounding, and this particular organization of social life will demand special rules of behaviour. Thus, we can create any social system we like and think good for us. The matter seems to depend on the knowledge of our human nature, and whether there is a powerful group, which can enforce its principles of social organization on the rest of us.

Neither a materialist neuroscientist, nor a non-materialist neuroscientist will deny that people have social thinking by nature. It can be considered a widely recognized fact. There is a well-known experiment showing that people attribute social meaning to everything, and such attribution is inborn. In the experiment conceived to study the function of amigdala of the brain there were moving geometrical figures in the film: a big triangle, a small triangle, a circle and a rectangular with an opening (Heberlein et al., 1998; Greene, Cohen, 2004; Heider, Simmel, 1944; Heberlein, Adolphs, 2004; Scholl, Tremoulet, 2000). The participants were asked to tell what they saw. The participants with normal brains attributed social meaning to what they saw in the film: the rectangular was a room, and the opening was a door; the big triangle pursued the small triangle; the circle got frightened and hid in the room; the big triangle came into the room and started to pursue the poor circle; the small triangle and the circle were happy when they managed to run away from the big triangle; the big triangle stayed alone in the room and became nervous because it could not get out of the room.

![Diagram of social interaction](attachment:image.png)

**Рис. 5. The attribution of social meaning to geometrical figures.**

A big triangle, a small triangle, and a circle moved in the film and got into the rectangular through the opening. A healthy participant attributed social meaning to the behaviour of the geometrical figures: the big triangle pursued the small triangle; the circle got frightened and hid in the room; the rectangular was a room, and the opening was a door; the small triangle and the circle were happy when they managed to run away from the big triangle. A participant with a damaged amigdala of the brain did not see any social meaning in the movement of geometrical figures.
Those who had a malfunctioning amigdala from childhood interpreted the movement of geometrical figures without attributing social meaning to the geometrical figures: the small triangle and the circle moved into the rectangular, then the big triangle moved in, then both the small triangle and the circle moved out, and the big triangle stayed in the rectangular.

Some neuroscientists insist that it is possible to describe the special structures of the brain that participate in social thinking. According to Adolphs, a “social” brain consists of ventromedial prefrontal cortex (social reasoning and decision-making), amigdala (fear, distrust, reading the information on the face), right somatosensory cortex (a body state during socializing; empathic reaction), insula (shares functions with the somatosensory cortex), cingulate cortex (finds errors), visual association areas in the temporal cortex (participate in emotions and influence the body state) (Adolphs, 1999). Some structures in the hypothalamus, thalamus, and brain stem also participate in social thinking.

![Fig. 6. The areas of a social brain.](image)

Here are two hemispheres of the human brain in the figure, with the forehead on the left. The deep central sulcus separates the frontal lobe from the parietal lobe. The Sylvian fissure separates the temporal lobe from the frontal and parietal lobes. The corpus callosum holds two hemispheres together. The most important areas for social thinking are the ventromedial prefrontal cortex, amigdala, right somatosensory cortex, cingulate gyrus, insula, visual association areas in the temporal cortex, and structures in the hypothalamus, thalamus and brain stem. The insula is hidden in the folds of the cortex and not seen in the picture (marked by the dotted line).

People often and involuntarily imitate the behaviour of others in their social surrounding and guess what is expected from them. Neuroscientists explain it by the presence of mirror neurons, emphatic reaction, and ToM. People have the brain mechanisms which help them to play a social role which is assigned by society. The psychological experiment carried out by Philip Zimbardo in the Stranford University in 1971 shows the readiness of people to play their social roles. Students were divided into “prisoners” and “warders” at random. “The prison” was

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5 based on Adolphs, 1999: 470
made in the basement of the faculty of psychology at Stanford University (Zimbardo et al., 2000). Soon the students began to feel and behave like warders and prisoners. Many “warders” began to demonstrate sadism, and many “prisoners” became passive and depressed, though there were no reasons why the “prisoners” could not refuse from participation in the experiment if they felt humiliated. Instead, they diligently played their social roles. None of them had been a criminal or a sadist before the experiment. Social factors made them feel criminals and sadists.

A similar dependence on the social framework was seen in the series of socio-psychological experiments made by Stanley Milgram in the 1960s and 1970s (Milgram, 1963; Milgram, 2009). Milgram conceived his experiment to assess the readiness of people to surrender to the authorities, giving them the task that would be against their conscience. He wanted to understand why so many Germans had agreed to perform cruelties under Hitler, and what was the psychology of mass immoral behaviour. To the surprise of many Milgram’s colleagues, who did not believe that normal people (“teachers” in the experiment) would agree to continue participation in the experiment, if forced to increase punishment (voltage of electric shock up to 450 volts) to other people (“learners”) for their mistakes, the majority of “teachers” continued and increased the punishment up to 450 volts irrespective of their real professions, gender, and age (i.e. 65% of “teachers” instead of 1-2% as Milgram’s colleagues had thought, and it didn’t matter if there were only women or men in the groups of “teachers”). Though the “teachers’ showed their psychological discomfort (nervous laughter, sweating) while they were increasing the punishment (voltage), nevertheless they did not make up their mind to interrupt the experiment and to rebel against the social authority of the scientist, who had a legitimate power to carry out such experiments in their eyes. However, they did not increase voltage if the scientist went out of the room for some minutes. It means that they did not want to hurt other people if the authority did not press them to behave immorally. But placed in a certain social framework they started to play their social role in the name of “scientific progress and mankind”. It was easier for them to obey the authority and think that the authority knew better what was not harmful to the “learners”. The “learners” were hired actors for that experiment, but the “teachers” did not know that. Separated from the “teacher”, the “learner” screamed from pain and implored to stop the experiment very convincingly after increased punishment of painful electric shock. Before the experiment, the “teachers” were given a small voltage so that they might understand how painful and dangerous the increase of volts could be. However, only 35% refused to continue playing their social role in the experiment. Rebellious behaviour leads to violation of established social norms and relationships and to the open denial of immoral societal norms, which demands courage, strong independent character, and critical mind.

The criteria of moral behaviour in society depend on the system of values in this society based on something axiomatic, which is not questioned. Such axioms form
social values, define development of social institutes and scientific research, and influence the building of the socioeconomic and political system in which these people live. Darwin’s conclusion that in nature only the strongest survives and Malthus’s advice to make peace with this idea served as an excuse for economic inequality, death from hunger, poverty, political violence, etc. It was morally acceptable for society at that time. As soon as people refused from the idea that only the strongest human being is worth living and adopted the axiom of equality and care for the weakest, they created at first welfare capitalist states and then socialist states, in which the social value of individual accumulation of capital and property became not praiseworthy at all.

When people are provided with ideological and social legitimacy, and they have institutional support, the majority of them seems to prefer following social norms to their own moral reflection. The pressure of immoral social surrounding makes them doubt or suppress their inborn moral values. Social norms are usually spoken in moral terms, so it becomes rather difficult to separate moral norms from social ones and to judge on the moral basis.

Nevertheless, Victoria McGeer asserts that people are capable of discerning the violation of moral behaviour from the violation of social norms (McGeer, 2008). Analyzing neurological basis for the possibility of moral behaviour of psychopaths and people suffering from autism, McGeer distinguishes socially approved behaviour and morally approved behaviour. A moral action is not determined by prescribed social norms and does not depend on the permission or approval of official authorities. Social norms of behaviour, on the contrary, have a temporary character and are defined by the norms existing in that society. If the norms change, the previously condemned behaviour is no longer considered to be immoral (McGeer, 2008).

In other words, on the one hand, there is the set of some absolute moral rules, which exist in all centuries and for all people, and, one the other hand, there are temporary social norms presented as moral ones, which exist in the particular society. McGeer, Kennett, and Fine state that adult psychopaths and children with psychopathic symptoms do not feel the difference between the actions based on conventional norms of behaviour in the society and those based on universal moral norms (Kennett, Fine, 2008; McGeer, 2008). Frederique de Vognemont and Uta Frith think that such division between conventional social norms and universal moral norms is a great discovery in the study of moral thinking (Vignemont, Frith, 2008). The difference is understood even by three-to-four-year-old children, and it is a cross-cultural phenomenon. Vignemont and Frith agree with Nichols and Folds-Bennett that people usually consider something “moral” if it has universal and permanent moral value and “social” as something dependent on the social context and power (Nichols, Folds-Bennett, 2003).

For those who have doubts what is moral the famous German philosopher Immanuel Kant (1724-1804) suggests the formula based on three principles, which leads to moral actions irrespective of the epoch and social system. The principles
are the following: 1. Good will (no selfish interest in the moral action); 2. The universalizability of an action (a chosen action will become a universal law applied to others and to oneself); 3. A human being is an end in itself (the respect to the intrinsic worth of a human being).

Let us apply Kant’s principles to the political sphere, for example, to the moral discourse started by the U.S. government after the publications of the WikiLeaks organized by Julian Assange. Whose behaviour is moral: Assange’s or the U.S. governmental officials’ according to Kant’s principles?

A human being as an end in itself
Universalizability
Good will

\[ \begin{aligned}
\text{moral acting}
\end{aligned} \]

Fig. 7. Kant’s formula of moral behaviour

If we follow the principles of universalizability, good will and a human being as an end in itself, then our behaviour will be moral, and it does not depend on the century we live or the political system.

I. According to Kant:
(1) Assange performs his moral duty in spite of prosecutions (good will);
(2) Assange reveals the facts of misdoings irrespective of the country (universalizability);
(3) Assange defends the lives of people irrespective of the nation and geopolitical interests when revealing the facts of killing civilians (a human being as an end in itself).

II. According to Kant:
(1) The U.S. power elite has selfish economic and military interests in Iraq, Afghanistan, and in collecting the information about people abroad (no good will);
(2) Though the U.S. government collects the information about people abroad without people’s permission it is against Assange’s collection of the information about the U.S. government’s actions, and it is against the intrusion of some other country’s troops on the territory of the USA just because the other government does not consider the policy of the U.S. government good for people (no universalizability);
(3) The U.S. government tries to conceal the facts of killing peaceful population in Afghanistan because it considers a human life less important than military, political and economic gains of the power elite (no human being as an end in itself).

To continue the analysis of the neurostudies of inborn human moral thinking and the clash of moral and social values, it is necessary to summarize the main ideas of
moral philosophy because what is moral is understood by philosophical schools differently.

There are ethical theories of the **first order** (how we should behave) and ethical theories of the **second order** (meta-ethics, i.e. theorizing about ethical theories)\(^6\).

Among the **first-order theories** we can discern three main groups:

1. **Duty-based theories** (e.g. Kant’s ethics);
2. **Consequentialist theories** (e.g. Bentham’s utilitarian ethics);
3. **Virtue theories** (e.g. Aristotle’s ethics).

(1) **Duty-based ethical theories** assert that acting morally means acting according to our duties (we ought to perform some actions disregarding consequences, which might follow them). The motives for actions must be “pure” and cannot include any calculated benefits. The word “duty” actually means a morally necessary thing to do, which you also want other people to do to you, and which can be regarded as a universal law for all; all people will behave like that. Happiness cannot be a universal moral principle because a person may want to become happier at the expense of other people’s unhappiness. When, for example, for their greater future happiness and integrity of the territory Georgians having an ethnic conflict with South Ossetians attacked and killed South Ossetians, who wanted autonomy (the conflict in August 2008), it was an immoral act to solve a problem in such a way according to Kant. Nobody wants to be killed for any reasons: a human is an end in itself.

(2) **Consequentialist ethical theories** are based on the principle of the greatest beneficial consequences of the action: “good” is what brings the greatest total happiness. Thus, it was morally right for Georgians to attack South Ossetians because it could have brought the greatest total happiness to Georgians, who are the majority in Georgia, and who want territorial integrity.

(3) **Virtue ethical theories** focus on the character of an individual and his personal life unlike the previous ones focusing on the rightness or wrongness of particular actions. Happiness comes from coping with life’s problems morally, which is due to the acquired virtues. So, if all Georgians and South Ossetians had been brought up in the right way and had really developed moral virtues individually, no killings would have taken place on the territory of Georgia at all. Georgians and South Ossetians would mutually have respected each other and lived peacefully.

The ethical theories of the second order (meta-ethical theories) can be divided into two broad groups: **ethical realism** and **ethical anti-realism**.

