

RATIONALITY IN BELARUSIAN THINKING

Series: STUDIES IN LOGIC, GRAMMAR AND RHETORIC 13(26)

Under the Auspices of the Polish Association
for Logic and Philosophy of Science

RATIONALITY IN BELARUSIAN THINKING

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University of Białystok
Białystok 2008

Refereed by Kazimierz Trzęsicki

Series: STUDIES IN LOGIC, GRAMMAR AND RHETORIC 13(26)
<http://logika.uwb.edu.pl/studies/>

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Cover design: Krzysztof Tur
Type-setting: Alina Żukowska

ISBN 978-83-7431-162-5
ISSN 0860-150X

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Druk i oprawa: Sowa – druk na życzenie
www.sowadruk.pl tel. 022 431-81-40

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Andrew Schumann

**PREFACE:
LOGIC IN BELARUSIAN THINKING**

Belarusian culture and Belarusian philosophy are terra incognita for Europeans. This special issue of *Studies in Logic, Grammar and Rhetoric* is devoted to Belarusian philosophy and the topic of rationality in Belarusian thinking. The goal of the issue is to tell about Belarusian logical and philosophical ideas. In the Preface, I would like to show the framework and context of modern Belarusian philosophy and its genesis.

Modern-day Belarus is an isolated country but in the past it was a highly-developed European state. The first Belarusian state was founded in the 12th century and was called the Grand Duchy of Litva. Its territory grew from the Duchy of Novaharodak (Navagrudak in modern Belarus). The former name of the Belarusian lands is Great Litva. The Belarusians (more precisely, the inhabitants of Central and Western Belarus) named themselves “Litwiny” (in Modern Polish the word Litwiny means Lithuanians). For example, all peasants of the Minsk area named themselves “Litwiny” up to the beginning of 1950s.

The Grand Duchy of Litva (its complete name is the *Grand Duchy of Litva, Russia and Žamojcia*; in Old Belarusian (the chancellery language of this state): *Wialikaje Kniastwa Litowskaje, Ruskaje, Žamojckaje*; in Modern Belarusian: *Wialikaje Kniastwa Litouskaje, Ruskaje, Žamojckaje*; in Polish: *Wielkie Księstwo Litewskie*; in Latin: *Magnus Ducatus Lituaniae*) was an eastern and central European state from the 12th–13th century until the 18th century. It was founded by Litwins, one of the Baltic tribes, whose initial lands covered the western and northern parts of modern Belarus and the southern part of modern Lithuania. The Grand Duchy of Litva covered the territory of present-day Lithuania, Belarus, Ukraine, Transnistria and parts of Poland and Russia, during the period of its greatest extent in the 15th century and was the largest state in Europe. This state included three initial large areas:



Figure 1. The map of the Grand Duchy of Litva, Russia and Żamojcia from G. Mercator's Atlas

1. Litva or Black Russia (Western Baltic tribes of Central and Western Belarus – Litwiny, Yatwiagi, Dainova, Mazury, which occupied almost all of Central Belarus, the Minsk and Vilna (Vilnius) areas). The similarity between Slavonic and the language of Litwiny caused further assimilation between the Slavs and Litwiny (Western Balts). Since the 17th century, this region was Polonized and it is partly that up until now.
2. White Russia (the Slavic tribe Rusiny occupied areas of Vitebsk, Mogilyov, Kursk, Smolensk, Bryansk).
3. Żamojcia or Samogitia (modern Lithuania, Eastern Baltic tribes – Żemoity and Aukštaity, whose language rather differed from the Slavic language while the language of Western Baltic tribes (Litva) was similar to Slavonic). The modern Lithuanians were named Żemoity. They obtained the name Litwiny (Lithuanians) only in the 1840s to 1860s. Żemoity did not play a significant role in the Belarusian state, for example, they were the latest pagan people in Europe to become Christian.

The modern-day Baltic ethnos Litwiny represents 60–70 per cent of modern Belarusians and the Slavic ethnos Rusiny 30–40 per cent of them. The name Belarusians was first used only in the 1840s to 1860s when the Russian term “Litvarussians” (in Russian “Litovco-Russy”, this term was used after Catherine II, the Empress of Russia) was gradually replaced by “Belarusians” (in Russian “Belorussy”) because the term Litva (Lithuania) was in disgrace after the Belarusian Uprising from 1830 to 1831 against Russification.

Vilna (Vilnius) was the capital of the Grand Duchy of Litva and it had a Belarusian (non-Lithuanian) population. This town was the cultural center of Great Litva. In 1568, Belarusian nobility (szlachta) asked the Jesuits to open an academy in Vilna. The following year, Walerian Protasiewicz, the bishop of Vilna, started the Vilna Academy (Almae Academia et Universitas Vilmensis Societatis Jesu) which became one of the oldest universities in Northern Europe. Initially, the Academy had three divisions: the humanities, philosophy, and theology. On April 1st, 1579, the Grand Duke of Litva and King of Poland, Stefan Batory, granted it equal rights as the Jagiellonian University of Kraków. His edict was approved by Pope Gregory XIII’s bull of October 30th, 1579. The first rector of the Academy was Piotr Skarga. He invited many notable scientists from all over Europe. In 1575, the Belarusian magnate, Mikołaj Krzysztof Radziwiłł, and Elżbieta Ogińska sponsored a printing house for the Academy, one of the first in the region. The printing house issued books in Latin and Polish. By 1823, the Vilna Academy was one of the largest in Europe; the number of students exceeded that of Oxford University. In 1832, after the Belarusian Uprising, the Academy was closed by Tsar Nicholas I of Russia.

In the Vilna Academy, the *first Belarusian philosophical school* appeared, in which many logicians carried out their researches. The most valuable and monumental work of logic was written by the Belarusian-Polish thinker Marcin Śmiglecki (1564–1618), its title was *Logica selectis disputationis illustrata et in duos tomos distributa* (1618). This book was published in four editions in Oxford in the 17th century. Wojciech Tytkowski (1624–1695) and Adam Krasnodębski (1645–1701) were other logicians of the *Vilna Philosophical School* in that century. Furthermore, using some ideas of Wolff, the other Belarusian-Polish thinker, Kazimierz Narbutt (1738–1807), wrote a textbook of logic published in Vilna in 1769. Jan Śniadecki (1757–1830) was the best known and most adept of rational philosophy and the Belarusian-Polish Enlightenment in that school.

In these circumstances, the existence of both the Commonwealth of the Kingdom of Poland and the Grand Duchy of Litva, the representatives of

the Vilna Philosophical School may be interpreted both as Belarusian and as Polish. For some logical ideas of Anioł Dowgird (1776–1835), one of the famous representatives of that school, see the paper submitted for this issue by the Dominican Brother (the Brother of Ordo Praedicatorum) Piotra Rudkouski, the Magister of Philosophy (Jagiellonski Uniwersytet) and the Magister of Theology (Papieska Akademia Teologiczna).

Belarusian legal documents were called the Statutes of the Grand Duchy of Litva and they were a great achievement of Belarusian law. They were written in Old Belarusian during the 16th century and are among the first European constitutions and law codes. They have served later as an etalon to other European nations.

Old Belarusian (the Ruthenian language) was used in the Grand Duchy of Litva as a chancery language, i.e. as an official state language, for the state chancery, legal, diplomatic and judicial needs until the 17th century. In 1696 it was replaced with the Polish language, more commonly spoken by the Belarusian magnate families (Sapieha and Radziwiłł clans) and the major Belarusian szlachta (nobles). In the period of the existence of the Commonwealth of the Kingdom of Poland and the Grand Duchy of Litva (in Polish “Rzecz Pospolita Polsko-Litewska”), many Belarusian nobles were Polonized and only the poor and middle classes used Belarusian (but some of the latter also tended to use Polish for “prestige”). However, despite the Union and integration of the two countries, for nearly two centuries Belarus continued to exist as the Grand Duchy of Litva in the Polish-Litvanian Commonwealth, retaining separate laws. The Grand Duchy of Litva retained much autonomy and was governed by a separate code of laws called, as we said, the Statutes, which further continued to codify both civil and property rights.

The Polish-Litvanian Commonwealth caused the unification of the mostly Orthodox Grand Duchy of Litva with the mostly Catholic Poland which led to liberalization of the religious problem. The gentry, with time, started to adopt Catholicism while the common people by large remained faithful to Eastern Orthodoxy. In 1595, the Orthodox Hierarchs of Kyiv signed the Union of Brest, breaking their links with the Patriarch of Constantinople and placing themselves under the Pope of Rome.

Eventually, by 1795, the Commonwealth of the Kingdom of Poland and the Grand Duchy of Litva was partitioned by its neighbors. As a result, a new period in Belarusian history started, all its lands were annexed by the Russian Empire. The national cultures were repressed due to the policies of Russification, which included, as an example, the return to Orthodox Christianity.

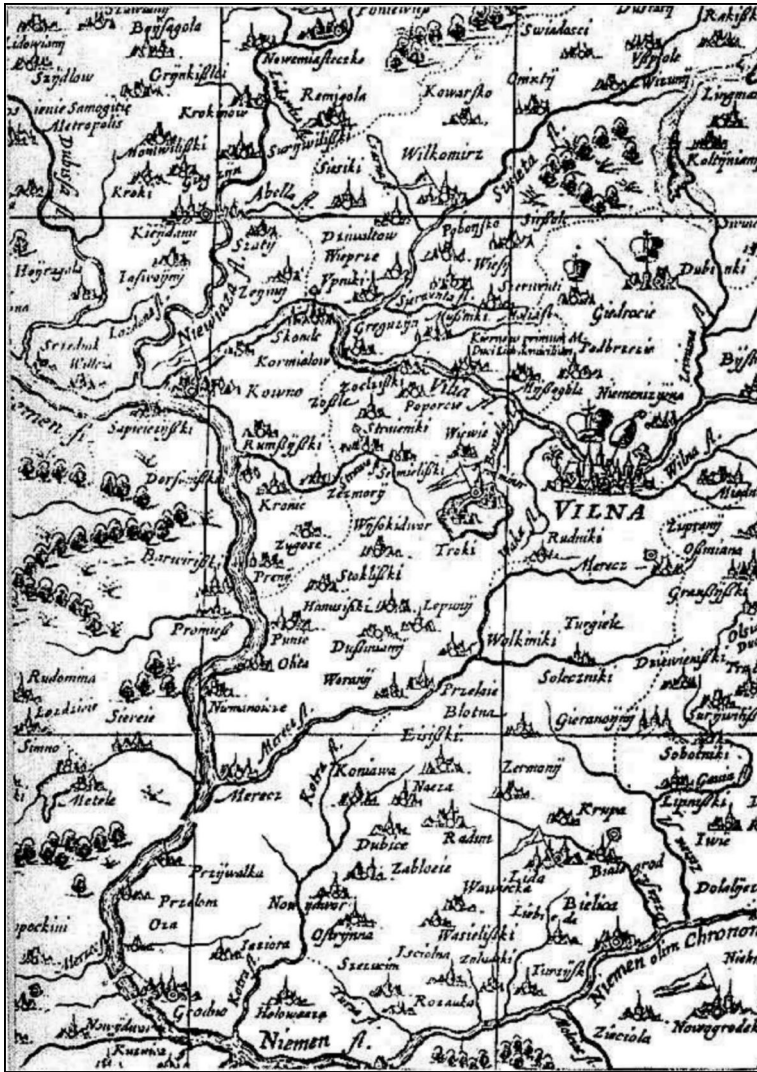


Figure 2. Mikołaj Krzysztof Radziwiłł and Tomasz Makowski's map of the Grand Duchy of Litva, Russia and Żamojcia. Amsterdam. 1613. Fragment

The Russian Orthodox Church in Belarus is an important canal for Russification in modern times, too. For instance, all Orthodox catechization in modern Belarus is only in the Russian language.

In the Russian Orthodox Church there are no saint intellectuals, but this Church has a unique category of saints: the holy fools for Christ's sake, who in the Byzantine tradition were called $\sigma\alpha\lambda\omicron\iota$ and in Russia are known as iurodivye. Their madness allowed them not only to participate in profane

life but also to speak “without control”. Holy fools have been portrayed in numerous Russian Orthodox hagiographies. The freedom of behavior of the holy fools derives from their saintly status: they stand above, or rather outside, all communal laws and social regulations.

According to Orthodox Christianity, knowledge is not important for Christian life. Therefore a rational education is an unnecessary and dangerous surplus. The first secondary school was founded in Russia only in 1615 in Kyiv. It was called the Kyiv-Brotherly School. Later, it was transformed into an influential educational center (in the absence of the others) and on its base the Kyiv-Mohyla Academy was founded in 1701. It was the first higher educational institution in Russia.

Also, in the Russian Orthodox Church, the logical studies had no application in theology. Perhaps the theological works by Fr. Pavel (Paul) Florensky were an exception to the rule. He was the first, and probably latest, Russian Orthodox theologian who read Russell & Whitehead’s *Principia Mathematica* (1910–1913) and implicitly proposed to use formal logic in Orthodox theological studies. Florensky published a lot of interesting works on philosophy, theology, art theory, mathematics, and electrodynamics. The best known Florensky work is *The Pillar and Ground of the Truth: An Essay in Orthodox Theodicy in Twelve Letters* [8]. While much of this book was completed in 1908, it was not published until 1914 and was not fully translated from Russian for many years.

After the closing down, by the Bolsheviks, of the Sergievo-Posad Church (1921) where he was the priest, he moved to Moscow under the recommendation of Leon Trotsky to work on the State Plan for Electrification of Russia (GOERLO). According to contemporaries, Florensky, in his priest’s cassock working alongside other leaders of the Government department, was a very astonishing sight. Evidently, such a person had to be arrested by the Bolsheviks. Indeed, in 1933 he was arrested and sentenced to ten years in the labor camps. In 1937 he was sentenced by an extrajudicial NKVD troika to execution and was shot immediately.

Florensky proposed to construct a **formal logic of antinomies** that could be applied to Orthodox theology. He believed that Orthodox Christianity is an inconsistent but non-trivial theory and a formal logic of antinomies allows to explicate the inconsistent content of Christian dogmas. As we can see, Fr. Florensky was one of the founders of present-day paraconsistent logic.

In the words of Kant, he considered the inferences of pure reason as antinomies. Florensky stated that there are self-referential sentences A such that both A and non- A are true. These sentences are called by him the

truths or antinomies: “each truth has to be a non-conditional formula” and “the truth is a self-inconsistent sentence” [8]. Florensky’s instance on the self-inconsistent sentence was the following sceptic expression ($\epsilon\pi\omicron\chi\eta$):

$$\begin{cases} I \text{ affirm nothing;} \\ I \text{ do not affirm that I affirm nothing.} \end{cases}$$

Nowadays, the Liar sentence is used more often as an example of the self-inconsistent one. Let us remember the Liar sentence: “*This sentence is not true*”. There are two options: either the sentence is true or it is not. Assume that it is true and then what it says is the case. As a result, the sentence is not true. Suppose, on the other hand, that it is not true, then this is what it says. Hence, the sentence is true. In either case it is both true and untrue.

According to Florensky, the antinomy is formulated so: “If the antithesis implies the thesis and the thesis implies the antithesis, then the conjunction of thesis and antithesis, in the case that it is not false, is an antinomy” [8]. Florensky formalizes this reasoning in the framework of Russellean propositional language as follows:

$$-p \supset p. \cap .p \supset -p : \supset : p \cap -p. \cap . - \Lambda = P,$$

where Λ is a contradiction (as an example, $\Lambda := p \cap -p$), P is a sign for antinomy. In two-valued logic we see that the expression $-p \supset p. \cap .p \supset -p : \supset : p \cap -p. \cap . - \Lambda$ is a true proposition.

Each Christian dogma has the form of an antinomy. For instance, the two natures of Christ (human and divine) are on the first hand unmerged and unchanged ($\acute{\alpha}\sigma\upsilon\gamma\chi\acute{\upsilon}\tau\omega\varsigma$ και $\acute{\alpha}\tau\rho\acute{\epsilon}\pi\tau\omega\varsigma$) and on the other hand, unseparate and inseparable ($\acute{\alpha}\delta\iota\alpha\iota\rho\acute{\epsilon}\tau\omega\varsigma$ και $\acute{\alpha}\chi\omega\rho\acute{\iota}\sigma\tau\omega\varsigma$). Thus, the dogma, including inconsistent content, shows the truth. According to Florensky’s opinion, both faith in dogmas and divine love allow us to solve the dogma’s antinomical nature: *Finis amoris, ut duo unum fiant*, as he wrote.

Unfortunately, the hierarchs of the modern Russian Orthodox Church do not show respect for Fr. Pavel Florensky and his ideas. For example, in Moscow on May 14th, 1995, the known Orthodox fundamentalist Fr. Oleg Stenjaev, and the Archbishop of Istrina, Vicar of the Diocese of Moscow Arsenii Yepifanov (the friend of Patriarch Alexius II), burnt books of Vladimir Solovev, Fr. Sergij Bulgakov, and Fr. Pavel Florensky in a court yard of the Orthodox temple. This event was broadcast on Russian TV.

Notice that the paper submitted by Assoc. Prof. Ihar Padporyn, the head of the Department of Philosophy and History at the Belarusian State Agrarian Technical University, is dedicated to the topic of Orthodox rationality.

For the first ten years of the Soviet regime, the national cultures of Belarus and Belarusian language enjoyed a significant revival boost. This was, however, soon tragically ended during the Great Purge, when almost all prominent Belarusian intellectuals were executed (many of them buried in Kurapaty) and thousands of common Belarusians were deported to Asia. Belarusian orthography was Russified and the use of Belarusian language was discouraged as exhibiting antisoviet attitude.

Bolsheviks falsified Belarusian history and tried to change the Belarusian identity. They made Belarusians forget their own history connected with the Grand Duchy of Litva and they continued the Russification of Belarusians.

However, Belarusians were able to preserve their national identity up until today: “Belarusian people as a whole have been losing their national ‘elites’, szlachta, clergy, citizens, all people who by social status, language, belief, style of life, thoughts and senses were aliens for it, but they haven’t lost the specifications that differentiate them from other nations yet” [26].

The dictatorship in the Soviet Union did not allow humanities to develop outside the control of the governing political structures. This thought control caused the absence of critical thinking in social life. As a result, instead of critical thinking, the system of double standards developed in the Soviet people. Recall that such a system is called ‘doublethink’ [17]. So, Orwell writes: “Doublethink means the power of holding two contradictory beliefs in one’s mind simultaneously, and accepting both of them” [17].

Bolsheviks emphasized the difference between conventional (Aristotle’s) logic, which dated from the ancient times, and the logic introduced by Marx. The latter reflected on the subject matter, substance and evolution of what the logic applies to, and it is, in their view, therefore more adequate for the process of thinking.

Let us remember that the Greek philosopher Aristotle laid down three basic laws of logic: the *principle of identity* ($A = A$), *of contradiction* (A cannot be B and non- B), and *of the excluded middle* (A is either B or non- B ; there is no middle alternative). In modern logic the first principle is understood as the constraint of the recursive definition of well-formed formulas that allows, as an example, to use the substitution rule. The second principle is seen as the constraint of truth valuations, mapping well-formed formulas to the set of truth values (in this case a formula obtains a unique truth value by the truth valuation). The third principle is understood as the constraint of the exclusiveness of truth values (their intersections have to be empty).

According to Bolsheviks (Lenin, Trotsky, Stalin), the logic based on Aristotle’s three laws, called by them the **formal logic**, has its limits. They

affirmed that when dealing with complicated events (movement, change, and contradiction), formal logic becomes a totally inadequate way of thinking. In such circumstances they proposed the so-called **dialectical logic** as the logic of contradictions and changes. This logic had to explain that there are no absolute or fixed categories in nature or society and there are contradictions in thought itself. Dialectical logic satisfied the following three laws:

1. The *law of the transformation of quantity into quality and vice versa*. This law expresses the fact that change in nature and society does not simply involve a slow and continuous increase or decrease in the growth of things, but assumes that new qualities emerge after the increase or decrease of quantities at a certain point.
2. The *law of the unity and struggle of opposites*. According to this law, the contradiction is the source of all movement and life. Change arises from and within things as a necessary part of their development.
3. The *law of the negation of the negation*. Negation involves the movement of something from an old stage to a new and higher stage, so that the elements of the old are carried forward and reworked into the new. This whole process can be best pictured as a spiral, where the movement comes back to the position from which it started, but at a higher level. In other words, historical progress is achieved through a series of contradictions, therefore when the previous stage is negated, it does not represent its total elimination.

Evidently, dialectical logic was a pseudological knowledge. Its goal was to explain Soviet inconsistent thinking and to justify the double (everyday and socially-proclaimed) standard of the Soviet morality and Orwell's doublethink in the Soviet social practice. The doublethink that, in Orwell's words, means "to know and not to know, to be conscious of complete truthfulness while telling carefully constructed lies, to hold simultaneously two opinions which are cancelled out, knowing them to be contradictory and believing in both of them, to use logic against logic, to repudiate morality while laying claim to it, to believe that democracy was impossible and that the Party was the guardian of democracy, to forget whatever it was necessary to forget, then to draw it back into memory again at the moment when it was needed, and then promptly to forget it again; and above all, to apply the same process to the process itself. That was the ultimate subtlety: consciously to induce unconsciousness, and then, once again, to become unconscious of the act of hypnosis you had just performed. Even to understand the word 'doublethink' involved the use of doublethink" [17].

Dialectical logic had a lot of applications in Soviet ideology and humanities, but it could not be used in scientific reasoning. (For this reason, after the death of the Soviet Union that ‘logic’ died too.) In the meantime, for explications and explanations of scientific reasoning, the so-called **content-genetic logic** was constructed. The Soviet logicians proposed it, taking some ideas of the German philosophers Kant and Hegel and it was built as a science with the highest evidence. This logic is essentially characterized as follows:

1. *Thought is identified with reflection and reflexivity*, that is, with psychic activity in the course of which a person gave himself an account of what he was doing, and how, and he became aware of all the schemas and rules by which he acted. The sole task of logic is then to make simpler the ordering and classifying of the corresponding schemas and rules. Every individual could discover them for himself in his own consciousness because, even without any study of logic, he was guided by them (only not, perhaps, systematically). Therefore “logic of the real basis for the forms and laws of thought proved to be only the aggregate historical process of the intellectual development of humanity understood in its universal and necessary aspects [i.e. in its reflexivity aspects – Sch. A.]” [9].
2. While mathematical logic describes the inference rules (i.e., it understands thinking as a system of automatic inference), content-genetic logic understands *thinking as permanent activity* or practice. This activity is initial and basic; it is not an object or thing, nor is it a psychological process. Thinking is a foundation of each social or psychological activity (thought, language, and individual psychology are derivative of thought-activity). As stated adepts of content-genetic logic, the genesis and evolution of thought, language, and the individual follow the logic of ascending from abstract to concrete (the logic reflected in Marx’s *Capital*). “The whole history of humanity was correspondingly also to be considered a process of the ‘outward revelation’ of the power of thought, as a process of the realization of man’s ideas, concepts, notions, plans, intentions, and purposes, as a process of the embodying of logic, i.e. of the schemas to which men’s purposive activity was subordinated” [9]. So, logic has to be a *history of science*: “The subject matter of logic then proved to be those really universal forms and patterns within which the collective consciousness of humanity was realized. The course of its development, empirically realized as the history of science and technique, was also seen as that ‘whole’ to the interests of which all the individual’s separate logical acts were subordinated” [9].

3. The *thought-activity* studied in content-genetic logic can not be totally algorithmized, but *may be partially technologized*. Therefore logic is understood as technical knowledge, but it is not considered as mathematical (deductive) knowledge. The schemas of that logic are not universal, they appear contextually within the concrete scientific discipline that the content-genetic logic is applied to. “The subject matter of logic was no longer the abstract identical schemas that could be found in each individual consciousness, and common to each of them, but the history of science and technique collectively created by people, a process quite independent of the will and consciousness of the separate individuals although realized at each of its stages precisely in the conscious activity of individuals (...) It was merely a matter of this, that the schemas of cultivated thought (i.e. of the processes taking place in the consciousness of the individual) should coincide with those of the structure of the science in the movement of which the individual was involved, i.e. with the ‘logic’ dictated by its content. If the schema of the activity of a theoretician coincided with that of the development of his science, and the science was thus developed through his activity, Hegel would attest the logicity of his activity, i.e. the identity of his thinking with that impersonal, universal process which we also call the development of science” [9].

Prof. Ewald Ilyenkov is one of the founders of content-genetic logic. He wrote: “Thus the existing logical theories did not correspond to the real practice of thought, and thinking about thought (i.e. logic) consequently lagged behind thinking about everything else, behind the thinking that was realized as the science of the external world, as consciousness fixed in the form of knowledge and things created by the power of knowledge, in the form of the whole organism of civilization” [9]. On forming content-genetic logic, the following Soviet scientists also showed a significant influence: Prof. Aleksandr Zinoviev [28], Assoc. Prof. Gregory Shchedrovitsky [21], Prof. Merab Mamardashvili [16], and many others. The most known Russian informal scientific community in which content-genetic logic is studied is called the Moscow Methodological Circle. Uladzimir Mackiewicz (see his paper in this issue) is a well-known Belarussian follower of that Circle. (Notice that Mackiewicz was the moderator of the first TOC show on Belarussian TV.)

Soviet content-genetic logic is similar to content logic building in the framework of the German transcendental philosophy (for logical ideas of that philosophical tradition see [22]).

Adepts of content-genetic logic agreed that their logic has to be regarded as a true method alternative to mathematical logic, i.e. as a science with the

highest evidence [6], [19]. While world-wide science continues Newton and Locke's tradition (the orientations of that tradition are well explicated in the modern UK philosophy, namely, in philosophical logic and mathematical logic), the Soviet scientists decided to establish the own scientific tradition with the orientations explicated in content-genetic logic.

Content-genetic logic is based on Wygocki's scientific results. Prof. Leo Wygocki (Lev Vygotsky) (1896–1934) is a well-known Belarusian psychologist who was born in Orsha (a town in Belarus) and worked in Moscow. He showed experimentally that thought is not developed in parallel with speech in the general case: “The most important fact uncovered through the genetic study of thought and speech is that their relationship undergoes many changes. Progress in thought and progress in speech are not parallel. Their two growth curves cross and recross. They may straighten out and run side by side, even merge for a time, but they always diverge again. This applies to both phylogeny and ontogeny” [27]. It follows from this that thought cannot be reduced to speech, that is human logic cannot be reduced to mathematical language. Therefore, logic has to be regarded as a study of the origins of knowledge (not as a study of ready-made knowledge by means of signs), i.e. it has to be considered as a method in which the knowledge was obtained, because the method of knowledge construction affects the validity of that knowledge.

This idea shows the similarity between content-genetic logic and genetic epistemology, which was established by Jean Piaget [18]. The goal of genetic epistemology is to link the validity of knowledge to the model of its construction. But genetic epistemology, different from content-genetic logic, also assumes to use the methods of formal logic: “Genetic epistemology attempts to explain knowledge, and in particular scientific knowledge, on the basis of its history, its sociogenesis, and especially the psychological origins of the notions and operations upon which it is based. These notions and operations are drawn in large part from common sense, so that their origins can shed light on their significance as knowledge of a somewhat higher level. But genetic epistemology also takes into account, wherever possible, formalization – in particular, logical formalizations applied to equilibrated thought structures and in certain cases to transformations from one level to another in the development of thought” [18].

Math-logicians (adepts of the UK philosophy) directly identify thought with linguistic activity and logic with the analysis of language. According to the Soviet (and now post-Soviet) tradition, language (speech) is, nevertheless, not the sole empirically observed form in which human thought manifests itself, there is also an example of behavior activity. “But, that

being so, man's actions, and so too the results of his actions, the things created by them, not only could, but must, be considered manifestations of his thought, as acts of the objectifying of his ideas, thoughts, plans, and conscious intentions" [9].

Self-development is an important ability of human thought that is not reflected by math-logicians. For instance, mathematical logic cannot describe the development of deductive science: "The development of modern science is characterized not only by an unusually rapid accumulation of new knowledge but also by the fact that the principles and methods of scientific research have essentially changed and are continuing to change" [21].

Content-genetic logic was used as a Soviet analogue of critical thinking. In 1979, in order to put content-genetic logic into social practice, Gregory Shchedrovitsky created a method of collective problem solving, called the Organizational-Activity Game. This game was similar to the Life Training for Personal Development or to the Critical Thinking Training, though it was based on Marx's dialectics and Soviet content-genetic logic. Shchedrovitsky saw it as a direct continuation of Marx's practical philosophy. Marx dreamed of a new society in which nobody would be exploited, neither by economic nor administrative means, but in which free people would work together. The Organizational-Activity Game was an attempt to create a mechanism for organizing work in groups and collective management based on common aims and values. However, in actuality, the moderator of the Organizational-Activity Games had the possibility to bring others under his control and, taking into account that according to Marx reflectivity was considered as a collective and communal property (not as an individual one), to manage the consciousness of other participants like those in the Big Brother Show. Organizational-Activity Games were very popular in the Soviet period of Gorbochev's Perestrojka.

Content-genetic logic was made as an alternative to UK philosophy. While there was another subordination between sciences in Poland (thanks to the Lvov-Warsaw School, where mathematical logic had the status of the most abstract science), we see that in Belarus and Russia content-genetic logic took its privileged place. Therefore the center of virtual ecumena of Soviet and post-Soviet scientific thinking, including Belarusian and Russian ones, is content-genetic logic, not mathematical logic or UK philosophy.

Usually, scientists do not realize the highest principles of scientific knowledge that they use. However, any scientific research is carried out, in Kant's words, in accordance with conditions of pure reason ("conditions of any possible experience"). These conditions are studied within the most abstract sciences. All over the world, those sciences with the highest evidence are

regarded as mathematical logic, foundations of mathematics, philosophical logic, computability theory, etc., but at the same time in the Soviet and post-Soviet cultures (in particular, in modern Belarus), they are considered as content-genetic logic, history of science, scientific ideology, etc.

The two main properties of *content-genetic logic* and the scientific orientation based on it are (i) the *locality and limitedness of any science* and (ii) the *historical contextuality of scientific thinking*. On the other hand, the two main properties of *mathematical logic* and the scientific orientation based on it are (i) the *interdisciplinarity of scientific research* and (ii) the *universality of scientific thinking*.

In Russia, however, many informal math-logical communities (scientific logical schools in the UK sense) were organized: Smirnov's School in Moscow, Matiyasevich's School in St. Petersburg, etc. But, in Belarus there are no such schools. The majority of logical research is carried out in the framework of content-genetic logic. This philosophical tradition had and still has many adepts in Belarus. So, the Belarussian philosopher, Prof. Yury Charin (for a long time he worked as the head of the Department of Philosophy at the Belarusian State University of Engineering and Radioelectronics), studied content-genetic logic very canonically in the framework of Marx's dialectics.

The *Belarusian Logical Circle*, establishing their own tradition of content-genetic logic, was founded by Prof. G. Levin and Prof. A. Klaučenja (see [14], [12]). It had many famous followers up until now: Prof. Uladzimir Berkau (Vladimir Berkov) [1], Prof. Anatol Chilkiewicz [3], Prof. Jadwiga Jaskiewicz (Yadwiga Yaskewich) [11], Prof. Ihar Dubinin, Prof. Viktor Czuziaszou (Tchouechov) [5], Assoc. Prof. Vital Barton [12], Dr. Mary Dziško, and many others. (See the papers by Berkau, Jaskiewicz, and Dziško in this issue.)

Now, that Circle is transformed into the *Belarusian School of Argumentation Theory*. Prof. Berkau and Prof. Jaskiewicz are its two leaders. They applied content-genetic logic to scientific argumentation. Prof. Berkau received a Ph.D. in philosophy in 1968 from the Belarusian State University. His Ph.D. thesis was titled 'Question as Form of Thinking' and his thesis for the degree of the Doctor of Philosophy was titled 'Logical-Methodological Analysis of Scientific Problems' (1981). Prof. Jaskiewicz received a Ph.D. in philosophy in 1982 from the Belarusian State University, the title of her thesis was 'Definitions and their Role in Scientific Research'. She received the degree of the Doctor of Philosophy in 1992 at the same university and her thesis was titled 'Structure and Dynamics of Argumentation in Science'.

In the Belarusian Logical Circle, formal-logical research in the restricted sense was only carried out by Prof. Anatol Chilkiewicz, who built an extension of conventional syllogistics (see [4]), where atomic propositions are of the following kinds:

1. the certain affirmative propositions
 - (a) a universal-universal proposition “every ... is every ...” (“every man is homo sapiens”);
 - (b) a universal-particular proposition “every ... is some ...” (“every man is mortal”);
 - (c) a particular-universal proposition “some ... is every ...” (“some mortal creature is homo sapiens”);
 - (d) a particular-particular proposition “some ... is some ...” (“one of the inhabitants of Athens sentenced to execution was a well-known philosopher”);
 - (e) a particular-singular proposition “some ... is an individual ...” (“one of the inhabitants of Athens sentenced to execution was Socrates”);
 - (f) a singular-particular proposition “an individual ... is some ...” (“Plato was an Old Greek philosopher”);
 - (g) a singular-singular proposition “an individual ... is an individual ...” (“Socrates was an Old Greek philosopher who lived in 469–399 and was the teacher of Plato”);
2. the certain negative propositions
 - (a) a universal “no ... is ...”;
 - (b) a particular “some ... is not ...”;
 - (c) a singular “an individual ... is not ...”;
3. the uncertain affirmative propositions
 - (a) a universal proposition with an uncertain predicate “every ... is some or every ...”;
 - (b) a particular proposition with an uncertain predicate “some ... is some or every ...”;
 - (c) an uncertain proposition with a universal predicate “some or every ... is every ...”;
 - (d) an uncertain proposition with a particular predicate “some or every ... is some ...”;
 - (e) a complete uncertain proposition “some or every ... is some or every ...”.
4. the uncertain negative propositions “some or every ... is not ...”.

Prof. Chilkiewicz also proposed probabilistic models of conventional and unconventional syllogistics. The syllogistical works by Chilkiewicz were very

interesting from the standpoint of modern logic, but were carried out outside of the axiomatic method, which was used, for example, by Prof. Jan Łukasiewicz [15]. The matter is that mathematical logic had no evaluations in the USSR as a science with the highest evidence. However, the content-genetic logic did have such a privileged status.

The best known Belarusian philosopher, Prof. Wiaczeslau Stepin, applied content-genetic logic to the philosophy of science. In collaboration with the well-known Belarusian physicist, Prof. Leo Tamilczyk (Lev Tomilchik), using this logic, they explained the origin of Maxwell's theory of electrodynamics. Now Prof. Stepin is the founder and leader of the *Belarusian School of Science Methodology*.

He graduated from the philosophical department of the Faculty of Philosophy, Belarusian State University (1956) and took post-graduate courses from the chair of philosophy of the same university (1959). Prof. Stepin works in the sphere of theory of cognition, philosophy and methodology of science and history of science [23], [24], [25]. His Ph.D. thesis was 'General Methodological Problems of Scientific Cognition and Modern Positivism' (1965), his thesis for the degree of the Doctor of Philosophy was 'The Problem of Structure and Genesis of Physical Theory' (1975). In 1987, he was elected as a corresponding member of the Academy of Sciences of the USSR, and since 1994 he has been an active member of the Russian Academy of Sciences.

Prof. Stepin has lots of open followers in Belarus and Russia (the most successful in Belarus is Prof. Lidia Kuzniacoua [25]), one of which is Assoc. Prof. Arkady Lazarewicz, the deputy director of the Institute of Philosophy at the National Academy of Science of Belarus (see his paper in this issue).

In the Belarusian philosophy of science, content-genetic logic is used as a methodological organon, therefore the tradition of logical positivism and English analytical philosophy is still ignored, but the tradition of postpositivism (its representatives are Prof. Thomas Kuhn and Prof. Paul Feyerabend) became very popular in Belarus, as well as in Russia. For example, there are many receptions of Kuhn's concept of scientific revolution. Let us remember what this is: "... the preceding discussion has indicated that scientific revolutions are here taken to be those non-cumulative developmental episodes in which an older paradigm is replaced in whole or in part by an incompatible new one" [13].

Prof. Stepin is of the opinion that Kuhn's conception is probably the best achievement of western science philosophy: "Basically it is possible to say that even in the most advanced research of the scientific foundations (they may be the works of Thomas Kuhn) the western science philosophy

is not analytical enough. It has not yet defined the main components of the scientific foundations and their correlations. The correlations between the scientific foundations and the theories and empirical knowledge based on them are not cleared. This means that the problem of the structure of the foundations, their place in the system of knowledge and their functions in its development demands further, deeper discussion” [23].

In Belarus today, there exist only two original philosophical schools: the School of Science Methodology and the School of Argumentation Theory, which both continue the Belarusian tradition of content-genetic logic.

Outside these two schools, there are lots of Belarusian philosophers who are not well organized in any scientific informal community. The majority of them are based on French philosophers: Foucault, Derrida, Lacan, Bataille, Deleuze, and also neo-Marxists, like Slavoj Žižek. This tendency may be called **Foucaultism** (from the name of Michel Foucault, the French philosopher extremely popular in Belarus). The tendency of Foucaultism is an attempt to philosophize out of context any philosophical methodology, without any tradition. The followers of Foucaultism¹ are characterized by the feelings of prophets in philosophy. In their opinion, logic is not a philosophical science. The imitation of philosophy and the absence of terminological culture caused the unorganizedness of that community.

The philosophical tradition of Foucaultism is hermetic and self-isolated too, which prevents young Belarusian philosophical groups from developing. It causes also a self-isolation of Belarusian humanities (for example, in Belarus there are no philosophers published in international scientific journals in English) and, as a result, a self-isolation of Belarusian politics.

This issue is the first scientific edition in English devoted to Belarusian philosophy. I would like to thank the following people for their substantial help in preparing this publication: Prof. Kazimierz Trzęsicki (Białystok), Piotra Rudkouski (Vilna), Assoc. Prof. Ihar Padporyn (Minsk).

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¹ Though the School of Science Methodology and the School of Argumentation Theory are not branches of Marxism-and-Leninism, they are associated with the old political regime by the followers of Foucaultism.

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Piotra Rudkouski

ANIOŁ DOWGIRD'S PROBLEMS WITH REALITY

The main objective of this paper is the epistemological ideas of Anioł Dowgird (1776–1835), the prominent Enlightenment philosopher born in Mohilou (Mogilev) district (the east of Belarus). I start with sketching a general historical background of Dowgird's philosophy, which constitutes the first, smaller, part of the paper. In the second, larger part I try to indicate Dowgird's contribution to epistemological realism and point out some problematic moments in this stance.

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1. Unknown and Ignored (Some Remarks on the Historical Background of Dowgird's Philosophy)

E. Darashevich, a Belarusian historian of philosophy, stresses that Dowgird was the typical Enlightenment thinker [4]. This is true, if we consider him as one who believed in reason and tried to elaborate a new – alternative to the “old”, i.e. scholastic, method of solid cognition, and was prompt to use the philosophical ideas of “Modern Ages”. But Enlightenment philosophy was to a large extent a “liberation,” or even “revolutionary,” project. B. de Fontenelle, P. Bayle, J. O. de la Mettrie, A. C. Helvétius, Voltaire and almost all the encyclopedists were persistent fighters against the “ancient regime” in the broad sense of the expression, referring not only to monarchy or social unquality, but also to obscurantism, prejudices and backwardness (assotiated, as a rule, with the Christian religion).

Anioł Dowgird was neither a revolutionary, nor a political thinker. Among his Enlightenment precursors were rather “calm” philosophers, for example Etienne B. de Condillac, Christian Wolff, Thomas Reid and Dowgird's contemporary Joseph-Marie Degérando [8]. Dowgird was mostly interested in a problem which was very similar to that of Kant: *how is knowledge possible?* He was dealing with the problem of human cognition reality (*rze-*

czywistość poznań ludzkich) throughout all his life, producing a number of weighty analytic works to list some of them: “O loice, metafizyce i filozofii moralney rozprawa, na skutek konkursu ogłoszonego przez Cesarski Uniwersytet Wileński roku 1820 dnia 1 marca do katedry rzeczonych przedmiotów, napisana przez x. Anioła Dowgirda, S. P. magistra św. teologii” (“Treatise on Logic, Metaphysics and Moral Philosophy, Written by Anioł Dawgird, Priest from the Piary Congregation and Master of Saint Theology, March 1st, 1820, for the Competition for Chair of Named Subjects, Announced by Imperatory Vilna University”) edited in Vilna in 1821, “Wykład przyrodzonych myślenia prawideł czyli logika teoretyczna i praktyczna przez x. Anioła Dowgirda zgromadzenia xx. Piarów doktora św. teologii, członka, korespondenta królewsko-warszawskiego towarzystwa przyjaciół nauk, kapelana głównego seminaryum duchownego przy Cesarskim Uniwersytecie Wileńskim cz. I” (“Lecture on the Native Rules of Thinking, i.e. Theoretical and Practical Logic by Anioł Dowgird from the Piary Congregation, Doctor of Theology, Member and Correspondent of the Royal Warsaw Society of Friends of Sciences, Padre of the Main Priest Seminary, Attached to Imperatory Vilna University. Part I”), edited in Połack (today Belarus) in 1828, and “Rzeczywistość poznań ludzkich” (“On Human Cognition Reality”), published in the journal “Wizerunki i roztrząsania naukowe, t. 5” in 1839.

Born in Belarus, writing in Polish and teaching on both Belarusian and Lithuanian terrain, Dowgird is one of those who, like Copernicus or Kościuszko, belongs “to all and to none” alike. He belongs “to all” (i.e. to Poles, Belarusians, and Lithuanians) in the sense that representatives of each of these nations have the right to perceive his heritage as a part of the thesaurus of their own national heritage. But at the same time, Dowgird belongs “to none” in the sense of belonging to one’s nation. He was *nationless*, because the very idea of a national community was at its embryonic stage in the terrain of the former Grand Duchy of Litva in the first half of the 19th century and it is extremely incredible that Dowgird might be affected by this idea.

Concerning the reception of Dowgird’s intellectual heritage, we have to acknowledge that in the case of Belarus it was a rather miserable reception. The above cited monograph of Doroshevich (written in Russian) is still the only work on Dowgird’s attainment in Belarus. At the present moment, none of Dowgird’s works have been translated in Belarusian, whereas Lithuanians got a perfect translation of his main works two years ago [1], [2], [3] thanks to the famous historian of philosophy, professor Romanas Plečkaitis. This translation serves me as the main resource of Dowgird’s thought, as I have no access to his original, Polish, books or manuscripts.

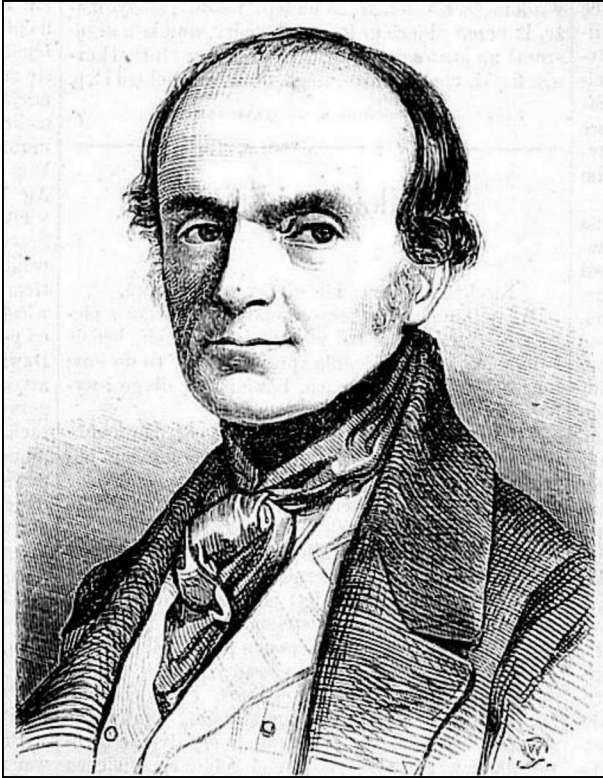


Figure 1. Portrait of Józef Gołuchowski. Lithography

“Aniol Dowgird as an Unknown Philosopher” is the title of the monograph written by S. Kaczmarek [7], the Polish researcher of Dowgird’s heritage. We could safely paraphrase this expression as: *Dowgird is an ignored philosopher*, as he, while being highly appreciated in narrow circles of professional philosophers, was never popular among students as well as philosophy amateurs. This priest from the Piary Congregation was too “cold” and “dry” for the young Vilna public, as Vilna youth at that time were looking for the “deep” and “hot” ideas, rather than for scrupulous analysis and scientific research. There was a spirit of a fight for freedom and liberation within Vilna University (officially called ‘Imperatory’) at the beginning of the 19th century.

In the meantime Józef Gołuchowski, the talented young Polish philosopher, finished his studies at Erlangen University and became famous due to his work “Die Philosophie in ihrem Verhältniss zum Leben ganzer Völker und einzelner Menschen” (On the Role of Philosophy in the Life of Nations and Individuals), published in 1822. The very title of this treatise

was attractive enough and even intriguing; it seemed to carry out the deepest aspirations of many enlightened young men, inhabiting the terrain of the former Grand Duchy of Litva and Poland Korona. In October, 1823, Gołuchowski began lecturing philosophy at the Vilna University and it was a resounding success. Since the lectures were open to all those willing, they gathered a multitude of educated inhabitants from Vilna. After Heinrich Abicht, the extremely unpopular professor of philosophy from 1804 to 1816 and Anioł Dowgird, the “dry” and “too scientific” philosopher lecturing from 1818 to 1823, this new professor with his ideas of the “spirit of nation” and “human freedom” was exactly whom the generation of philomathes and philarhetes especially needed. But in a few months the Russian authorities ordered a close to Gołuchowski’s lectures, and a bit later Gołuchowski was forbidden completely. As a result, Dowgird returned to the chair of philosophy and continued lecturing till the university was closed down by the tsarist government in 1832. Undoubtedly, for Dowgird it was an extremely uncomfortable situation. Romanas Plečkaitis described very well the plight: “His situation was difficult: the eloquent, famous, original and popular among students as well as among the whole public, professor was replaced by an ineloquent (according to witnesses of contemporaries), stammering difficult sentences, got old too quickly, person” [10]

These are, in short, the reasons why, if we use Plečkaitis’ words, “the Vilna epistemology school theoretician” was not only an “unknown”, but also an *ignored* philosopher. But at the same time, Dowgird’s contribution to philosophy, as well as to scientific methodology, seems to be much more significant and substantive than that of Gołuchowski or other representatives of “mesianistic philosophizing”. The philosophy of the latter was created for the “heart” rather than for reason, while that of the former was utterly analytic and rationalist. The first type of philosophy could be labelled “prophetic”, while the second one, represented by Dowgird, “scientific” (here, I beg the pardon of those convinced that philosophy can never be scientific in the restricted sense).

2. Dowgird’s Humbled Conceit

“The main purpose of my philosophical inquiry, whose overall content and general features are presented in this treatise, is to explore two things. Firstly, my purpose is to explain substantive reasons why sceptics doubt the true reality of our cognition and idealists deny its possibility at all. Secondly, I aim to show that our knowledge about the things existing beyond our

mind follow from some innate rules of the mind and that all the arguments seemingly supporting doubt about our knowledge or even yielding denial of it are fully meaningless”, as Dowgird writes in “On Logic, Metaphysics and Moral Philosophy...” [1].

So, the task is clear: to prove the existence of real correspondence between the content of our mind and the realm of things beyond our mind. It leads to polemics with a pleiad of sceptics. Throughout the whole history of philosophy, sceptics were (and still are) forming a strong intellectual party (Dowgird would say “sect”). But the Enlightenment and post-Enlightenment era gave rise to the party (in Dowgird’s words “sect”) of “new idealists” too, an intellectual movement that originated from both empiricism and rationalism. It was the radical, Berkeley, whose empiricism gave the first solid premise for idealism. According to Berkeley, the world is to be reduced to the realm of subjective impressions (‘*esse*’ means ‘*percipi*’). Note, this *radical empiristic* claim was fused with the *entirely transempiric* claim that there exists the Great Perceiver, Absolute, that incessantly gives existence to the world by way of perceiving it. Only one step was needed to make the conclusion that Berkeley’s Absolute is nothing but the *imaginatory power* of the human person and that *esse* depends in fact on the *imaginare* of human beings.

The other resource of idealism was the Kantian critique of human knowledge (critique of pure reason). Kant himself was neither a sympathizer of idealism nor much more adherent of sceptical strategy. But, his analysis of human cognition forced him to make some compromises with both sceptics and idealists. The Königsberg philosopher made compromises with sceptics in the sense that he admitted that in the course of cognition we can never be sure whether we perceive adequately *things in se*. “Things in themselves” (Dinge an sich) remain inaccessible to us forever. Kant made a bias toward idealists too, claiming that our mind and senses are not passive in the process of cognition, but to some extent they do “shape” and “mould” information coming from the external world. So, only one step was needed to begin claiming that the whole world is nothing but ME: Kantian “phenomena” are nothing, but solely MY internal subjective entities. Those who were bolder, like Hegel, Fichte or Schelling, decided to go even further: they made a series of “revelations,” endorsing that Kantian “things in themselves” were disclosed (for Hegel, for example, it was the “Absolute Spirit”). If there is no access to the objective reality in *se*, subsequently, there is no reason to refrain from constructing a wholly optional, arbitrary, *own* world. *Anything goes*, Feyerabend’s device, can be ascribed to a pleiad of idealists of the nineteenth century.

Anioł Dowgird was aware that idealist or sceptic philosophy is a high-way for both anarchism and arbitralism in epistemology. Thus, he began to eagerly fight against these “strange and inconsistent” philosophies from a realistic standpoint. “There exist some innate rules of the mind, which order us to treat sensations we possess as corresponding to a reality beyond us” [3] – this is the kind of refrain incessantly repeated by Dowgird.

The heart of realism really captured Crispin Wright, the contemporary analytic philosopher. According to him, realism is a kind of fusion of humbleness and conceit. Realism claims *humbly* that mankind deals with the objective world, existing independently from ego cognoscens, and having lots of characteristics which may flee human consciousness. At the same time, realism *proudly* presumes that human beings are situated in a somewhat privileged situation, allowing them to obtain true knowledge about the world and, to some extent, to understand it adequately [13].

Wright’s characteristics of realism may be successfully applied to the viewpoint of Dowgird. In the case of his “humbleness,” he does not seem to feel somewhat “guilty”. Have you got any reason to hold that the world does exist independently from our mind? *Yes. This is the common-sense belief*, Dowgird could answer. “The men, guided by nothing but their native reason, do trust witnesses of their sensations so much that they would be prone to consider somebody to be rather ill-minded man, who would claim that the material world, revealed through the sensations, is but illusion, or dream, or fancy” [3]. The problem of the existence of an external world is specific to *homo philosophans*, whereas at the level of “common sense” it is but a pseudoproblem. Let us not consider them to be superior to all men, believing firmly in the things-beyond-mind! – in such a way we can interpret Dowgird’s standpoint. It consists of the device: *Let’s be humble!*

The common sense argument (“humbleness argument”) might be fully acceptable, if, however, a little problem did not appear in connection with it. The problem lies in the *intuitivity* of this argument. It does not seem to provide any verificational or falsificational procedure to justify itself. Moreover, it seems that any effort to construct such a procedure would be failed, because the sentence “Each man, guided by common sense, believes in the world-beyond-mind” obviously contains the *circulum vitiosum* fallacy. To identify one who believes in world existence (independent from one’s mind) means to identify one who is guided by common sense and vice versa. In my childhood, I sometimes dealt with the dilemma: does the world surrounding me really exist or is it solely *my imagined world*? Why am I, me, and others, others? What does it mean to be “me” and to be “others”? What is the difference between the first and the second? Is there any difference

there at all? I can assure you that it was not obvious to me whatsoever that the world beyond me really exists. (Much later, when I began to study philosophy, I was indeed surprised to find out that there were a lot of philosophers seriously dealing with the same dilemma.) One of my friends told me one day that he had had quite similar dilemmas in his childhood. The question arises here: could these, our childish dilemmas, serve as a falsifier for the common sense argument? I think, it would be an exaggeration to treat them as elements of a theory-testing procedure. The common sense argument is but an *intuitive assumption*, a counterpart of the appeal "Let us be humble!"

Whilst appealing to common sense seemed to be somehow excusable as a solution to the problem of the existence of the world outside us, the same approach to the "reality of cognition" problem would be a kind of dogmatism, if not naiveness. Note, sceptics suspect realists of two "crimes": i) that the latter does not differentiate between the senses' or intellect's data on the one hand and these things in themselves on the second, and ii) that realists naively believe that the possessing these data entirely suffices to be sure that one possesses an adequate knowledge about related things, too. In both cases, realists appear to be naive or/and dogmatic.

Dowgird tried to avoid both dogmatism and naiveness as long as he could. For this purpose, he constructed a sophisticated reasoning, applying mainly Locke's, Condillac's and Degérando's epistemological views. Here, I shall try to reconstruct this reasoning.

1. *No human doubts the fact, that (s)he possesses a faculty to have sensation (sensibilitas, sensus, facultas sentiendi) [1].*

It is obvious that to possess a sensation does not automatically mean to possess true information. Sceptics agree that sensations indeed have a place in our consciousness, but insist that i) *they may be bad reporters* and ii) *there is no means with which we could reasonably distinguish "bad" reporters from "fair"*. Realists, in this case Dowgird, accept the first part of the sceptics claim, but do not agree with the second. For them, *there exist such means with which one can correctly distinguish "true" reports from "false" ones.*

Here, Dowgird states the following:

2. *There exist three sorts of errors: errors of senses (illusions), errors of imagination and reason's errors [3];*

3. *There are two methods of correction for errors: i) experience and ii) analysis¹.*

¹ Dowgird explicitly states that mistakes of "senses" (illusions) are removable by way of either experience, or analysis [3], but I think that these (and only these) methods are relevant for other kinds of mistakes, though Dowgird does not say this explicitly.

First of all, let us explicitly formulate an underlying assumption (2). The assumption is that there are three potential sources of knowledge: senses, imagination and reason. Here, one question naturally arises: Which of them is fundamental? Dowgird rejects imagination at once, for it is the “place” of the subjective modelling of the world, where some references to real world are not even intended. (Nevertheless, Dowgird firmly stresses the usefulness of imagination in various cases of human activity, see [2]) Thus, reason and senses are at stake.

One could rightly note that the question about the foundation for knowledge may be doubly interpreted. *Primo*, it may be a question of the *nature* of knowledge, *secundo*, it may refer to *some norms or rules* which enable getting proper knowledge. In connection with this, we can establish four possible standpoints as to the question of the basis of knowledge: i) genetical empiricism (Locke), ii) methodological empiricism (Bacon), iii) genetical rationalism (Cartesius), and iv) methodological rationalism (Plato).

On the nature of our knowledge, Dowgird writes: “We have already shown that our thought consists not just of sensations, but also of primordial [pierwszorzędne, pirmaelès] and relative concepts, which are attached to the sensations, but cannot be called sensations.” A bit later he notes that “our knowledge about external entities is not only a picture [vaizdinys] different from any sensation, but is also a result of some judgment born in our mind” [1]. We can see here that Dowgird situated himself on a “cross-road” of empiricism and rationalism; for him, there are two fundamental sources of our knowledge: *sensations* as well as “*native judgment (or judgments)*” of mind. But, on the second hand, he writes that “reasoning is a faculty unfolding latest”, where “latest” refers to the ontogenetic development of humans. “An infant is not able to reason, but we could not say that (s)he has no knowledge” [3]. It means that even when the “faculty of reasoning” is not yet developed, at least it is possible to gain partial knowledge.

For Descartes, as we know, the only thing one cannot doubt is the fact of *thinking* (of course, in the first person: *ego cogito*, I do think). But, in order to come to accept the existence of an external world, Cartesius was forced to employ the idea of God, risking blame for conceptual realism. Dowgird resigned from this strategy. Why? Firstly, because of his ontological nominalism he was convinced that there exist solely *individual* things in the world. General or abstract objects are only mental entities, they do not exist really [2]. Ontological nominalists cannot share the Cartesian approach for at least one reason: this approach accepts God’s existence solely in virtue of the presence of the idea of the Absolute *in mind*. Carte-

sius does not seem to differentiate between the mental and the real; this is the main reproach of nominalists addressed to rationalists of the Cartesian type.

Secondly, Cartesius' approach yields the conclusion that realistic attitude is justified exclusively by way of somewhat sophisticated reasoning. For Dowgird, this is a great exaggeration. He was sure that even a small child incessantly gains *true knowledge* about the world and Cartesius' sophistications are quite unnecessary here. The source of this knowledge is sensations only.

It is true that our sensations *may* deceive us. Here, Dowgird distinguishes between two sorts of sensation illusions: "... some of these illusions are removable by experience, while others can be revealed by analysis, or reasoning. The first illusions occur in some circumstances, the second are characteristic of all humans. ... Illusions of the first sort can be revealed and corrected many times, whereas illusions of the second sort can be disclosed and removed by way of some progress; only one who is able to think deeply and to move him/herself in to the realm of supra-sensual truths with the help of reasoning is also able to disclose it [the second kind of illusion]" [3].

Allow me to quote a bit larger passage from Dowgird in order to exemplify his framework for seeking *true* knowledge.

We have already seen that any opinion [mniemanie, numanomas spęsmas] consists of multiple judgments. I would like to pay particular attention to the first two. Firstly, there exist judgments generated by some real sensation, for instance, "I experience smelling a melon" or "I experience light changing" – such judgments are beyond reasonable doubt; we must not treat them as opinions. Look at another kind of judgment which is generated by some imagined sensation, for example: "Here is a melon in the room" or "Some material body of certain shape and of certain size is at some distance and is directed toward some point." This second kind of judgment is less certain and truthful [in Lithuanian transl.: "tikras" that means "certain", "truthful", "real"] than the first one, because, to speak the truth, it is opinion only. However, if we analyze this judgment, we can see that it is not simple, rather, composed [3].

"Judgments of the second type consist of a number of 'imagined informations' which are raised in our consciousness spontaneously on the basis of earlier experiences. We can have an impression of smelling, which reminds us of smelling a melon and we are prone to judge at once: here is the melon! Dowgird appeals not to hurry with this judgment. But what can we do? *We must look for additional experiences, which could confirm (or disconfirm) our 'first impression'*; such, in short, would be Dowgird's response" [3].

And here the field of manoeuvres opens itself to the sceptics. Since we decide to look for other, additional, experiences in order to check the “first impression,” we enter the road that leads to, not truth, but *regressus in infinitum*, because we must formulate every further impression in “first-person-mode” (if, of course, we further want to stand at the level of *judgment*, and not *opinion*).

We could try to defend Dowgird from a sceptic attack with the help of John Watkins’, the 20th-century philosopher of science, approach. The sentences “I am experiencing smelling a melon” or “I experience light changing” are what Watkins would call *autopsychologic reports* which may be treated as *explananda*. Sentences of the second type from the cited passage, such as “Here is a melon in the room” or “Some material body of certain shape and of certain size is at some distance and is directed toward some point” should be treated as *explanans* [11]. So, “Here is a melon in the room” would be a kind of *hypothetical explanation* for the autopsychologic report “I experience smelling a melon”.

Watkins’ solution is, undoubtedly, interesting enough, but not free from problems. The Polish philosopher of science, Adam Grobler, rightly remarked that the epistemological status of the “autopsychologic reports” is indeed not clear. Do I have any certainty about their infallibility? Both psychology (Grobler refers particularly to neopsychoanalysis of Fromm) and our own experience witness that it may often be problematic adequately to express what we in fact experience [6]. Besides this, it is dubious whether Dowgird himself would approve of Watkins’ approach². (Dowgird was convinced that sentences of the kind “Here is the melon in the room” (Watkins’ “1-level sentences”) should be of much more solid status, than the status of “hypothetical explanation” only.)

Maybe, we should try to choose a bit simpler approach to defend Dowgird from sceptics. I could simply endorse that I do not agree that there is no difference between the one who said: “Here is an apple in the room” after he had experienced smelling an apple and nothing more, and the one who said the same after he had experienced smelling an apple, and had seen the apple, and had touched it, and, perhaps, had bitten off a piece of this apple. Sceptics could respond that this is a case of the application of probabilistic logic, i.e. I have answered the question of *how to increase probability* of some judgments, instead to answer the question of *how to know* that the judgment is true. But if sceptics admit some relevance of the probabilistic

² It is dubious too that Dowgird would accept Grobler’s critique of Watkins.

logic (and it seems that in this case they do), it means that I have almost achieved my purpose. I am ready to agree with sceptics that we never reach absolute, hundred-percent certainty of what is true, but I insist that there is some process of verisimilitude in the realm of knowledge, and experience in this process plays a key role. Paraphrasing Adam Grobler's expression³: *One cure for science is more science; we could say: One cure for experience is more experience.*

Dowgird in his turn tries to position *empirical ground* under our knowledge. Following John Locke, he distinguished *primary* and *secondary* sensations (Locke, as we know, used the term "idea" for all sensations as well as for concepts, yielded by internal reflexive operations [9]). The first kind of sensation gives us information about the proprieties of such things as extent, shape, and motion, whereas the second gives us an impression of, for example, color, sound, odor or taste. It is note worthy to stress that these secondary sensations *do not inform* us, but solely *give impressions*. Color, *exempli gratia*, is produced by way of interaction between a thing (or group of things) and sight; color is not an objective propriety of a thing. "In fact, the sense of sight itself can never give us knowledge about features or relations of extent (either full, or not full), it is always based on sense of touch" [3]. Or else: "It seems to be doubtless whenever we judge the position, shape, size or quantity of some things on the base sense of sight or some other sense, barring the sense of touch, because our judgment is nothing but opinion" [3].