**Ethical realism** presupposes the existence of objective moral truths.

**Ethical anti-realism**, on the contrary, claims that there are no objective moral truths at all.

There are two main groups of ethical theories belonging to realism: ethical naturalism and ethical intuitionism. And there are three main groups of ethical theories belonging to anti-realism: subjectivism (moral statements are not

\(^6\) This part of the text is from my article (Slanevskaya, 2008).
objectively but subjectively true), non-cognitivism (moral statements are neither false nor true), and nihilism (moral statements are false).

(1) *Ethical subjectivism* holds that moral values are subjective: it is the individual’s or group’s attitude of considering something as “good”. The value facts are reduced to psychological preferences. If I say, “The Russian President is good”, it shows only my attitude to him. If someone else says, “The Russian President is bad”, it shows his attitude. No objective truth is possible.

(2) *Ethical non-cognitivism* claims that evaluative statements cannot explain what the world is. They express only a speaker’s emotions, or can be treated as imperatives. If I say, “The Russian President is not good”, for a non-cognitivist it sounds like, “Boo to the Russian President!” or “Do not deal with the Russian President!”

(3) *Ethical nihilism* (called also “the error theory”) claims that evaluative statements are generally false because they assert things that do not exist in reality. If I say, “The Russian President is good”, it is neither a false, nor a true statement because there is no such a property as “goodness”, there is only the Russian President out there.

(4) *Ethical naturalism* argues that objective moral properties exist, and they are reducible to non-evaluative terms. If I say, “The Russian President is good”, he is good objectively but only if he improves the well-being of his citizens, etc. Moral statements must be expressed either in non-evaluative terms or justified empirically on the basis of observation.

(5) *Ethical intuitionism* claims that moral properties are objective: there are such objective properties as “goodness” or “evilness”, and they do not depend on someone’s attitude. They are irreducible (we cannot but use the evaluative language speaking about value facts saying “good”, “evil”, “desirable” and so on). If I say, “The Russian President is good”, other people will understand me because they know what the word “good” means. I do not need to use any other non-evaluative words.

Ethical naturalism in social neuroscience should be understood as ethics which asserts that healthy brain structures are equivalent to moral behaviour, meanwhile ethical intuitionism asserts that a human has inborn mental (or/and spiritual) quality called moral intuitions.

Ethical intuitionism is based on inborn moral intuitions. Intuitions are defined by Huemer as “mental states in which something appears to be the case upon intellectual reflection (as opposed to perception, memory, or introspection), prior to argument” (Huemer, 2005: 232). We have intuitions (“intellectual appearances”) about certain abstract truths similar to perceptual experiences (“sensory appearances”) about the physical world. Our intuitions are merely the form of our awareness: we are directly aware of moral facts. It can be compared to our awareness of the physical world through sense perception: we are directly aware of physical objects. Moral intuitions can conflict with our moral theories or fixed
moral beliefs resulting from culture, religion, and ideology. But our sensory experience can be affected by bias as well (Huemer, 2005).

The main objection against ethical intuitionism is that you cannot be certain of moral truths based on intuition unless you find a way to show that intuitions are reliable and can be verified. But no such verification is required for sensory perception and memory. Huemer states, “it appears, then, that the present objection relies on an epistemological double-standard: the objector imposes demands on intuition that would not be placed on any other fundamental source of knowledge” (Huemer, 2005: 236). He asks why this process of cognition should demand a second cognitive process and remarks that even a utilitarian will use his intuition and will say that to kill a healthy human being to distribute his organs to five other people is not good in spite of the basic principle of the utilitarian (consequentialist) theory: the greatest total happiness. Intuition should be considered as a good and reliable source in moral knowledge. Intuition may fail sometimes because it can be affected by cultural, ideological, and religious indoctrination, but human beings are subject to making mistakes in all fields of human activities, and intuition is not the exception from the rule.

The interpretation of moral intuition by the neuroscientist and ethical naturalist Joshua Greene is quite different from Huemer’s. According to Greene moral intuition is based on emotions and basic instincts and is genetically inherited, “The emotions most relevant to morality exist because they motivate behaviors that help individuals spread their genes within a social context” (Greene, 2008: 59). “The theory of reciprocal altruism explains the existence of a wider form of altruism: Genetically unrelated individuals can benefit from being nice to each other as long as they are capable of keeping track of who is willing to repay their kindness” (Greene, 2008: 59). The materialist neuroscientist Greene thinks in the framework of Darwin’s theory and insists that Kant’s deontology cannot be considered as moral philosophy because people giving deontological answers show an emotional reaction in the brain while it is being scanned, i.e. there is the activation of brain structures responsible for the emotional reaction when they give deontological answers; they have no time for moral reflection necessary for philosophy (Greene, 2008). Meanwhile the consequentialist decision of a moral dilemma shows the activity of the brain in the areas responsible for cognitive thinking. Greene comes to the conclusion that Kant invented his deontological theory trying to rationalize moral emotions. Greene expresses the idea that deontology is a kind of moral talking caused by a strong feeling indicating that certain things must not be done (Greene, 2008).

Greene points out two reasons why deontology and moral emotions are inseparable (Greene, 2008):
(1) moral emotions allow us a natural solution of certain problems occurring in social life. Moral emotions are the creation of nature. It is a reliable, quick and effective answer to repeated situations, meanwhile moral reasoning is not in this context;
(2) deontological philosophy provides us with cognitive interpretation of natural moral emotions.
Greene emphasizes the fact that the answers given from the deontological position are much quicker than those given from the consequentialist position because consequentialist decisions demand more time, and they cannot be made on the intuitive and emotional level. To support his point of view, Greene presents the neurobiological results of scanned brains, which also demonstrate people’s different attitude to personal and impersonal moral dilemmas. Personal moral dilemmas cause greater activity in three areas connected with emotions: posterior cingulate, medial prefrontal cortex, and amygdala, and there is also a greater activity in the superior temporal sulcus. Moral dilemmas which are not connected with the person himself are accompanied by the greater activity in two classically cognitive areas of the brain: dorsolateral prefrontal cortex and inferior parietal lobule.

John Mikhail does not agree with Greene and sees another basis for moral intuition (Mikhail, 2008). Mikhail is sure that the human brain works within a computational “moral grammar”, which is similar to other “mental grammars” in other spheres of human activities such as language, music, recognition of faces, etc.. A quick moral answer is caused by cognitive dissonance in the brain due to the computational moral grammar (Mikhail, 2008). So Greene’s conclusion that quick deontological answers have no cognitive background is wrong.

The fact that we have inborn moral intuition (some call it “conscience”) is stated by many neuroscientists. The neuroscientist Svyatoslav Medvedev, the Director of the Institute of the Human Brain in St.Petersburg, Russia, says, “Conscience is not an abstract concept, it is quite a real one and, if you wish, a universal mechanism, which nature has given to both a righteous person and a sinner”, and although “conscience does not prevent us from doing evil, it prevents us from enjoying it”, and he gives the data and graphs with 150-200 milliseconds jump on the electroencephalogram if a person is lying (Zernova, 2007).

Perhaps, moral action, in principle, cannot involve the calculation of advantages even for the majority’s benefits. There is a fundamental difference between a rational decision (the calculation of advantages for the majority’s benefits) and a moral decision, which disregards any advantages for anyone except a moral duty. First goes moral intuition, then moral emotion, which raises motivational force to perform a moral action, and only later we rationalize our moral action trying to explain why we did so. If we start with the rationalisation what is moral for us to do, there is something wrong with either our moral intuition, or we want to suppress it in order to get some advantages for ourselves.

The materialist neuroscientists put forward different theories concerning moral thinking and mentioning the areas of the brain involved in this process. Moll lists the areas, which, if damaged, worsen moral thinking (Moll et al., 2005): anterior prefrontal cortex (aPFC), dorsolateral prefrontal cortex (DLPFC), ventral sectors of prefrontal cortex (vPFC), ventromedial sectors of prefrontal cortex (vmPFC),
lateral orbitofrontal cortex (IOFC), medial orbitofrontal cortex (mOFC), posterior superior temporal sulcus (pSTS), anterior temporal lobe (aTL), hypothalamus, septal nuclei, basal nuclei and neighbouring structures, and other limbic and paralimbic structures.

Moll defines the specific problems of moral thinking and behaviour according to the damaged area of the brain. For example, if the ventromedial sectors of prefrontal cortex are damaged, a human being lacks the feelings of proudness, embarrassment, and regret.

The following hypotheses of ethical naturalism are worth mentioning: Pfaff’s hypothesis of the Golden rule (Pfaff, 2007); Moll’s hypothesis of the Event-feature-emotion complex framework (Moll et al., 2008); Greene’s hypothesis of the Conflict processing in moral judgments (Greene, 2008); Moll, de Oliveira-Souza and Eslinger’s hypothesis of Moral sensitivity (Moll, de Oliveira-Souza, Eslinger, 2003); Blair and Cipolotti’s hypothesis of Social response reversal (Blair, Cipolotti, 2000); Wood and Grafman’s hypothesis of the Structured-event-complex framework (Wood, Grafman, 2003); Lough, Gregory and Hodges’s hypothesis of the Impairment of the theory of mind mechanism in sociopathy (Lough, Gregory, Hodges, 2001).

Fig. 8. The brain areas involved in moral thinking.7

On the left, there is the left hemisphere of the brain (the forehead on the left). On the right, there is the right hemisphere of the brain from the inside (the forehead on the left). The brain areas involved in moral thinking are the following: aPFC - anterior prefrontal cortex, DLPFC - dorsolateral prefrontal cortex, IOFC - lateral orbitofrontal cortex), aTL - anterior temporal lobe, pSTS - posterior superior temporal sulcus, vmPFC - ventromedial sectors of prefrontal cortex, mOFC – medial orbitofrontal cortex, and also septal nuclei, basal nuclei and hypothalamus.

Moll is, perhaps, the most prominent researcher in this field. His hypothesis of the Event-feature-emotion complex framework proposes the connection between cognitive social activities (events) and emotional states (emotions), where social characteristics (features) are interwoven into one whole (complex) (Moll et al.,

7 based on Moll et al., 2005: 800
Hence, the name of the hypothesis is “event-feature-emotion complex framework”. Moll and his co-authors believe that moral knowledge should be considered as a whole consisting of three components bearing the construction (framework) (Moll et al., 2005):

1. context dependent structured knowledge of events with the activation of prefrontal cortex of the brain. It is the knowledge about the essence of the event, its proceeding, possible result (for example, looking at a child whose parents died a man begins to imagine the child’s future);

2. context independent knowledge of social perception and functional features with the activation in the front and rear parts of the temporal cortex (social perception refers to the ability to see sadness on the faces of people and understand their body language; the ability to understand the concept of “helplessness”, for example).

3. context independent ability of having motivational and emotional states with the activation in the limbic and paralimbic structures of the brain (the ability to feel attachment, anxiety, and sadness).

All these three components taken together allow a man to feel moral emotions of sympathy, for example, when he is looking at a child who lost parents.

Moll points out the difference between his and Greene’s hypotheses. Greene asserts that the prefrontal cortex performs the cognitive control over emotional reactions, which leads to more rational moral choice (consequentialist choice). Moll is sure that the participation of prefrontal cortex is only one of the aspects of social knowledge, and this knowledge is always connected with relevant emotions (Moll et al., 2008).

Pfaff in his Golden rule hypothesis speaks about an instant loss of your own personality and getting into the state of the other person, which is the basis for moral actions towards the other person because you think more about him than about yourself (Pfaff, 2007). Such a moral state is also caused by the rise of hormone release. It is oxytocin, the hormone that releases when a man and a woman love each other, or when parents love their child. Such hormone release makes a person take care of the other one, i.e. to behave morally (Pfaff, 2007). The Golden rule (do to others what you want them to do to you) is the principle of reciprocal altruism, which developed in the processes of evolution and helped people to survive. Pfaff reminds us that Kant also used this principle in his deontological philosophy. (I will give my objections further).

Laurence Tancredi, the representative of ethical naturalism, thinks that a human has a “moral” brain, which consists of two broad regions: (1) “emotional” brain (limbic system or our “old brain”) and (2) “rational” brain (frontal lobes) (Tancredi, 2005). The emotional brain includes four main parts: amygdala, hippocampus, hypothalamus, and the anterior cingulated cortex. The rational brain is the frontal lobes. The prefrontal cortex is the brain’s “command post” (near the forehead above the eyes). It is supposed to be the centre of personality and identity, and the integration of emotions and thoughts. Virtually every functional part of the
brain is directly or indirectly interconnected to this cortex and is controlled by it (Tancredi, 2005). There must be special social conditions to activate an inherited ability, which is present in the genes. Tancredi is sure that in some cases a human cannot control himself under certain social conditions because his neurobiological deficiency takes an upper hand in the struggle for moral behaviour. Thus a criminal becomes a victim of his brain deficiency: he must be treated in hospital.