For what reason is touch so fundamental? "... It offers us concepts of external substances. Concepts of substance, by way of connecting with the sensation of imagined touch, offer us all other sensations. All these sensations constitute in us concepts of external substances as well as a concept of the thinking substance, i.e. the soul" [1].

Dowgird was affected not only by Locke's epistemological analysis, but also, and perhaps mostly, by Etienne Condillac. It was probably a fascination with "Condillac's statue" (a mental experiment, showing that only one sense would suffice to unfold all other abilities which are necessary for life), that stimulated Dowgird to create a conception of human knowledge with the primacy of "touch". From Locke and Hume, Dowgird learnt that our senses can deceive us (descriptions of many optical illusions could make an especially great impression). From Condillac, he learned that at least one sense is quiet reliable, namely touch. The next step was to construct a co-

³ To be more precise, this expression was *used* by Grobler in his "Metodologia nauk", but he, according to himself, does not remember who is the author of it.

herent conceptual scheme, which could incorporate two statements: i) our senses are fallible and ii) we can have *true* knowledge about the external world. Condillac's mental experiment with the animated statue served Dowgird as his main source of inspiration. For him, impressions of touch remain in our mind and transform themselves into relatively lasting concepts. With the help of these "touch-copies" we are able to "control" the activity of other senses.

Undoubtedly, our "sceptics" could say a lot concerning this "contactive epistemology" of Dowgird. But, in order not to make this article too prolix, I will allow the sceptics to only make two general remarks, without explicating their content. The sceptics remarks would be the following: i) do we know that these "touch-copies" are not "deformed" in our mind to such a degree that they, instead of correcting possible errors, would rather support illusions produced by other senses and ii) in what way are touch impressions of one thing reliably applicable to other things (or even things of other kinds)?

However, here the sceptic is not needed at all. Dowgird himself, ending his spacious preface to the book, "Lecture on native rules of thinking...", notes that one of his main tasks is "to consider all possible rules, the system of which would be a reliable guide in seeking the truth in all spheres of human knowledge" and then confesses sincerely: "What about this purpose, *I'm not sure that I did it well enough*, or rather I'm aware how many defects this work can have" (cursive of mine – P. R.) [2].

So, Dowgird, even in his epistemological realism, is just *half-conceited*.

3. Conclusion

In spite all these defects, which Dowgird himself confesses in the preface to one of his books, and despite a number of his ideas being somewhat anachronic, it seems to me that this scholar from Mahilou (Mogilev) prepared a good enough framework for scientific rationality. The key elements of this framework are: i) experience, ii) intellectual analysis and iii) idea of truth.

Claiming that our mind has a conceptual scheme (partially innate, partially molded in the course of ontogenetic development), Dowgird appropriated to Kant (indeed, Dowgird called Kant an "ingenious thinker", but could not accept Kantian phenomenalism and deconstruction of classical proofs of God's existence). Analyzing our judgement about external reality, and stressing (of course, not without Locke's influence) that seem-

ingly simple statements are in fact composed, Dowgird was very close to the idea of a *theory-leadenness thesis*, which will explicitly be formulated later in twentieth-century methodological inquiries. Emphasizing the important role of imagination in our cognition, and at the same time postulating to confront “imaginational” judgment with experience data, i.e. to consequently check our claims, Dowgird seemed to anticipate falsificationist doctrine. Finally, Dowgird firmly highlighted that opinions (i.e. ungrounded, accidental beliefs) *are as inevitable as useful* and explained this in the category of conservation: opinions may serve human survival (though there was also an appeal to gradually replace opinions with solid, grounded and justified knowledge) [3]. Let me note that the latter view would constitute the core of evolutionary epistemology in the 20th century.

I think the case of Dowgird is relevant enough for the interpretation of the contemporary intellectual condition in Belarus. Note, the present moment in Belarus is very similar to that of “Rzeczpospolita Obojga Narodów” in the nineteenth century, and the intellectual atmosphere in Belarus today really reminds of the ‘philomathe era’ from the early 19th century. Dictatorship, dependence on Russia, intensive Rusification and other factors yielded great demand for the “prophetic” philosophy. (I used to define this state as “a chase for spirits and ideas”.) Hegelian idealism, nationalist romanticism, and utopian visions (for example, ecologic) became an overwhelming type of “philosophy” (if we take into consideration the non-Soviet philosophy) in the early and mid 1990s. It may be called an *idealistic* philosophical trend. But in the second half of the 1990s, romantic idealism was pushed aside by a series of new trends – postmodernism, new Marxism, various versions of relativism and so forth. This second trend (or rather set of trends) I call *conceited scepticism*. (Walancin Akudowicz’s book ‘Mianie niama’ (‘I don’t exist’), edited in 1995, may be considered the symbolic start of “conceited scepticism” as well as the most representative sample of it.)

This “hybrid” of romantic idealism and conceited scepticism (plus eclectic “Belarusian state ideology”) is dominant in Belarus nowadays. A tradition of scrupulous research, employing logic and respecting modern methodological standards, is not yet formed in this country in philosophical and humanistic areas. It is a “metaphysical thrill” or “post-metaphysical scoff”, that is still prevailing in these areas. And, perhaps Dowgird, this “uneloquent” and “stammering” scholar, may himself appear as the significant ‘Other’, able to introduce into Belarusian philosophy (as well as into social-humanistic sciences) principles of strict and analytic thinking.

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NON-WELL-FOUNDEDNESS IN JUDAIC LOGIC

In this paper I consider the historical background of Hebrew Orthodoxy finally formed in Belarusian lands. Further, I try to explicate the Judaic logic (i.e. the logic used by Talmudists for inferring Judaic laws from the Pentateuch). The only logical connective of that logic is the Judaic conjunction “and” which is not idempotent or commutative, but it is associative. I propose Austin’s style of semantics for Judaic logic and explicate also the inference rules used by Talmudists. I show that the Judaic logic is characterized by non-well-foundedness.

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1. Introduction

In this paper we consider the logic used by Talmudists for inferring the Judaic laws from the Torah; we also show that this logic is non-well-founded. Let us remember that a foundational axiom of set theory asserts that the membership relation \in is well-founded (there is no descending sequence for \in). One can deny this axiom in order to postulate a set that has an infinite descending \in -chain, i.e. that is not well-founded. The particular case of such a set is one of the form $A = \{A\}$ with a circular membership relation. The set theory denying the axiom of foundation is considered in [1], [4]. A non-well-founded set can be exemplified as a succession of seasons, unfolding in a cyclic pattern: seasons = (spring, (summer, (fall, (winter, seasons))))).

An interest in non-well-founded phenomena is mainly motivated by modern developments in computer sciences, where many structures and phenomena do have non-well-founded phenomena features: self-applicative programs, self-reference, graph circularity, looping processes, transition systems, paradoxes in natural languages, etc. Strings, streams, and formal se-

ries are potentially infinite, and can only be approximated by partial and progressive knowledge. It is natural to use universes containing adequate non-well-founded phenomena sets as frameworks to develop semantics for these objects or phenomena. Moreover, sometimes it is not relevant to use the classical principles of definition and reasoning by induction to define and reason about these objects. This is how a need for new meta-mathematical logical properties arises.

Non-well-founded sets have also been implicitly used in non-standard (more precisely, non-Archimedean) analysis like infinitesimal and p -adic analysis. The main advantages of non-well-founded sets consist in that we get an extension of standard sets so that the way of setting mathematical objects changes and we have a more general approach to computation without classical induction and recursion.

Notice that denying the foundation axiom in number systems implies setting the non-Archimedean ordering structure. Archimedes' axiom affirms: for any positive real or rational number y , there exists a positive integer n such that $y = 1/n$ or $ny = 1$. The informal meaning of Archimedes' axiom is that anything can be measured by a ruler. The logical calculi with non-Archimedean multiple validity were proposed for the first time in [14], [15].

In the beginning we consider the historical context of Hebrew Orthodoxy formed in the 18 to 19th centuries in Belarus. Further, we explicate some logical ideas of Talmudists and show non-well-founded phenomena in those ideas.

2. Historical Background

The Belarusian Jews (“Litvaks”¹, as they name themselves) have had a long history in this country and they can be named autochthos in Belarus. It is known that they lived here before the 14th century. So, the *privilege* (in Old Belarusian “priveley”) of *Vitaut* (Witowt), the Grand Duke of Litva, was one of the first legal documents, regulating life of the Jewish communities in Belarusian lands. It was granted to the Jews of Brest on June 24th, 1388 in the city of Lutsk. The Jews were proclaimed to be free people and like all noblemen, were subjected to the Grand Duke. The Jews were granted protection of their lives and property, the right of unrestricted mobility, trade, financial activity, etc.

¹ Traditionally, “Litvaks” was the name of Jews especially from the Vilna and Minsk Gubernias.

The other Vitaut privilege, regulating life of the Jewish communities, appeared on June 18th, 1389 and was granted to the Jews of Grodno. According to this document, the synagogue and graveyards were also declared under protection and they were released from any taxation. As we see, exceptional tolerance was shown toward the religion. Jews were given the right to practice their faith and celebrate religious holidays. The accusations of Jews using the blood of Christians for ritualistic purposes were forbidden (because such accusations contradicted with Jewish religious laws). Severe punishment awaited those Jews who violated Jewish religious rights.



Figure 1. The Choral Synagogue in Vilna

Vitaut's privileges were later extended to other communities, where the Jews of other Belarusian large towns (Trakai, Lutsk, Vladimir) were owed privileges too. Notice that in the 14th century Vitaut's privileges, granted to Jews, were the most liberal legal documents which guaranteed them more rights and freedom than documents of any other European country. Vitaut's privileges were later accepted by other Grand Dukes and their main points were included in the First Statute of Litva (1529).

Since then, the Jewish diaspora of the Great Duchy of Litva grew exponentially. Tolerance, a relatively free way of life, and the ability to practice their own religion was the reason why Jews became deeply root-

ed in Litva, and developed there a rich ethnic culture. Up until now, the religious tradition of Jews from Belarus (Litvaks) is characterized as being more rational and orthodox than other branches of Ashkenazi (European) Jewry. Many well-known Talmudic authorities of the 18th and 19th centuries lived in Belarus, one of whom was Rabbi Elijah ben Solomon (1720–1797), the Vilna Gaon (who lived in Vilna – the cultural center of the Great Litva). His style of Torah and Talmud study shaped the analytical “Litvanian-style” of learning still practiced in most present-day yeshivas (Rabbinic schools).

The first yeshiva in Belarus was started in 1806. It was opened by Rabbi Chaim (the Vilna Gaon’s main disciple) in the Belarusian town of Volozhin. It became the first Rabbinic school in the whole of Eastern Europe. The second yeshiva in Belarus was founded in the Belarusian town of Mir in 1847. Later the yeshiva movement, initiated by Rabbi Chaim from Volozhin, was spread over the whole Orthodox Hebrew world. The followers of the Vilna Gaon and Rabbi Chaim from Volozhin (later known as *Orthodox*) were opposed to the Chassidim, the emotional and anti-rational branch of Ashkenazi Jewry founded by Rabbi Baal Shem Tov in Ukraine.

By the end of the 18th century, the Jewish diaspora of the Belarusian lands was already numerous enough. So, the exact data exists of the number of Jews in the Commonwealth of the Kingdom of Poland and the Grand Duchy of Litva. According to the data of S. Staszic, the number of Jews was about 800,000 (it was approximately 14 per cent of the whole population of the country). According to the data of Solomon Bennet, the Jewish population had more than 2 million people. M. Butrymowicz’s data are now considered as the most objective. By his calculations, the Jews numbered about 900,000. This number was the larger than the number of noblemen (720,000) and bourgeoisie (500,000).

By the end of the 19th century, in the majority of Belarusian cities, not less than 50 per cent of inhabitants were Jews. For example, the Jewish population of Minsk reached 12,976 people in 1847, and then 47,562 people in 1897. At that time, it was more than 52.4 per cent of the whole population of the city. In Vitebsk, the Jewish population reached 34,420 people in 1897 (52.4 per cent of the whole population), in Mogilev 21,539 people (50 per cent), in Pinsk 21,065 people (74.2 per cent), in Bobruisk 20,759 people (60.5 per cent), and in Gomel 20,385 people (54.8 per cent).

Since Vitaut’s privileges, for many years the Jewish population of the Belarusian cities obtained self-governance and autonomy, “kahal”. Note that the Belarusian word ‘kahalam’, meaning ‘together’, originates from the Hebrew word ‘kahal’. Jewish self-governance existed until its abolition in 1844.

Under the Statutes of Litva, Belarusian Jews formed a class of freemen subjected in all criminal cases directly to the jurisdiction of the Grand Duke and his official representatives. The official representative of the Grand Duke was called the Elder (in Hebrew “Gabbay”, in Russian “starosta”), known as the “Jewish judge” (judex Judæorum). The Jewish judge decided all cases between Christians and Jews and all criminal suits in which Jews were concerned; in civil suits, however, he acted only on the application of the interested parties. The Elder represented the communities in all external relations, in securing new privileges, and in the regulation of taxes. The Elder acted in conjunction with the Rabbi, whose jurisdiction included all Jewish affairs with the exception of judicial cases assigned to the Elder.

The Belarusian Jewry had an influence on the protestant anti-trinity movement and the protestant movement of Christian Judaization (in Belarusian “Żydoustwujuszczye”). The Christian followers of this movement directed their attention to the translation of the ancient Judaic literature and Middle Age Jewish-Arabian texts. Their denial of the Trinity led to the denial of Christ’s divine nature. These protestant movements were a source of Belarusian humanism thriving around 1570 in the Grand Duchy of Litva (two centuries before it happened in France). The followers of these movements considered feudal power over people as anti-Christian, since only God’s power is sacred. Anti-trinitarians did not recognize the sacredness of church buildings, icons or statues, which were considered idols. Some of them even denied the necessity of prayer. Fasting, baptism, the ritual tasting of God’s body and drinking of his blood, the cult of saints, the Holy Mother, relics, and the cult of the cross were severely criticized. The church organization was considered to be against the Bible.

Protestant movements were very popular in Belarusian lands. For example, the Belarusian Calvinists were the first Calvinistic community in European countries outside the UK. The protestant brotherhoods were in Vilna, Smargoń, Mir, Aszmiiany, etc. This religious tolerance that originated thanks to Vitaut’s privileges was typical phenomena for Belarus.

The language of Belarusian Jews is called Yiddish, its other names are Ivri-Teitch (“Jewish German”) and Mamen-Loshen (“Mother’s language”). For Chassids Yiddish began to play the role as an almost sacred language. Many doctrinal works of Chassids were created in this language.

Yiddish had an appreciable influence on Belarusian. Many Belarusian words with German roots actually originate from Yiddish: ‘zukar’ (sugar), ‘lichtar’ (lamp), ‘vaga’ (weight), ‘ruch’ (in Yidish ‘ruach’, motion), etc. In Belarusian there are even Judaic (Halachic) terms. For example, it is very probable that the Belarusian words ‘svara’, ‘svarytsia’ have the same root

as the Hebrew words ‘sovar’ (‘to assume’) and ‘svara’, ‘svoro’, meaning the Talmudic debate caused by the application of various logical methods of interpretation of the Judaic law.

Some words of the Belarusian language have a curious history of their formation. In the Torah there are some ways of designating the righteous man. One of them is ‘tam’ (‘tom’) or ‘tamim’ (‘tomim’), expressing ‘uprightness’, ‘straightforwardness’ and ‘artlessness’. For the first time it was said that Noah is “a just man, artless [in Hebrew “tam”]” (Genesis 6, 9). Later, before the eternal union with Abraham, God speaks to him: “and be perfect [in Hebrew “tam”]” (Genesis 17, 1). In Yiddish, the word ‘tam’ means ‘artless’, ‘ordinary’ and was used less often as ‘tamevate’. As we see, the word ‘tam’ was sometimes used in Yiddish with the Belarusian suffix. Chassids used the term ‘tmimus’ (‘wholeness’, ‘openness’) for the designation of goodness.

In Belarusian, the root ‘tam’ (‘tsiam’, ‘ciam’) has an opposite value and means ‘cunningness’ and ‘ingenuity’. So, the Belarusian words ‘ciamki’, ‘ciamlivy’ mean ‘cunning’ and ‘ingenious’, and the word ‘ciamkaść’ means ‘ingenuity’ and ‘cleverness’. Let us notice that in Ukrainian translations of Kant’s works, when one tried to differ the terms ‘reason’ (Vernunft) and ‘understanding’ (Verstand), the word ‘reason’ was translated as the Ukrainian-Belarusian ‘rozum’, but the word ‘understanding’ as the Ukrainian-Belarusian ‘ciama’.

By forming words with the roots ‘tam’ and ‘ciam’ as having the initial meaning ‘cunningness’ is probably explained by the fact that success and luck were the context for using the word ‘tam’ with the meaning “perfect, artless Jew”, but outside the Judaic religious practice, due to the given context, this word was already conceived with the opposite value – as “artful, ingenious man”.

Let us note that the Belarusian language had an even more significant influence on Yiddish. A huge part of the Yiddish lexicon of Belarusian Jews has been directly taken from Belarusian, therefore it is possible to say that there existed a special Belarusian dialect of Yiddish.

3. Logical Interpretation of the Pentateuch in Judaism

In Judaism the referential structure of any statement is called the Torah (in Hebrew “soyro”, “toyro”), at the same time the Pentateuch is the legislative foundation of the Torah describing what each statement may mean and how each act may be evaluated. The Torah as Pentateuch has the following two

dimensions: ‘Haggadah’ and ‘Halachah’. The first dimension, *Haggadah*, reflects the historic facts connected to Israel, the second dimension, *Halachah*, expresses the compiled laws which have to be accepted by any Jew. These laws are scattered all over the books of the Pentateuch and explicated only on the basis of the grammatical form: ‘And the Lord spoke/said . . . do/do not . . .’. All these laws are mentioned in a context of historical events. For example, the first commandment (in Hebrew “mitzvo”) given man is as follows: “be fruitful and multiply” (Genesis 1, 28). This commandment was given to Adam and Eve to obey. Thus, Haggadah (in this case it is a history about the creation of Adam and Eve) is to show the historical context of the commandments, therefore Haggadah plays the subordinated role in relation to Halacha.

Haggadah is no more than an addition to Halacha. For example, in the opinion of the Talmudic authority, Rabbi Isaac, the Torah should begin with the verse “This month shall be unto you the beginning of months: it shall be the first month of the year to you” (Exodus 12, 2), as this verse contains the first commandment given to Jews.

In Christianity, the dimension of Halachah is completely eliminated, and the Bible starts to be considered especially as a historical narration (even about sacred events). All the Lord’s commandments start to have only the form of a recommendation. As a result, a contemplation appears in Christianity. Commandments are not taken literally and are interpreted allegorically with the application of analogies. For example, the Christian commandment “And unto him that smiteth thee on the one cheek offer also the other; and him that taketh away thy cloak forbid not to take thy coat also” (Luke 6, 29) in the most sense, cannot be taken literally.

The Christian contemplation caused the further development of secular culture. Such a contemplation and allegorization is, perhaps, a distinctive feature of Christianity. On the other hand, in Judaism we find the detailed consideration of how the commandments should be obeyed depending on concrete everyday situations. For instance, in the case of the absence of water it is ordered to wash hands by fine sand which can be found in huge quantities in the climatic conditions of the Near East.

In Muslim faith, as well as in Judaism, there are commandments which should necessarily be obeyed. For example, in the same measure it is ordered to keep to one’s own hygiene and in the case of the absence of water it is necessary to carry out the lavabo with fine sand.

“O ye who believe! Approach not prayers with a mind befogged, until ye can understand all that ye say, – nor in a state of ceremonial impurity (Except when travelling on the road), until after washing your whole body.

If ye are ill, or on a journey, or one of you cometh from offices of nature, or ye have been in contact with women, and ye find no water, then take for yourselves clean sand or earth, and rub therewith your faces and hands. For Allah doth blot out sins and forgive again and again” (Sura 4, Women, 43).

The fact that Arabs in the ceremonial purposes are washed sometimes by fine sand is mentioned in a commentary by Rashi (Rabbi Solomon Isaac, the best known commentator of the Torah and Talmud) in the following verse: “Let a little water, I pray you, be fetched, and wash your feet, and rest yourselves under the tree” (Genesis 18, 4). In this verse Abraham invites three people to enter his tent, and before this he suggests they wash their feet. Rashi explains that Abraham has assumed these people were Arabs who worship fine sand on their feet. Abraham very strictly obeys the Judaic laws, e.g., he does not admit an object of idolatry in his house. In Rashi’s opinion, Lot is connected to this commentary. He, who was not such a perfect man as Abraham, does not obey that graven images do not penetrate into his house, therefore in the beginning Lot has suggested strangers to enter the house and only later wash their feet: “tarry all night and wash your feet” (Genesis 19, 2). Foreign religious sacraments are an idolatry for Judaism (in Hebrew “avoydo zero”, the literal translation: “alien work”), therefore the Arabian ceremonial washing with fine sand is a version of idolatry in the Judaic viewpoint.

The example of Rashi’s commentary is a bit astonishing. At first sight, the explanation seems to be completely inappropriate: Arabs as a nation come from Abraham, and more precisely they are Ishmael’s descendants, although by the time of the described events, Ishmael was 13 years old! Besides, the ceremonial washing with fine sand was accepted by Arabs only after Muhammad’s sermon. It is natural that Rashi, living in France in the 11th century and being familiar with the Arabian culture, knew all these historical details. Why has he afforded an obvious historical inaccuracy? The point is that Haggadah, i.e. the historical narration of the Bible, does not play a significant role and the Torah is not a historical story. In this way, the Judaic understanding of the Biblical books is considerably different from the Christian one. In Judaism, the Torah is a compendium of laws for which different events occurring at different times are mapped onto a general plane: *dura lex sed lex*.

For Rashi, therefore, it is very important to have a *logical coordination* of the Torah verses, instead of its historical one. For example, Abraham suggests strangers to wash their feet in the beginning and only later to enter his tent. On the other hand, Lot suggests the same strangers to enter his house in the beginning and only after to wash their feet. The different sequence



Figure 2. The page from a medieval Hebrew book

of actions is obvious. It is our *first premise*. Further, it is known that Lot, though he was Abraham's nephew, was not a perfect man. On the other hand, Abraham was such a man. It is our *second premise*. Notice that due to the given premise we know that Abraham's actions were faultless from the standpoint of Halachah (namely, of the 613 Jewish commandments). Now we need to draw a conclusion from both premisses and that conclusion becomes an explanation of the Biblical verse. For this purpose I should correlate Abraham and Lot's acts with Halachah. The following explanation suits it best here: *fine sand on the feet of strangers could be ritually unclean*, therefore it could profane Abraham's dwelling, so Abraham decided to suggest them to wash their feet. The most widespread example in Rashi's days of ritually unclean fine sand on feet is a result of the ceremonial washing of feet by Arabs (in fact, every sacrament of alien religion is a ceremonial defiling for Judaism). For this reason, Rashi refers to this example.

It is necessary to notice that all of Rashi's commentaries are the result of a logical processing of the Biblical text, and in most cases his commentaries

are legal conclusions, connecting concrete acts of Biblical characters to Halachah, the laws. The logical portrayal of all the smallest details in the works of Judaic authorities contrasts very sharply with the general contemplation of Christian thinkers.

In Judaism, any details are completely coordinated among themselves from the standpoint of logic. Logic is a unique science which for the whole history of its official existence (more than two thousand years) has not changed in its foundations. Even mathematics has been changed essentially, in the beginning it was based on geometry (ancient Greek mathematics), then on algebra (classical mathematics), and now it is based on mathematical logic. Every scientific knowledge is corruptible and changeable, except for logic. Only this science sets the border for thinking, outside of which there is nothing, only silence. Logic is an eternal science.

One of the well-known Rabbis of present days, Rabbi Adin Even Israel (Steinsaltz) [16], compares logic of the Talmud to mathematical logic, affirming that *the Talmudic logic, different from mathematical logic, gives the description and explanation for all in view of case studies*, i.e. it is constructed on the basis of the analysis of all equiprobable cases whereas mathematical logic eliminates any concrete context.

Many laws described in the Talmud are taken directly from the written Torah (Pentateuch). But there are also laws which were logically inferred. These laws are called the laws of Wise Men. "It would be possible to include laws of Wise Men in the Torah, but the Lord has decided that they should go from us", as Rabbi Moses Chaim Luzzatto said. Thus, while the written Torah (Pentateuch), in the Judaic view, is a result of the Revelation, the oral Torah (the laws of Wise Men) is a logical analysis of any details from the standpoint of the Pentateuch, i.e. it represents the logic which takes into account all equiprobable cases. Logic as the basis of the oral Torah goes from us, Pentateuch, from the Lord.

*In the Pentateuch there are no logical connectives in the sense of conventional (European) logic. The only logical connective in the Pentateuch (that is used very often) has the form of the conjunction "... and ..." (in Hebrew "... ve ..." or "... u ..."), and it is called the **Judaic conjunction** and denoted by *.*

This connective is not idempotent and commutative, but it is associative:

- $A * A \neq A$,
- $A * B \neq B * A$,
- $A * (B * C) = (A * B) * C$,

where A, B, C are either names/concepts or propositions/sentences.

The Judaic conjunction differs from the conventional one, because the latter is idempotent, commutative, and associative. For example, in the Judaic view, Lot's event 'enter my dwelling and wash your feet' ($A * B$) is not equivalent to Abraham's event 'wash your feet and enter my dwelling' ($B * A$).

4. Self-reference of Judaic Reasoning

In conventional semantics, referred to as Russellian, facts are referents of sentences: "sentences are used to express propositions, claims about the world, and these claims are true just in case the world is as it is claimed to be" [4]. Sentences and propositions held in Russellian semantics are called *Russellian sentences* and *Russellian propositions*, respectively.

However, given Russellian semantics are limited, because self-referential sentences have no meaning in them. For example, take the Liar sentence: 'This sentence is not true'. It has no meaning according to the Russellian account. Indeed, assume that it is a fact that the Liar proposition is true, then the same fact shows that the Liar proposition is untrue. Since there exists no fact with such a property, the Liar proposition has no truth valuation. Thus, the Liar sentence concludes that Russellian propositions cannot make claims about the whole world.

Another approach to semantics was developed by Austin. According to him, "a legitimate statement A provides two things: a historical (or actual) situation S_A , and a type of situation T_A . The former is just some limited portion of the real world; the speaker refers to it with what Austin [in his paper "Truth"] calls "demonstrative conventions". The latter is, roughly speaking, a property of situations determined from the statement by means of "descriptive conventions" associated with the language. The statement A is true if S_A is of type T_A ; otherwise it is false... While Austin did not use the term "proposition", it seems in the spirit of his account to identify what we will call the Austinian proposition expressed by A with the claim that S_A is of type T_A , and to individuate such a proposition by its two components, the situation referred to and the type of situation it is claimed to be" [4].

Sentences and propositions held in Austian semantics are called *Austian sentences* and *Austian propositions*, respectively. Also, an Austinian statement is a reference to a situation and an utterance of a sentence. The proposition expressed by that statement is a claim that the situation is of a type, and that proposition is true if and only if the claim holds.

In Austinian semantics, the Liar sentence occurs in statements that refer to different situations, and so it expresses a family of propositions indexed by the situations. The Liar shows that each of these propositions is untrue. Therefore, it cannot be a fact in the world that a Liar proposition is true (the Liar sentence refers to the *greatest set of situations* and shows that for each situation of that set, the claim does not hold). Thus, we do not obtain a paradox here like that, which was in Russellian semantics: the Liar proposition has a negative truth valuation.

Judaic semantics are similar to Austinian ones, they can express self-reference too. Sentences and propositions held in Judaic semantics will be called *Judaic sentences* and *Judaic propositions*, respectively. In Judaism, a legitimate statement A also provides two things: a historical, i.e. Haggadic, (or actual) situation S_A , and a type of situation T_A (Halachic situation). The Judaic proposition expressed by A is the claim that S_A is of type T_A , i.e. S_A corresponds to the Halachic situation T_A . The statement A is true if S_A is of type T_A ; otherwise it is false.

In Judaic semantics, a *model of a Judaic proposition* A is a pair comprising the situation S_A and a type T_A ; $\langle S_A, T_A \rangle$ models the proposition A that situation S_A is of type T_A ($S_A \in T_A$). The Judaic conjunction $\langle *, A * B \rangle$ models the type of situation B such that the type of B includes the type of A . Also, if $\langle *, A * B \rangle$ is a Judaic conjunctive type, then proposition $\langle S_{A*B}, \langle *, A * B \rangle \rangle$ is true if and only if $\langle S_{A*B}, T_{A*B} \rangle$ is true for T_B and $T_A \in T_B$. For example, Lot's sentence '*enter my dwelling and wash your feet*' ($A * B$) is false, because $\langle S_{A*B}, T_{A*B} \rangle$ is not true for T_B and $T_A \notin T_B$, and Abraham's sentence '*wash your feet and enter my dwelling*' ($B * A$) is true, because $\langle S_{B*A}, T_{B*A} \rangle$ is true for T_A and $T_B \in T_A$.

The Judaic exegesis is a kind of collective solipsism: there are no facts in the Russellian meaning (no facts outside the Halachah, the Judaic laws), there exist only contexts of utterance that have reference to Halachic types of situations.

5. Inference Rules of Judaic Logic

In Talmud there are very difficult schemes of logical reasoning. For example, there exists an original analogue of classification of knowledge into two groups: analytical and *a priori* synthetic. In Kant's view, a reasoning in which all concepts have a common genus is called an analytical reasoning, i.e. between them it is easy to find a semantic connection of including. For example, the reasoning '*every man is an animal*' is analytical, because the

concept ‘*animal*’ includes the concept ‘*man*’ (‘*man*’ is a specie of ‘*animal*’). On the other hand, *a priori* synthetic reasoning is regarded as a reasoning in which there exists no semantic connection of including between concepts, but it is possible to find an empirical connection of ordering (e.g., relationship of cause and effect). *A priori* synthetic reasoning can be exemplified as ‘*if there is fire, then there is smoke*’.

Let us remember what Kant said about such a classification. “In all judgments in which the relation of a subject to the predicate is thought (I take into consideration affirmative judgments only, the subsequent application to negative judgments being easily made), this relation is possible in two different ways. Either the predicate to the subject *A*, as something which is (covertly) contained in this concept *A*; or outside the concept *A*, although it does indeed stand in connection with it. In the one case I entitle the judgment analytic, in the other synthetic. Analytic judgments (affirmative) are therefore those in which the connection of the predicate with the subject is thought through identity; those in which this connection is thought without identity should be entitled synthetic (...) If I say, for instance, ‘*All bodies are extended*’, this is an analytic judgment. For I do not require to go beyond the concept which I connect with ‘*body*’ in order to find extension as bound up with it. To meet with this predicate, I have merely to analyze the concept, that is, to become conscious to myself of the manifold which I always think in that concept. The judgment is therefore analytic. But when I say, ‘*All bodies are heavy*’, the predicate is something quite different from anything that I think in the mere concept of body in general; and the addition of such a predicate therefore yields a synthetic judgment.

Judgments of experience, as such, are one and all synthetic. For it would be absurd to found an analytic judgment on experience. Since, in framing the judgment, I must not go outside my concept, there is no need to appeal to the testimony of experience in its support. That a body is extended is a proposition that holds *a priori* and is not empirical. For, before appealing to experience, I have already in the concept of body all the conditions required for my judgment. I have only to extract from it, in accordance with the principle of contradiction, the required predicate, and in so doing can at the same time become conscious of the necessity of the judgment – and that is what experience could never have taught me. On the other hand, though I do not include in the concept of a body in general the predicate ‘*weight*’, none the less this concept indicates an object of experience through one of its parts, and I can add to that part other parts of this same experience, as in this way belonging together with the concept.

Thus it is evident: 1. that through analytic judgments our knowledge is not in any way extended, and that the concept which I already have is merely set forth and made intelligible to me; 2. that in synthetic judgments I must have besides the concept of the subject something else (X), upon which the understanding may rely, if it is to know that a predicate, not contained in this concept, nevertheless belongs to it. In the case of empirical judgments, judgments of experience, there is no difficulty whatsoever in meeting this demand. This X is the complete experience of the object which I think through the concept A – a concept which forms only one part of this experience” [10].

For the two kinds of reasoning (analytical and *a priori* synthetic) the following two groups of inference rules are applied in Talmud.

Judaic inference rules for analytical reasoning are as follows:

- the rule “*particular after universal*” (in Hebrew “klol ufrot”),
- the rule “*universal after particular*” (in Hebrew “prot uklol”),
- the rule “*particular after universal after particular*” (in Hebrew “prot uklol ufrot”),
- the rule “*universal after particular after universal*” (in Hebrew “klol ufrot uklol”).

Judaic inference rules for *a priori* synthetic reasoning are as follows:

- the rule “*restricting after extending*” (in Hebrew “ribuy umiut”),
- the rule “*extending after restricting*” (in Hebrew “miut u ribuy”),
- the rule “*extending after restricting after extending*” (in Hebrew “rivuy miut ribuy”).

In these rules we can find four semantic sorts: particularity, universality, extension, restriction.

“*Particularity*” (“frot”) and “*universality*” (“klol”) are understood in the standard (Aristotle’s) way.

“*Extension*” (“ribuy”) is applied in case the following words occur in a reasoning: ‘together’ (in Hebrew ‘et’, ‘es’), ‘also’ (in Hebrew ‘gam’) or ‘however’ (in Hebrew ‘af’). For example, the word ‘together’ (‘es’) occurs twice in the following verse: “in the beginning God created the heaven (in Hebrew “*es ashomaim*”) and the earth (in Hebrew “*es oorez*”)” (Genesis 1, 1). This means that for the understanding of this verse it is necessary to extend the concept/statement that was used; as a result, this verse is understood that the heaven and the earth had been created immediately with everything that is contained in them (stars, trees, grass, etc.).

“*Restriction*” (“miut”) is used if there are the following words in a reasoning: ‘but’ (in Hebrew ‘ach’), ‘only’ (in Hebrew ‘rak’) or ‘of’ (in Hebrew

‘min’). For example, the occurrence of the particle ‘of’ (‘min’) in the verse “... any man... bring your offering *of* the cattle” (Leviticus 1, 2) says that not any cattle may be sacrificed, the exceptions are animals that are idols for somebody.

Now consider the above mentioned rules more precisely.

1. The rule “*particular after universal*”: if the particular name/proposition occurs just after the universal name/proposition, then we accept the particular name/proposition. For example, an offering unto the Lord should be brought of “animals, of the cattle, of the flock” (Leviticus 1, 2). The name ‘animals’ is universal, the name ‘cattle’ or ‘flock’ is particular. Then this does not mean that an offering may be brought of any animals, but only of the cattle and the flock. This rule is formalized as follows:

$$\frac{A * B, B \subset A \text{ (i.e. } A \text{ is universal, } B \text{ is particular)}}{B}. \quad (\text{Jud.r.I})$$

2. The rule “*universal after particular*”. According to that if the universal name/proposition occurs just after the particular name/proposition, then we accept the universal name/proposition. For example, “do not sacrifice (...) any bullock and sheep, wherein is blemish, any defect” (Deuteronomy 17, 1). A ‘blemished one’ is particular, ‘one with any defect’ is universal. Hence, it is forbidden to sacrifice the bullock and sheep with any defect.

$$\frac{A * B, A \subset B \text{ (i.e. } A \text{ is particular, } B \text{ is universal)}}{B}. \quad (\text{Jud.r.II})$$

3. The rule “*particular after universal after particular*”: if the particular name/proposition occurs just after the universal name/proposition that occurs just after the particular name/proposition, then we accept the latest particular name/proposition.

$$\frac{(A * B) * C, A \subset B, C \subset B \text{ (i.e. } A \text{ is part., } B \text{ is univ., } C \text{ is part.)}}{C}. \quad (\text{Jud.r.III})$$

4. The rule “*universal after particular after universal*”: if the universal name/proposition occurs just after the particular name/proposition that occurs just after the universal name/proposition, then we accept the latest universal name/proposition. In the mathematical form:

$$\frac{(A * B) * C, B \subset A, B \subset C \text{ (i.e. } A \text{ is univ., } B \text{ is part., } C \text{ is univ.)}}{C}. \quad (\text{Jud.r.IV})$$

The rules (*Jud.r.I*)–(*Jud.r.IV*) assume the fixed genera inside a reasoning.

5. The rule “*restricting after extending*”: if the restricted concept/sentence occurs just after the extended concept/sentence, then we accept the restricted concept/sentence.

$$\frac{A * B, A \text{ is extended, } B \text{ is restricted}}{B}. \quad (\textit{Jud.r.V})$$

6. The rule “*extending after restricting*”: if the extended concept/sentence occurs just after the restricted concept/sentence, then we accept the extended concept/sentence.

$$\frac{A * B, A \text{ is restricted, } B \text{ is extended}}{B}. \quad (\textit{Jud.r.VI})$$

7. The rule “*extending after restricting after extending*”: if the extended concept/sentence occurs just after the restricted concept/sentence, then we accept the latest extended concept/sentence. For instance, take the reasoning “thou shalt bestow that money for whatsoever thy soul lusteth after, for oxen, for sheep, for wine, for strong drink, for whatsoever thy soul desireth” (Deuteronomy 14, 26). The concept ‘whatsoever thy soul lusteth after’ is extended, the concept ‘oxen, sheep, wine, strong drink’ is restricted, and the concept ‘whatsoever thy soul desireth’ is extended again. Then we accept the latest concept taking into account the examples ‘oxen, sheep, wine, strong drink’.

$$\frac{(A * B) * C, A \text{ is ext., } B \text{ is rest., } C \text{ is ext.}}{C}. \quad (\textit{Jud.r.VII})$$

The rules (*Jud.r.V*)–(*Jud.r.VII*) have no fixed genus inside a reasoning.

The difference of the rule “*restricting after extending*” (“*extending after restricting*”) from the rule “*particular after universal*” (“*universal after particular*”) is that in the first case there is no genus relation inside the statement. For example, in the reasoning “thou shalt bestow that money for whatsoever thy soul lusteth after, for oxen, for sheep...” (Deuteronomy 14, 26) the concepts ‘whatsoever thy soul lusteth after’ and ‘oxen’ have no common genus.

The other inference rules are as follows:

1. the rule “*the same restricting after restricting*” (in Hebrew “*eyn miut achar miut eylo lerabeys*”): if the same restricted concept/sentence occurs just after the restricted concept/sentence, then we introduce the extended concept/sentence. For instance, “. . . the pit was empty, there was no water in it” (Genesis 37, 24). We see that the Torah repeats the

same thing twice. Therefore we have to extend the statement: ‘there is no water, but there are snakes and scorpions’. The rule in the mathematical form is:

$$\frac{A * A, A \text{ is restricted}}{B, B \text{ is extended}}. \quad (\text{Jud.r.VIII})$$

2. the rule “*the same extending after extending*” (in Hebrew “eyn ribuy achar ribuy eylo lerabeys”): if the same extended concept/sentence occurs just after the extended concept/sentence, then we introduce the restricted concept/sentence.

$$\frac{A * A, A \text{ is extended}}{B, B \text{ is restricted}}. \quad (\text{Jud.r.IX})$$

3. the rule “*universal after universal*” (in Hebrew “shney klolim hasmichim zeh lozeh hatel prot beyneyhem veduneym klol ufrot uklol”): if the universal name/proposition occurs just after the universal name/proposition, then we introduce the particular name/proposition between them and use rule (*Jud.r.IV*).

$$\frac{A * B, A \text{ is universal}, B \text{ is universal}}{(A * C) * B, A \text{ is univ.}, C \text{ is part.}, B \text{ is univ.}}. \quad (\text{Jud.r.X})$$

In Judaic logic, the inference rules (*Jud.r.I*)–(*Jud.r.X*) are used for simplifying the Torah statements. Thus, the statements of the Pentateuch are axioms of Judaic logic. This proof system is non-well-founded, because it contains cyclic proofs like:

$$\frac{A * B, A \text{ is restricted}, B \text{ is restricted}}{A * B, A \text{ is restricted}, B \text{ is restricted}}. \quad (\text{Jud.r.XI})$$

The inference rule (*Jud.r.XI*) is called in Hebrew “miut achar miut”. As an example, consider the verse “and they said, Hath the Lord *however* [in Hebrew “harak”] spoken *only* [in Hebrew “ach”] by Moses?” (Numbers 12, 2). As we see, two restrictions occur in the verse. Therefore it is inferred that not only Moses, but Aaron and Miriam (the two restrictions) had prophecy too.

6. Conclusions

Judaic logic is built on the basis of the only logical connective * (“...and...”) which is called the Judaic conjunction. It is a kind of non-well-founded logic,

because Judaic semantics assume that self-referentiality and Judaic proof systems have cyclic proofs.

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LIMITS OF SOCIAL COMMUNICATION IN ORTHODOX RATIONALITY

This paper is dedicated to a theoretical determination of the limits of secular social communication in Orthodoxy as a representative form of Christian rationality. The nature of the Orthodox faith allows us to expect that problem of social communication in Orthodoxy occurs from Orthodox rationality, and communicative limits are determined by canonical positions. From the standpoint of internalistic approach to the problem of the social participation, Orthodoxy finds the abruption between social and spiritual activity.

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1. Introduction

The concept of rationality is widely used for the description of the western Christianity, in particular the Catholic philosophy and science. Meanwhile, describing Orthodoxy, this concept either is not used in general, or used in the context of basic difference of Orthodox spirituality from the rational (i.e. logical or scientific) comprehension of reality. A conversation on Orthodox rationality is possible if we mean not a role of logical thinking in believer's outlook, but specific structures of believer's experience (in its wide understanding), defining estimations, behavior and activity. Certainly, the concept of rationality gets a metaphorical shade in that case, but allows reconstructing some faith attitudes which define thinking and social activity of the believer. Orthodox rationality interests us as the representative form of Christian rationality whose specific character, in our opinion, is shown in ways of realization of Orthodox spirituality, in particular in the social activity. Explaining the given specific character, we will adhere to the internalistic approach, i.e. we will claim that typological features of social realization of Orthodoxy are not caused by external (social) reasons, but in-

ternal properties of Orthodoxy which in a special way will organize a social experience.

Eventually, it is necessary to come nearer to the answer whether Orthodoxy is capable to realize the social potential in modern conditions. In modern Orthodoxy, there is a problem of social self-disclosing and this problem occurs from within Orthodoxy. Better to say, the limits of social activity of Orthodoxy depend, first of all, on itself.

Are there the external obstacles essentially limiting the social activity of Orthodoxy? It is necessary to notice that a serious problem in the modern Post-Soviet society is inertia of the Soviet outlook which is not capable to adequately perceive Christianity, as well as any religion. It is caused, firstly, by the absence of adequate knowledge in respect to the religious outlook. For many people of the senior generation, religion represents a social rudiment to which it is not possible to pay our attention. Christianity for them is a version of superstition dying in the process of distribution of the scientific outlook and social progress. A similar ignorance leads to the basic misunderstanding of Christian internal specific character. For many scientists, the Christianity (especially it concerns Orthodoxy) is irrational. An interesting example in this sense is the recent polemic between representatives of the Belarusian and Russian scientific community, on the one hand, and the Russian Orthodox Church, on the other hand. By the end of 2006, the Belarusian Academician, A. Rubinov, has published the paper 'Science and Society'¹. The subject of his reflections did not concern religion. Nevertheless, the author in his statements concerned questions on a scientific and religious parity, and also a religious role in our society. Rubinov thinks that the religion tries to change a materialistic (i.e. scientific) point of view by superstitions. In his opinion, the single possible type of relationship between science and religion is an opposition. The religion supersedes materialism and scientific achievements which help to solve real problems. Rubinov's opinion in respect to an original spirituality was as follows: "An attempt of religion, as well as of literature and art, to monopolize cultural and spiritual values has no sense. The spirituality is born, first of all, in the creation sphere where new machines are created and new technologies are developed and embodied." Earlier Rubinov's affirmations were more rectilinearly: "The spiritually rich person should create for the society something utilitarian." It would be surprising if the Belarusian academician does not know Kantian ethics distinguishing spirituality from utility. Nevertheless, Rubinov also cannot distinguish the functions of religious spirituality from

¹ "Belarus today", on December 12th, 2006

the secular ones. The last circumstance corresponds to the common viewpoint in the Post-Soviet society. For the Soviet materialism, spirituality (as something non-material) can be reduced to the material sphere. Most likely, it is possible to express author's opinion in another way: even if spirituality exists, it grows from our activity. Thus, spirituality is purely immanent to the human behavior and practice. Whether it is possible to use such an understanding of a source of spiritual phenomena as a rational and constructive interaction between secular scientists and Orthodoxy?

In 2007, there was so-called 'The Letter of Ten' [9]. Famous academicians of the Russian Academy of Sciences wrote the letter to the President V. Putin in which persistently suggested to stop the clericalization of the Russian education system and science. The claims of academicians concerning the Russian Orthodox Church were not interesting, but we remind their opinions in respect to religion as a whole. So, Russian academicians, among whom there are Nobel prize winners, did not consider theology as a science, because for them science is based on facts and religion is based on beliefs; as a result, they cannot co-exist.

A negative reaction to 'The Letter of Ten' was appeared in the same Russian Academy of Sciences. Afflicted by an incompetent opinion of their colleagues, other representatives of the academic circles have written another letter to the president. They have declared that 'The Letter of Ten' does not express the opinion of all members of the Academy. Thus, the scientific community was involved in an interesting ideological collision. What role did Orthodoxy play in this process?

We see that this story has an obvious political note. The position of the Belarusian Academician Rubinov can be clear if we remember that at that time he was the First Deputy Head of the Presidential Administration of Belarus. The paper 'Science and Society' was a program publication about the direction of scientific and technological development. Rubinov did not concern the role of Orthodoxy in general. In the case of Russian academicians, their statements directly concerned the Russian Orthodox Church. Nevertheless, in both cases, problems (about a specificity of religion, its role in society, etc.) were mentioned. But it was casually. Orthodoxy as a type of the Christian faith was only an unsuccessful example of religion in general. In the case of Rubinov's paper, there was a visible reaction of the Minsk diocese and especially of the famous publicist Fr. Andrei Kuraev. Begun this polemic, Orthodoxy has not only shown a standard religious claim of the kind: "if we have a religion, this is just Orthodoxy", but they have initiated a competent dialogue. For more details see Kuraev's paper and as well as papers of the Minsk diocese [8], [10].

The ability of Orthodoxy to rationally discuss those questions was evident for a long time. Let us remember the case occurred in 2000 at the annual conference in the Belarusian State University, devoted to Christianity. At the final meeting, there were Orthodox clergymen and secular scientists. One of the reports was devoted to the history of Christianity and, in particular, to Christ's life. Professor A. Kruglov, the well-known Belarusian expert in the field of religious studies and atheism, gave the report. He asserted that most probably, Jesus never was born and this history is a myth. Theologians did not expect such a statement. However, they acted as initiators of dialogue and were more tolerant, than the secular scientist.

In the next sections, we will pay attention to features of the Orthodox faith which are connected with the nature of Orthodox rationality.

2. Communicative optimalism of Christian rationality

Christians are capable to consider signs, Lord's instructions in all phenomena. This internal property of a Christian point of view is also expressed in the social activity: Christians estimate their positions as attitudes to the world by appeal to God. Christian knowledge is not simple examination of facts, but it is a message, call of another Actor. The basic expression of this knowledge is sermon. When Christians describe something, they potentially take a communicative action. According to Christian rationality, descriptivism and prescriptivism are two different aspects of one and the same nature. Even ontological statements, like 'the Lord exists', can be a function in the communicative aspect. Behavior and activity of Christians should be understood taking into account the given feature. Christianity participates in the human live by the primary orientation that the true agent of any communication is Christ. Could we assert that Christian rationality is focused on a perfect dialogue?

Whether a certain compromise between full acceptance of the Christian doctrine and a free choice of recipient's own position is possible? We will consider a communicative specificity of the agent of Christian rationality.

If we consider Christian rationality as a rationalization and realization of belief, it is necessary to recall that, according to Christianity, the absolute subject of belief is God. Christians, acting in communicator's social role, represent goals to preserve belief rationalized by saint people. We will not consider hermeneutic subtleties of God's revelation, but features of Christian social communications are interesting for us. How does the Christian look like for the representative of other religious communities? It is possible



Figure 1. The Cathedral of Holy Wisdom in Polatsk (in Polish Połock), built from 1044 to 1066. It was a symbol of the independent-mindedness of Polatsk, rivaling churches of the same name in Novgorod and Kyiv and referring to the original Hagia Sophia in Constantinople. The present baroque building, however, dates from the mid-18th century

to call this image, obtained by somebody through corresponding external social signs, the objectively social one. So, for example, if we see the person making a pray, we understand that he is included in the corresponding social practice. The position of Christians in the society, namely their objectively social position in the social frames can be presented as follows: *the Christian is specified by the source of revelation*. Substantial features of the revelation are defined by criteria which is caused by the character of the Orthodox doctrine, sacred legends, Church traditions, etc. Using such an approach it is evident that Christians, nolens volens, are involved in a religious practice whose substantiation is Christian rationality.

On the other hand, considering the character of Christian substantiation, we cannot assert that Christian rationality is a result of a kind of social activity. According to its content, its sources are outside of sociality. From the standpoint of Orthodoxy, a communicative nature in Christianity is caused by Christian's position as believer who should distribute the truth

of revelation. The main condition, which provides this calling, consists in an unlimited distribution of divine grace. The Christian communicativeness, therefore, has the ontological and anthropological foundations and, certainly, social forms. The basic feature to which it is necessary to pay attention is that Christian rationality is outside of profane forms of social communications, because the higher form of communication is a communication with God. In this sense, Christians are recipients apperceiving the communication with God, first of all, as a gift: the Lord is a bearer of life, grace, revelation, etc. It is possible to say that owing to the internal properties, Christian rationality allows believers to communicate. A Christian point of view constitutes believer's communicative competence as a whole. However, the Christian view does not assume a necessity of social communications, and as well as its concrete secular forms. Taking into account the aforementioned, it is necessary to distinguish two types of communications: spiritual (communication with God) and social (communication with others).

The important feature of communicative dimension of Christian rationality in the secular world consists in a position of the recipient. From the point of view of gospel (good news), any being becomes the recipient if he can comprehend the distribution of God's grace. The recipient, as well as communicator, is not the subject of the own communicative competence. The good news allow beings to be included in communications, but your own activity allows to become one of the communicative parties. Thus, (i) communicator and recipient are those by virtue of their participation in the distribution of good news; their communicative competence has a transcendental source; (ii) communicative competence is understood from a soteriologic point of view. Since this competence concerns the notion 'salvation', it does not depend on the social activity, but on the spiritual one, i.e. on the perfection of communication with God: the level of communicative competence depends upon the degree of spiritual advancement. For example, the clergyman is more competent and consequently can organize believers for a pray. But *the secular social activity subjectively is not obligatory and is made owing to objective inevitability* (though this thesis is unapplicable to Protestants). From this statement it follows that *there is no proportional dependence between Christian's communicative competence and his secular social activity*.

In general, in Christianity, there are three strategies of secular communications:

- *minimalistic*, the aspiration to be outside of secular communications (mysticism, asceticism, etc.), the absence of initiative;

- *maximalistic*, the aspiration to be open to secular communications by means of the own initiative (Protestantism, some Catholic communities);
- *optimalistic*, the strategy of possible participation in social communicative activity when the initiative is minimized and ways of participation can be limited only by a religious identity. This strategy is distinguished by Christian's subjective openness to act in communicator's role.

The soteriologic aspect of communicative activity and the spiritual criteria of communicative competence allow us to assume that for early Christian communities, the optimalistic strategy was primary. This follows from Christian rationality as a whole. Communicative strategies which are observed in normal social conditions are based on the following assumptions:

- distinction between spiritual community and social community;
- priority of spiritual community (heavenly) in relation to social one (earthly);
- distinction between spiritual social activity and secular social activity;
- spiritual social activity is necessary (liturgics and morals)
- secular social activity subjectively is not necessary, but objectively is inevitable (owing to the primacy of person as a spiritual recipient and the inevitability of earthly life).

Thus, the above mentioned three strategies of secular communications can be expressed as follows. The secular social activity: it is objectively inevitable, but subjectively is not necessary (minimalism); it is objectively inevitable and subjectively necessary (maximalism); it is objectively inevitable and assumes a subjective openness (optimalism).

Let us consider whether Orthodox rationality allows us to keep the optimalistic strategy.

3. Spiritual limits of communicative activity in Orthodoxy

The openness of Orthodox community for secular social communications depends on a representation about Church's limits. These representations determine attitudes to non-Orthodox and, consequently, the possibility and character of communication.

A doctrine base concerning Church's limits has developed by St. Cyprian of Carthage (the 3rd century). According to his doctrine, Church cannot be separated from the Holy Spirit who influences through Church sacraments. Out of Church there are no sacraments, therefore the Spirit cannot act. As a result, out of Church there is no salvation. Besides, the

Holy Spirit is not given partially, but streams completely. This means that sacraments cannot be made conditionally: either they are performed, or not. All sacraments are connected to each other. If sacraments are made, they are made only in a uniform Church; otherwise, it is necessary to recognize the presence of other sacraments. Since Church is uniform, its fullness is only in it. Hence, for non-Christians and apostates, there are only two possibilities: either to belong to Church (to receive gifts of Spirit and salvation), or to be out of Church (far from grace and salvation). This viewpoint of St. Cyprian has been recognized as canonical in Orthodoxy. We see that it is quite radical: you either are Orthodox or cannot hope to be salvaged. Here it is possible to see a perfectionism, expressed in the requirement to unify the spiritual and social life in Church. Under conditions, when this requirement cannot be realized (i.e. actually under any conditions), there is an important social consequence: spiritual and secular communities are separated from each other [2]. It could be both in society (for example, a separation of Church hierarchy from the people), and in person (for example, in the form of a dilemma of the spiritual and social identity). As we see, this feature remains in modern Orthodoxy.

Meanwhile, the canonical Church practice demanded other decisions of the problem of the attitude to non-Orthodox. As a result, the practical attitude to non-Orthodox was more loyal, than a canonical position and even contradicted it. That demanded a development of new approaches in relation to non-Orthodox. There are four approaches:

1. *Formalistic approach* developed under the influence of the Catholic thought in the 19th century (Archbishop Nikodim Milasz). Its sense is reduced to that a member of Church is that who is baptized for the sake of the Father, the Son and the Holy Spirit. So, any christening is fertile if it is based on belief in the Sacred Trinity.
2. *“Economic” approach* is based on Church’s desire to facilitate the access to salvation for the larger number of people, i.e. on the basis of the Church advantage for the given situation (A. S. Chomyakov, Metropolitan Antony (Chrapovitsky) and Archbishop Ilarion (Troitsky)). When the Church advantage is seen, for instance, in an indulgence, Church accepts the same people by anointing and even only by a repentance.
3. *Relativistic approach* (N. Afanasev, A. V. Kartashov, S. Bulgakov) suggests to look at Church distinctions and schisms as at a temporary, earthly and relative phenomenon. Church’s limits are not defined by the Church canon. Church remains uniform thanks to Christ, i.e. to the divine nature and the head of Church. Hence, different Christian com-

munities thanks to their spiritual basis belong to a Universal Church. This approach contradicts the idea of unity of grace life in Church. Church's limits look too dim. In addition, we can remember Origen's statement that the soul of any person is Christian by its nature and after that we can absolutely lose ability to distinguish different faiths.

4. *Dialectic approach* (St. Augustine and Ft. Georgy Florovsky) focuses attention on the distinction between the distribution of grace and the salvation: the latter is possible only in the true Church, but grace is possible out of its limits. In other words, out of Church it is possible to have all: belief, spiritual gifts, sacraments, etc., but it is impossible to find a salvation. A human being needs to overcome the own weaknesses, to enter into Church and to find a salvation. This approach is the most comprehensible to the modern Orthodox Church.

Using examples of the attitude to other faiths, it is possible to see the basic strategies of an Orthodox communication with the non-Orthodox world. Concerning Church's limits we find two extreme decisions: (i) Church's limits are firm and precisely coincide with the canonical Orthodoxy (1 and 2 approaches); (ii) Church's limits are mobile, as they depend not only on canonical positions, but also on the real historical Church practice. At the same time, Orthodoxy does not accept the ecumenical approach supposing a synthesis of faiths.

Thus, it is possible to speak about two basic communicative strategies in Orthodoxy: canonical (its foundations are dogmas) and non-canonical (based on theologumens, private theological opinions).

The canonical strategy can lead to a spiritual isolationism. Such a strategy is developed by Fr. Rafail (Karelin), one of the Orthodox conservative polemicists. His position denies grace out of Orthodox Church, he has a radical attitude to non-Orthodox. He writes: "We do not call for a common isolationism; non-Orthodox are our neighbors, fellow workers, sometimes even members of our family, but we state that the demarcation lines between us lie in the mystical plan and communication here and only here without a damage for the truth is impossible." We, certainly, prefer the truth. Then what corollaries could this distinction of spiritual and secular communications have? Whether open social communications with non-Orthodox are possible? Most likely, here it is possible to see a domination, instead of communication.

Taking into account the low missionary activity of Orthodoxy, the strategy of open dialogue could be useful for Orthodoxy itself. Similar viewpoints are expressed by Fr. Andrei Kuraev, one of the best-known and socially active figures of the modern Orthodoxy (Fr. Rafail is his con-

stant opponent). Kuraev thinks that other faiths have a good-quality spiritual experience, too, out of Orthodox Church. Therefore Orthodox should co-operate with other faiths in the Gospel sermon, decisions of social problems, overcoming stereotypes about each other, getting acquainted with the non-Orthodox world, borrowing some social and cultural experience (but not spiritual), and showing tolerance [7], [8]. However, at the same time, obtained the direct question ‘Catholics will find a salvation?’, Kuraev answers: as Catholics-hardly, as simple Christians-possibly. Thus, he suggests avoiding two extreme measures: opinions that there is no grace outside of Orthodox Church and that in Orthodoxy, there is a special case of grace. Between these extreme points there is a space of the possible compromise: we know that Orthodoxy salves, but from this it does not follow that there is no salvation anywhere out.

We see that the position of Fr. Rafail reminds the doctrine of St. Cyprian, i.e. it is closer to canon. On the contrary, A. Kuraev’s opinion is based on the position of St. Augustine and G. Florovsky. Rafail is anxious about internal problems of the Orthodox spirituality, e.g. the Orthodox identity. Kuraev is anxious about Orthodox external manifestations; he asserts that apology is not enough and confrontation is harmful. Therefore he is open to any communication. “The openness does not mean identity; the ability to perceive something other does not mean identity of two co-operating bodies” [7]. We see that the dialogue space is limited by a spiritual identity. The attitude to other is based on the tolerance. This does not mean a recognition of any belief. Therefore Kuraev’s strategy of communications is also thought in the auto-communicative scheme: a reevaluation of own values is possible in Orthodoxy if and only if these values do not concern the theological foundations. Social priorities and norms can change, spiritual cannot. A spiritual dialogue for the sake of dialogue is impossible. But it does not forbid a secular dialogue. For Orthodox, it can refer to the formula ‘to love the sinner and to hate his sin’.

Between Kuraev and Rafail’s opinions, there are many distinctions, but they are united, at least, by one: *there is an abruption between social and spiritual life, between secular and spiritual practice*. A possibility of such a property is connected with the Christian distinction of spiritual and secular community. In Orthodoxy, this abruption was observed quite definitely. On the one hand, the physical and moral violence are forbidden, on the other hand, the possibility of other faiths from the point of view of full dialogue is considerably denied. This negation should have a passive character, otherwise the spiritual practice will be not simply separated from the social one, but will contradict it. In this sense, Orthodoxy is absolutely

opposite to Protestantism. This implies why Orthodox rationality based on the patristical heritage is not well perceived by the secular man. Most likely, this feature of Orthodox rationality allows us to estimate Kuraev's opinion (which Fr. Rafail considers as modernist!) as quite conservative. At such an abruptness between spiritual and social life, Orthodoxy cannot apply for a high social activity if it wishes to avoid the danger of violence or the basic change of its identity. After Cyprian of Carthage, ways of thinking and the dialogue of Orthodox with others are subordinated to the requirement of Church's unity. Therefore Orthodoxy should choose between secular activity and self-identity, but it prefers the latter. The same does not allow Orthodoxy to actively participate in the ecumenical movement.

Thus, the optimalistic strategy is not alien to Orthodoxy, however Orthodox rationality very sharply finds out a dilemma of social activity and spiritual identity which complicates the realization of the optimalistic strategy. The problem of communicative activity of Orthodoxy in the modern society follows from Orthodox rationality defined by dogmatic positions.

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Arkady Lazariewicz

ON THE PROBLEM OF THE CRISIS OF SCIENTIFIC-AND-RATIONAL METHODOLOGY

The problems of effectiveness of scientific-and-rational methodology in the context of modern social and intellectual practices are considered in this paper. It is shown that a kind of methodological crisis that has emerged in connection with this fact can be solved not by separation and counterposition of scientific and non-scientific components in the content of the rational, but on the basis of revelation of the values of the integral forms of consciousness that characterize the integrity of human world outlook. Attention is drawn to the necessity of changing the strategy of organization and development of science in the contemporary global society.

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Comprehension of the essence and nature of the rational goes, mainly, in two directions. One of them is connected with the evaluation of the effectiveness of human actions and characterizes as rational those actions which allow achievement of the necessary aims and results with the least effort and time. The other direction of understanding of the rational is connected with some rules that ensure consistency and logic of thinking and are referred to the principles of the functioning of human intellect itself.