Tancredi declares that a mortal sin⁸ is the pathological functioning of the brain, which does not correlate with the conscious choice to commit a sin (Tancredi, 2005). For example, laziness and apathetic listlessness result from depression, when the main neurotransmitters - serotonin, dopamine, and norepinephrine – decrease in quantity in the synapses of neurons in the limbic structures. Such a sin as lust is caused by the release of too much testosterone, and so on. Tancredi asserts that moral choice is biologically motivated, and that it is a revolutionary hypothesis, which contradicts religious doctrines and social traditions considering a human as a free agent responsible for his thoughts and actions. Tancredi is convinced that the brain directs the mind, and that moral thinking became genetically present in human beings in the course of human cooperation to survive and to bring up children (Tancredi, 2005). Inborn moral thinking is confirmed by clinical cases: children with inborn brain deficiency or with a damaged brain in the childhood are incapable of moral thinking and social consciousness (Tancredi, 2005; Chayer, Freeman, 2001). Tancredi thinks that neurobiological factors influence not only the depth of thinking morally, or how the brain processes the information, but also the content of moral thinking (Tancredi, 2005).

Summary: Materialist researchers such as Tancredi, Green, Moll, and Pfaff belong to ethical naturalism and insist that moral thinking is the product of evolutionary pressure. The evolutionary pressure formed social cognitive and motivational mechanisms. Reciprocal altruism developed under this pressure and became the basis for moral thinking. Moral behaviour resulted from the feeling of love (man and woman’s love, parents’ love) which later turned into the feeling of care for an unknown person. Moral thinking, as they suppose, is based on the activation of certain brain structures and a special hormone release.

Objections:
(1) Sometimes attachment and love to someone pushes a person to commit an immoral action towards other people. Hynes draws our attention to the fact that attachment can bring about immoral behaviour: nepotism, racism, and sexism (Hynes, 2008). Aggressiveness is considered to be a bad quality of character, but it can support a moral action, meanwhile the lack of it can bring to the passive cooperation with the immoral power and immoral social system.

⁸ Mortal sins in Christianity are the sins that lead to the death of the soul: wrath, greed, sloth, pride, lust, envy, and gluttony; sometimes apathetic listlessness and vainglory are mentioned among them.
(2) If a person expects reciprocity, his action is not altruistic by definition. Besides only the participants can define whether the action is altruistic. Thus, a human altruistic act cannot be altruistic in the evolutionary meaning.

De Waal explains the difference between the biological and social understanding of altruism (De Waal, 2008). Biologists classify the behaviour as selfish or altruistic according to the effect, whether it is good for others, or only for the performer of the action; it is not based on motivation and intention (De Waal, 2008). When a bee stings someone who intrudes into the bee-hive and dies saving others, it is called an altruistic act, and it does not matter if the bee is conscious of its altruistic action or not. However, the bee’s behaviour can simply be an act of aggression, and it stings anyone and anywhere if one gets into its way. It behaves so without the purpose of saving other bees. De Waal agrees with Trivers that, if you start studying something where the motivation is present you immediately get outside the evolutionary theory, and you have to use concepts and theories of psychology instead of biology. The study of motivation automatically excludes the explanation based on a biological theory. Motivation for a human is the force by itself. Biologists ignore such motivation (De Waal, 2008). De Waal distinguishes evolutionary altruism (an example with a bee), which the majority of animals have, and psychological altruism, which is typical for people and which is socially motivated as an answer to the needs, distress and request of others when the effect of the action is anticipated (De Waal, 2008).

(3) Pfaff assures us that reciprocal altruism in his hypothesis “Golden rule” (do to others what you want them to do to you) is Kant’s moral principle. However, Kant’s moral principles (categorical imperatives) are not based on the principle of reciprocity, but on the moral “duty”, which does not presuppose any expected benefits for oneself. The principle of reciprocity - “I have done something for you and you will do the same to me” - is the basis of all corruptive schemes and has nothing in common with Kant’s deontology. It is “good will”, which means that you will act morally because you rationally want to do so without any benefits for yourself (Kant, 1995b). You have strong motivation to perform an altruistic moral act, and it is decided a priori and consciously without the involvement of feelings and emotions. Kant distrusts feelings and emotions as the criteria of moral behaviour (attachment, love, happiness) unlike Pfaff: circumstances can change and a person can become unhappy and lose his natural inclinations, feelings and desire to behave morally towards others. We see that Kant’s own description of the mechanism of his moral principles does not fit either Pfaff’s or Greene’s understanding of Kant’s philosophy.

(4) While studying the brain during moral decisions many neuroscientists and Moll, in particular, consider that moral behaviour is equal to the obedience to the social norms of behaviour. However, it is a doubtful proposition as it can be seen in Stanley Milgram’s series of psychological experiments on the obedience to authority. Milgram’s experiment showed that conformity itself to social rules and norms is not necessarily morally praiseworthy (Milgram, 1963; Milgram, 2009). Milgram reminds us that in the course of history we can find many examples when
the conformity to social norms and obedience to authority caused much more trouble and mass immoral behaviour than the disobedience of individuals. What would Moll say about Edward Snowden’s disobedience and his moral brain? Edward Snowden, an American computer professional, former employee of the Central Intelligence Agency (CIA) and the National Security Agency (NSA) disclosed to several media outlets thousands of classified documents to show the existence of numerous global surveillance programmes over people who are not criminals all over the world; many of the programmes are run by the NSA. He was charged with espionage in 2013 by the U.S. government, though judging from the data revealed, the U.S. government itself is the greatest spy in the world and must be charged with espionage by the Organisation of United Nations (News: U.S. charges Snowden with espionage, 2013). Snowden says, “My sole motive is to inform the public as to that which is done in their name and that which is done against them” (News: Edward Snowden: the whistleblower behind the NSA surveillance revelations, 2013). The international public does not seem to share the moral values of the U.S. government, and The Guardian and The Washington Post, which published Snowden’s leaked documents received Pulitizer Prize for Public Service in 2014 (News: Edward Snowden’s prize, 2014). And in 2014, Snowden was elected to the role of the Student Rector at Glasgow University in Scotland to represent more than 20,000 students for the next three years: it is students’ international message of protest against government surveillance (News: Edward Snowden just got yet another new job, 2014). Such government’s moral norm is in clash with inborn moral values. So, one should first define what is moral before trying to find out what are the brain structures engaged in moral thinking.

Moll and colleagues have developed a naturalist ethical theory using the evolutionary theory in the explanation of moral emotions. Their ontology is fundamentalist: people have genetic predisposition to moral behaviour due to their cooperation in collectives; morality is acquired while learning moral norms of society; moral thinking gets fixed in genes. “Morality is a product of evolutionary pressures that have shaped social cognitive and motivational mechanisms” (Moll et al., 2005: 799). In other words, morality is proposed to be the set of social norms, habits, and values of the particular society, which must be learnt by an individual as a guidance for his moral behaviour.

But all of us know that social norms and moral ones do not necessarily coincide. It is interesting that psychopaths and those suffering from autism cannot distinguish them (McGeer, 2008). Social norms change but moral values are permanent for humans. However, Moll seems to deny absolute moral values.

It is interesting to read Kant’s reply made in the 18th century in his preface to The Critique of Practical Reason, “A reviewer who wanted to find some fault with this work has hit the truth better, perhaps, than he thought, when he says that no new principle of morality is set forth in it, but only a new formula. But who would think of introducing a new principle of all morality and making himself as he were the first discoverer of it, just as if all the world before him were ignorant of what duty was or had been in thorough-going error? But whoever knows of what importance to a mathematician a formula is, which defines accurately what is to be done to
work a problem, will not think that a formula is insignificant and useless which does the same for all duty in general” (Kant 1995a: 127). In the Foundation of the Metaphysic of Morals Kant compares moral rules with “universal laws of nature” (Kant, 1995b: 96). In other words, Kant believes in permanent moral values, “Two things fill the mind with ever new and increasing admiration and awe, the oftener and the more steadily we reflect on them: the starry heavens above and the moral law within. (…) The former begins from the place I occupy in the external world of sense, and enlarges my connection therein to an unbounded extent with worlds upon worlds and systems of systems, and moreover into limitless times of their periodic motion, its beginning and continuance. The second begins from my invisible self, my personality, and exhibits me in a world which has true infinity, but which is traceable only by the understanding, and with which I discern that I am not in a merely contingent but in a universal and necessary connection, as I am also thereby with all those visible worlds. (…) The second, on the contrary, infinitely elevates my worth as an intelligence by my personality, in which the moral law reveals to me a life independent of animality and even of the whole sensible world, at least so far as may be inferred from the destination assigned to my existence by this law, a destination not restricted to conditions and limits of this life, but reaching into the infinite” 10 (Kant, 1965: 498).

5) Though the research of ethical naturalists in neuroscience concerning the brain functioning and moral thinking is valuable, it can be misleading and take us away from moral concepts at all. They study the interconnection between moral behaviour and the disorders in the brain with the hidden assumption that human behaviour is fully determined by the functioning of brain structures and their neurobiological characteristics. If it is true then we cannot speak about moral behaviour, in principle, because moral behaviour is traditionally understood as what we must do but not what it is.

6) All genetic theories, in fact, presuppose the lack of human free will, which is important for moral choice. Non-materialist neuroscientists fiercely argue with materialist neuroscientists and give crucial examples from their medical practice when treatment of patients is based on free will and mind, which control and direct psychological and physiological processes.

Neurons never stop learning due to the neuroplasticity of the brain, and it depends on our free will to teach them. The physical state of neurons and neurochemistry of the brain change when we regularly repeat the actions, or reprogramme our mind at our free will.

The neuroscientists Newberg and Waldman confirm that every emotion or thought causes the change of blood flow to certain brain structures and the change of their electro-chemical activity (Newberg, Waldman, 2009). The scanning of the meditating people shows that meditation helps to stimulate some structures to

9 translated by Thomas Kingsmill Abbott
10 translated by Thomas Kingsmill Abbott
function better and to control emotions (Newberg, Waldman, 2009). Meditation practice helps to overcome anger at free will. Anger releases a cascade of neurochemical substances, which practically prevent human ability to control emotions (Newberg, Waldman, 2009). Thus, the expression of genes is partially dependent on human free will to meditate and develop certain structures of the brain.

Comparing contending hypotheses of ethical naturalism and ethical intuitionism (both belonging to ethical realism), we can foresee a certain impact of their conclusions on our social life.

Summary:
(1) Neuroscientists working within ethical naturalism explain the objective existence of human moral thinking by inborn neurobiological characteristics of the healthy brain, which “directs” the mind, and believe that moral thinking developed in the evolutionary process because social moral norms helped people living in groups to survive. Neuroscientists preferring ethical intuitionism consider moral thinking as inborn mental or/and spiritual quality of a human. Unlike ethical naturalists, they assert that the mind “directs” the brain, and the brain changes under the influence of thinking process, so a moral choice depends on the mind, but free will and not the deficiency of brain unless it is considerably damaged.

(2) Both the parties agree that moral thinking is an objective process and that the social surrounding produces its influence upon human moral thinking. After defining their positions to physical and mental substances (ethical naturalists are materialists and monists, but the majority of ethical intuitionists are dualists), neuroscientists suggest their hypotheses in which one can see the different understanding of human responsibility for immoral actions.

(3) If moral thinking is defined by the neurobiological work of the brain, then a person cannot be responsible for his immoral actions. The concept of free will disappears due to the fixed way of behaviour determined by the peculiarities of a particular brain.

(4) If moral thinking depends on mind and free will, then a person bears all responsibility for his actions. After getting such different scientific conclusions based on different ontologies on brain and mind, the society has a choice of the implementation of scientific recommendations. What are the social implications in both cases?

(5) If we chose the conclusion of ethical naturalism, the tendency would be to develop the medicated correction of an “immoral” brain; to improve genetic characteristics of a human; to implant devices into the brain of criminals to control them; to scan the brains of people to find inborn neurobiological deficiencies before taking them to certain jobs, i.e. to find “immoral” individuals who give an unusual reaction of brain structures when answering the questions. However, social norms are not necessarily moral norms. There are neither perfect people, nor perfect social systems. Political disobedience of citizens is, as a rule, a moral phenomenon because they consider it their moral duty to oppose the
authorities in order to improve the existing economic and political system for all people. Those individuals who were against slavery were much more moral than the majority of people enjoying slaves’ work in the slavery society. Who will define moral criteria? Who will define the moral state of the brain? Who will keep this information? Evidently, it will be in the hands of power elites, which will never allow any criticism. To criticize the power will be immoral.