The approach to the understanding of the rational based on the idea of usefulness and necessity goes back to the ancient idea of “techne”, i.e. an artificial transformation (reproduction, modeling) of reality. Its synthesis with the idea of monotheism is the basis of the European tradition of rationality. This tradition determined the development of scientific and technical progress, business activity and management. Unfortunately, its contemporary evaluation from the point of view of, for example, ecological problems, the arms race, technical catastrophes, and dangerous technologies makes us in-

roduce some changes into the traditional understanding of the rational as effectiveness of expedient activity.

A more or less accurate description of these changes is impossible without due regard for classical and non-classical ideas of the rational that have been formed in philosophy. The classical rationality presupposes the necessity of the deepest understanding and reproduction of the natural arrangement of things in reality, i.e. a rationally organized world. The non-classical rationality is based on the possibility of a more accurate reproduction of conditions and structures of problematic situations in which man may happen to find himself in his interaction with the world. But the adequacy of a problematic situation cannot be complete without its connection to an adequate reproduction of the rationally organized natural being. This sense attempts to find a strict difference between classical rationality and different versions of the so-called non-classical rationality and can hardly lead to success.

Claims laid to the classical tradition of the rational are partially justified only because within the framework of this tradition the activity of the human ratio itself is probably underestimated. Therefore, the transfer of accent from the actualized being to the reality of human activity together with responsibility for inadmissibility or elimination of problematic situations is quite necessary and justified within the framework of non-classical approaches to the problems of the rational.

It is important that human activity and its aims, as well as subjective sensations of usefulness and effectiveness, should not contradict the objectivity of norms of the classical rationality. By the way, it is on this plane that all discussions about intentions and possibilities of *Homo sapiens* in the practice of social creation should be carried on.

The contemporary spiritual and cultural situation raises the problem of the role, meaning and purpose of the rational, very keenly. It is conditioned by a number of circumstances among which the most important are: firstly, the search for some universal rules that can ensure effectiveness of the practical interaction of people with the surrounding reality and, secondly, the desire to better understand the intellectual mechanisms used in search of these rules.

Comprehension of their actions in the surrounding world makes people pay more attention to the character of organization of their knowledge about this world. This is because this knowledge lies at the basis of the formation and realization of different programs of life activity of both man and society. The given factor conditions the strengthening of the role of cognition as a necessary precondition in the formation of rationalized norms of social life.

On the Problem of the Crisis of Scientific-and-rational Methodology

The contemporary content of these norms is inseparable from the progress of science and scientific knowledge; this fact has influenced the perception and evaluation of the rational as mainly, the product of science, but not man. It may seem rather strange.

The epistemological element of the philosophical and methodological approaches to comprehension of the nature and essence of the rational has always been domineering.

The exception may be the unsuccessful attempts of natural sciences which have been formed by the beginning of the 17th century, to understand the universal rules of human reasoning as the result of comprehension of a purely empirical interaction with the world. In this case, intellectual and theoretical procedures were assigned a secondary role. However, ineffectiveness and even danger of the empirical strategy came to light rather soon because the “trial-and-error” method, which plays an important role in most empirical procedures of scientific cognition, is able to lead mankind to catastrophic results. In connection with that, the notion that real rationality can be revealed in science, i.e. in its theoretical and logical system of knowledge, has become even more popular.

Without denying the achievements of science and, furthermore, understanding their value and importance, we should like to draw attention to some problems which arise in this connection. One of them can be formulated in the following way: why the progress of scientific knowledge and its practical applications are not always symmetrical to the degree of social wellbeing, and in many cases, may be evaluated as being irrational and leading to a number of problems, dangerous for man. It is enough to point to the global and ecological crisis; which, if one does not touch upon cultural and moral values of man, is the result of scientific, technical and technological activity.

One may suppose that these facts are side effects of the progress of science. It is well known, that science took its first steps basing itself on practical experience and further experimental support. The empirical character of the scientific idea did not then require a complex technology of experiment, thus, the idea was either proved and included in scientific turnover, or was not proved and was rejected. The logic of cognition was based on subjective-and-objective interactions, where the subjective level was determined by experience, knowledge and the interests of a researcher; the objects of scientific analysis were elements of nature, concrete and explicated within the framework of possibilities of a scientific experiment.

Swift growth of scientific knowledge, methods of its systematization and development on the basis of the inner logical non-contradiction have

formed a respective meta scientific methodology which has conditioned the possibility of unlimited self-sufficiency of theoretical conceptions. Hypothetic assumptions, including those which in fact, cannot be verified by practical experience and, consequently, cannot be controlled by the norms of social admissibility, turned out to be possible in the structure and logic of knowledge development.

This given tendency is revealed intensively in connection with the active progress of human cognition and penetration of science into the deepest structures of both micro and mega worlds. The habitual methodology of the subject-object relation, when objects are real elements of nature, is being transformed gradually and supplemented by a new character of relations, i.e. the subject-knowledge relations, where the object itself is replaced by different forms of theoretical knowledge. The complexity of the theoretical models that appear in this way requires a complex experimental proof. Modelling of an experiment with the use of simplification and admissibility elements cannot guarantee the objective truth of scientific knowledge, i.e. its social success. Besides, it not only keeps us away from cognition of the real world but is able to become the foundation of an artificial, synthetic one. To some degree, this artificial world is a stumbling-block today in the solution of the contradictory problems which are being accumulated gradually in the relations between natural reality and so-called "second" nature, created by human intellect.

The shortcomings of the scientifically rationalized model of the world are well known. It is quite clear today that the essence and content of the rational cannot be connected only with the field of scientific cognition, and analysis of them presupposes entrance into a wider social-cultural context. Man not only cognises the world but transforms it and lives his life in it and is contiguous to different norms of life which not always submit to scientific explanation. On the basis of such sensations of inadequacy of world perception, there appear different forms of irrational philosophy as well as critical evaluations of science among its direct representatives, who often speak about the impossibility of the revelation of some strict laws that could logically determine formation and functioning of the existing concrete disciplines. In this sense, the statement of the famous American mathematician M. Klein that the development of mathematics has always had an illogical character is significant. Such kinds of statements can be supplemented by critical notes of other philosophers and methodologists of science concerning science and scientific rationality, especially by post-positivists. On the whole, such statements come to the following:

1. Human life and activity are much wider and richer than their rationalized forms. There are extra-rational and even irrational moments in them which need other explications than science can give with its forms and criteria of rationality.
2. The nature of scientific discovery and scientific creativity, on the whole, cannot be connected only with the act of rationality, because often there are such phenomena in them as intuition, guess-work, “mad hypothesis,” the unconscious, etc.
3. Science and scientific activity are regulated not only by their own logic of development, but are mediated by the whole system of social-cultural practice, i.e. they in fact are not the absolute result of reason, however strange it may seem.

The history of science demonstrates a great number of examples when problematic situations in cognition cannot be solved by the concrete and historical norms of rational scientific knowledge, and hypotheses connected with them are rejected by the world community as absurd and irrational. However, with time a reevaluation of views in science took place, permitting the inclusion of “rejected” theories into its arsenal.

The above mentioned testifies to the fact that the rational cannot be explained only on the basis of permanency and stability of scientific knowledge which, as it is well known, is relative by nature. Very important are also different procedures of the social determination of knowledge and mechanisms of its functioning in society. Michel Foucault wrote: “Any society has its own order of the truth, i.e. it accentuates some definite types of discourse, which allow it to function as true discourse; there are mechanisms and procedures which separate true statements from false ones and define the modus in which some of them or others are admissible. There are preferred methods and procedures for finding the truth; there is some definite status for those truths which have been obtained as well as mechanisms to establish whether or not they are true” [4].

Analyzing the nature of power and its relation to knowledge, N. Avtonomova comes to a more categorical conclusion. “There is no pure knowledge,” she writes, “because knowledge is based on the groundwork of power relations, but, on the other hand, there is no pure negative repressive power: mechanisms of power are always positive and productive, in particular they themselves engender this or that reality, this or that type of knowledge. Knowledge can never be interested in something; sometimes it is evil but it is always power. Power engenders knowledge, and knowledge is power” [1].

M. Foucault presents a considerably pessimistic picture of social adaptation of the truth as a scientifically rationalized form of knowledge. His

theory may be perceived as a kind of mystification of scientific cognition, a substitution of cognition with apparent “will for knowledge”, which in fact, is nothing more than the intention to present “will for power” under the guise of scientific truth. M. Foucault writes: “The historical analysis of this vicious will for knowledge is based on injustice (that there is no right, even in the act of cognition, to the truth or foundation of the truth) and that the very instinct for knowledge is pernicious (sometimes even ruinous for mankind’s happiness). The will for knowledge is incapable of comprehending the universal truth even in the widely disseminated form which it has nowadays: man is not destined to dominate nature serenely and confidently. On the contrary, nature constantly increases risk, engenders dangers everywhere and its growth is not connected with the establishment and strengthening of a free subject; it is nature that enslaves man with its instinctive violence” [5].

Nevertheless, absolution of the idea of divergence of scientific rationality with its much wider explications is methodologically erroneous and even dangerous because it destabilizes the normative foundations of social and individual orientations. Science is a product of human culture, people’s demand for the provision of a reasonable organization of life. Science differs from other forms of consciousness by its objective argumentation, the revelation of regular relations, and by its demonstrative and non contradictory character. Man’s rationality cannot only base itself on these principles, whatever may be understood by the concept of rationality. Naturally, the possibilities of science have limits, and recognition of this fact must be an indication of rational consciousness. “The more the proposed aim coincides with the norms of thinking characteristic of the existing knowledge,” S. Gusev writes, “the more rational it seems to the respective culture. In its turn, the rationality of a new fragment of knowledge produced by science is evaluated in accordance with the degree of its correspondence to the existing social aims. Thus, the choice of problems and aims by both society and separate scientific groups is influenced not only by the ideals and norms of theoretical consciousness, but also by the notions of usefulness of the results either supposed or searched for, and it exceeds the bounds of the competency of science itself” [3].

There are spheres of human activity and relations that cannot be expressed by scientific norms, for instance the spheres of morality, cultural-and-ethical traditions, religion etc. Indeed, how can we define firmness or weakness of character, fidelity, honesty, goodness, evil, justice, etc. from a scientific point of view. Nowadays, the upbringing of man is understood as the process of self-cognition, as control over the “passion of the soul” on the basis

of reason. However, one of the authors of this program, Spinoza, understood that reason is helpless before affects. Nietzsche continues his teaching and states that control over man is carried out in the form of a play of affects. People's behavior is determined not by concepts, but by the struggle when one force limits another. Hence, the development of culture, according to Nietzsche, is not the production of ideas and knowledge, but the will for power. The main capital of culture is people capable of both sensations and actions, people having a sense of responsibility for both the past and the present and people capable of accepting their destiny and carrying out the will for power [6].

Such thoughts, alien to scientific values, are to some extent neutralized by the peculiarities of understanding of that same power by different scientists. For example, M. Foucault understands it as power of scientific discourses over man's consciousness. The discursive character of knowledge and the mechanism of its transformation into an instrument of power is considered by Foucault on the basis of his specific interpretations of fundamental notions of structuralism and post-structuralism according to which it is impossible even to imagine any possibility of consciousness without discourse. On the other hand, if language preconditions thinking and those forms which it acquires in it, i.e. the so-called "thinking forms", then the scientific knowledge that engenders them simultaneously form "the field of consciousness", constantly extending it by its development and, the most important thing for Foucault, exercising its function of control over man's consciousness.

Statements of both pro and con scientifically rationalized forms of human thinking can be continued, but they can hardly lead to the essence of understanding of the rational and the definition of its perspectives. A kind of methodological crisis that has emerged in connection with it can be solved not by separation and counter position of scientific and non-scientific components in the content of the rational, but on the basis of the revelation of values of the integral forms of consciousness which characterize the integrity of man's world outlook.

One of the main peculiarities of modern social development lies in the fact that the scientific factor of social innovations is domineering in modern culture, and determines considerably the realization of other conditions of social-cultural dynamics. It is science that nowadays establishes aims and forms priorities of the development of different spheres of social life and deals with the systematization and evaluation of methods to achieve them. It seems that such scientific functions will retain their importance in future, because the basic component in the theoretical reconstructions of the so

called post-industrial society are notions of the specific status of information and knowledge, the role and place of science in the development of socium in general.

By the way, the industrial epoch that seems rather vulnerable in many respects from the point of view of humanistic values, is considerably indebted to science, therefore, science and scientific rationality in general, together with the criticism of industrialism, get into the category of the discarded phenomena. It should be emphasized that facts of the unsuccessful use of scientific knowledge in the interests of production exclusively, the attempts of exploitation of imperatives of science for political and ideological aims and the construction of extensive methodologies based on irreproachability and completeness of scientific argumentations are justly referred to the negative aspects of industrial society.

While rejecting the principles of industrialism we should not reject science itself, but only attempts to use it, as a method for the complete solution of many problems, including social problems. One of the greatest and most urgent tasks of philosophy is to assert the idea of utter impossibility of a complete explanation. As K. Popper justly noted, every explanation can be later changed at the expense of laws of a higher universality. There can be no explanation that does not need any further explanation, because self-description of the essence is impossible [7].

Karl Popper, by the way, very convincingly showed the role of scientific knowledge in the system of man's sensations and relations with the world. According to his teaching, the interaction between his three well known worlds is carried out through man's intellect. The states of the second world, i.e. the mental world of beliefs, purposes and predisposition, love and hatred, pleasure and pain function as some systems for body control, and the products of the "third world", in particular, our scientific theories, function as some systems for mind control. The contemporary crisis in the value foundations of the scientific-and-rational methodology seems to be determined by a dissonance in the relations between the worlds described by K. Popper. It seems that the epistemological component of "mind control" must be supplemented by the wider system of spiritual and cultural values of both society and man's individual world. The contemporary tendencies of humanization of social activity, including scientific activity, are aimed at the achievement of this goal. It is not by chance that the problems of ethics of science, the personal responsibility of a scientist for a reasonable production of new knowledge and the possibility of its safe functioning in society, get into the field of vision of public opinion. Contemporary scientific activity is no longer an autonomous process of knowledge production, the

rationality of which is determined exclusively by its inner organization, but becomes such a form of human activity within which the rationality of aims is evaluated along with the rationality of actions.

Within the framework of the most popular approach to the understanding of the rational, rationality of human actions is characterized by the degree of correspondence of the aims to the real possibilities and methods used to achieve them. Depending on the degree of harmony between these two components, activity may be considered either effective or ineffective, the effectiveness being the form of evaluation of its rationality. The function of science finds its expression in the search for criteria of the exact evaluation of existing possibilities and the most effective methods for their realization. At the same time, the obtained result is considered to be rational only when it corresponds to the utmost degree to both the aim and the actions undertaken for its achievement. In this case it is very important to establish the degree of the mentioned correspondence with the help of different scientific procedures.

Thus, it is obvious that the epistemological component plays a very important, if not decisive, role in the definition of the rational because, as S. Gusev notes, “the organization of both knowledge about the world and people’s influence on it is, necessarily, connected with the conscious formulation of the rules of collective activity; this fact presupposes both a high degree of intelligibility of the used knowledge and a guarantee that it will be understood in a similar way by different members of society. Therefore, the intelligibility and similar understanding determine the general form of human rationality” [3].

Attitude to science, to evaluation of knowledge and to the value of knowledge in general and of theoretical knowledge in particular changes in the epoch of transition to post-industrial development. If the industrial society is based on the technology of machinery, the post-industrial one is based on the technology of intellect.

A famous American sociologist, one of the founders of the conception of post-industrial world, Daniel Bell, noted that capital and labor are the main structural elements of industrial socium, while information and knowledge are the basis of post-industrial society. The author clearly separated the role and meaning of knowledge from the role and meaning of information. According to him, information can be the main production resource of post-industrial society, but knowledge remains the inner source of its progress [2].

The above stated can hardly be disputed. The point is only the content of the term “knowledge”. If the problem is reduced to the usual results of

cognitive activity and their pragmatically ambitious application in the transformation and construction of reality, to bringing it in correspondence with the cognised essence and to forming anthrop-egoistic programs of social development etc., then, unavoidably, we come across the traditional problems, the so-called technical (technogenic, technological) rationality, peculiar to the industrial epoch which is critically regarded nowadays. The traditional rationality, G. Tulchinskiy writes, in fact, denies harmony and measure and causes necrosis of living organisms by suggesting abstract schemes that require a compulsory introduction to be realized, engendering the problems of morality metaphysics, which brought mankind into collision with them in the 20th century. The “technical” rationality either rejects the category of responsibility as being irrational (along with the ideas of conscience, guilt, repentance, shame, etc.) or understands it as responsibility for the realization of the rational (effective) idea. This type of rationality leads to self-sufficiency of separate spheres of mind application, for instance, in science it leads to extremes of scientism, in art to formalistic aesthetics, in technology to the absurdness of technical progress for the sake of technical progress and in policy to manifestations of Machiavellism. The consequence of absolutization of such rationality is immorality, negative aspects of scientific and technical progress, anti-scientism and totalitarianism. Absolutization of the tradition of “technical” or “technological” rationality leads to extremes of abstract rationalism that can result in imposture of petty tyranny of mind and violence.

The crisis of the world, which is being disintegrated into separate, unattached spheres, is, in many respects, the consequence of the unlimited expansion of “technical rationality” [8].

Therefore, the contemporary intellectual situation in society must be characterized not only by the quantitative or even qualitative phenomena of the functioning knowledge but also by the degree of its subjective explication including the questions of humanism, the practice of moral life and moral and ethical norms. All these qualities belong to the spiritual and cultural foundations of man who participates in the production of knowledge, possesses it and is responsible for the consequences of its application. It turns out, that from the point of view of gnoseology and culturology rationality is conditioned by man’s individual qualities. Abstract rationalism in the form of an exclusively one-sided orientation to the objective value of knowledge and effectiveness of its usage, to achievement of the aim, preferably, by the easiest possible way, to the idea of a certain general expediency denies (up to annihilation) individuality, deprives knowledge of its subjective specificity and makes it impersonal.

The contemporary intellectual situation is influenced not only by contradictions in the foundations of knowledge itself, i.e. by its so-called impersonalization and social adaptation within the framework of abstract rational forms, but also by the processes of universalization and globalization of society, which are very important in the real communicative practice of people and countries.

Keeping in mind perspective forms of knowledge and its direct bearers, we can admit that nowadays we, in fact, come across the situation when intellect oversteps the limits of national and cultural determination and influence. This phenomenon cannot but influence both the traditional schemes of interaction of science with society and the intellectual and spiritual enrichment of the latter.

In the conditions of the contemporary globalization development, it is possible to single out a few aspects concerning the most vivid tendencies of intellectual dynamics:

1. The contemporary intellect acquires an extra-national and extra-state character, i.e. it is accumulated in those places where financial capital is accumulated.
2. In its turn, capital is concentrated in those countries where payment for human intellect is adequate to its real value.
3. And, finally, concrete regional presence and realization of intellect are conditioned by its effective organization and the degree of necessity of it.

It is impossible to dispute the international character of science, its international status, the principle of universality and specific laws of development. Unquestionably, this is true. However, one cannot but notice the tendency of a slow weakening of the relation between an intellectual resource and regional and national strategies and programs of development. Despite the fact that this or that state (society) in a similar situation can, in a literal sense, retain its intellectual potential, it nevertheless, cannot but notice in the content of this potential the loss of the most important features of the national and cultural identification that condition the motive and results in the cognition of man, of his self-organization and involvement in the rational and creative programs of social reconstruction.

To some degree, this thesis is correlative to the inauspicious prognoses concerning the situation when against the background of the rapidly changing world, an ever-decreasing number of countries are able to save their intellectual capital sufficient enough for a complex analysis and prognostications of not only global, but also concrete, regional changes. It means that the strategy of organization and development of modern science needs a closer look from the side of both national and international projects.

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Yadviga Yaskevich

THE DYNAMICS OF ARGUMENTATION STANDARDS IN SCIENCE

The aim of this paper is to show the dynamics of standards of the scientific knowledge argumentation in the classical, non-classical, and post-non-classical sciences. In the paper we focus upon ethical and axiological aspects of the modern science, upon its interdisciplinary character, dialogue of scientific and humanities knowledge.

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1. Introduction

The modern logics shows a particular place taken due to the development of argumentation theory. The attempts are undertaken to substantiate the synthetic theory argumentation, different models of argumentative discourse, determination of specificity of philosophical and scientific argumentation. Individual schools of argumentation come to life. Their fruitful and efficient activities are recognized in the world known centers for the argumentation study.

Argumentation is a logical and communication process aiming at the substantiation of a certain point of view in order to understand it and/or to adopt it by an individual or collective recipient. Like any linguistic phenomenon, the process of argumentation is connected with certain logical forms. Argumentation is tightly connected to substantiation [3].

The axioms, the earlier proved theoretical theses, theses with probabilistic character (when proving a hypothesis), real data and empirical generalization in scientific argumentation that aims achieving the authentic knowledge may act as arguments (foundations). But anyway, the process of the scientific argumentation is accompanied with the transfer of characters of theses already accepted in the science into not proved yet theses,

thus forming the latter. This is the main difference between the scientific argumentation and non-scientific one like, for instance, the reference to authority.

An important point in the scientific argumentation is the use of special linguistic means which are formed on the natural language base and detailed with particular definitions thus forming the system of a scientific terminology. The discovery of a new scientific area and the truth in the process of scientific research needs application of new linguistic methods and terms approved by the scientific community. That's why one of special features of the scientific argumentation is the orientation on describing not only the object structures which may be involved in the future activity under some other social and cultural conditions.

Together with the orientation on obtaining the true knowledge, availability of special language, support as a logical basis of the scientific argumentation, orientation on the anticipatory reflection of reality, the systematic character of argumentation is the most important its feature tightly connected to validity. Such important features of logical validation as proof, classification, interpretation, and axiomatization are the forms of the scientific knowledge systematization at the same time.

Three large stages are distinguished in the science historical development: 1) the classical science (subdivided into two sub-stages: (i) the pre-disciplinary science of the 17–18th centuries, (ii) and the disciplinary organized science from the end of the 18th to the beginning of the 19th century); 2) the non-classical science (from the 19th to the middle of the 20th century); 3) the post-non-classical science (the last third of the 20th century) [2].

2. Argumentation in Classical Science

The process of overcoming the dichotomy of the world of idealized forms together with the empirical data become the base line of the modern science and characterize the essence of the scientific revolution. This process started in the Antiquity (Aristotle).

It comes out from not only the cognitive processes taking part at that time in the science aimed at the object-reformatory activity, but from the social and cultural premises. The science becomes independent, comes out of the limits of abstract theoretical constructions, widens the possibilities of deductive argumentation, enriched with the pragmatic trends and parameters.

The revision of ideals of the scientific knowledge argumentation was accompanied with the radical turn in the science of the 20th century and signified the formation of a new world outlook paradigm supposing the science sovereignty, its deliberation from the canonic thinking of the Holy Scripture and Church records and gave grounds for the formation of new criteria of truth. The so-called “net knowledge” didn’t fit the technologically advanced community. The science shows powerful axiological and purposeful transformations caused by the social orders of the community and industry. Only the sufficiently advanced capitalistic industry gives wide social possibilities and allows developing individual sciences.

Galilei considered experiments, observations, investigations of natural phenomena to be the most reliable means for finding the truth. He put forward a new value and world outlook directive of an experimental mathematical science causing the revision of ideals of the scientific knowledge. Starting from this moment, the scientific, accurate method isolates itself sharply from the speculative and scholastic method aimed for understanding and disclosing a super-natural transcendent source.

Describing the specific character of this stage in the history of science, A. Einstein noted in his Spencer lecture “On Method of Theoretical Physics”: “Purely logical thinking could give as no knowledge of the empiric world. Any cognition of reality results from the experience and comes back to it. (...) Namely due to Galilei understood this fact and inspired scientists with this truth, he was the father of the modern physics and natural science in general. Isolating himself from the speculative conclusions, Galilei clearly declared that he preferred finding the truth in significant things instead of discussing great problems for a long time reaching no truth at all.”

Galilean scientific argumentation is characteristic for the organic synthesis of the purposeful experiment with the mathematical treatment of experimental data. It became the standard of natural science by the end of the 16th century and by the beginning of the 17th century. From his point of view, the nature is described with the mathematical language. That’s why in order to understand the nature it is required first of all to study its language and symbols: triangles, circles, spheres, cones, circumferences, and other mathematical figures.

The inner synthesis of empirical and rational things, investigation of empirically conceivable phenomena in viewing the infinity was firstly made by I. Newton in his work “Mathematical Principles of Natural Philosophy.”

The correspondence to the experience is the standard of the scientific knowledge for Newton. Only after the experimental check of mathematical

abstractions, the latter acquires the status of authenticity. It becomes clear that it's impossible to carry out the search for the reliable grounds of the scientific knowledge can't be successful when following the way of sharp contrasting of the empirical to the rational. Beginning from Galilei and Newton, the synthesis of the empirical and rational reliability, the synthesis of the experimentally-inductive and logical-deductive knowledge become the priority ideal in substantiating the scientific knowledge.

Using experiments and observations, Newton aims to find out the properties of the study objects and to form a theory resorting to no "hypotheses", though he himself sees shortages in the orientation on the inductive method. His protest against using hypotheses in "experimental philosophy" was most likely addressed to Cartesians which produced "illusory assumptions" without using the sufficient experimental data.

Though the gravitation was proved, and had a high level of theoretical grounding, the strict logical and mathematical argumentation, the correspondence to the astronomic observation, the theory wasn't been accepted by the scientific community for a long time. The reasons were the passivity of the world outlook convictions and the cognitive ideals of the scientific knowledge argumentation, because the strictly mathematical analysis of the observed astronomic data wasn't considered yet by the scientific community as a guarantor of a logical consideration.

The ideals of argumentation of scientific knowledge formed by the classical science determined its development up to the scientific revolution of the end of the 19th and of the beginning of the 20th century. However, the second part of the 20th century showed a necessity for revision of a number of methodological principles and aims of classical science due to the discovery of the Law of Conservation and Transformation of Energy, obtaining new data on thermodynamics and electrodynamics.

Maxwell faced the necessity of revision of methodological principles of argumentation in the classical science. Though Maxwell tried to find the "mechanical mode" for describing the studied phenomena to his dying day, he came out of the limits of classical paradigm and didn't consider Newton's mechanics to be the only right way of cognition.

In comparison with his antecedents contended that the natural sciences move along their ways resting upon the experience, Maxwell overestimates interconnection of physics with philosophy pointing out that "in our ordinary life we come to the same questions like metaphysicians do."

Hertz always emphasized that Maxwell's theory was composed of Maxwell equations. Maxwell theory of electromagnetic field was the mathematical theory. All Maxwell efforts "to dilute" the mathematical theory of

electromagnetic field with the explanations based on an intuition happened to be unsuccessful.

Though the recognition, understanding, and acceptance of Maxwell theory took over 25 years, it acted as the standard of theoretical argumentation and performed “pragmatical” functions in using its results in practice.

The formation of the disciplinary natural science at the end of the 18th century and in the first half of the 19th century was accompanied with the reconstruction of a mechanical world picture, creation of new methods of argumentation in different areas of science. Later on this resulted into the integration of the above methods and into the enrichment of the science in whole. The ideals of the evolutionary explanation formed in biology and geology as well as the mechanisms of chemical transformations showing “the inner mechanics” of atoms indicated a complexity of material world that couldn’t longer be explained on the basis of mathematic laws only.

While the reduction of all areas of natural and social sciences to mechanical conceptions was reasonable and required at the first stage, the first half of the 19th century showed the reverse process resulted from the formation of disciplinary science and characterized by the transfer and integration of methods of the scientific knowledge grounding worked out in a number of other areas.

Such a complex process of mutual enrichment and integration of the scientific knowledge argumentation was shown on the development example of the experimental physical chemistry later on. For the chemical conceptions to be accepted by the scientific community and introduced into culture, they must be based firstly on the dominated mechanistic world outlook. And all the explanations and definitions of the concepts used as well as the interpretation of chemical phenomena were formed within the limits of the above outlook. Only in this case the explanations and definitions were accepted by the scientific community. The classical mechanics arguments were omnipotent in this area and chemists of that time tried to modify chemistry into a section of “applied mathematics” (more clearly seen in works of A. Lavoisier, P. Laplace, K. Berthollier). Since the chemical changes are considered to be the results of the matter movement, they must be explained by mechanical laws. Chemical affinity is treated as a force similar to the attractive force.

The last thirds of the 19th century showed the formation of physical chemistry being the first “connecting” science in the chemistry history and indicating the formation of new “synthesized” ideals of science. Just as

a new arising “island”, the physical chemistry is tightly connected to two “continents” – physics and chemistry.

In spite of the fact that a number of discoveries in chemistry didn't fall in Newton paradigm and contradicted it (for instance, the discovery of the replacement phenomenon, metaleption, reduced the authority of electrochemical theory of chemical affinity), the argumentation based on the classical mechanics was very convincing and understandable both within the scientific community and outside of it.

There is no coincidence that his lecture read in the England King Institute Mendeleev entitled “An Attempt for Application of One of Principles of Newton's Natural Philosophy to Chemistry”. Here he pointed out that Newton program of “explanation of any natural phenomenon with the use of principles of mechanics” was at the final stage.

Based firstly on the relation between the chemism and mechanicism, the Mendeleev investigation served actually as the foundation for the chemical science development and formed the methodological guidelines for creating the complex atomic structure doctrine. Namely this area showed the formation of preconditions for reviewing classical concepts of the structure of matter, methods of grounding the scientific knowledge. In this connection many scientists pointed out that the quantum atom model was greatly influenced with Mendeleev's periodic law and with the spectral study of chemical elements. In works devoted to the development of electronic concepts (mainly within 1897–1913) the approaches of scientists were based on the synthesis of physics, chemistry, and mathematics. These approaches substantially changed numerous ideas of an atom as of a simple indivisible particle.

In his report “An Attitude of Newest Physics to the Mechanistic World Outlook” M. Planck pointed out that the mechanistic world outlook rendered certain services to physics for a long time though some scientists saw its limitation and referred skeptically at times to its attempt to explain any natural phenomenon. This skepticism at the beginning of the 20th century developed into a confidence and deep movement with the radical breaking character not only for physics, but for chemistry, astronomy and knowledge theory as well. The period of clear predictions based on the classical mechanics came to its completion and the theory dropped behind the experiment losing gradually its explanatory function.

However, when assessing the services of classical theoretical physics and classical science in the whole, Boltzmann pointed out with pride that the century worked effectively. It entrusted the future with an unexpected abundance of the positive facts and the splendid transparency and clearness of methods.