(6) If we believe in two substances, as ethical intuitionists do, the picture will be different. Ethical intuitionists would recommend the improvement of thinking abilities through education, religion, art, literature, meditation. However, there is another danger: if people enter spiritual practices deeply enough, they may prefer staying at the individual level to being involved into economic and political life of the society, because the aim of spiritual practices is to liberate yourself from your social and individual problems.

The American philosopher and psychologist William James (1842-1910) writes about people’s admiration of saints’ high morality and kindness, but he also says, “….reasonable arguments, challenges to magnanimity, and appeals to sympathy or justice, are folly when we are dealing with human crocodiles and boa-constrictors. The saint may simply give the universe into the hands of the enemy by his trustfulness. He may by non-resistance cut off his own survival” (James, 1985: 355). And further James quotes Herbert Spencer, who said that “the perfect man’s conduct will appear perfect only when the environment is perfect: to no inferior environment is it suitably adapted” (James, 1985: 355).

The overabundance of benevolence and charity of saints towards people can be, indeed, a creative social force because a human soul has great possibilities for development: the force destroys enemies, but the peaceful resistance, if successful, turns enemies into friends. James considers all utopian dreams about social fairness by socialists and anarchists to be very good and useful for mankind in spite of their impracticable and nonadjustable character: their dreams help to soften the present cruel system of governing as much as the faith in the Kingdom of Heaven, it is a slow starter for a better order in the world.

I would paraphrase James and Spenser in the following way. The society is so badly organized economically and politically that the cruel government is the consequence of it, and under such government, it is impossible to behave as a human being. The only possibility to show how a human must behave and feel, and what principles people must use for the social organization is to give the examples of saints. Socialists and anarchists are engaged in the same task; they show that there can be other variants of economic, political, and social organization of people.

Those who try to change the world and make it better are moved by the need to realize their moral intuitions.

It is moral thinking that forces a man to punish the violater of inborn moral code. The saint is the one who understands that he can do nothing in a given political and economic situation, but, nevertheless, he consciously chooses the submission to his
inborn morality denying social moral norms of his society. If the denial reaches the highest level, he stops considering a human as equal to himself and starts treating him as a small silly child. A child will become an adult, and only then he will understand the saint, so he must be patient with a child. Neuroscience confirms that a human with a normal brain cannot but think about anything he comes across in a social and moral ways, and inborn morality and adjustment to social norms compete. Moral judgments penetrate all our life including international policy. We react empathically to the events at the other end of the world feeling the sufferings of unknown people while watching them on TV and get angry with unfairness towards them.

Desmond Tutu, the former archbishop of Cape Town (South Africa), who received the Nobel Peace Prize in 1984 for the struggle against apartheid, called for the trial of Tony Blair, the former prime minister of Great Britain, and George W. Bush, the ex-president of the USA, at the International Criminal Court in the Hague over the Iraq war. He accused the former leaders of lying about Saddam Hussein’s weapons of mass destruction and said that the Iraq military campaign had made the world more unstable than any other conflict in history creating the conditions for the civil war in Syria and for a possible Middle East conflict involving Iran. It brought about many deaths of peaceful civilians in Iraq. Desmond Tutu said that Bush and Blair “should not have allowed themselves to stoop to Saddam Hussein’s immoral level” (News: Desmond Tutu calls for Blair and Bush to be tried over Iraq, 2012).

Alexander Dugin, a philosopher and a political scientist, the head of the department of sociology of international relations at the Moscow State University, thinks that the events connected with the death of Muammar Gaddafi (the former ruler of Libya) in 2011 sharply changed the moral image of the West, “If the desecrated corpse of Gaddafi exposed for the public display symbolizes human rights, humanism, and democratic values, then the world turned upside down. So, the black is white, and a horned devil is a winged angel” (Dugin, 2011).

Moral anger forces people to go to the extreme. Analyzing the economic practices at present, the neuroeconomist Paul Zak gives an example of the suicide committed by Clifford Baxter, the former vice chairman at the “Enron” company, the seventh largest corporation in the USA. Clifford Baxter started complaining to Jeff Skilling, the chief executive officer, about the inappropriateness of their business practices towards the end of the 1990s. In 2001 he resigned, and in 2002 he committed suicide. Baxter was known to be a successful man and a man of high morality: he had a happy family life, he served with distinction in the military and always criticized the company’s ethical transgressions and legal abuses. Thinking about the reasons why the majority of employees at the Enron kept silence and did not support Baxter, Zak puts forward the following ideas (Zak, 2008: 260-261):
1. “...the process of economic exchange values greed and self-serving behaviors, and inadvertently produces a society of rapacious and perhaps evil people”. Modern economies are dehumanized;
2. “…there could be a selection bias in which amoral greedy people were hired in key posts, and this behavior filtered down to other employees”;
3. Most people behave ethically most of the time, “nevertheless, in the right circumstances, many people can be induced to violate what seems to be an internal representation of values that holds unethical behavior in check”.

Unethical senior management introduced such a system of compensation, incentives and other company’s procedures that employees were encouraged to behave unethically to one another and to clients. Institutional environment encouraged immoral behaviors.

What Zak writes about the Enron is true for any social group, let it be a company, university, non-governmental organization or government itself. Social adjustment competes with internal representation of moral values that holds unethical behaviour in check, and it is much more difficult for inborn morality to win if the head of social structure is an immoral person who chooses people like himself to manage the company or the government. Unfortunately, conformity to senior immoral management is not punished by law in the modern society.

If we have substituted Homo Sapiens by Homo Economicus in economics and in socio-economic life, we have to adjust to the rules. Thus, share-holders themselves have created selfish and greedy top managers, who do not care for the personnel, but only for their own profits because to motivate the top manager to work better, share-holders connected his profit with the cost of shares and defined the success of a company by the value of shares, but not by the social value of its business, and placed an emphasis on the external factors of encouragement – salary, punishment, instead of the intrinsic ones – the job satisfaction, working atmosphere, professional growth, and an employee’s honesty, incorruptibility, and integrity (Gintis, Khurana, 2008).

Moral, or immoral behaviour can spread in the society due to a human ability to imitate and thus, to learn new things.
Materialist neuroscientists have found that moral thinking is connected with empathy, which involves the activation of mirror neurons. The mirror neurons in the human brain automatically reflect the activation of the other man’s neurons if he is observed directly (Gazzola, Aziz-Zadeh, Keysers et al, 2004; Wicker et al., 2003). The mirror neurons are located in those areas of the brain where visual, motor and emotional states merge. The networks of mirror neurons are considered to be in the parietal lobe, Broca’s area, the premotor cortex of the frontal lobe and the superior temporal sulcus of the temporal lobe (Christian, 2008; Rizzolatti, Fogassi, Gallese, 2006).
Experiments show that if a person is hurt the same areas of brain automatically get activated in the brain of the observing person, especially if both of them are in good relationship (Singer et al., 2004a). Empathy is considered to be an inborn automatic and unconscious process (Christian, 2008; Gallese, 2003; Botvinick, Jha, Bylsma, Fabian, Solomon, Prkachin, 2005).

Fig. 9. The brain areas of mirror neurons.\textsuperscript{11}

This is the left hemisphere of the brain. There are frontal, parietal, occipital and temporal lobes (in italics). The temporal cortex is separated from the rest by the deep Sylvian fissure, and the front lobe is separated from the parietal one by the deep central sulcus. The networks of mirror neurons are located in the shaded areas: in the parietal cortex, including a somatosensory strip, the premotor cortex of the frontal lobe, Broca's area in the left frontal lobe, and in the superior temporal sulcus of the temporal lobe.

Some neuroscientists include conscious attitude in the definition of empathy. They consider that empathy has two components:
(1) automatic affective reaction,
(2) cognitive ability to take the perspective of the observed person but at the same time to be aware that he is not you (Christian, 2008; Jackson, Meltzoff, Decety, 2005). In the social perspective, empathy is connected with the desire to help or support another person. The social interrelationship could be difficult without human empathy.

Neuroscientists draw our attention to the slight difference while comparing the areas activated when an observing person is looking at the man suffering from pain with the areas activated when he is hurt directly. In Fig.10, there are the area of the brain activation when the person sees the other’s pain and when he has his own.

\textsuperscript{11} based on the description by Christian, 2008: 68; and by Hass-Cohen, 2008: 288
The neuroscientists Tania Singer and Nikolaus Steinbeis consider that there are two very important motivations for decision making: fairness and sympathy. The disregard of social fairness makes people angry and provokes the desire to punish the violater of the moral value of social fairness. Sympathy, on the contrary, makes them forgive him (Singer, Steinbeis, 2009).

Fig. 10. The empathic areas of the brain. The feeling of your own and the other’s pain.12

Both your own and the other’s pain activates the anterior cingulate cortex, anterior insula, cerebellum, and brain stem (underlined words). Your own pain also activates the middle part of the insula and somatosensory cortex. The insula is the cortex that is hidden deep in the fold between the temporal and frontal lobes, it is not seen if to look at it from the side (a dotted line around the insula). The other’s pain activates the following empathic areas in the brain of the observing person: anterior cingulated cortex, anterior insula, amygdala, frontal cortex, rostral lateral prefrontal cortex, parietal cortex, premotor cortex, cerebellum, and brain stem.

Carrying out the experiment on the emphatic neurobiological reaction connected with fairness, Tania Singer and her colleagues found out that the emphatic reaction was noticeably lower when the dishonest partner, after the game, was subjected to pain in the subsequent experiment on empathy (Singer et al., 2004b). This lower reaction was even followed by the activation of brain structures responsible for reward and pleasure, especially it was typical for men in comparison with women (Singer et al., 2006). In other words, instead of the expected emphatic reaction, the participants felt pleasure that their dishonest partners had pain. These data are in conformity with other researchers’ experiments where participants showed the inclination to altruistic punishment of moral violators. They were ready to lose their financial reward for the pleasure to punish dishonest partners just to satisfy their moral anger. So, no wonder that we find such cases in the mass media, as described further.

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12 Based mainly on the description by Wicker et al., 2003
There was a hearing of “the kopeck\textsuperscript{13} case” in the court of a small town Zlatoust (News: The petty lawsuit won by the resident of Zlatoust gave him moral satisfaction, 2011). A young doctor was not given his salary before his annual holiday, and all his plans for holiday were ruined. In anger, he took his case to court demanding the compensation for the unduly given salary by the administration, which was equal to 78 kopecks according to the law and also demanded 100 roubles as a compensation for moral damage. The court decision was in his favour. The young man was proud that he managed to establish justice and to punish the lazy administration. However, he had spent, approximately, thousands of times more money on the lawsuit in comparison with his compensation: the moral punishment was much more important for him than the money.

\textit{Neuroscience about fairness.}

The ultimatum game is popular in neuroeconomics, and the results are similar in all experiments made by researchers in different countries. Glimcher describes the ultimatum game in the following way, “Two players in different cities, who have never met and who will never meet, sit at computer monitors. A scientist gives one of these players $10 and asks her to propose a division of that money between the two strangers. The second player can then decide whether to accept the proposed split. If she accepts, the money is divided and both players go home richer. If she rejects the offer, then the experimenter retains the $10, and the players gain nothing. What is interesting about this game that when the proposer offers the second player $2.50 or less the second player rejects the offer. The result is that rather than going home with $2.50, the second player goes home with nothing. Why does she give up the $2.50?” (Glimcher, 2008).

Camerer states that it is 40-50\% of the sum that is considered to be fair, and if it is 20\%, the money is rejected and the game stops (Camerer et al., 2005). However, if to change the rules of the game and tell the players that they will compete for the greatest sum of money, there behaviour will change: the offered sums will reduce, and the refusals to take amounts of money smaller than 40-50\% will reduce as well (Chorvat et al., 2004).

Chorvat and colleagues assert that there is a fundamental difference in the work of the brains of the trustworthy and untrustworthy partners during this game. The activation of brain structures of the untrustworthy partner resembles the activation when people think that they play a game with a computer (Chorvat et al., 2004). If participants play a game with a computer, they know that the computers cannot be ascribed a guilty mind and a violation of moral code, so they do not refuse to take amounts of money smaller than 40-50\% (Chorvat et al., 2004).

\textsuperscript{13} Kopecks are small coins; there are 100 kopecks in one Russian rouble (the main unit of currency).
Social norms of the present socio-economic structure forces people to compete for being the greediest. The inborn moral values are distorted by the economic system based on competitiveness, greediness, and incentives encouraging immoral behaviour in the companies. The conflict between the socio-politico-economic system and inborn moral values provokes irrational behaviour and social clashes. Here are some more examples from our every day life:

- Germany.
  
  Scenery: Germany.
  
  Main character: Erika Schmidt, 62, a manager in the saving bank, who worked there for decades rising from a counter clerk to the manager.
  
  Plot: Starting from 2003, Schmidt had been taking cash from the accounts of her rich customers to lend money to the poorer customers of her bank. She took no money for herself. She allowed overdrafts for customers who would not normally qualify for them. She used the money from richer customers to temporarily disguise the loans during the bank’s monthly audit of overdrafts. The woman knew most of the clients of her small rural branch and said that she couldn’t bear to see her less-fortunate customers go hungry. She met them personally to be sure that they were “needy cases” and insisted that they should pay back when they were on their feet. Unfortunately, not all her clients gave money back in time, and in 2009 Erika Schmidt was arrested.
  
  Epilogue: Erika Schmidt lost her job, was arrested and had to return all the money. However, instead of 4 years in prison she was given a 22-month suspended sentence.
  
  Reaction of the society: Erika Schmidt was compared with Robin Hood, a heroic outlaw in English folklore who robbed from the rich and gave to the poor. She was called “Die Robin Hood Bankerin”. She was also compared with the Brecht character who believed she could do good in the bad world. The woman could have faced a four-year prison sentence, but the court decided on leniency, and the judge said, “It’s difficult to find an appropriate punishment here. On the one hand, we have big losses. But on the other hand we have here this altruistic behaviour, which makes the case very different from the norm.”
  
  Conclusion: People are characterized by empathic reaction. Schmidt’s inborn human morality and empathic reaction outweighed her fear and rational calculation. In spite of official condemnation of Robin Hood people composed the ballad about his noble behaviour. Social moral norms dictated by the power and supported by the economic and political system were in conflict with inborn human moral norms in old times too (News: ‘Robin Hood’ bank manager accused of stealing to help poor, 2009; News: German banker admits transferring money from rich to help poorer, 2009).

- The USA.
  
  Scenery: The USA, a Florida beach.
  
  Main character: Tomas Lopez, 21, a lifeguard.
Plot: Tomas Lopez was patrolling part of Hallandale Beach north of Miami when he was told that a swimmer was in trouble in an unguarded area of the beach. Lopez and an off-duty nurse ran to help the swimmer, who had already been pulled out of the water by beachgoers by their arrival. The swimmer was taken to hospital.

Epilogue: Tomas Lopez was sacked because he had broken the company’s rules. His boss of the “Jeff Ellis and Associates” said, “We have liability issues and can’t go out of the protected area.”

Reaction of the society: A colleague, on finding out the reason why Lopez had been fired, radioed his manager at once saying that he was leaving their company. Two other colleagues also resigned in protest.

Conclusion: When Lopez was interviewed, he said that he could not but run to a drowning man though it was not his duty, “I think it’s ridiculous, honestly, that a sign is what separates someone from being safe and not safe” (News: Florida lifeguard fired for helping drowning man, 2012).

If a human is not restrained by immoral instructions and laws aiming to get financial profits in the first place, he usually takes the right moral decisions quite automatically and very quickly.

- Great Britain.

Mark Duggan, 29, was shot dead by police in Tottenham, north London, after they stopped the minicab he was travelling in on 4 August, 2011. Independent Police Complaints Commission (IPCC) revealed that there was no evidence that Duggan had opened fire at police before being shot dead by a firearms officer. The shooting of Mark Duggan by police caused the widespread public disorder including looting, arson, and violence across London and other English cities in which many young people participated. A total of 1,292 offenders were jailed for their part in the trouble during a year (News: Mark Duggan death: Timeline of events, 2011).

Camila Batmanghelidjh, who has spent decades working with poor and disenfranchised youth, states that “the insidious flourishing of anti-establishment attitudes is paradoxically helped by the establishment”, and that the police unjustly carry the consequences of a much wider social dysfunction in Great Britain (News: Batmanghelidjh: Caring costs – but so do riots, 2011). She blames social exclusion and deprivation. The social care agencies are too under-resourced to compete with the illegal drug economy, which facilitates a parallel subculture of violence. If the community is perceived not to care for an individual, and he is “repeatedly humiliated and continuously dispossessed in a society rich with possession”, young, intelligent citizens of the ghetto will seek an explanation for why their humanity is not valued enough to be helped, and the acquisition of goods of this community through violence becomes justified in their eyes. In the end, they develop the dark side of their nature as many of us could do under permanent humiliating circumstances. Camila Batmanghelidjh draws our attention to the false morality of the British economic system. She says that “the perverse insidious violence delivered through legitimate societal structures” is less visible than riots and is not condemned. She concludes that though caring costs a lot, the price of
failing to care is higher. Some other journalists also identified poverty, high youth unemployment, illiteracy, drug abuse, the spending cuts of the government and the growing gap between rich and poor as causative factors. High youth unemployment combined with the government’s decision to cancel the education maintenance allowance, to reduce university places, to close youth centres, and to treble the university tuition fees alienated and angered the youth population (News: Young people have no right to riot, but they have a right to be angry, 2011). Saci Lloyd, a teacher of the college, says, “But ask me if I think young people have the right to be angry as all hell and I will give you an unequivocal yes. And what we saw last week was simply that: an outpouring of their blind rage against the system” (News: Young people have no right to riot, but they have a right to be angry, 2011).

Thus, moral anger brought about violent behaviour. The real cause of riots is the faults of the economic and social policy. Humiliation and social exclusion is a prolonged social stress and deprives a person of motivation to behave pro-socially (Hartling, 2007). Adolescents are particularly vulnerable to social exclusion, and if they are rejected, they behave less pro-social (Sebastian et al., 2010; Twenge et al., 2007). The amygdala and the right ventromedial prefrontal cortex begin to respond differently in the brain (Taylor et al., 2006).

After studying the mechanism of genetic involvement into the development of psycho-emotional disorders caused by social stress, neuroscientists have come to the conclusion that social factors affect the gene expression, i.e. a biological cell undergoes some changes under social stress as well as neurochemistry of the brain, and the behaviour changes (Kudryavtseva, Avgustinovich, 2006; Filipenko, Alekseyenko, Beilina, et al., 2001). Prolonged social stress results in depression, anxiety, pathological aggression, and other abnormal manifestations of altered gene expression (Kudryavtseva, Avgustinovich, 2006). The neuroscientist Damasio says that social factors interact with biological ones, and sociopathy can be caused not only by an inborn anomalous neurophysiology of the brain, but sociocultural factors as well (Damasio, 2006). Neuroscientists show that the violation of the principle of fairness is unbearable for people. People try to take revenge if society pursues the policy of unfairness towards them (Glimcher, 2008; Singer et al, 2004a; Camerer et al., 2005), and the satisfaction of moral anger is rewarding for them, with the empathic reaction being blocked (Singer et al., 2006).

- Spain.
In 2011-2012 in Spain, indignant people organized the series of protests demanding a radical change in Spanish political and economic system (News: Indignados en la calle, 2011). They called for the nationalization of banks and demanded basic rights to have work, homes, education, health care system, and the support of culture (News: Miles de personas exigen dejar de ser ‘mercancías de políticos y banqueros’, 2011). They started the international march of “Indignados” (“Indignant People’s march”) from Madrid to Brussels in July 2011 to say that they
were fed up with the way the economic crisis was dealt with in Europe (welfare cuts, job losses, and privatizations) while those who caused the recession remained unaffected (News: Spanish Indignants start long protest march to Brussels, 2011).

- USA.

In the USA Americans also rebelled against bankers under the slogan “Occupy Wall Street” (News: OccupyWallSt.org, 2012; News: Occupy Prescott protesters call for more infrastructure investment, 2011). This mass movement arose in August/September of 2011 and spread to more than 100 cities of the USA, and similar actions took place in more than 1500 cities of the world in 2011-2012 (News: OccupyWallSt.org, 2012). The protesters announced that they expressed the opinion of 99% of population, and that they were against unemployment, welfare cuts, the dictatorship of big corporations, the policy of the authorities, financial institutions and the rich and demanded to stop war and feed the poor (News: Occupy Prescott protesters call for more infrastructure investment, 2011).

Alexei Kudrin, the former minister of finance in Russia, has often complained saying that it is difficult for Russian mentality to adjust to the values of capitalism: Russians do not like their oligarchs, do not respect the rich, dislike market economy, etc. (News: Do not cry for Kudrin, 2011). How would he explain the behaviour of Americans, whose mentality has never been “spoilt by socialism” but, nevertheless, they dislike the same?

Mass Media report that American veterans supported “Occupy Wall Street” movement and went out in the streets with the slogans “We are veterans! We are 99%!” They demanded the government to stop wars, which the USA leads all over the world, “We did not want to believe that our presence in the Middle East was to ensure an oil supply, or to deepen the pockets of the financial elites. Many…lost their life out there, and the suggestion that their sacrifice was for profits, or oil, is unbearable” (News: Veterans Occupy Wall Street, 2011).

People in many other countries supported Americans and organized similar manifestations. Doesn’t it all reveal that the socio-politico-economic system of highly-developed countries does not satisfy the population?

Inborn moral values and moral assessment is indispensable part of human mentality where fairness is the basis of social moral norms. Social conflicts are unavoidable if we ignore the laws of human mentality.

3.4. Cognition based on comparative and critical thinking

Cognition is a form of human mental existence. Man never stops to know new things and to learn new skills. Cognition could not be possible without comparative and critical abilities. However, what can we see in our real life? Political protesters are sent to prison for criticizing huge inequality of incomes and corruptive governments. Meanwhile, it is their human nature to compare, criticize, and make moral assessments according to inborn moral values. It is also their
human nature that forces people to fight for free education accessible for all because cognition is as necessary for mental survival as food for a body. The problem is that socio-politico-economic systems are mostly built on the basis of human biological needs ignoring the nature of human mentality.

What are inborn human neuronal mechanisms involved in comparative and critical thinking?

(1) Mirror neurons.
At the beginning of the 1990s, Rizzolatti and his colleagues discovered a special class of neurons in the frontal cortex of the macaque monkey, which got activated when monkeys observed the actions of an experimenter who manipulated with objects (Rizzolatti et al., 1996). These neurons were called mirror neurons because they mirrored the observed actions at the neuronal level. Later, the other areas of mirror neurons were found in the brain. Our mirror neurons are involved in observing movements and emotions of other people, and this reaction is automatic (Hass-Cohen, 2008; Buccino et al., 2004). If someone eats something sour and winces, an observing person involuntarily winces. Even the diminishing pupil size is mirrored by the observer’s own pupil size (Harrison, Singer, Rotshtein, Dolan, Critchley, 2006). Ramachandran asserts that the significance of the discovery of mirror neurons for psychology is equal to the discovery of DNA for biology: the mirror neurons can provide the uniform framework for the explanation of many mental operations and capabilities, which have been inexplicable so far (Ramachandran, 2000).

While mirror neurons help us to copy movements and acquire new skills, our empathic reaction, and the Theory of Mind play an important role in social communication.

(2) Empathic reaction and the Theory of Mind.
The Theory of Mind (ToM) is a human ability to guess what the other man thinks and feels in certain circumstances (Christian, 2008; Frith, C.D., Frith, U., 1999). Meanwhile, the empathic reaction is a human ability to feel what the other feels (Christian, 2008; Gallese, 2003; Botvinick, Jha, Bylsma, Fabian, Solomon, Prkachin, 2005; Singer, Frith, 2005). Both the abilities are inborn, automatic, and unconscious. Many processes and neuronal networks engaged in ToM are similar to those that form the empathic reaction, though there are some peculiarities.

Analysing the literature on empathy and Theory of Mind Matthew Lieberman and Tania Singer point out two main hypotheses (Lieberman, 2007; Singer, 2006):

(1) empathy and ToM must have some neuronal mechanism; our own experience is the basis for both the empathic reaction and the construction of the Theory of Mind. It could be impossible to understand other people without our own experience;

(2) empathy and ToM are based on mirror neurons. It is the mirror neurons which provide us with the ability of automatic reflection of mental and emotional states of observed people (Gallese, Goldman, 1998).
The neuroscientists supporting the first hypothesis object to the neuroscientists supporting the second hypothesis saying that imitation can take place without understanding, and that, perhaps, mirror neurons play an important role only in nonverbal communication (gestures, the expression of the face, the position of the body).