Thus, “the immense period” of classical science coming to an end with the formation of disciplinary natural science, thermodynamics, electro-dynamics and with the development of chemistry, biology, geology, physical chemistry, economical statistics, and other sciences resulted into the revision of traditional priorities of methodological consciousness. First of all, the distinct departure from the undoubted necessity of classical scheme of grounding (“*if . . . , then . . .*”) that was important for the mechanistic processes where the initial conditions specify a strongly determined, predictable and unambiguous result.

The reasoning of the scientific cognition wasn’t limited with the traditional dynamical approaches as the most reliable and “elemental” describing the behaviors of objects in the relevant system strongly definitely. This reasoning required using the statistical methods, conceptions of randomness, complexity and irreversibility more and more.

The cognitive status of the experimental data wasn’t based on the data of theory that explained them (experience “was seen” through the relevant “theoretical glasses”). The interpretation of the experimental data based on the mathematized hypothetical illustrations, but not on the visual models only. Mathematics stopped to be the only description mean and became at the method for the truth grounding. The famous Newton credo “I don’t contrive hypotheses” loosed its status of an absolute and strict rule while the mathematic hypothesis became to play a special significance in the development of the scientific knowledge.

In order for understanding and accepting new conceptions one had to resort to philosophic and methodological analysis of the status of different cognitive procedures and methods of the scientific and cognitive activities as well as to pragmatism, technological and “industrial” means and arguments for grounding the defended concepts. A highly developed classical science brought scientists to investigation of microworld secrets, to the revolutionary break of general concepts, notions, and methods of justification. These processes were contributed with great discoveries at the turn of the 19th and 20th century.

3. Argumentation in non-classical science

The radical changes in the science at the turn of the 19th and 20th century were accompanied with the changes in spiritual culture, philosophic bases of scientific cognition, revolutionary discoveries in different areas. All this led to a strongest break of argumentation standards of classical ra-

tionalism. The turn to the non-classical science was prepared by all its preceding development where the process of development of disciplinary natural science produced unconventional ideas of the scientific cognition including the ideas of development, irreversibility, randomness, and unpredictability.

According to Einstein, his work on justification of scientific concepts has a significant role in development of theoretical science. The philosophic and scientific analysis of grounds of classical mechanics and “high authority” of its concepts were characteristic for the Einstein approach to the formation of scientific cognition. Really, the relativity theory was born in the depths of Maxwell theory of electromagnetic field. Einstein himself said that the sources of his special relativity theory arise mainly from the Maxwell theory of electromagnetic field [2].

Lorentz, Poincaré, and Einstein were characteristic for rising the question of the theory complying with the relativity principle. But the means of the problem solution differed one from another and required the application of different arguments. Thus, the logics of the theory formation was constructed and the conditions of its understanding and adoption by the scientific community were formed. If the Lorentz concept was based on the ideas of static ether, absolute space and time, on attempts of modification and application of Newton mechanics for understanding electromagnetic phenomena, the Einstein theory doesn't include the either and privileged counting system connected with it as well as the absolute space and time.

The specific Einstein approach in forming the special relativity resulted into the synthesis of philosophical and scientific argumentation, into the search for the operational status of the scientific concepts and their philosophical substantiations, methodological and logical analysis, into the introduction of a subject (observer) into the structure of cognitive activities. It became apparent also in the process of forming general relativity.

The mechanisms of general relativity showed that the theoretical knowledge entered a high-quality new phase where the experience and the observations weren't the only source of information for the fundamental theory formation. The equivalence principle constituting the foundation of general relativity wasn't obtained from the experience and wasn't “evoked” by the latter. The incontrovertible argumentation of Einstein used in the equivalence principle grounding showed no logical way for obtaining the fundamental theory concepts from the observations.

The traditional way of formation of fundamental theories that matched the Mill model in which the interactive generalization of numerous observa-

tions and factors used for forming the logical construction appeared to be useless for the description of a new area.

The formation of the quantum theory together with the relativity was the epochal event that changed our ideas of the science, culture, means for understanding the real world. Already the first (“pre-Bohr”) phase of the quantum theory development that was carried with the formation of quantum hypothesis by Planck in 1890s determined a specificity of the scientific search in this area. Planck constant required the revision of classical concepts of coordinates and pulses, displayed an insufficient influence of classical mechanics and stipulated the necessity of philosophical substantiation of an arising theory and its grounds “exposing” the problem of status of scientific concepts of classical mechanics in a new area.

The most important target of this period was searching for the physical sense of Planck constant, ensuring its empirical and semantic interpretation and experimental validation.

A number of scientists (H. Lorenz, D. D. Thompson, et al) made unsuccessful attempts to “introduce” the quantum hypothesis into the classical theory. Contradictions between the classical concepts of the radiation as of the wave process and Planck assumption of the fractional emission of energy gave a trouble and even suffering to Planck for the logical imperfection of the theory formed by him.

Namely this period of the quantum mechanics development is characteristic for the formation of new standards of the scientific knowledge argumentation. It is impossible to imagine the modern science, the reconstruction of physical picture of the world, the philosophical review of the problem of corpuscular and wave dualism standards, causality, subject-to-object relations, the formation of principle of complementarity aimed at providing the understanding and incorporation of new knowledge into the culture. The problem of grounding the quantum theory revealed and formed the interconnection mechanisms of the scientific knowledge with the culture context. The semantic and the empirical interpretation, the search for the appropriate visual example of a particle in the physical picture of the world and the development of means for relating the equations and experience were the sources for the quantum theory development.

The main aim of quantum mechanics consisting in the search for the appropriate interpretation of its equations was unrealized. This search resulted inevitably into the failure to accept classical concepts. Though Planck tried to conciliate the quantum theory with the ideas of Maxwell electrodynamics, but unlike Lorentz and Thompson he had finally to admit that it

was impossible to understand a quantum with the classical concepts. The same way followed by Heisenberg determined the foundation of the so-called matrix mechanics. Schrödinger developed wave mechanics.

The search for the problem of physical interpretation of quantum mechanics stayed incomplete since the sense of the used figures and symbols, operations and interconnections among them stayed unclear. Heisenberg said that a period was required for the “clarification of formal framework”.

Max Born presented the probabilistic interpretation of quantum mechanics. An electron in such an interpretation isn't “spread” like in Schrödinger wave mechanics thus giving the possibility to evaluate the probability degree of the electron presence in any given volume.

The uncertainty principle formed by Heisenberg in 1927 explained in fact the probabilistic character of quantum-mechanical calculations, showed an impossibility of requisition of the correct information of the state and speed of microobject.

N. Bohr made Heisenberg analysis of the quantum-mechanical connections more deep and correct in the sphere of Heisenberg interpretation of quantum mechanics thus resulting into the formation of principle of complementarity. N. Bohr presented this idea during the International Physical Congress in Italy in 1927.

The principle of complementarity formed by Bohr was a sui generis logical complementation of quantum mechanics interpretation though the understanding the search for its “hidden parameters” and methodological foundation, the attempts for rethinking its already traditional probabilistic interpretation is undertaken up to now.

Thus the scientific knowledge is enriched with the integrated probabilistic style of thinking, alternative, multivariativity, and flexibility. The introduction of the above parameters was caused with the development process of quantum theory at first. The intensive creation of mathematical tool of quantum mechanics followed the need of interpretation of formal mathematical notions.

The non-classical science formed such standards of the scientific knowledge argumentation which were based on incorporating a subject into the structures of social and cognitive activity, on impossibility of elimination of this activity from the main assumptions and summaries, on taking into account the means of observation of the study phenomena and objects, on operational determinability of theoretical concepts etc. They are particularly seen in the modern science in the area of understanding of complex and super-complex systems.

4. Axiological nature of argumentation in post-non-classical science

A number of concepts and approaches in the development of post-non-classical (present-day) science may be determined which allow to fix the formation means of ideals and standards of the scientific knowledge argumentation. They contribute the structure of the scientific cognition with the value reference points and humanities transcriptions thus enriching the science with the “time arrow”, concepts of historicism and uniqueness of the study systems. What are these concepts, investigation spheres, and approaches?

The mechanisms transforming the ideals of the modern scientific knowledge argumentation are incorporated most intensively into the science in the second part of the 20th century with the development of the noosphere concept, ideas of nonlinearity, “highly disbalanced” thermodynamics (school of I. Prigozhin) etc. Some of these concepts are discussed below in order to determine the humanistic and value orientations and borders of the modern science.

The presence of the “human-centered” arguments is clearly observed first of all in the noosphere concept of V. I. Vernadsky based on the ideal of integrity of a human being and the Space as well as on the integrity of the modern science which shows the deletion of edges among some its areas. The specialization is mostly seen in problems but not in individual sciences.

The modern science enriches the noosphere concept with new data of astrophysics and cosmology. It makes it possible to consider Vernadsky assumptions of formation of life and intellect on the Earth as the result of the matter self-organization in the Universe or the space process in which the human intellect becomes the main factor of its development predetermining the possibility of the noosphere epoch approach.

The assumptions that the self-organization is characteristic for the alive systems only dominated in the science for the long time loosed gradually their positions under the pressure of the collected data indicating the order creation from a chaos, of new structures and self-organization in inorganic systems under some conditions. Different variants of self-organization in a wide range of disbalance physical, chemical, biological, and social systems are discussed at present: in physics (hydrodynamics, lasers, nonlinear oscillations); in electrical engineering and electronics; in chemistry (reaction of Belousov and Zhabotinsky); in biology (morphogenesis, population dynamics, evolution of new species, immune system); in the theory of computers, in economics, ecology, and sociology.

The most important features of the self-organizing systems are their nonlinearity, stochasticity (suddenness), availability of many sub-systems, openness, irreversibility (originality).

Such an approach requires revising the existing ideals of the scientific knowledge argumentation. It is connected not only to the recognition of such ideas as probability, uncertainty, pluralism, multivariability, suddenness and so on in formulating the scientific theses and arguments used for it, but to changing the forms of relations among the ideas under proving and ideas used for grounding the truth and acceptability of the substantiated thesis. That is, the notion of logical adherence itself is changed. This connection form becomes more flexible, multiversion, “relevant”, excluding a strict monosemantic approach due to the origin of “possibility fan” of the system development in points of bifurcation when the system loses stability and becomes capable to develop toward the multiversion modes of functioning.

Deep reorientations of world outlook in means of description and argumentation of the scientific knowledge connected to the development of the doctrine of biological evolution in noosphere, disbalanced thermodynamics and synergetics assisted the revival of the principle of global and universal evolutionism which is used for describing the regularity of the evolution process in inorganic nature, living substance and society. The means of global evolutionism allow to make at present some integral and consistent picture of the world.

The conceptual approaches of interconnection and mutual conditionality of a human being and the Universe, the synthesis of elementary-particle physics, molecular biology and cosmology of a “young” Universe led to arising the “anthropic argumentation” and “anthropic arguments” thus showing the “parallel between the Universe and its logical structure.”

The renovation of modern science, its openness, the retreat from the concept of a strict determinism and an independent subject dominating over the world as well as fixation of irreversibility, possibility, “choice of freedom” and alternative in the argumentation process enrich and transform the understanding of sciences of a human being.

The modern science grades the difference between the natural and humanity sciences with a particular care, integrates them; a human being and a human society appears as a factor of this integrity. It brings together the natural and humanities knowledge and integrates them into a united science. The ideas based physically and mathematically on the natural science are incorporated in the social and humanity knowledge; due to this fact a human being and a society can't be considered using the terms of strict determinism, the integral development model, the rejection of choice, alternative,

chance, suddenness. The system of values “worked out” within the frames of philosophical and humanity knowledge becomes the concurrent scale and the reference point in the scientific search.

Such a mutual enrichment of sciences takes place through the translation of some methods, fundamental principles and conceptual means from one science into another thus resulting into the fundamental reconstruction of the science basement or into the scientific revolution. Such a change among the sciences allows improving the view on a certain science subject, developing its concepts, to form general scientific principles and conceptual means leading to integration of scientific knowledge.

The existing philosophical and methodological investigation take into account insufficiently the factors of social and cultural dynamics and global changes in the modern science, its interdisciplinary (transdisciplinary) character showing the intensification of community participation in making decisions in the area of scientific and technical politics and the necessity for explaining the content of scientific and technical projects out of the frames of the scientific community.

The denial of strict tools of the scientific knowledge substantiation, taking into account different parameters which influence the system, addressing to the concepts of casual and probabilistic processes are demonstrated at present by many medical sciences.

According to some researchers, the crisis of the Soviet clinical psychiatry is generally explained by the “predilection” for the linear principle stating that any illness (psychical) must include the integral reasons, manifestations, clinical course, clinical outcome, and anatomic changes (that is the same reason gives the same effect). The modern medicine shows that such a “strictness” in formulating the thesis (in diagnostics) has no basis since it is impossible to take part the fact that physical and spiritual characters of separate individuals as well as individual illness manifestations and clinical courses for individual patients are unique.

The denial of the single-linearity and strictness, addressing to the theory of random processes, dissipative structures will lead according to some scientists to the renovation of psychiatry since the illness concept will be probabilistic parameter and the illness origin in a number of cases unpredictable in principle. The opinion of the sane will be changed together with the society and depending on the model of medicine.

The ethical and axiological arguments “penetrate” other sciences too. Such a medical and biological science as thanatology which studies the reasons, manifestations and mechanisms of death poses a problem of “ethical argumentation” in the organ transplantation (how to avoid the ethical fault:

a donor must be “dead” prior the “alive organ” could be extracted); in life extending with apparatus (what arguments will be ethically significant in turning the apparatus off); in making conclusions on the problem of preserving the life of incurable patients (is it really ethical when the ideals of medical ethics require fighting for the life up to the “finish” while a patient prefers an “easy death”) and so on.

The incorporation of the “human-centered” guiding lines and axiological parameters, the “intensification” of reflection and strengthening the thesis of the responsibility of scientists for applying the scientific results which can be used both for the mankind benefit and harm. M. Born stated that the real science and ethics showed the changes which made it impossible to preserve the old style of serving the knowledge for the knowledge itself.

The modern science must take into account the human being place and role in this world, its aims and values, cognition tools in solving cognitive problems. That is the necessity appears for widening philosophical and methodological reflection with its obvious inclusion into the sphere of human component assigning the integrity and mutual conditionality of individual elements of the areas in study. The orientation to the perception of socially significant frames of the theoretical search, its enrichment with the cultural and ethical guide lines, overcoming the estrangement of the human world appearing at the stage of abstract theoretical conclusions are the main value criterions of such a reflection.

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PERIODS AND FORMS OF SOCIALIZATION OF SCIENTIFIC INNOVATIONS

In this paper we consider inside-scientific and as well as outside-scientific periods of socializing scientific innovations, we analyze its following forms: knowledge, information, opinion, belief (as trust), program, etc. Socialization of natural sciences is discussed.

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The modern-day practice of the organization of research works, the historical experience of the use of results of scientific knowledge show that creative ideas are not just included into a scientific practice and find practical application. The novel word in science should be not only written/declaimed, but also heard, understood and, at last, met with a social recognition. Many cases are known, when discoveries were ignored or even were denied as absurd ones. It happened also that the trues, recognized suddenly, lost an interest to themselves in due course. A process of social recognition of scientific innovations refers to *socialization*.

Up until now the majority of researches on problems of scientific creativity is concentrated on a one aspect of this process, namely on the production of scientific knowledge. But in conditions of the information society (i.e. in conditions of the following aspects: (1) the acceleration of paces of technological progress, (2) the popularization of the scientist attitude, (3) the raise of the role of managers and organizers of scientific investigations, (4) the intensive development of interdisciplinary communications, (5) the raise of the role of prognostics, (6) the complication of connections between science and production, between science and education, (7) the transformation of computer into the major instrument of work), another aspect (namely a consumption of scientific product) is very important too.

The problem connected to knowledge of forms and mechanisms of socializing scientific achievements and to removal of barriers, arising on this way, is obviously both theoretical, and practical. In this paper some aspects of the given problem are considered.

We can differentiate three ways, three periods of socializing truth: the truth “in itself”, the truth “for us”, and the truth “for everybody”. The statement that is *true* “*in itself*” fixes a state of affairs regardless of agent’s thinking, his perception, experience (regardless of any individual act of consciousness).

The *truth* “*for us*” (“for me”, “for people”) has a subjective aspect of its becoming and existence. The truth “in itself” cannot become true “for us” if the truth “in itself” is not reliable source from the standpoint of an (individual or group’s) agent, i.e. if it is not authentic for him. Thus, the truth “for us” is a truth “in itself” which becomes evident within the framework of agent’s conceptual system.

The *truth* “*for everybody*” is a final point of socialization. It is an obvious truth concerning the given subject domain. It is postulated within the framework of this area and it is necessarily accepted within the framework of a social community.

A necessary condition of transformation of the truth “in itself” into the truth “for us” and, further, into the truth “for everybody” refers the truth “in itself” to a ‘conceptual skeleton’ (K. Popper), that is to the available set of cognitive categories (preconditions of philosophical, scientific-and-theoretical, methodological and other features). The process of this transformation is connected to a special logical-and-communicative procedure, namely to an argumentation which problem is that the holder of ‘conceptual skeleton’ has apprehended, understood and, at last, recognized the truth “in itself”, made it his own.

In logic it is lawful to distinguish two basic kinds of argumentation such as the objective argumentation and the subjective argumentation. In the first case, the ultimate goal consists in accepting (by the addressee) the existence of some relations in the nature, society or thinking. In the second case, the argumentation contacts the substantiation of acts of human activity. Here the question, inherent in the objective argumentation “What is the reason?”, is replaced by the question “What is the aim?”. The subjective argumentation has the activity nature. It is realized thanks to categories such as ‘purpose’, ‘means’, ‘result’, ‘choice’, ‘motive’, ‘program’, ‘value’, ‘procedure’, etc. Socializing scientific innovations is connected first of all to the second kind of argumentation.

Aristotle was the first who paid attention to the specificity of consider-

ing events and processes of the activity nature. Setting forth the doctrine about four reasons, he wrote: “Again in the sense of end or ‘that for the sake of which’ a thing is done, e.g. health is the cause of walking about. (‘Why is he walking about?’ we say. ‘To be healthy’, and, having said that, we think we have assigned the cause.) The same is true also of all the intermediate steps which are brought about through the action of something else as means towards the end, e.g. reduction of flesh, purging, drugs, or surgical instruments are means towards health. All these things are ‘for the sake of’ the end, though they differ from one another in that some are activities, others instruments” [1]. In classical philosophy, the activity hand of reality has been most deeply developed in German transcendental philosophy (Kant, Fichte, Schelling, Hegel). In Marxism this hand has received a materialistic consideration.

The **activity principle** is a constituent of the initial methodological base for some social sciences. It was used in Marx’s theory of cost, in the F. Engels labor theory of anthropogenesis, it is also applied in modern psychology, pedagogics, ergonomics, etc. All the human history can be interpreted as activity of the person pursuing the corresponding purpose.

After the comprehension and expansion of nonclassical and post-nonclassical types of rationality¹, the activity principle is introduced into the methodology of natural sciences. In particular, requiring the precise fixing of features of supervising instruments, which interact with object, is put forward in quantum-relativistic physics as a necessary condition of the objectivity in description. Since the science as a whole, as the form of public consciousness, is a special sort of activity (receiving the novel socially significant knowledge is its major problem), the nature of science, its intrinsic characteristics cannot be revealed and disclosed outside of the explanatory schemas based on the activity principle.

In connection with a valuable feature of the question “What’s the aim?” (“What’s it for the sake of?”), it becomes explicit why the same fact receives the different interpretation (in dependence, for example, upon a historical context of activity). “Why does people study physics at school?” is a question requiring an application of the activity principle. It was more recently affirmed that the knowledge of physics is necessary first of all for the successful technocratic activity. But today there is another answer: the knowledge of physics encourages a self-realization and development of the personality of the pupil.

¹ *Editor*. Concerning the three types of rationality (classical, nonclassical, and post-non-classical), see the paper submitted by Y. Yaskevich for this issue.

In due course, Hegel has constructed the concept of activity within the framework where the central place was taken by the clearing up and rationalizing work of the absolute spirit. S. Kierkegaard paid attention to significance of the personal factor and, later, his ideas have found a continuation in Existentialism. A. Schopenhauer and F. Nietzsche have considered the will as the special basis of activity. At the end of the 19th century, the representatives of the Baden school of new-Kantianism have emphasized valuable components of culture, E. Cassirer has connected the essence of activity to the specificity of sign, symbolic structures. In Marxism, the activity is construed within the unity of its sensual-and-practical and theoretical forms, synthesized in the concept of practice.

The plurality of approaches to treatment of activity and its basis rendered essential influence on solving the problem, what results are worthy of acceptance by scientific community. Discussions on many problems between representatives of different scientific schools and directions were experienced with serious difficulties, and the truth “for us” in the one conceptual system was not necessarily accepted in other conceptual systems. L. M. Tomilchik and F. I. Fedorov pay an attention to a role of language factors in these conflicts: “Testing a novel idea in accordance with ‘experienceability’ actually consists in that, irrespective of the degree of its singularity and paradoxicality (‘a mad idea’!), its formal embodiment has appeared realized (at least, at the beginning) in terms of the traditional theoretical device for the given area of science. (...) At the same time, non-compliance of the aforementioned demand can result that the scientific community rejects or ignores during more or less long time not only fruitless, speculative, but also the substantial conception formulated, however, by the language, distinct from the standard one” [9].

The disorder of estimations of the same scientific results can be very wide, especially, if these estimations concern interests of people. For instance, the influence of ideological factors in social knowledge is well known. However, apparently, it should not be in the so-called exact sciences, but it happens even in mathematics. In due course, Th. Hobbes has noticed: “If the true statement *three corners of triangle are equal to two corners of square*, would contradict someone’s right to authority or interests of those who already has authority, then the doctrine of geometry would be if not disputed, then superseded by burning all books on geometry, as it would be in authority of people whose interests are affected by this true statement” [4].

The history knows many instances of dependence of acceptance of trues upon circumstances, external in relation to exact sciences. For example, the following fact bewilders science historians: Galilei has ignored Kepler’s

laws all time, has argued as if there are no new data on planetary orbits, though Galilei was in correspondence with Kepler and should know about his discovery. But this Kepler discovery that planets move around of the Sun on ellipses has conflicted to centuries-old tradition, has went against the submission which have implanted still in an antique science that the natural movement (respectively, the movement of planets) is the movement on circle. Valuing Galilei's standpoint, an American historian of science and art, E. Panofsky wrote: "There is an impression that he has bodily removed them [Kepler's laws – U. B.] from his thinking – something like automatic self-defense – as something incompatible with bases on that both his thinking and his imagination are based" [8].

The valuable actual material, regarding peripetias of perception, estimation, and recognition/acceptance of the discoveries, new ideas, theoretical and experimental achievements, is presented in the collective monograph 'Discovery and its perception', edited by S. R. Mikulinski and M. G. Jaroshevski (Moscow, 1971). Representatives of the most different spheres of scientific activity – mathematicians and physicians, biologists and chemists, psychologists and physiologists, engineers and medics – show a dependence of acceptance of scientific achievements upon the cognitive structures dominating in scientific communities. Thus influence of casual, psychological factors is not denied also. "If the scientific facts and theories in relation to the objective (independent both from the person, and from the society) content, fixed in them, are represented as reflection of the certain reality, then their perception is characterized by another parameter, namely, by how this content refracts through original features of life of scientific community in the given historical period, in the given social frame" [3] – it is a leitmotif of the mentioned book.

I. Kant was, apparently, the first who has designated the problem of recognition of the truth-validity of judgements and has proposed the corresponding classification. From his point of view, there exist three kinds of recognition of the truth-validity: opinion, belief, and knowledge. The *opinion*, according to Kant, is a recognition of the truth-validity on the cognitive basis which is not sufficient both subjectively and objectively. The *belief* is a recognition of the truth-validity on the basis which is also inadequate objectively, but is sufficient subjectively. The *knowledge* is a recognition of the truth-validity on the basis, sufficient both objectively, and subjectively.

Judgements of the famous German philosopher have not lost interest until today. However, they require the clarification and the further discussion. In particular, his classification is not complete. It does not mention cases which contact the term the *information* in the modern scientific lan-

guage, when the recognition of the truth-validity is performed on the basis, sufficient objectively, but not sufficient subjectively. Negative signs of sufficiency require a more detailed analysis, as they are expressed by means of the so-called negative infinite statements which are not giving descriptive characteristics of fixed subjects. At the same time, Kant's classification does not consider the allocated forms from the viewpoint of *public practice*. The subjectivity as the sign, basing the given classification, is considered in the individual-personal plan, and therefore the cornerstone question "What is it for the sake of?", defining the vector of socializing the developing knowledge, is absent in Kant's works. Consider some aspects of mentioned questions.

In logic, the statement (the set of statements) *A* is considered sufficient for accepting *B*, and *B* is considered reasonable if and only if the truth-validity of *A* guarantees the truth-validity of *B*, or, otherwise, the truth-validity of *B* follows from the truth-validity of *A*. For the spheres of knowledge, connected to experience, this definition is too rigoristic, as in these spheres many statements *A* have a statistical or probabilistic character and the relation of logical inference is understood more widely, including both logical (deductive) and probabilistic (reductive) inferences.

In experimental sciences the truth "in itself" is considered reasonable objectively if it is included in the system of the before-obtained statements and it is inferred from them with the high degree of probability. Such a truth by degrees becomes the *knowledge*. To begin the knowledge in a literal sense, it should pass the test on "durability" during checking. The history of science knows many cases, when the truth "for me" or "for people" did not bear this test. But since it has been subjectively justified, it has acted in a role of quasi-knowledge.

For example, the unforeseen conduct of water which has not followed the piston from the deep well, was regarded by Galilei from the viewpoint of Aristotle's physics, according to the statement that "the nature is afraid of emptiness". It was not essential that he has a little changed it, having assumed that "the nature is afraid of emptiness" not boundlessly, but only on 18 Florentine foots. Using the own authority, he has attempted to affirm the conclusion as socially significant knowledge, but it has appeared only true "for him". D. I. Mendeleev has proposed to consider a radio-activity as spreading "radio atoms". And I. P. Pavlov has addressed even to categories, with which struggled all conscious life, in order to substantiate "involuntary movements" of animals.

The truth "for me", having subjectively good reasons, is called *belief*. The subjective inadequacy may be classified into two kinds: i) partly groundless, ii) completely groundless. Actually the socially significant knowledge is

a certain ideal which is satisfied, perhaps, only by representatives of logic and mathematics. In the majority of cases the subjective recognition/acceptance stays at an “intermediate station” between complete well-foundedness and complete groundlessness. In such cases one speaks about an *assumption* of the truth-validity of some statements. An assumption is the major instrument of theoretical thinking. Without assumptions it is difficult to imagine proofs of theorems in mathematics, creations of idealized construction of the scientific theory.

If the statement is justified enough objectively, but not justified in any way subjectively, then it is an *information*. Operating the information, but not knowledge is a usual practice in the diversified spheres of human activity. F. Engels wrote: “The majority of people differentiate and integrate not because they understand what they do, but because they believe in it, as the result was always obtained correct till now” [7]. As we see, the acceptance of the information is founded on trust without logical reasons.

Being transformed into knowledge, the information is subjectivized, that is it is accepting by the individual consciousness and later by the public agent. In this process the main role belongs to his system of values, ideas, concepts. The knowledge is a product reflecting a real state of affairs in human interpretation.

The information, differently from the knowledge, is not connected to the agent, it is equally accessible to everybody, though possibilities to transform it into knowledge are different. Any text contains the information, to transform it into the knowledge means to understand this text. Considering the question on a ratio of the knowledge and the information in psychological plan, V. P. Zinchenko writes: “The knowledge is always someone’s, belonging to someone, it is impossible to buy it, to steal it (unless together with a head), and the information is a neutral territory, it is impersonal, it is possible to exchange or steal it” [10].

Quite often one bases the trust in the information on authorities. A source of the existence of authorities is a limitation of possibilities of the researcher rationally to consider and to value all variety of subject display; in this connection he appears before necessity to trust authorities, i.e. those who has already obtained the reasonable and recognized results in their investigations. The science cannot develop without trusting such results. The chemist does not repeat Avogadro or Faraday’s experiences; the ship builder trusts the Archimedes law and the Pythagoras theorem.

Kant has called the knowledge, belonging to authorities, the historical belief. He has affirmed that it is impossible to distinguish this belief from knowledge. “The so-called historical belief (...) it is not necessary to distin-

guish from the knowledge, because it (as the kind of theoretical or logical recognition of the truth-validity) itself can be knowledge. We can accept an empirical truth due to others with the same certainty as though we have achieved it by the facts of own experiences" [6].

However, speaking about a significance of authorities in science, it is necessary to mean that the homage for them should not be blind, superstitious. "Do not create to itself a substitute", as the Biblical maxima prevents. It is necessary to take into account that the authority holds only in a rather narrow, specialized sphere, and the carry of its influence to other spheres, its use in other conditions and under other circumstances sharply reduces the probability of truth-validity of result. The truth loses the property of concreteness. Therefore quite often the reference to authority is not considered as sufficient argument and it is used only as the auxiliary possibility for belief. The objectivity of consideration requires evidences in essence. The blind belief in authority as considering something true without using facts and logic is opposite to science.

The blind belief, or *belief* in the religious interpretation, has only subjective basis. It refers to objects which it is impossible to know or calculate their probabilities. The subject of belief assumes a recognition that is not defined objectively, independently upon truth-validity. It is the act of the 'direct consideration of true', not requiring a discursive (especially logical) substantiation. In A. A. Bogdanov's opinion, the belief "is the relation of a person to a recognized authority, the trust to him or the consent with him and as well as an attitude founded on *subordination*, on elimination of own idea and criticism, on the refusal from research, on suppression of all possible doubts, on the act of will directed to cognitive passivity" [2].

Objects of empirical, theoretical or practical (moral, legal) knowledge cannot be subjects of belief. It has no persuasiveness which could be transmitted to other and would require a consensus as the persuasiveness given by knowledge. Only for the believer the belief has the importance, and only for him, not being knowledge, it takes up a place of knowledge and even it happens firmer than any knowledge. It stabilizes the human behavior, abolishes an ambiguity of choosing life-strategy. Argumentum ad belief is convincing and weighty, as a rule, only for them who shares this belief or is seduced to its adoption.

The science development is incompatible with belief. Where the science begins, the belief expires.

The science generally begins with *opinion*. Kant has defined an opinion as statement which truth-validity is realized on the insufficient basis from the standpoint of the not only objective, but also subjective hand. This

definition seems to be correct. Before something is accepted and it is affirmed, it is necessary to have an opinion. Thus Kant precisely notices that the opinion is a prerogative of empirical sphere of knowledge. "Where does the simple opinion take place actually?". Kant answers: "Not in sciences containing the a priori knowledge, hence neither in mathematics, nor in metaphysics, in moral, but the opinion takes place in empirical knowledge, i.e. in physics, in psychology and so forth. In fact it is ridiculous to have an *a priori opinion*. Really, it would be very strange, for example, in mathematics to have just opinion. Here, as well as in metaphysics, and in moral, it is possible only either to know, or not to know" [6].