Unfortunately, as Singer remarks, the discovery of mirror neurons does not answer the question what is the mechanism of the transition of the other’s sensory experience into our sensory experience without the irritation of peripheral neurons that transmit the command to the brain about sensory stimulation (mirror neurons) (Singer, 2006). Or how can someone’s feeling of sadness transfer into our knowledge of it if we are not sad at all (empathic reaction)? Or how can psychopaths easily guess the intention of the other one and know about the feelings and emotions of the other one without feeling the same by themselves (Theory of Mind)? What are the mechanisms?

**Fig. 11. The areas of the brain involved in the Theory of Mind (ToM).**

The following areas of the brain are involved in ToM: superior temporal sulcus, lower frontal area, medial prefrontal area, anterior cingulate gyrus, Broca's area in the left frontal lobe, the junction between the temporal and parietal lobes, the junction between the occipital and parietal lobes, amygdala (within the temporal lobe), cerebellum, and mirror neurons.

Many neuroscientists agree that the following brain structures participate in ToM: superior temporal sulcus, anterior cingulate gyrus, parietal cortex and prefrontal cortex (Brune, Brune-Cohrs, 2006). It was discovered that four-year-old children begin to understand and predict what the other child can think due to the Theory of Mind (Frith, C.D., Frith, U., 1999). If a child does not want to give his toy to his

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14 based on the description by Christian, 2008: 73-74
brother, or sister, he will hide it while they are out. However, children who suffer from autism can create ToM only at the age of 8-12.

Samson and colleagues distinguish two phases in ToM (Samson et al., 2005):
(1) the ability of blocking your own perspective and experience;
(2) the ability to guess other’s perspective.

Rebecca Richell and her colleagues point out that neuroscientists try to answer the question whether the worse ToM leads to aggressive behaviour and psychopathy because the person cannot understand what the other one thinks (ToM is bad), or because he cannot feel what the other one feels (empathic reaction is bad) (Richell et al., 2003). Richell and her colleagues have arrived at the conclusion that ToM of psychopaths is not damaged, but they use different neuronal architecture than non-psychopaths, thus their psychopathic behaviour must be explained by something else (Richell et al., 2003).

However, whatever achievements in neuroscience may be Tania Singer reminds us again that we cannot answer the main question how we transform what we see (visual experience) into ToM, and how our knowledge transforms further into what we should do and into motor commands and movements (Singer, Fehr, 2005).

What are the mechanisms?
Perhaps, this question can be partially answered if we take a dualist position and admit the existence and interaction of two substances: mental and biological (material). In this case, the neuronal activation in the brain of an observing man is the result of the preceding mental interaction of two mental substances of the observing and observed men.

Summary: Our cognition is based on critical and comparative thinking which is reflected in neurophysiological processes: ToM, mirror neurons, empathic reaction. We cannot but compare everything all the time in order to understand and critically evaluate human behaviour and circumstances. The desire to learn, to criticize, and to compare is inborn.
Here are some examples, which prove that it is true.

- Great Britain
In Great Britain there was a series of students’ demonstrations in 2010-2011. It was a mass protest against the rise of tuition fees from £3,290 to £9,000 per a year, with wealthier graduates paying slightly more interest on their loans (News: Thousands of students storm Tory HQ in protest at tuition fees rise, 2010). The first main demonstration took place on 10 November in 2010, and it was jointly organised by the National Union of Students (NUS), which unites 95% of all students’ unions of higher education in Great Britain (more than 7 million) and by the Trade Union of teachers of universities and colleges (UCU). Approximately up to 50 thousand students from all parts of Great Britain participated in this protest action (News: Students protest over fees turns violent, 2010). Teachers also joined the demonstration because they were against the decision of the government to cut down salaries and the expenditure on research. At first it was a peaceful
demonstration, but after the Parliament passed the undesirable law, protesters stormed the Conservative Party headquarters, smashing windows. At the demonstrations of 2010, students wanted to press for both anti-fees and anti-arts cuts statements saying that “Higher education teaching is in effect taken out of the domain of public policy and becomes an entirely private matter between individuals and institutions, with the market playing a much greater role than at present...”; “Although funding is withdrawn from all subjects, the fact that funding is withdrawn in totality from arts, humanities, social sciences and other classroom based subjects gives the impression that these areas which are so vital to the well being of society are not valued by Government...” (News: Student protests – as they happened, 2010).

Sally Hunt, the general secretary of UCU, said that the decision of the government about the rise of fees would be “the final nail in the coffin of affordable university education and the end of genuine choice of degree for thousands of people. The rest of the world is investing in education yet we’re doing the opposite” (News: Killing affordable university education: Degree costs triple in two decades, 2010), and that the rise of fees for education and at the same time “slashing taxes for big businesses whilst telling the public we’re all in this together exposes the government’s true agenda” (News: London: Thousands of students to march in protest over fees rise, 2010).

Aaron Porter, the president of NUS declared, “We will fight back against attempts to dismantle the funded education system we desperately need for economic recovery, social mobility, and cultural enrichment. The Government’s short-sighted and self-defeating cuts to colleges and universities must be resisted and that resistance begins now” (Porter, NUS, 2011). On the website of NUS there are three principles of the Union: equality, democracy and collectivism. The ideal for the majority of people has not changed since the time of the French revolution in 1789: “Liberté, Égalité, Fraternité” because these things are inborn human moral values of social organization.

However, the education law was not amended after the protests, and a year later, in 2011, the government was prepared much better to suppress the students’ protest action: “the police had warned they might use plastic bullets in ‘extreme circumstances’” and “every side street was blocked, with horses, dogs and helicopters deployed alongside the ranks of police” (News: Thousands march in student protest over university fees, 2011). Jones (Metropolitan Police Authority watchdog) said, “The prospect of the police shooting at unarmed demonstrators with any kind of bullet is frankly appalling, un-British and reminiscent of scenes currently being used by murderous dictatorships in the Middle East” (News: London tuition fees protest: Rubber bullets ‘available’, 2011).

- Chile
In Chile, young people also struggle for their cognitive human needs with the power. However, they are met with tear gas and water cannons (News: Chile student protests point to deep discontent, 2011). The 2011-2013 Chilean protests are known as the Chilean Education Conflict. It was a series of students’ protests
across Chile demanding a radical overhaul of education system. The protests also reflected a deep discontent among some parts of society: other groups of population joined students in protest actions (News: Thousands of Chileans Protest for Education, Labor Reforms, 2011). The protesters demanded free education, constitutional reform, improved pension provision, new labour laws and corporate tax increases to pay for education and health (News: Chile strike: Clashes mar anti-government protest, 2011). The Chilean long-standing educational voucher plan began in 1980 under the Pinochet military government as part of an overall free-market and de-governmentalization package (Carnoy, 2002). However, the international experience shows, as Martin Carnoy sums up, voucher plans have increased the educational gap between the privileged and the underprivileged without making school better (Carnoy, 2002).

Waissbluth, a Chilean professor, describes the Chilean socially divided education system as “educational apartheid” and says that it lies at the heart of the current unrest, meanwhile, Brunner, former government minister, thinks that Chile is paying the price for introducing a radical free market model pervading every aspect of life including education and health as it is in the USA (News: Chile student protests point to deep discontent, 2011). It is interesting that under the president Sebastian Pinera, a Harvard-trained economist and billionaire investor, the economy grew 8.4 percent, the fastest pace since 1995. However, the protesters shouted slogans comparing Pinera with the military dictator Augusto Pinochet and declared, “Our main goal is to change this neoliberal capitalism. We’re not just fighting for student rights, but those of the workers as well” (News: Thousands of Chileans Protest for Education, Labor Reforms, 2011). The demonstrations in August of 2011 might be the biggest protest since the military government of Augusto Pinochet ended in 1990 (News: Thousands of Chileans Protest for Education, Labor Reforms, 2011). “It’s time to change the political system, the economic system, so there is a fairer redistribution of power and of wealth,” said student leader Camila Vallejo, “All this development model has done is make a few grossly rich” (News: Chile strike: Clashes mar anti-government protest, 2011). People dislike a market model penetrating the important spheres of social life and consider it cruel and inhuman as much as Pinochet’s dictatorship. Pinera’s economic achievements are less important for people than fairness and equality in the society. *Inequality and unfairness are unbearable for the inborn human moral thinking* and cause social conflicts and fights.

The finance minister Felipe Larrain said that the government estimated the national strike would cost $200 billion, with a loss of $200 million each day. However, Javier San Martin, a protester and university student, is worried more about the lies on the part of the government and equal possibility for the satisfaction of cognitive needs, “It’s said there’s no money, which is a lie because the state has resources,” “it’s important to nationalize copper, which is our principal source of revenue. That would allow us to guarantee quality education for everyone” (News: Thousands of Chileans Protest for Education, Labor Reforms, 2011).
How can we find out what people truly need in order to avoid social conflicts? I suppose, it can be done by analyzing:

1. Neuroscience data (the work of mirror neurons, ToM, empathy, inborn moral values with fairness and equality as basic ones for peaceful social life);
2. The history of the development of social conflicts caused by a particular socio-politico-economic structure;
3. The demands expressed by people participating in these conflicts.

What is a fair educational system for the Chilean students? What do they exactly demand in this sphere?

The students in Chile put forward the following demands:
1. Free education funded by the state at all levels and equal opportunity to have good higher education independent from families’ incomes. Higher education of young people from poor families will help to overcome the inequality gap in the country.
2. The law must be passed against getting any profit in education. There must be no market principles in this sphere. Education must be considered as a public good and social investment, but not merely as an individual’s benefit. Education is a human right and it must be guaranteed by the Constitution.
3. The higher education must be recognized by the State as the foundation for the social, cultural, educational, humanistic, economic, scientific and technological development. The national plan must be worked out in order to attract talented teachers by raising their status and salary.
4. The right of taking decisions in the educational sphere must belong to the society, which will define the educational policies independent from any current government.
5. Education must be pluralistic. There must be a free public access to sources of information and knowledge, enabling a comprehensive and critical treatment of issues with a diversity of opinions, visions, and disciplines. The generation and transmission of knowledge in public institutions must exclude any dogmatic and indoctrinating practices. Education must be based on such values as solidarity, tolerance, equality, social fairness, and the protection of environment, identity, and cultural and historical roots of the society. Education must create as many critically minded people engaged in intellectual work as possible (News: Bases para un acuerdo social por la educación chilena, 2011).

What do people in Russia want in the sphere of education?

Nowadays there is a tendency of pushing market principles in all spheres of life in Russia, so angry Russian parents expressed the following opinions about new educational reforms during the talk with L.N. Dukhanina, Deputy Chairman of the Public Chamber Commission on Education and Science, 4 February, 2011 (News: What will happen with the Russian system of education? 2011):

Participant A: “The President (Medvedev) assures us that we can sleep quietly and that the commercialization of secondary education is out of the question. However many headmasters of schools have already informed parents that evidently the list
of free of charge subjects will include only 2 hours of Russian language, 2 hours of mathematics, 3 hours of physical training, and 3 hours of the basic knowledge of orthodox religion a week. The rest of subjects will be paid by parents. What will happen with the Russian system of education, which was considered one of the best in the world?”

Participant B: “In the 1960-70s at our schools there were various FREE GROUPS for teaching children certain skills after obligatory school lessons: technical skills, humanities, art, sports, etc., according to their interests. And we had good results of such groups: achievements in sports, technology, industry. Scientists and engineers under socialism were well qualified and well-assessed and are well-assessed in the world. Children did not wander or sat doing nothing in the basements and staircases of the buildings or other dirty places, etc. There were no drug abusers and children did not sit with bottles of beer in the parks and gardens, did not inject themselves drugs. Isn’t it wiser to spend money on the payment to teachers and instructors of pastime educational groups at schools and palaces of Culture involving small children and teenagers in the interesting pastime for symbolic payment than to spend money on the treatment of alcoholics, drug-abusers trying to reduce criminal violence?”

Participant C: The system of education created in the Soviet Union is worth paying attention to. Education must be obligatory and free. Otherwise, we will grow the army of illiterate morons.

Participant D: Is the basic knowledge of orthodox religion more important than native language or, maybe, more difficult than it or mathematics, and that’s why it demands much more time?!! Who needs the basic knowledge of orthodox religion?!!? In our country half the population belongs to other confessions!!! Spend better the time on history, literature, Russian language, and mathematics! Those who need this subject send their children to orthodox schools! I fully agree with “we will grow the army of illiterate morons”. Evidently our government wants to have such population! The herd of sheep, which is easy for management and cheap labour.

Participant E: If you wish good reforms for education, consult ordinary teachers. If the state wants interethnic wars, introduce lessons of orthodox religion. There are children both from orthodox and Muslim families at our schools. I cannot understand at what kind of educational system our state is oriented? American? Just have a look what is going on in their ordinary American schools which are not elite!

Participant F: Don’t you think that education is the sphere in which you must invest so that you might have the results, but not to earn money on it, as it is done now, according to reforms? Is school a plant, or a commercial shop, or a market?

The mantras of free market are enforced on Russians by the government as previously the mantras of the Communist party. The majority of Russians supported Perestroika because they were against too much power of the

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15 All emotional punctuation and capital letters are preserved in translation.
Communist party, which seemed sometimes ridiculous, irritating, forbidding normal human desires of having a small business, trade, travelling, expressing opinion freely, but instead people lost all their gains of socialism. What we have achieved hardly balances what we have lost. To get back the best from socialism and to preserve the best from capitalism, we will need quite a different type of socio-politico-economic system. Unfortunately, it does not exist anywhere in the world so that we might simply copy it.

As they say, the best evidence is your own experience. So I want to speak about mine under socialism. Some people can develop their own spiritual qualities due to the inborn curiosity, talent, will-power, but the majority needs a people-friendly system. If the state had not supplied me with free tickets to the Philharmonic halls to listen to classical music every month for 7 years when I was a schoolgirl both of a secondary school and music school, my mother, without higher education and a well-paid job, would have, perhaps, preferred to buy a new dress for herself or something else when she had extra money and I would have never known that the combination of wonderful sounds could be so beautiful and pleasant, and I wouldn’t think now that opera and ballet theatres and art galleries are the best places for pastime. Under socialism, all schoolchildren went regularly to museums and picture galleries with their teachers at least once per three months. I was taught to play the piano at music school for symbolic money. I went to ballet classes at my secondary school, which were free for all children who wanted to dance. After the Music Teacher Training college, where I studied for 4 years receiving a state grant and paying no tuition fees, I studied at the University as a part-time student of Philology and worked as a music teacher at the same time because I had already two children, and a student’s grant was not enough for the family. There were plenty of kindergartens where children could be taken care of while their mothers worked or studied. There were no tuition fees for higher education, and the day-time students received state grants if they passed exams. I had fully paid additional student holidays twice a year at my work for taking exams at the University. I defended my PhD in Political Science and passed all necessary examinations paying no fees at all. Education was free at all stages and for all people. The socialist state, indeed, encouraged young people to study and to get higher education, and made culture affordable for all people irrespective of their family income because theatres and museums were state maintained.

Comparing the development of science in different countries and studying the volume of research publications at the different periods of time, the analysts of “Thomson Reuters” say that the influence of Russian science in the world is diminishing (News: Russia is expelled from the club of scientific powers, 2010). Now Russia is behind China. About 20 years ago before the collapse of the Soviet Union there were more research projects in the Soviet Union than in China, India, and Brazil altogether (News: Russia loses space after science, 2011).
For the first time the majority of Russians expressed the opinion that the suppression of the Putsch\(^{16}\) (19-21 August 1991) was the tragedy for Russia as Levada-Centre tells us (News: Putsch as tragedy, 2011). Only 10% of Russians think now that the suppression of the supporters of the Communist party and socialism in August of 1991 was the victory of democracy (45 regions of Russia in 2011). According to another poll by Levada-Centre, 60% of Russians think that the inequality is admissible only if the gap between the rich and poor is not great (News: Richness and poverty in Russia, 2011), and 23% do not want any inequality of incomes. About 48% of Russians do not want to have billionaires in the country. The majority of Russians have negative attitude to both richness and the rich because of the suspicious way of getting the property in the 1990s and the violation of the principle of social fairness.

The German ‘Spiegel’ reports with the reference to the sociological poll carried out by Emnid Institute, the Bertelsmann Foundation, that 88% of Germans are against capitalism and want a new economic order because capitalism cares neither for a social equality in society, nor for the protection of the environment and careful use of resources (News: Neun von zehn Deutschen fordern neue Wirtschaftsordnung, 2010). Four out of five Germans believe that social relations, health and environmental conditions are more important than the accumulation of money and property. Two thirds of people do not expect that the economic recovery will also automatically increase their personal quality of life, and only one third believes in the positive role of market mechanisms.

**Summary:** People enjoy learning new things at any age. Mental activity makes them happy and healthy. Many pensioners say that it is a great pleasure to study (News: The second youth, 2011). If the brain works properly owing to the continuous process of intensive cognition, we do not need to spend so much money on the treatment of people suffering from various diseases because of “lazy” dying neurons. There is less violence and criminality caused by mental frustration. If a man’s mind is occupied with learning the new skills or the new subject he likes, he has no desire to take revenge on the society: his mind is busy with positive things and he is mentally satisfied.

Cognitive and creative needs govern human behaviour in many ways.

### 3.5. Creative Thinking and Social Factors

The discovered neuroplasticity of the human brain of the adult is based on the properties of a neuron to increase the number and growth of dendrites and axon spines owing to the constant activation of a neuron. If we learn new skills and repeat something, additional protein is produced in the neurons for a greater

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\(^{16}\) The coup was prepared by the top officers of the Army, the KGB, and the higher officials of the Communist Party to preserve socialism; its defeat was followed by the subsequent transfer all power to the president of the Russian Federation Boris Yeltsin and the promotion of capitalism.
number of receptors on the cell to make the synapses (contact between two neurons) stronger and our memory better, and as a result of it, we can do certain actions almost automatically. If neurochains receive a lot of traffic, they grow. If they receive little, they reduce. The amount of traffic depends on our attention. If we are permanently focused on some thoughts accompanied by emotions, neuropatterns and neurochemistry change. When the electric impulse passes to the end of the axon of a neuron, it opens the cascade of chemical reactions. Synapses, as a rule, are both electrical and chemical. The neurochemistry of the brain influences the immune system and endocrine system of the body. If we change our thoughts (thoughts, as a rule, have an emotional background), our neurochemistry will gradually change. Perhaps, everyone has noticed that the thoughts of the previous day come in the morning of the next day, and it is difficult to get rid of them. Neurons demand their usual “food”, i.e. electric impulses and chemical stuff, which they had during the thoughts and emotions of the previous day. Conscious suppression of intrusive thoughts is possible, if we substitute them with other ones at our will; or rewind our thinking process during meditation, or in the creative process, or while learning new things, or due to physical exercises, which force blood to flow to new areas of the brain.

If we achieve automatism in doing something, the brain areas responsible for it do not work as hard as before and receive less blood flow than before. In other words, they receive less food (glucose and oxygen) coming with the blood flow. Oxidation of glucose is the only source of food supply for the nervous tissue.

New difficult tasks demand new areas and new neuropaths of the brain to be engaged, involving the neurons of the brain, which were “sleeping” before. Cognition and a creative process satisfy the demands for nutrition of a greater part of the healthy normal brain. In this case neurons do not stop functioning and do not reduce physically, the whole brain receives feeding coming with blood to the activated areas, they become activated during new physical exercises or creative and cognitive processes. Such feeding helps to preserve a good state of the brain and to protect old people from dementia, which involves the loss of functioning neurons. Thus, studying in the old age is one of the ways to prevent dementia because it preserves the normal functioning of the brain up to the end of life (Galbraith, Subrin, Ross, 2008). Both the muscles need training and the neurons of the brain need training too to keep themselves fit and healthy. The cognitive and creative processes also activate the parts of the brain, which are full of domapinergetic neurons, and which are known as the centres of pleasure. The desire of people to learn something new and know as much as possible is an intuitive human practice to keep themselves physically fit and happy.

The neuroscientist Natalia Bekhtereva says that the creative process keeps the brain in good condition and preserves its healthy functioning up to the end of life (Bekhtereva, 2008). New neuropaths start working to solve a creative task involving many “lazy” neurons.

Neuroscientists use creative tasks in art therapy to treat psychological and physiological disorders (Findlay, 2008). Getting into the creative state called
“creative flow”, people are fully engrossed in what they are doing, which helps them to switch to another mode of thinking and treat their own psychological and physiological problems. They enjoy the process of self-expression and feel the fullness of life (Csikszentmihalyi, 1997).

Human creativity transforms the world. The world could be quite different without scientific discoveries, inventions, works of art, and ideas of societal organization. To put it simply, it would be the world of animals.

Creativity is a systemic phenomenon. There is an interaction between a creative person and socio-cultural context. The psychologist Mihaly Csikszentmihalyi points out that we should rather study what kind of socio-cultural surrounding gives the upsurge of national creativity than what a creative person and creativity are (Csikszentmihalyi, 1997). In his opinion, the best atmosphere for the rise of creative initiative is multicultural surrounding and high business activity. The mixture of different ideas and values produces a specific and original way of thinking. Besides, there must be economic prosperity and well developed educational and expert systems (Csikszentmihalyi, 1997). The creative potential must be in demand in the society, highly appreciated by people, and easily implemented.

Foucault asserts that a human always thinks in some mental frameworks existing in the society at a certain period of history. Society and epoch impose the existing concepts of scientific discourse and general ideology on a human, which limit the freedom of his creative thinking (Chomsky, Foucault, 2006). However, Chomsky thinks a bit differently: a human has certain inborn cognitive abilities like learning and speaking the language, and he is limited only by them. A human can use these blocks of abilities and create anything out of them (Chomsky, Foucault, 2006). Foucault and Chomsky consider creativity at different angles and both of them seem to be right. A genius can over jump a century and create something that will change the whole life of people in the world. But the majority of less talented people are restrained by the knowledge given them as scientific dogmas at Universities.

In sum, for the development of creativity, which will lead to national prosperity and enjoyable life there must be a certain socio-economic system, which supports good secondary education with creativity lessons, free higher education for all and well-qualified teaching staff teaching without dogmas and prejudices. It is just what Chilean students demanded from the government in the 2011-2013 Chilean protests.

A very convincing study of the influence of art lessons on schoolchildren was carried out by American researchers. The study shows that art lessons are important for the development of cognitive abilities of children and their creative potential.
The following advantages were discovered: academic (art lessons improve reading, writing, speaking, mathematics), basic (art lessons improve thinking abilities, social skills, and motivation for study), complex (they create positive atmosphere in schools) and besides, they help to acquire certain skills in arts (Ruppert, 2006). In order to successfully teach children literacy, many new neuropaths must be created in the child’s brain (pronunciation of sounds, connecting them with their symbolic representation on the paper, composing words and phrases). The brain must be developed enough for the coordination of different mental activities. The experimenters showed that dance classes helped to prepare children to learn reading and writing. Drama classes helped to understand the text better when it was read to them. It is well known that music lessons and the instrument playing improve mathematical abilities of a child (Vaughn, 2002). Those who learn music especially in senior forms showed twice better results in mathematical tests (Catterall, Chapleau, Iwanaga, 2002). Art lessons help to increase intellectual potential, to assess yourself in the social group and to understand social relationship. They improve imagination, creativity, perception and give the skills of self-expression. The schoolchildren of senior forms who were taught dances in this experiment showed the improvement in abstract and creative thinking (Minton, 2002). The analytical skill acquired at the art lessons was transferred on other subjects at school (Tishman, MacGillivray, Palmer, 2002). All children acquired social skills of sympathy, solution of conflicts, cooperation, social tolerance when they created something together. In the experiment with the boys of 8-19 who lived at home or in the centres for juvenile offenders, it was discovered that learning to play the guitar and playing for their friends raised their self-assessment and self-respect and they understood that they could get respect in a normal way without violence (Kennedy, 2002). Dances also changed the children of 13-17, both juvenile offenders and other teenagers who felt not demanded in the society. They learnt to be tolerant to others, to be persistent in reaching their goal (Ross, 2002). The atmosphere at school became more positive both among children and teachers: the children learnt to get pleasure in self-realization and creative process, and their teachers began to respect them for their creative achievements. Besides, all the children acquired some skills in arts (Catterall, Waldorf, 2002).