The opinion arises on the basis of probabilistic inferences about a state of affairs, but in conditions of shortage of a unequivocal and consecutive sight at these inferences. By virtue of the unreliability, the opinion is denied as a reason in scientific argumentation.

The opinion differs from the *hypothesis* as statement sufficiently justified from the subjective standpoint, but having probabilistic character from the objective standpoint. The hypothesis, as opposed to opinion, has even an objective basis and consequently comes nearer to certainty.

The socialization is a traditionally underestimated process in the theory of science (Wissenschaftslehre). Long time it was entirely based on a postulation of patterns of science development which sometimes are called Markov's: it was supposed that the state of science at present time is determined by probabilities of its possible transitions in new states, and the incompleteness of knowledge is a significant factor of its further development. Similar patterns have played an appreciable role in a science-theoretic consideration of science development.

However, today the limitation of Markov's patterns is obvious. In particular, the purposes of scientific research are not described completely within the framework of the science: they include external 'social order' for the knowledge, expressing comprehension of practical requirement for science solutions. The science itself does not provide social progress. It can prompt the scientist what he can investigate, but it is not capable to indicate him what he should investigate, what is actual at present time. Therefore, to organize the activity as significant socially, the researcher should be beyond the scientific tasks and comprehend a social background within of framework of which this activity is performed. It requires the high common culture.

Taking into account the factor of socialization, it is possible to establish that the scientific research, its purposes and setting problems are thoroughly determined already on the pioneering stage. Not any problem setting that is

possible within the framework of scientific community is scientific actually. The scientific character of problem setting means:

- the absence of a comprehensive (complete and true) solution in present-day knowledge files;
- its coherentness, i.e. the logical compatibility with earlier extracted knowledge;
- the connection with public needs for the solution of the given problem.

The selection of results of knowledge according to public needs means the affirmation of truth “for everybody” and, in the end, means the completion of socializing innovations. The innovations constitute a basis of priority directions of science development. During the further movement, they obtain forms of diverse general *programmes*, determine the character of scheduling, designing, adoption of administrative decisions in science.

However, the connections of researches with public needs should not be expounded too rectilinearly and unequivocally. In fundamental sciences these connections quite often have an indirect character. Developing according to the internal logic, fundamental sciences advance demands of practice and consequently they are not always valued adequately in society. The history knows many cases when many valuable scientific achievements were denied by worldwide recognized scientists. The main reason of such a rejection is that these achievements do not correspond to dominant standards and ideals of scientific knowledge. So, it concerns, for example, Lobachevsky’s geometry. Academician M. S. Ostrogradsky published the negative review for N. I. Lobachevsky’s work in that he scoffed at his ideas.

In the beginning, A. L. Chizhevsky’s researches were considered as unscientific results, but later he became the founder of heliobiology, the science about effect of cosmic processes, first of all, of solar activity on the mass phenomena and processes which proceed in the terrestrial biosphere, human body, and society. Chizhevsky’s ideas are similar to astrology (the most popular and honored parasience in present day), but at that time these associations appeared one of the main reasons of denying these ideas by scientific elite.

The plurality of similar examples allows us to consider mechanisms of rise and existence of fruitful, but ‘heretical’ ideas in science as subject of the special methodological analysis. Their set is called deviant science. Its representatives, as a rule, are people with good education and sharp intuition, but for whatever reasons selecting subjects for research which are outside of dominant approaches and standard methods.

Certainly, not all new ideas, which are not recognized in scientific community, appear valuable and fruitful. Among them there is a lot of ridiculous.

But their selection occurs not at once. First, as a rule, they exist by the way as potentially actual statements and consequently require time for the check and introduction. Therefore the main methodological (and ethical) demand in relation to deviant innovations consists in an indulgence of scientific and social communities. “If someone goes not in march, then this means that he hears sounds of another march”, in these words of the American writer and philosopher Henry D. Toro we see an admonition from actions, because of which there is a danger to splash out the child together with water.

Thus, it is necessary to survey two basic stages of socializing scientific innovations: firstly, the stage of their latent, ‘intra-uterine’ development, when their recognition/acceptance and popularity is not beyond corresponding scientific communities; secondly, the stage of the social recognition opening possibilities of their practical applications. The process of socialization has diverse forms. The key ones among them are knowledge, information, opinion, belief (as trust), program. The concepts of objective and subjective propriety are efficient instruments of their ordering.

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Mary Dziśko & Andrew Schumann

REFLECTION IN SCIENTIFIC ACTIVITY AND HIERARCHICAL MODEL OF ARGUMENTATION

In this paper we consider an interaction between the reflection in the scientific activity and the scientific habitus. We claim that the ultimate goal of scientific activity consists in the desire to affect the scientific behavior of other scientists. As a rule, this means that scientific results are recognized more or less fundamental and depending on the fact that they determine scientific interests of the whole community of scientists. Accordingly, the scientific activity, which has entailed a serious discovery or invention, becomes a standard for the research behavior of the majority of members of scientific community. As a result, the given discovery or invention becomes the important part of scientific habitus (the embodied, interiorized social structure in scientific activity). The reflection in the scientific activity is a human ability that allows us to oppose the scientific habitus and not to subordinate the logical level of scientific argumentation to the dialectical level and the latter to the rhetorical level of scientific argumentation.

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1. Reflection in Science Activity and Its Role in Scientific Argumentation

The *reflection* is a human ability to go up over the standpoint of actor and go over to a new standpoint that is out both of the past (actions already executed) and of the future (actions only planned in the present). Such a standpoint to observe own or another's behavior helps to produce the reflective basis of own acts to improve the success of own activity. Therefore our ability to transmit the reflective basis for self-determination and the future activity to other people depends first of all on the complexity of our reflective system. Only due to transmission of the reflective basis the cooperation of individual acts is possible.

Observing own and another's behavior allows us to have two kinds of activity instead of one: the *reflected activity* (activity as a whole) and the *reflecting activity* (reflection). The first kind is an action which may be observed, the second is an action of reflection which, evidently, can not be observed. The two given kinds of activity are not equal in rights, they are at different levels of hierarchy.

Let us consider more precisely how the reflection participates in the cooperation of acts of individual activity. Assume that there are two individual acts. At the same time, the actor *A*, making the first action, and the actor *B*, making the second action, aspire to understand adequately the sense of behavior of each other.

For this purpose, they should change the standpoint of the actor mentally: the actor *A* should go over to the point of view of the actor *B*, and the actor *B* to the point of view of the actor *A*. If both actors will have a common reflective basis, there will be the cooperative activity consisting of two elementary acts, i.e. of activity of the actor *A* and activity of the actor *B*. Note that the common reflective basis is possible just in the case there is a union of the reflected standpoint of *A* and the reflecting standpoint of *B*, on the one hand, and a union of the reflected standpoint of *B* and the reflecting standpoint of *A*, on the other hand. In other words, if the actors *A* and *B* have a *parity of the reflective relation to each other*.

To explain what this means, consider the following additive model. Let *L* and *M* be the variables; using them we will denote complex actions of two actors *A*, *B*, respectively. We assume that *L* and *M* have their values on the interval $[0, 1]$, where 0 means the full refusal to fulfil an action, and 1 the final decision to make an action. Introduce the parameters a_1, b_1, a_2, b_2 , defined on the set of integers. The parameter a_1 characterizes the relation *A* to itself, the parameter b_1 his relation to *B*. In turn, the parameter a_2 characterizes the relation *B* to himself, the parameter b_2 his relation to *A*. As a result, the reflection of *A* can be defined as the expression $L + L \cdot a_1 + M \cdot b_1$, and the reflection of *B* as $M + M \cdot a_2 + L \cdot b_2$. The parity of the reflective relation to each other is explicated by the following equality:

$$L + L \cdot a_1 + M \cdot b_1 = M + M \cdot a_2 + L \cdot b_2.$$

The parity of the reflective relation of the actors *A* and *B* arises at two levels:

- at the level of their common pragmatological orientation (common motives, interests, aims, etc.),
- at the level of the common belief, similar cognitive standpoints.

At the first level, actors are cooperated unconsciously, without using some logical-and-cognitive procedures, therefore the common reflective standpoint, though it is developed by them, is not realized. It cannot be accurately formulated and logically inferred. At the given level, the actors *A* and *B* feel that they accept the performance of similar actions, therefore they aspire to carry out them in common. At the second level, actors are cooperated already on the basis of argumentation mechanisms in such a manner that the common reflective standpoint becomes to be quite realized and can be always verbally proved. At this level, actors agree to have a common action.

In practice, it is difficult to differentiate two kinds of parity of the reflective relation, but we can differentiate two levels of that: the level of the common belief is higher, than the level of the common pragmatism orientation. At the level of the common pragmatism orientation, the cooperation of actions is based on the *reflected standpoint*, whereas at the level of the common belief such a cooperation is based on the *reflecting standpoint*. Also, one can say, therefore, that the common belief allows us to create more difficult forms of cooperative activity. The cooperation on the basis of the common pragmatics refers to *communicative relations* and the cooperation on the basis of the common belief refers to *social relations*. In the society both kinds of relations are indissolubly bound. The main feature of social relations is that they assumes an agreement. Therefore the cooperation of people on the basis of social relations always has the form of a social institution, and the cooperation of people on the basis of communicative relations is fixed as a free association, i.e. association of people by means of common interests.

In Zinoviev's opinion¹, the ideal of communistic society consists in a dominant of communicative relations over social ones (see [11]). Social relations are built on agreements and are based on a social inequality. On the other hand, communicative relations are based on dialogs and reflect needs of human nature in the better way.

So, the activity is organized in a structure which is hierarchical and thanks to reflection mechanism has cooperative forms.

The cooperative activity of scientists is also performed on the basis of the parity of the reflective relation to each other, and this parity has the two levels of interaction too: the communicative relation and the social one. On the basis of communicative relations there are built scientific schools, initiative groups, informal communications (conversations) between

¹ Prof. Alexander Zinoviev is a well-known Russian logician and sociologist.

employees, etc., on the basis of social relations we have research laboratories, institutes, departments, etc. At the same time, there is no precise line of demarcation between cooperative forms of activity of scientists and cooperative forms of activity of other people (e.g., cooperative forms of activity of the same scientists, but already as agents of daily occurrence). Therefore, on the one hand, communicative relations in sciences may pursue absolutely unscientific purposes. On the other hand, social institutes of scientific community are not differed radically from the social institutes of other professional communities by principles of organization.

The main feature of science is a declaration that in science there is a special reflective basis for cooperative action (communicative and as well as social), namely scientific argumentation. The argumentation, corresponding to all norms of critical discussion, is regarded to be a unique reason for the decision to cooperate individual acts of scientists. For example, I accept scientific ideas, accordingly I belong to an appropriate scientific school, only on the basis of logical persuasiveness of those ideas. Unconditionally, the given request is executed not always, and if it is defaulted, it is possible to say that there is an infringement of the line of demarcation between cooperative forms of scientific activity and cooperative forms of unscientific activity.

The scientific argumentation is a mechanism of reflection for scientists. It can pursue the different purposes, including unscientific, but is the main basis of cooperation in scientific community.

Usually, unscientific motives of cooperative activity of scientists are expressed in using *argumentum ad hominem* and other fallacies of argumentation. As an example of *ad hominem* argument in scientific discussion we can examine the following episode of the Session of the All-Union Lenin Academy of Agricultural Sciences (its Russian abbreviation is VASKhNIL) in 1948, when genetics was finally branded with shame as a “bourgeois” direction in biology [3].

“T. D. Lysenko². (...) *When true sons of Soviet people were victoriously finishing the struggle for honor, independence, and freedom of our Native*

² Trofim Denisovich Lysenko (1898–1976) rejected Mendelian genetics in favor of the hybridization theory of the Russian horticulturist Ivan Vladimirovich Michurin. Since 1940 he became director of the Institute of Genetics within the USSR’s Academy of Sciences. Lysenko’s works were considered canonical until 1960’s, when the most prominent Soviet physicists proclaimed his works as false science. For example, in 1964, the well-known physicist Andrei Sakharov said about Lysenko at the General Assembly of the Academy of Sciences as follows: “He is responsible for the shameful backwardness of Soviet biology and of genetics in particular, for the dissemination of pseudo-scientific views, for adventurism, for the degradation of learning, and for the defamation, firing, arrest, even death, of many genuine scientists”.

Land, there were researchers who have started to study an influence of war on flies!

Voice from place. *Fly-breeder!*" [9].

Let us remember that Walton (see [110]) differentiates the following kinds of *ad hominem* arguments:

1. the doubt in opponent's honesty;
2. the doubt in his ability to correct judgement (the doubt in his common sense);
3. the demonstration of opponent's ignorance of reality;
4. the doubt in his cognitive abilities (the demonstration of his illogicality, inconsistency);
5. the doubt in his morality.

All these arguments have been used by Lysenko's supporters at the Session VASKhNIL in order to discredit ideas of geneticists. Such forms of arguments in scientific argumentations set the cooperative forms of quasi-scientific activity.

Although geneticists tried to transfer the dispute of the Session to a framework of critical discussion, that attempt failed:

"P. P. Zhukovsky. *Concepts such as vitamins, hormones, viruses are never used by our opponents. I could advise not you, Trofim Denisovich [Lysenko], you are held in a good respect, but your followers to study, because the learning is light and the non-learning is darkness*³. (Laughter, applause.)

T. D. Lysenko. *And do you refer it to yourself?*

P. P. Zhukovsky. *I study all the time.*

T. D. Lysenko. *You study poorly!*" [9].

Prof. I. A. Rapoport, working at the Institute of Cytology, Histology and Embryology of the Academy of Sciences of the USSR, also tried to soften the attacks of academician Lysenko, but his attempts were ineffectual too, as well as Zhukovsky's attempts:

"I. A. Rapoport. *The necessity itself of mechanisms which would fix the achieved changes, independently of what caused them, requires a very exact research experiment. The genetics feasibly tries to solve this task, conducting experiments and calculating materials that are received in experiment under the corresponding control. It is natural that various hypotheses which are born in the head of experimenter and theories that we have in the wide field of science, contain often contradictions. The true is born in the struggle.*

³ It is an aphorism of Saint John of Damascus (St. Johannes Damascenus), the Doctor of the Orthodox Church. This aphorism is a well-known proverb in Russia.

So, the modern theory of light is a fruit of struggle of two theories – the wave theory and the corpuscular theory. This struggle developed in the way that both beliefs won at the different time, therefore any suppression of opportunities and any application of too rigid attitude to the theory would harm science. We, in the Soviet theory, are far from suppressing any point of view being fruitful’ [9].

The Session VASKhNIL sets a historical example of the scientific dispute containing the obvious violation of regulations and norms of the free critical discussion. But it was not a single instance in the history of the Soviet science, there were also other examples, one of them was Pavlov’s Session of 1950 (see [6]) on which many Pavlov’s followers were completely discredited. Notice that all scientific sessions of that period were finishing by drawing up the text of the salutatory letter to comrade I. V. Stalin. Also, as ideological components are not fixed in the structure of social institutes of science, they can influence the development of scientific ideas by means of communicative relations, taking roots in the system of informal communications of scientists and in the scientific public discussions.

2. Three Levels of Scientific Argumentation

By definition, *argumentation* is a procedure that is directed to the substantiation of an appropriate point of view in order to increase its acceptability for an individual or collective recipient which takes the role of rational referee. From the given definition it follows the double character of argumentation, namely presence of two aspects (logical and communicative). Indeed, on the one hand, argumentation is a *logical procedure* which essence consists in the use of substantiation forms (e.g. deduction), but on the other hand, it represents the *communicative process* providing, in the case of scientific argumentation, the perception, understanding, and acceptance of the novel idea, concept or theory.

This double character of argumentation comes to light if we differ three levels of the free critical discussion: logical, dialectical (dialogical), and rhetorical (communicative).

1. At the *logical level*, argumentation is considered as a product and is evaluated by means of using logical and semantic rules. At the given level of the analysis, the substantiation forms, which took place, are investigated and corresponding schema of argumentation are reconstructed. The criterion of success of argumentation is here the degree of observance of all logical norms of substantiation and proof.

2. At the *dialectical level*, we estimate argumentation as a communicative process. One of the problems of this analysis consists in defining necessary and sufficient conditions of communication (an example of one of such conditions is the request of absence of external factors to prevent from expressing the reasonable points of view).
3. At the *rhetorical level* of the analysis, argumentation is considered as a social activity which is directed to other people and evaluated within the framework of the ultimate goal to consent to do something cooperatively inside a communicative community. In scientific community such a goal is the consensus concerning the acceptance knowledge-claims.

Each style of theoretical thinking has the distinctive features. For example, *classical style* was characterized by the following. First of all, the classical thinking positioned itself as resisting to ideas of authoritativeness what in many respects has been connected to aspiration to overcome the conservatism of scholastic type of thinking. The given feature focused scientists on the program of innovation in tasks of natural sciences.

Secondly, and it should be emphasized especially, a theoretical fundamentalism was characteristic for the classical style, i.e. belief that any original knowledge can and should find the math-logical foundations in due course (attempt to mathematize scientific knowledge as a whole). This ideal of scientific truth has been stated, for example, by G. W. Leibniz: "It happens nothing without the sufficient basis." We can also recall there Galilei's well-known sentence: "The Book of the nature is written in the language of mathematics."

Thirdly, the classical style contains the idea of permanent progress of society. In relation to science, this idea was expressed in the reliance in the scientific knowledge capability to develop indefinitely (the idea of cumulative accumulation of scientific knowledge).

Fourthly, using the given style one reduces the foundation problem to the problem of the truth-verification. The given tendency asserted that true is the highest and a unique value in science. The reduction of logical validity to truth-values has been connected to the occurrence of a new treatment in the definition of logical deduction or proof. So, during becoming classical style of thinking the concept of deduction is already defined in terms of truth-values: from the set of premisses Γ, \dots, Δ we infer the proposition Z if and only if the proposition Z is true for any interpretation, whenever all propositions from Γ, \dots, Δ are true for the same interpretations. In this case we have the so-called semantic definition of the concept of logical deduction. On the other hand, ancient and medieval logic used the formal understanding of logical deduction: from the set of premisses Γ, \dots, Δ we infer the

proposition Z if and only if the negation of Z is inconsistent with the set of premisses Γ, \dots, Δ . In this case the correctness of reasoning depends only on its deduction form and does not depend on something other, including the truth-validity of premisses. The semantic definition of the deductive relation between a proposition and its premisses resulted in the understanding that substantiation is a procedure mainly dependent upon truth-validity.

In the semantic definition of logical deduction one emphasizes two sides of deduction simultaneously: logical and semantic. On the one hand, the deduction is a mechanical procedure of inferring on the basis of step-by-step process of using logical inference rules and axioms or postulates of theory. On the other hand, the deduction reflects a stable dependence between the truth-validity of premisses and the truth-validity of the deduced proposition. So, if the premisses Γ, \dots, Δ are true in the model \mathfrak{M} , then the deduced proposition Z is also true in \mathfrak{M} . The given parallelism of the logical and semantic sides of the deduction has allowed the logical level to dominate over two other levels (dialectical and rhetorical). Such an elimination of non-logical means from the scientific substantiation and its reduction to one of the logical forms of proof caused that the criterion of dialectical (communicative) substantiation began to rely within the framework of logical deduction.

The classical style of theoretical thinking was built on *Leibniz's ideal of the scientific substantiation* that all non-logical means should be removed from processes of substantiation and argumentation should be reduced to one of the logical forms of substantiation. The given ideal of substantiation was based to the classical (correspondent) theory of truth which started since Aristotle and which completely corresponds to the basic purpose of scientific knowledge – the expansion of knowledge about objects and the construction of statements with positive truth-values.

In the classical theory of truth, the truth-valuation corresponds to a correlation of knowledge with the cognizable reality. A proposition Z is considered true if its content consists of descriptions of factual state of affairs, otherwise the statement is considered false. The similar theory of truth is based on the following three postulates: first, there exists an objective reality outside human cognitive activity, secondly, a true knowledge of this reality is possible, thirdly, the basic and unique characteristic of knowledge is its truth-value.

The acceptance of this conception of truth and Leibniz's ideal of substantiation caused an opinion developed in scientific community that during the scientific argumentation, i.e. during the substantiation of new knowledge-claims, the application of any form of substantiation (proof, dis-

proof, confirmation, explanation, interpretation) should proceed with the use of descriptive statements as thesis and arguments. Recall that the descriptive statement is a statement which main function is the description of reality. If the description given by the descriptive statement corresponds to a real state of affairs, then this statement is considered true; if it does not correspond, then false. Examples of descriptive statements: “*Plutonium is a chemical element*”, “*the Earth rotates around of the Sun*”, etc. The content of similar statements is always comparable to reality, their truth-value can be always proved.

During the scientific argumentation we can use the descriptive statements with the proved truth-values and as well as the hypothetical descriptive statements. If the truth-value of the first is interpreted as either unit or zero, then the truth-value of the second will be distributed in the open interval of real numbers between zero and unit.

1. The first class of arguments, namely the true descriptive statements, consists of: firstly, the scientific facts and, secondly, the theoretical statements proved earlier. By means of the scientific facts the authentic knowledge of concrete events is fixed. For example, the scientific facts are expressed in the following statements: “*Water turns to steam at 100°C*”, “*Madrid is a capital of Spain*”, etc. The scientific facts have a huge significance for the scientific argumentation, as both the empirical disproof, and the empirical confirmation are constructed on their basis. Moreover, the scientific fact as a special form of argument is an entirely convincing basis which is not causing doubts and does not require an additional substantiation. Scientific laws, axioms, theorems, fundamental concepts and principles concern to the theoretical statements proved earlier.
2. The second group of arguments consists of the hypothetical descriptive statements. They can be both empirical, and theoretical.

The structure of a descriptive statement consists of the four parts: (1) an agent (a single person or a group of scientists), giving a description; (2) a subject (a described state of affairs); (3) a basis (a point of view according to which the description is given); (4) a feature (a truth-value of descriptive argument in the interval either true or false). The given structural elements are not always obviously expressed in a descriptive argument. So, the expression “*it is true that...*” usually is not used, but it is meant in arguments. Instead of the statement “*it is false that...*” one usually uses the simple grammatical form of the negative proposition.

From the viewpoint of the classical style of theoretical thinking it is necessary that the basis of descriptive arguments is one and the same – the

description of reality is always made from the same point of view. It means that standpoints of scientists in relation to descriptive knowledge should be identic, though, as it is known, it is not always so in fact. In the same measure it is necessary that there is no difference who the description would belong to (e.g. to the English physicists or to the German), it remains the same under any conditions. Thus, there is an identification, firstly, of the basis of description and, secondly, of agents of descriptive arguments. This entails the idea of total *intersubjectivity of scientific argumentation*, i.e. the idea of its independence of motives and intentions which are used in an appropriate scientific community. As a result, the idea of intersubjectivity of scientific argumentation (received development in the classical ideal of substantiation and according to which argumentation does not depend on the context of its application and on the audience) finally reduced the scientific argumentation to logical forms of substantiation.

Whether a pure descriptive statement is possible, in other words, a factual proposition, free from human values and referring to the idea of inter-subjectivity of scientific arguments? According to the development of modern logic and the modern communication theory, there exist no such statements in the conditions of real communications. So, the famous German logician R. Carnap after L. Wittgenstein asserts that any descriptive statement in speech practice actually looks like a propositional attitude (“an opinion statement”), namely it has the following logical-grammatical form: “*an individuum N + a performative verb + that + a descriptive statement*”. The propositional attitude may be exemplified as follows: “*I think that it is so*”, “*he believes that it is the good weather today*”, “*she supposes that it will rain tomorrow*”, etc. Hence, any descriptive knowledge in real communications comprises pragmatological elements (estimations, evaluations), which twist the logical meaning of a descriptive statement.

As an example of a curvature of logical structure in the descriptive knowledge by means of pragmatological elements, we can consider a possibility of construction of logical deduction, using propositional attitudes. So, from two statements “*I think that A*” and “*if A, then B*” we cannot infer in the general case that “*I think that B*”, though under laws of logic from two statements “*A*” and “*if A, then B*” it follows that *B*. At the same time, if instead of ‘think’ we consider the verb ‘hope’, which has a more pronounced pragmatological component, then the infringement of the logical relation between premises and the conclusion will be even more obvious. Thus, the degree of pragmatologicality in a propositional attitude corresponds to the degree of curvature of the logical meaning of an appropriate descriptive statement.

The pragmatical elements, used in the propositional attitude of descriptive statements, are *cognitive values*, which are embodied in the structure of logical substantiation. Consider an appropriate example. Assume that on a non-polluted territory one plans to construct and develop a large production. The firm-customer carries out an ecological examination through intermediaries and, according to its data, the construction of factory on the given place will not cause an appreciable harm to the environment. An independent ecological organization also carries out an ecological examination, but according to its data the production on this place will be accompanied by an appreciable deterioration of ecological conditions. Both examinations are carried out by scientists-ecologists duly and in accordance with the scientific norms of ecological monitoring, however results appear opposite. The explanation here can be only one that descriptive statements of ecologists-experts were not free from values initially.

The human values in descriptive statements transform the logical substantiation into a communicative procedure which already assumes opposite opinions and also takes into account behavioral aspect of these opinions, when descriptive statements affect, for example, performance of any acts (in case of ecological examination it is the positive or negative decision concerning the construction of large production). As a result, the descriptive statement is considered as the speech act, the judgement containing pragmatical elements and directed to the influence upon a behavior of other people.

Thus, the descriptive statement is not homogeneous and contents also some other levels besides of the level of logical dimension. The founders of the speech act theory, J. Austin and J. Searle [7], [8] numbered the following three levels in the descriptive statement: locutionary, illocutionary, and perlocutionary. According to them, the *locution* is a propositional content of the descriptive statement. The *illocution* includes the pragmatical evaluations of the given propositional content, formed on the basis of cognitive values, and this expressed by means of the use of corresponding performative verbs. The *perlocution* consists of non-verbal intentions, i.e. of latent behavioral purposes, which twist the logical meaning of the descriptive statement.

As we see, the modern treatment of the descriptive statement refers to Aristotle and Ch. Perelman's concept of 'topos' [5], as this statement is perceived as containing human values too.

According to the three levels of descriptive statements, it is possible to emphasize also three levels of descriptive (scientific) argumentation: logical, dialectical, and rhetorical. On the basis of the aforesaid the given levels

should be represented as various parts of a uniform structure of the scientific substantiation.

1. At the *logical level*, the scientific arguments are considered entirely as a semiotics product; exclusively, its logical and semantic component is there evaluated. At this level of analysis, the used forms of substantiation are investigated and argumentative schema are reconstructed (as those we apply here logical deductions and as well as deductions in which stable semantic relations (dependencies) are taken into account). Here argumentation has the following form: “*if there are arguments Γ, \dots, Δ implying Z , then the thesis Z is true*”; we assume that from expressions Γ, \dots, Δ the expression Z follows either under rules of formal logic or by virtue of a stable semantic relation between one of expressions Γ, \dots, Δ and the expression Z . For example, the statement “ A is a father of B ” implies the statement “ B is a child of A ” only due to the semantic dependence (relation) existing between these expressions, therefore the argument “ A is a father of B ” nevertheless confirms the thesis “ B is a child of A ”.

The criterion of success of argumentation within the framework of the logical analysis is an observance of all logical norms of substantiation – argumentation should correspond to all laws of logic and truly reflect stable semantic relations between predicates realized in the actual world or in any other possible world in the case its range of values is fixed concerning the actual world.

2. At the *dialectical level*, the scientific argumentation is evaluated as a communicative process which can have an alternative outcome, because the procedure of substantiation necessarily assumes one or some opponents at this level. One of problems of the dialectical analysis is to bring the necessary and sufficient conditions of authentic communications to light. As a rule, the scientific community controls the dialectical level of argumentation by normative documents (according to those, for example, the format and the rules of scientific conferences are defined in advance). At this level, argumentation has the form: “*if there are arguments Γ, \dots, Δ implying Z and opponents have no objections, then the thesis Z is true.*” At the dialectical level, the dialogue and conversation of scientists are as much as possible formalized by the system of the complex mutual obligations started by the normative base of the corresponding scientific institution.
3. At the *rhetorical level* of analysis, the scientific argumentation is regarded as a social activity, whose interactive vector consists in obtaining valid scientific results (those, depending on the degree of their validity,

can affect scientific behavior of the majority of members of the given scientific community). The argumentation as activity is evaluated in the plan of its ultimate goal, i.e. within the framework of the consensus inside a communicative community concerning the claimed scientific principles, i.e. concerning the acceptance of these principles of scientific research by many scientists. In the scientific community such a purpose is, first of all, the final consensus concerning the acceptance of knowledge-claims. At this level, argumentation looks like: “*If there are arguments Γ, \dots, Δ implying Z and opponents do not have any objections, then the thesis Z is true and it should be taken into account in any scientific research in the given area*”.

Thus, the ultimate goal of scientific activity consists in the desire to affect the scientific behavior of other scientists. As a rule, this means that scientific results are recognized more or less fundamental and depending on that they determine scientific interests of the whole community of scientists. Accordingly, the scientific activity, which has entailed a serious discovery or invention, becomes a standard for the research behavior of the majority of members of scientific community. As a result, the given discovery or invention becomes the important part of *scientific habitus* (the embodied, interiorized social structure of scientific groups in scientific activity)⁴. For example, K. Gödel’s incompleteness theorems have appeared so fundamental that all researches in the field of mathematical logic become to be carried out later either with application of recursive-theoretic methods, on the basis of which these theorems have been proved, or with taking them into account.

From this classification of levels of scientific argumentation it follows that the dialectical level includes the logical one, and the rhetorical level includes both the logical and dialectical ones. Thus, the scientific substantiation has a hierarchical structure in which the logical level of argumentation is subordinated to the dialectical level and the dialectical level is subordinated to the rhetorical one. The history of discovery of Copernicus, for example, confirms that the negative standpoint of opponents can bring

⁴ The term ‘habitus’ is introduced in modern sociology by Pierre Bourdieu. This term is defined as follows. The habitus, being the product of history, produces individual and collective practices, and hence history, in accordance with the schemes engendered by history. Bourdieu defined ‘habitus’ as “the generative basis of structured, objectively unified practices” [1]. There are two kinds of habitus: ‘class habitus’ and ‘subjective habitus’. The first is embodied in individuals and the second is understood as a collective and homogeneous phenomenon, mutually adjusted for and by a social group or class. The term ‘habitus’ underlines that social practices are not consciously organized. We agree with this thesis.

logical reasons to nothing. On the other hand, the one approval of opponents is not enough that results of scientific research become to be regarded as a fundamental discovery or invention. For this purpose also it is necessary that the given results have a determining influence on the scientific research activity of the large number of outstanding scientists.

As an example of hierarchical structure of the scientific substantiation, we can consider the following fragment from V. S. Nemchinov's speech at the Session VASKhNIL:

"V. S. Nemchinov. Can somebody tell about N. N. Timofeev, the head of the Department of Selection of Fruit and Berry Cultures, that he is anti-Michurinist? Who can tell it about comrade Kolesnichenko?"