In May 2005, the Harris Poll was organized to find out the attitude of Americans to art education. It was commissioned by “Americans for the Arts”. It showed the following:
93% of Americans agree that art education is necessary for well-balanced education of children (2% more than in 2001);
86% are sure that art education encourages and promotes better attitude of a child to school;
83% of Americans consider that art education helps to teach a child to communicate with adults and other children;
79% believe that including art lessons into the school curriculum is the first step on the way of improving the state education today;
79% are ready to participate personally, if necessary (if the number of art lessons is increased, or in order to improve the quality of such art lessons), because the art education of their children is important for them.

However, in spite of the support of the majority of people concerning art education and the convincing results of the research, Ruppert states that art education continues to be considered unimportant at schools in the USA and not financed by the state (Ruppert, 2006). How can it be? Why are the mental needs of the majority of population ignored by the government in the democratic nation-state?

As a result, governments routinely face the outbursts of violence caused by human mental frustration. They have to use police force to suppress violent riots. Paradoxically, people pay taxes to suppress themselves because they do not understand their own human nature. The human mind and brain NEED the realization of cognitive and creative processes, i.e. these art lessons at school, state-maintained theatres, free higher education financed by the state, etc.

To sum up, human inborn mentality and a created socio-politico-economic system are in conflict, and all observable social clashes only reflect the collision of these two structures.
Conclusion

Our thoughts influence the brain work, its neurochemistry, the patterns of neuronal activity, the growth of dendrites of neurons, etc. Neuroscientists have discovered this influence in their experiments and clinical practice. The studies show that the mind can change not only the work of the brain, but of the whole organism.

In other words, the human mind can bring about physical changes in the brain and damage or cure the body. It can be possible only if the mind has its own energy. However, the official neuroscience still denies the independent energy of mind and insists that the mind is the product of the brain. Thus, we do not have the opportunity of studying how to use our mental energy for the benefits of our biological body.

In the American reality television series “Dog Whisperer with Cesar Millan” broadcast in many countries, the animal psychologist Cesar Millan demonstrates how our mental state can regulate the behaviour of dogs sensitive to human emotions. He also shows that people are guilty in the dog’s psychological problems. After making an aggressive dog out of a normal one, the dog owner has to euthanize it. But if we understand and observe the laws of nature, we can turn any aggressive dog into a lovely one.

The similar idea sounds in the films with the greatly successful horse trainer Monty Roberts, who is called the world’s most famous “horse whisperer”, and who can help the unstarted horse to accept its first saddle, bridle, and rider within 30 minutes using his unique, non-violent training methods. He also cures the damaged psychology of horses caused by the wrong behaviour of people, or by some accident. Monty Roberts demonstrates his understanding of horses’ psychology, does not break the laws of nature, and horses do voluntarily what he asks them to do.

However, there is no “Man Whisperer” to show that due to the use of the wrong model of a human being the society is organized in such a way that it forces people to behave like aggressive dogs or wild horses. The socio-politico-economic system violates the laws of human mental nature by ignoring mental needs. As a result, people have to be sent to prison, shot, euthanized, and medicated.

Creativity, cognition, and criticism based on the comparative ability of a human being and inborn moral thinking are the forms of human mental existence. If his mental substance is not allowed to live a full life, a human either begins to defend his right for mental life and becomes aggressive or gives up and dies. The society in this case does not develop and becomes sick in both figurative and literal meanings.

“Highly-developed countries” are, in fact, “poorly-developed countries” if there is no chance for human development.
So, we can speak about the following sequence of events beginning with the social surrounding: stressful social factors => obsessive stressful thoughts => the change of neurochemistry of the brain => the worse functioning of immune and endocrine systems => disease => the shift in normal thinking process => inadequate behaviour.

Inborn moral values, cognitive and creative abilities, and comparative and critical thinking are given to us by nature.
How can we avoid social conflicts and abnormal social behaviour if the socio-politico-economic system ignores human nature?
Hence, there is the increasing number of suicides, riots, psychic disorders, and criminal cases among all age groups.
People have created such a socio-politico-economic system that it depresses them, and they get ill; it uses police to fire at young people who want to study because cognition is the form of human existence; it substitutes the inner moral values with the laws promoting immoral behaviour of competing in greediness to become the richest; it sends people to prison for their critical and comparative thinking, which nature gave them as an inherent human feature.

We cannot change what is given us by nature, i.e. inborn mental needs, but we can change the wrong organization of social system, which we created by ourselves.

The present model of a human being is a biological one, which ignores the importance of our mental being. I think that our mental needs will draw a necessary attention only if we admit that there are two substances: biological and mental, and each demands equal care, and each has its own laws of existence.
Allegorical Conclusion

After her first dream and the conversation with the extraterrestrial, Anastasia was tortured by many questions, but the main one was how to make all people happy. Every night she hoped to meet him in her dreams and ask this question, and at last it happened.

Anastasia came home tired after her working day, and before doing her housework she decided to have a rest with a book. Soon she fell asleep, and the same extraterrestrial came to her in the second dream. He seemed to be pleased at seeing her again, smiled and said, “You make a problem out of nothing. Just close your eyes and then open, and you will see the solution.”

Anastasia did what he had told her to do, and suddenly she saw herself at the University where she worked. It was a meeting of teachers at her Department. Everyone was supposed to be present and listen obediently to the Head of the Department. But Anastasia felt at once that something went wrong. Instead of professor Petrov, the Head of the Department, there was another person! She asked the teacher next to her, “Where is our boss?”

He answered, “Don’t you know that he lost his position because he had headed the Department for 20 years, and now all of us are to take this position in turn every year?”

Anastasia asked, “Who introduced this new rule? The Dean?”

Her colleague answered, “The Dean does not work anymore for the University, he lied to people, wove intrigues to increase his personal power at the faculty. Now immoral people cannot take high and important positions in our country.”

Anastasia was astonished and did not dare to ask who the Rector was now. But curiosity got an upper hand, and she asked, “And the Rector of the University? What about him?”

The colleague looked at her tiredly and said, “He was also dismissed. The Dean can have his position for two years and the Rector for three years and only once per 10 years.”

During the rest of the meeting Anastasia kept silence trying to guess what kind of changes she should expect at her University, and how it happened that all her colleagues knew about the changes and she didn’t.

After the meeting she came up to her friend and asked about her husband and children. Her friend complained that her husband could not choose what to do on the day of creativity, what kind of meditation to practice, and what to study because he was lazy.

Anastasia was puzzled, “But he has already got higher education, and why is it so important to find the field of creativity and practice meditation?”

Her friend said, “At the polyclinics and hospitals doctors think that you do not care for your own health and force you to pay a fine if you haven’t learnt meditation, do not have any pleasant creative pastime for improving your neurochemistry, do not
learn anything new to keep your brain well functioning and healthy and hence, the whole body.”

Anastasia asked, “But how can you find time for all that?”

Her friend looked surprised and answered, “Our working day has been reduced, hasn’t it? We have an additional day off for creativity and study, don’t we? You are lucky you have plenty of things to do in your creative pastime, but my husband didn’t learn necessary skills in his childhood.”

Anastasia did not say anything and went home to think over the information she had got at the University.

The first thing she did at home was switching on TV and listening to the news. They announced the speech of the President. Instead of the familiar face, Anastasia saw a new one. The new President was making a report of achievements for the previous period and was explaining the changes in the socio-politico-economic system. Anastasia decided to record the whole speech on her mobile telephone.

The President:
Dear Ladies and Gentlemen, I would like to speak about what we have done for the previous period, and what we are to do in the future.

Next year you will have the other President by rotation from our elected group of three people chosen according to the list of voters’ preferences and acting as one body. Two years have already passed, and in a year’s time a general direct election of a new group of three presidents will take place.

I would like to remind you that lobbying is strictly forbidden because all citizens of our state have the right to put forward a new law if they think our society needs it. The task of our Parliament is to consider whether it violates the principles of our Constitution, how it fits the whole system of laws, and whether it is possible to improve or adjust the proposed law. The Parliament has lost its law-making function. Now it is the advisory body for the President and for the citizens who send their law initiatives. Bills become laws if they are passed at general referendums. It is necessary to think over the controlling system for referendums and computerized facilities more thoroughly.

I see a lot of new faces in the hall. Unfortunately, one fifth of the Members of the Parliament lost seats because their voters were not satisfied with their work and recalled them. Citizens assess the work of the MPs and higher officials by giving them points after looking through their personal daily reports in the Internet. We must check up what are the reasons of low assessment and the loss of the office.

According to our Constitution, we have the obligatory political participation by voting for laws at the referendums and at the general elections. If you want to be a citizen of the state, you must bear a personal responsibility for the social policy in your country. Everyone is to participate in this process.
The Academy of Sciences is responsible for collecting and clarifying different scientific points of view on the socio-politico-economic problems and for presenting them on their websites, at the conferences, and on the radio and TV programmes. The Anti-Academy of Sciences is responsible for the criticism of them.

Now, I would like to speak about our achievements in economy. Our main achievements for the previous years are the following. Our banks do not take any interest for their service any more. We do not have any billionaires in the country thanks to the law on limited inheritance and progressive income tax. Now all young people are in more or less equal financial and educational position to start their life. Apart from grants to all students, the law on education envisages additional subsidies for students from the poorest families. The education is free at all stages. Higher education is obligatory for all, and the second higher education is encouraged by the state.

The closure of some big corporations helped people to start their own businesses. The companies that have surpassed the ceiling of capital accumulation have to share the ownership with the State Union of Trade Unions, which uses its shares to support the average level of incomes all over the country. We do not have unemployment. Anyone is helped by the state to start his own small business if he wishes, or to acquire a new profession he likes. Those who refuse to work do not have unemployment benefits.

The national strategy is fairness for all, political participation of all, the rise of mental level and creativity of our citizens, double higher education of all, the growth of critically-minded, creative, and healthy young people, and the encouragement of people to use their mental energy to keep themselves fit and healthy.

We have introduced obligatory art lessons, dances and drama groups at school and one day off for development of personal creative abilities. We have built new theatres for professional and amateurish performers.

And here are the first results now.

The number of suicides has come to zero, as well as psychic disorders. Criminality has gone down. We have introduced the system of placebo self-treatment and self-hypnosis, because, as science tells us, placebo has almost the same effect as medication in many cases and no negative side effects. We have recommended different types of meditation to practice. We see that the number of old drug-abusers has sharply declined and no new cases among young people. We know that certain types of meditation give the same effect as drugs, but meditation is always under control of a person. We have forbidden to sell any unhealthy food with artificial additives at our shops. Our elderly citizens are offered special programmes to keep their mind and brain active and healthy. We have refused from the concentration of elderly citizens in the special houses where only old
people lived. For many of them it was much depressive and led to quicker degenerative processes in the brain. Now they have a choice where to live and to be taken care of.

All these measures have helped us to make our population much healthier and to reduce the expenditures on public health.

Due to the constant mental development of our population and the level of knowledge and creativity, our economy and science are ahead of all other countries.

Though our economic achievements are great, we are proud much more of the creation of such a social system that allows people to realize their talents, coincides with their inner moral values, and gives possibility for a full life of the body and mind.

However, we must think of our security in this world. Not all states follow our way and care for the health and happiness of their citizens. We have to think of the protection of our state. Our scientists have discovered the way how mental energy can stop functioning the computerized weaponry at a distance. Our intelligent service is able to uncover military secrets by telepathic entanglement with the enemy’s mind. Still we need the conventional type of protection and weaponry.

At the end of my speech I want to say that the development of our mentality leads our state to economic enrichment, prosperity, and happiness of all citizens. It is the fulfillment of human dreams to become fully human. Our slogan is, “Mental energy serves us and changes the world”.

The President finished his speech, and Anastasia switched off TV.

The first thought, which occurred to her, was, “Am I dreaming?” and the second, “The extraterrestrial was right. Such a social system involves all five groups of people into political life and keeps them from abuses: by controlling the most aggressive and greedy group by cutting down the financial and political possibilities for this group; by protecting the most obedient ones; by giving the possibility of creating necessary laws by the most numerous group of active and creative people; by forcing pessimistic grumblers to participate in the political life and find guilty only themselves; and by making wise observers express their opinion necessary for other people. It also regulates the split of future generation by giving all children the equal start and protects children from their lazy and careless parents and rich parents from their greedy and evil children. Full employment and studies keep the mind and body of people busy, and creativity helps to express their inner world and to cope with personal problems. If fairness reigns in the society, the society has no social conflicts.”

“Perhaps, I am wrong and humans can have the bright future and can become fully human as the nature has created them”, thought Anastasia.
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