However, we have scientists of another direction, in particular, Prof. Zhebrak. Comrade Simonov has told that Nemchinov, as the director, has approved of the paper by Prof. Zhebrak published by him in the foreign journal. It is close to obvious slander, because it bears no relation to reality. It is necessary to say that the public knows that one of the first, who has written in newspapers concerning A. R. Zhebrak's article, was Nemchinov.

Voice from place. Writers were the first.

V. S. Nemchinov. I say that I have written as one of the first; anyway, just after the article of writers.

Voice from place. Tell about your letter in 'The Leningrad Truth'⁵.

V. S. Nemchinov. In 'The Leningrad Truth' I did not write any letter and I do not know what the matter is. It is obviously a legend.

In my reports, speeches at the Party Assembly, at the Council of Academy, I have kept separate from the article of comrade Zhebrak and I have also stated for it a corresponding estimation. All comrades who speak here of this question, know it perfectly, but for some reason regard necessary to mislead the Soviet public.

Voice from place. They feel the truth.

V. S. Nemchinov. The truth, certainly, will always remain the truth, and it will win.

One can reproach me as director that I draw a distinction between the paper by Prof. Zhebrak, the Academician of the Belarussian Academy of Sciences, and his work. I have declared that one condemns, accuses the statement of Prof. Zhebrak in the American journal not as the fact what he sticks to, that he protects the chromosomal theory of heredity, but as the fact that he has made an antipatriotic action. So it was.

⁵ In Russian "Leningradskaja Pravda", it is a well-known Soviet newspaper of that time.

Voice from place. *Is the chromosomal theory in the gold fund?*

V. S. Nemchinov. *Yes, I can repeat, yes, I think that the chromosomal theory of heredity was included in the gold fund of human science and I continue to keep such a point of view.*

Voice from place. *You are not the biologist how can you judge it?*

V. S. Nemchinov. *I am not the biologist, but I have an opportunity to check this theory up from the point of view of the science, in which I carry out my scientific research and, in particular, from the point of view of statistics.* (Noise in hall.)

It corresponds also to my ideas. But the matter is not with it. (Noise in hall)

Voice from place. *How is the matter not with it?*

V. S. Nemchinov. *Well, let the matter be with it. Then I should declare that I can not share the point of view of comrades who declare that chromosomes have no relation to mechanisms of heredity.* (Noise in hall.)

Voice from place. *Mechanisms are not present.*

V. S. Nemchinov. *It seems so to you that mechanisms are not present. These mechanisms are able not only to be seen, but also to be painted and defined.* (Noise in hall.)

Voice from place. *Yes, it is paints. And statistics.*

V. S. Nemchinov. *I do not share the point of view which has been stated also by our dear chairman [Lysenko] that the chromosomal theory of heredity and, in particular, some Mendel's laws are an idealistic point of view, a reactionary theory. Personally, I consider such a position wrong and it is my point of view, though it is interesting for nobody.* (Noise in hall. Laughter)" [9].

As we see, V. S. Nemchinov condemns the act of Prof. A. R. Zhebrak from the point of view of the Soviet scientific ethics, namely he negatively regards the fact of the publication of Zhebrak's paper in a foreign journal. Nemchinov tries to find common points with the opponents at the rhetorical level. However, it was unsuccessful for him, as opponents deny Nemchinov's ideas already at the dialectical level. Indeed, the scientific substantiation of ideas of genetics within the framework of mathematical statistics, i.e. that "the chromosomal theory is in the gold fund of biological science", encounters the radical denying of the scientific audience at this session. Nemchinov's logical arguments are regarded by the scientific audience as totally unacceptable. This emphasizes that argumentation has a hierarchical structure in which logical elements can be totally subordinated to pragmatical (valuable) elements.

The reflection in scientific activity is a human ability that allows us

to oppose the scientific habitus and not to subordinate the logical level to the dialectical level and the latter to the rhetorical level in the scientific argumentation. The Session VASKhNIL is an example, when the scientific habitus dominated over the reflection in scientific activity and, as a result, the rhetorical level of argumentation dominated over the logical one.

3. The Criterion of the Difference between Neopositivistic and Postpositivistic Models of Scientific Deduction

Depending on the definition, how the three levels of argumentation interact, it is possible to propose various models of the scientific substantiation. The following models are most known: neopositivistic and postpositivistic.

In the *neopositivistic model of scientific substantiation* (developed by R. Carnap, A. Tarski, and many other well-known logicians) one supposes that the logical, dialectical, and rhetorical levels of argumentation are connected among themselves in such a manner that the degree of logical validity of the thesis influences the degree of its dialectical validity, and the degree of the latter influences the degree of rhetorical validity of the discussed point of view. For example, according to this model, Copernicus' heliocentrism has had the negative response in the scientific community only because it has not obtained a comprehensive logical substantiation. Only after Galilei's principle of inertia and Kepler's laws it was possible to construct Newton's heavenly mechanics, having already the highest degree of logical validity. In the neopositivistic model, rules of definition of the degree of dialectical validity are set, thus, at the logical level of argumentation, whereas rules of definition of the degree of rhetorical validity are set at the dialectical level.

In the *postpositivistic model of scientific substantiation* (developed by Th. Cuhn, P. Feyerabend, and many other methodologists and science historians), in contrast with the neopositivistic model, one affirms that the criterion of definition of the degree of dialectical validity is set at the rhetorical level, and the criterion of defining the degree of logical validity is set at the dialectical level, therefore the rhetorical level of scientific argumentation can reflect an arbitrariness in decisions of scientific community as rational judge (we have demonstrated this by the fragment of V. S. Nemchinov's speech at the Session VASKhNIL).

The difference of two models of substantiation is stipulated by the historical typology of scientific argumentation. So, the neopositivistic model of the scientific substantiation assumes the classical type of scientific argu-

mentation (the classical style of thinking), while the postpositivistic model assumes the nonclassical or modern one. The *classical type of scientific argumentation* was characteristic mainly for natural sciences from the end of the 16th century to the beginning of the 20th century. The *modern type of scientific argumentation* develops by the middle of the 20th century, constructing nonclassical logics and as well as a variability of modern natural sciences were principal causes for this development.

The availability of competing research groups, equivalent in eyes of the whole scientific community and, at the same time, having mutually exclusive points of view, became probable only after the enormous differentiation of all scientific knowledge. The given social processes show that human values are an integral element of any activity. The scientific knowledge, being a special kind of activity, is through penetrated with human values and it is already impossible without them. Especially, it is necessary to emphasize that the human values, regulating process of scientific knowledge, as a rule, have a collective feature, instead of an individual one.

So, the main problem of modern postanalytical philosophy of science consists of the aspiration, firstly, to define, what form the human values have in scientific knowledge and, secondly, what influence on processes of scientific activity they have. The transformation of modern epistemology, its interest in the research of the role of human values in the scientific argumentation has affected the researches realized within the framework of the history of science. Many historic facts become to be interpreted in a new fashion. One began to reject the idea of reducing argumentation procedures only to logical forms of substantiation and as well as to consider the dialectical and rhetorical levels of substantiation as independent metalevels.

The dialectical and rhetorical levels are completely set by cognitive values. The values, shared by scientific community, and also forms of their expression (i.e. general principles, standards, samples, methodological norms) are definitely ordered and ranged according to a degree of their importance, forming a historically changeable hierarchy. The valuable factor has, therefore, a complex and comprehensive influence on process of the scientific communications and it is not separable from procedures of the scientific argumentation.

According to the classical type of substantiation, the method of solving scientific disagreements concerning a choice of one of theories is similar to a method of acceptance of the adjudication: all relevant facts, acting in a role of arguments, are regarded and the court gets their truth-validity by the precisely established legal rule, concerning a selection of facts. The finality of a verdict is guaranteed, because the question is considered on the

basis of rigid rules, instead of personal motives. At last, all parties agree to adhere to the born decision.

In scientific discussions, the scientific community acts in a role of the rational judge whose court concerns to the offered points of view. At the same time, the norm of the ‘organized scepticism’, accepted in scientific community, guarantees that a more empirically reasonable idea will be chosen from proposed variants. Thus, it is considered that the ‘scientific jury of jurymen’ will make a choice according to the rules shared by all scientists of the given scientific branch. Existing norms and the methodological rules being in neopositivistic model of the scientific substantiation assume that the born decision (for example, the consent) concerning a choice of one of the points of view, involved in discussion, will be, firstly, impartial and, secondly, acceptable for all parties: both for defenders and for opponents.

However, so simple mechanical (in Leibniz’s style) sanction of arising disagreements is not always probably, as there is a situation in which two or more competing theories (concepts or theoretical schema), which are equally confirmed by empirical arguments, are discussed. In this case, according to argumentation theory, the proposed points of view are equivalently reasonable, this means impossibility of a determining choice between them on the basis of the empirical arguments. Thus, concerning such situations the classical model does not grant means of an explanation, what actually is the basis of choice and process of an exchange finishing by arguments, what basis for preferences of scientific community and what plays a role of decisive argument for occurrence of a final consensus.

According to the classical methodology of science, a ‘calm’ in scientific discussions should appear in the periods of existence of alternative theories so that the competing parties would be able to collect more differentiated empirical data and to put forward them later as the decisive arguments confirming the corresponding point of view and denying the point of view of opponents. However, the facts of the history of science testify to the opposite – in those periods heated arguments inflame especially and estimated judgements with much pragmatical component start to be put forward as substantiation.

The choice of theory cannot be made also on the basis of just logical means, because all rules of scientific deduction have the sense only inside a concrete theory, therefore out of those frameworks logical rules lose the sense. As a result, all rules of scientific (inductive or deductive) inference are indistinct so that they can be used by many mutually excluding methods. It is an opinion of P. Feyerabend proclaimed the thesis “anything goes”.

Thus, the process of scientific argumentation cannot be completely reduced to one of types of the logical substantiation. This means that argumentation includes not only the set of statements connected among themselves by inference rules of scientific deduction, but also a “non-formalizable rest”, namely arguments which we cannot analyze only by means of symbolic logic. The availability of such a non-formalizable rest allows P. Feyerabend to assert that “propaganda mechanisms and technique of washing of brains” have a crucial importance in the scientific argumentation. Notice that from the point of view of the logical level of the argumentation analysis we consider the *valuable components* as the non-formalizable rest that occurs in various forms of propositional attitudes (‘topoi’, as Aristotle would say). They also determine the dialectical and rhetorical dimensions of argumentative discussions. In the meantime, the form and content of valuable components are set within the framework of the hierarchy of values, shared by members of scientific community within the corresponding scientific *habitus*.

As representatives of postanalytical philosophy notice, the classical model of substantiation is a sufficient mean for an explanation only within the framework of the one theory, of the one paradigm or the one research program. In the case we survey a qualitative transition from one level of development of scientific knowledge to another (for example, the situation of Copernicus’ revolution), explanatory means of neopositivistic model become obviously insufficient. This entails that in situations of scientific revolution we should use the hierarchical model of consensus. According to this model, the scientific theory should be logically correct and, in addition, should follow the hierarchy of values (*habitus*), which is shared by overwhelming majority of scientists.

So, the scientific consensus from the standpoint of hierarchical model is achieved only in the event that there was an acceptance of the scientific theory on the basis of the following parameters: (1) due to its logical validity; (2) on the basis of its conformity to key cognitive values of the certain informal scientific association, in particular to ideas of a scientific school; (3) in connection with an opportunity of its acceptance at the level of scientific *habitus*, i.e. due to an opportunity to embody results of this theory into the social activity of other scientists. The logical level of argumentation corresponds to the first level of consensus, the dialectical level to the second, and, at last, the rhetorical level to the third.

1. The *logical validity* guarantees that any changes of social frames, any cultural shocks will not cause a radical transformation of scientific activity. For example, the ideas of academician T. D. Lysenko were

not faultless from the standpoint of the logical level of substantiation, though they corresponded to the scientific habitus of the Stalin period. However, the scientific habitus began to transform after “Chruschev’s thaw” in the Soviet science and Michurin’s ideas have ceased to be entered in the social context. Later, it has resulted that they have ceased to be claimed generally.

As another example of necessity of the account of logical validity in the hierarchical model of consensus we can regard the recognition of Mendel’s theory of heredity. From the moment of Mendel’s discovery and until the moment of the public resonance of his ideas has passed more than 30 years. The recognition has come to Mendel only after his death, namely after his ideas become to correspond already to the scientific habitus of contemporaries. The logical validity of the theory of heredity guaranteed its safety in conditions of cultural transformations and an opportunity to be claimed. As we see, the logical validity is a necessary step in acceptance of results of research by the scientific community. This level remains constant at any historical event and in any cultural situation.

2. The acceptance of the scientific theory within the framework of *informal scientific association* (e.g. of scientific school) allows to use in the promotion of scientific ideas specific resource such as communicative relations. This resource is that the scientist obtains a very essential informal support in the subsequent promotion of results of his research. Without such a support the recognition of discovery can be delayed for long years, until the influential adherents will be ready to promote the given ideas.
3. The highest level of the recognition of the scientific theory is its acceptance at the level of the *scientific habitus*, entailed an embodiment of results of the scientific research into the social practice of scientific community as a whole. In this case the scientific theory enters into the general scientific thesaurus. Among conventional it is possible to name the following physical theories, for example: the Copernicus heliocentric system, Newton’s mechanics, Maxwell’s electrodynamics, etc. Now it is impossible to be the physicist and to not know all these theories. If the theory belongs to the scientific habitus, then it acquires the highest objectivation in eyes of all scientific community.

Consider an appropriate example. Yuri Matiyasevich proved the insolvability of Hilbert’s tenth problem. His result had purely author’s character. From the point of view of logical validity, Matiyasevich’s theorems were quite acceptable, because they were proved duly within the framework of

mathematical constructivism, the directions in mathematics which was very influential in that time. When Matiyasevich obtained all necessary theorems for the proof of the result, leaders of Markov's school helped him to contact July Robinson, who studied the same problem, organized their meeting and agreed about possibility to publish their common paper concerning Hilbert's tenth problem.

It is necessary to remind that during times of the 70s years the USSR was isolated and this complicated professional contacts of the Soviet and western scientists. Therefore attempts to represent Matiyasevich's theorems in a common paper with the known American woman-mathematician allowed Matiyasevich's scientific results to be accepted in the world scientific community very soon. So, in 1974 the American Mathematical Society (AMS) decided to organize the Symposium "Development of Mathematics after Hilbert's problems". Matiyasevich was invited to give the report on Hilbert's 10th problem, but his participation was not supported by the government of the USSR, therefore Robinson alone was compelled to give the report on this problem.

Thus, the common publications of Robinson and Matiyasevich were well thought as strategic step which has played the positive role not only in Matiyasevich's destiny, but also they were useful to Markov's school. So, the hierarchical model of scientific consensus assumes the account of valuable components of the scientific argumentation as the special additional factors strengthening persuasiveness and acceptability of the scientific theory in the disciplinary community.

Thus, there exist two models of the scientific substantiation: neopositivistic and postpositivistic. In the first we assume that the reflection, as ability to be guided only by logical reasonings in the scientific activity, dominates over the scientific habitus, in the second that the scientific habitus dominates over the reflection.

4. Two Ways of Organizing Scientific Investigations: American and Soviet Systems

The social activity assumes special receptions of itself within the framework of the corresponding social system. Such receptions are called *reflection*. It is necessary to notice that the reflection is not the passive mechanism – it supervises the social activity in accordance with general instructions of social system. As an example of the reflection effect on the social activity we can consider two various relations to reckless driving. In the first case the

driver has the high self-estimation if he tries to concede other drivers free way. Assume that it is a norm for the social system *A*. In the second case, the driver has the low self-estimation if he concedes others the priority in traffic. Assume that it is a norm for the social system *B*. Evidently, traffic jam arises more often within the framework of the social system *B*. Thus, the various reflective estimation of the same social action causes various acts, and, as a result, various displays of a social system too.

The scientific activity is a version of social activity. So, it also assumes a reflection as the special mechanism of self-control. Accordingly, the scientific product is made in various way in different countries with the different reflective relation to scientific activity. It is possible to suppose that it is somewhere made with the big failures, and somewhere with smaller (by analogy to the example of traffic described above).

Creating the nuclear weapon (atomic bomb) in 1940s was the rather difficult scientific task. The USA and USSR have successfully realized the given purpose. Both were superstates of that time, however, having absolutely different public organizations of life. As a result, in both countries the scientific activity was organized very differently.

In America, appropriate investigations were started since September 1942 within the framework of the so-called ‘Manhattan Project’ which took place at over thirty different sites across the United States, Canada, and the United Kingdom. The scientific research was directed by the American physicist J. Robert Oppenheimer. The age bracket of most scientists was 30 years old. Most surprisingly that the Manhattan Project became the open area where the collective nature in discussion of general problems was welcomed. For that reason the project succeeded soon in developing and detonating three nuclear weapons in 1945: a test detonation of a plutonium implosion bomb code-named “Trinity” on July 16th near Alamogordo, New Mexico; an enriched uranium bomb code-named “Little Boy” on August 6th over Hiroshima, Japan; and a second plutonium bomb code-named “Fat Man” on August 9th over Nagasaki, Japan.

On the other hand, in the Soviet Union the development of the nuclear weapon was conducted under the strong administrative influence (the administrative head of the project was Stalin’s former chief of security Lavrentii Beria) and the scientists, working at the given problem, were badly aware of common problems. Therefore Kurchatov’s administrative role in the development of the nuclear weapon in the USSR was higher than the same role of Oppenheimer in the Manhattan Project. Also, as we see, the two completely various models of a reflective self-estimation of scientific activity have been involved for realization of the same problem. In the American case the open-

ness of scientific discussion, the collective nature in decision-making were welcomed, and in the Soviet case an isolation of local scientific groups and their external administration were observed. In other words, in the Manhattan Project the self-estimation of scientists and its translation produced an essential effect on social system as a whole (on all collective of employees of this project), and in the Soviet case the self-estimation of scientists played the subordinated role in relation to external factors (such as hierarchical management), and these two systems of self-estimation showed the features of two social systems.

To exemplify two ways of self-estimation consider Lefebvre's model of reflectivity [4]. In the language of mathematics the effect of reflection on scientific activity can be expressed as follows. Introduce three variables: a, b, c , defined on the two-element set $\{0, 1\}$, where 0 means the refusal of fulfilment of action, and 1 the decision to make action. Let the variable $a = 1$ ($a = 0$) express the pressure of the external world to do (or not to do) an act, the variable $c = 1$ ($c = 0$) the pressure of the external world, expected by the actor on the basis of his previous experience, to do (or not to do) an act, the variable $b = 1$ ($b = 0$) the self-estimation of the individuum seeing himself fulfilled (not fulfilled) action. Set now a Boolean function $A = f(a, b, c)$ such that $A = 0$ if an action is not accomplished, and $A = 1$ if an action is accomplished. For example, $f(1, b, c) = 1$ means that the external circumstances compel the individuum to make an action, and $f(a, 1, c) = 1$ – that the external circumstances, foreseen by the actor, compel him to act. The given function may be interpreted as $A = (b \supset a) \supset c = F(c, F(a, b))$.

As Lefebvre showed [4], the highest importance of reflection is expressed by the following Boolean function: $A = (b \supset a) \supset c = F(c, F(a, b)) = b$. In this case we have: $(b \supset 0) \supset 0 = b$, i.e. the fulfilment of an act is determined by an internal self-estimation. On the other hand, it is possible to continue Lefebvre's idea and to say that the lowest importance of reflection in the individual activity is described as follows: $A = (b \supset a) \supset c = F(c, F(a, b)) = c$. It is easily shown that the given equality holds just in the case: $(0 \supset 0) \supset c = c$, hence, the fulfilment of an act does not depend in any way on an internal self-estimation, and it is determined mainly by my life experience (instincts). There is one more interesting case, when we have $(1 \supset a) \supset 0 = \neg a$.

The formula $F(c, F(a, b)) = c$ shows that the individual activity is determined by external effects $\langle a, c \rangle$. Let us remind that the attempt to explain the individual activity by external effects was made only by behaviorism. However, as we see, the behavior depends not only on external effects, but also on internal mental properties, namely on self-estimations (on reflec-

tion). Therefore in many cases $F(c, F(a, b))$ is not equal c . Thus, the behavior is determined by reflection and reflectivity more often than by external pressure.

The self-estimation is variable. For instance, the emotional reaction of the same person to the same situation can be various at different time.

Let us remember that we had the two opposite models of reflection in the Manhattan Project and in Kurchatov's institute. The formula $F(c, F(a, b))$ should depend on the parameters differently in the first case and in the second. For the majority of representatives of the American scientific group the expression $F(c, F(a, b))$ has more often the value $F(c, F(0, b))$, but for representatives of the Soviet scientific group it has more often the value $F(c, F(a, 0))$.

We have explicated the elementary kind of behavior in which the choice is carried out only from two variants 0 or 1. At the same time, to interpret the behavior as the Boolean function $A = F(c, F(a, b))$ is not always convenient, because the parameters $\langle a, b, c \rangle$, determining the people behavior, have in actual fact probabilistic values. In this plan the probabilistic distribution of the function of reflective activity is more preferably:

$$A = F(c, F(a, b)) = c + (1 - c) \cdot (1 - a) \cdot b,$$

where values of a, b, c belong already to the interval of real numbers $[0, 1]$.

In the given formula the variable a describes the individual activity as probability to make choice of a positive decision under external pressure (i.e. the intensity of an external effect), the variable c shows a probable life experience of the actor (i.e. the average intensity of previous external effects), and, at last, the variable b describes a probable condition of individual mentality (i.e. the intensity of his internal self-estimations). So, a is a frequency of micropushing on a positive decision in the present, c is a frequency of micropushing on a positive decision on the basis of the life experience, b is a futurological function.

A probabilistic distribution of action A allows us to characterize the distinction of the American and Soviet methods of science management in the better way. So, in formula $F(c, F(a, b))$ the significance of the variable a for the behavior of a Soviet scientist should be higher than the significance of the same variable for behavior of an American scientist, and the significance of the variable b should be lower, respectively.

The example of two reflective patterns of organizing scientific activity is characteristic for the demonstration of general distinction in management of scientific knowledge and in its further socialization in conditions of the USA and USSR. The high level of reflection in the western science takes place up

until now, it is embodied thanks to the following principles introduced into the social system of scientific production all over the world:

- information resources are available that is shown in creating numerous platforms for the exchange of scientific experience within the framework of international conferences, international journals; at the same time, there exists a stimulation of interpersonal contacts of scientists from different countries thanks to programs of scholarships and to priority financing of the temporary research groups whose representatives are from different states,
- financial and technical supports for realization of research works are available (it is expressed in the dispersal of fund sources – for a long time, the state has ceased to be the basic sponsor of scientists),
- the unified estimation of scientific achievements by number of publications of an international level and by index of their citing, i.e. depending on an involvement of the scientist into scientific discussions within the framework of the international platforms mentioned above.

In the Soviet Union the given principles did not hold. Nevertheless, the Soviet science had some successes in the sphere of mathematical and technical knowledge. The matter is that various external circumstances had a much greater effect on the research work of the Soviet scientists than on the similar work of the western scientists. It was more difficult to publish scientific ideas, for example. Therefore in conditions of isolationism of the Soviet science the intensity in a competitive spirit of various research groups grew exponentially. On the one hand, this caused a scholasticism of mathematical knowledge (the Soviet mathematics and physics assumed more strict, exacting style of scientific work than it took place in the West). On the other hand, the Soviet humanities in many features transformed into a pseudoscientific knowledge.

Probably, Belarus is the only post-Soviet country that preserves the Soviet anti-reflective model of the science management.

In conditions of modern globalization, the isolationism of scientific knowledge and the low reflectivity of scientific behavior have a pernicious effect on the efficiency of scientific researches. Hence, by inheritance the Belarusian society received from the Soviet Union the science requiring the scale reforming. The sense of these reforms should consist in permanent embodying of the principle of high reflectivity.

In order to increase a degree of effect of internal self-estimations on the scientific activity, on the one hand, and in order to reduce a degree of effect of external circumstances, on the other hand, we should realize in practice the following principles of the science socialization:

- overcoming a dominant of the normative over the subjective – actors of scientific activity (scientists or research groups) of one and the same order should not have homogeneous, similar estimations of scientific activity of this order;
- overcoming a centralization in the science management – it is necessary to create conditions and to support all forms of activity in the science management;
- reduction in a risk level of organization decisions tanks to development of a network of administrative centers;
- organizing buffer platforms for the exchange of scientific experience.

In conditions of external normalization of scientific activity there exists a reduction in creative activity of scientists. Therefore for positive dynamics of the Belarusian science we need a rise in the effect of reflection on the scientific activity.

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COMMUNITIES BUILDING AND SOCIAL DEVELOPMENT IN BELARUS

In this paper, we give some reasons for claiming that there are no local communities in the restricted sense or local self-government in Belarus. However, public discourse and every-day argumentations are possible only within the networks of local communities. Therefore, there is the problem of deficit of logical practices in Belarusian social life. We propose a probable solution of that problem.

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1. Introduction

The idea of this paper came about after a discussion with our Danish colleagues in May, 2007, dedicated to the possibilities and ways of local community development in Belarus. The discussion started from the acknowledgement that the work on local community development within European programmes had a long history in Belarus, yet to no satisfactory results. I am leaving out the productive part of that discussion and how the sides enriched each other with their experience and knowledge; the discussion revealed that very often our Western European colleagues start working in Belarus without considering, and sometimes simply knowing certain aspects and circumstances of Belarusian life and our activity. Meanwhile, the knowledge and experience put forth for discussion by the Belarusian side are sometimes hard to line up with the social methods and techniques traditionally suggested by European colleagues for transition countries.

For these reasons, the Belarusians and their colleagues from other European countries sometimes end up in misunderstanding. Breaking through this misunderstanding and mutual education of partners takes months, which is normal, yet sometimes years which is longer than an average project runs in Belarus.

Apart from general fundamental knowledge of post-Soviet countries and societies, there are often practical problems in planning time, resources, and efforts necessary for achieving certain objectives and solving practical tasks. It also often sparks argument, European and Belarusian experts assigning main expenses of time, resources, and work to different areas of activity. Whereas theoretical, explicatory, and descriptive texts may wait, practical disputes call for instant resolution. Partners working on the same aims and objectives need to come to an agreement, and this can only be done through mindful respect to each others arguments.

The present paper contains concise analysis of what hampers the emergence and development of communities in Belarus and presents the principles and foundation of possible activity. It only claims to provide arguments for right and more accurate planning of time, resources, and human effort while working on community development in Belarus.

2. The Present State of Local Communities in Belarus: Soviet Legacy

The basic thesis on which we build our entire activity towards local community development in Belarus is the statement of the fact that **there are no local communities or local self-government in Belarus**. It is very difficult to believe and therefore it is usually viewed as either a mistaken speech form, or a provocative message. Most difficult is to perceive it as a mere statement. It is especially difficult for European colleagues for whom communities as a form of people's organization is an inherent part of their lives and thus natural like air. Communities can be weak or strong, more or less successful or organized, but they are always there. The strictness of our statement is called upon to underline the fact that communities were deliberately eradicated from the Soviet social system as a controversial element and have not been restored yet. This argument requires to be expounded on, the more so as it conditions our entire further activity which is aimed not so much at the development and strengthening as at reviving local communities in Belarus.

In this section, we will consider the major influences and mechanisms that have brought about the present state of affairs and remain in effect reproducing it. Here, speaking about local communities we will see them as associations of people connected not merely by abiding in one territory and maintaining good human relationships, yet as associations with **will** and **possibility** to independently solve basic issues of organizing and managing

their lives. That is, we will perceive local communities as, in the first place, self-organizing associations of people. Therefore relationships and territory of abode are merely a condition, but not a major characteristic of local communities. To qualify as a community demands certain human qualities: initiative, ability to set and achieve aims collectively and individually, the sense of ownership and responsibility for one's personal and collective causes, solidarity and much more.

Below we will consider how proximity of abode ceased to be a source and condition of people's interaction for managing their living space. How did it happen that people were alienated from making decisions concerning their own lives? Which way and by means of what social, political, and administrative methods local authorities were stripped of the capacity of community self-government and lost real possibilities to solve local issues? Before we go into the questions put forth above, we need to ask ourselves one more, however self-evident in may seem: "What for do we need to restore local communities?" The task of restoring communities as a way of life and social self-organization is closely related to our ideas about a democratic social system. We are based on the notion that in a democratic society people have the possibility to associate for the achievement of their own goals. A democratic social system not merely allows people to unite in communities but to a large extent relies on them and is possible thanks to the existence of strong communities. Collectivism is a generally known and recognized characteristic of the Soviet social system and way of life, as well as a character quality in wide majority of Soviet people. In an attempt to shake off Soviet totalitarian legacy, politicians and intellectuals overstated the role of the individual in a western democratic society. Interpreting the western society as purely individualistic, post-Soviet intellectuals became as if much greater liberals than their western colleagues, forgetting that democracy is unthinkable without solidarity and collective cooperation.

The destruction of local communities and local self-government that we witness in today's Belarus came as a result of a deliberate policy of the Soviet regime. It employed a lot of political, administrative, and social mechanisms and means each of which fatally targeted one or several prerequisites for the existence of local communities. The detailed review of those mechanisms and means provided below is intended, in addition to explaining the origins and reasons for the present state of affairs, to communicate the extent of the problem and show how deeply rooted it is in the Soviet way of life, mentality, and ways of thinking and behavior. Also important is that many of those mechanisms are still in effect today, habitually or deliberately, although sometimes in mutated or disguised forms. It is necessary to be aware of in

order not to fall victim of illusions or make mistakes while planning and organizing the activity for reviving local communities.

3. The Area of Public Life and Administrative Relations

Assignment of authorities: the imperial order. Throughout the history of Soviet Belarus, heads of administrations were assigned not from the respective localities, but on the national level or those of the region (oblast) or district (rayon). And it was not by chance – such was an implicit rule of Soviet management. According to it, a boss not only had to be “not local”, he had to be excluded from any social relations with the population. He had to always remain a representative of the vertical power, a mouthpiece for its ideas and decisions, and not a representative of the population. He was socially incorporated rather into the authority, administrative society than in a territorial community. The practice of assigning leaders to all levels of administration that used this principle was aimed at take away power from communities as potential participants in ruling, and make the decision-making system independent from opinions held by any local population. In fact it was an imperial rule successfully deployed in the Soviet Union.

Powerless local Soviets. The village council (Soviet) might appear as the lowest level of authority that by its placement and functions was supposed to act as a mechanism of local self-government, however, one should bear in mind the state policy in respect to village councils. That policy consisted in bringing village councils under complete control by other power bodies, in the first place, by economic entities dominating in the given territory. In the countryside those were mainly collective farms (Kolkhozes) and so-called Soviet farms (Sovkhozes). Firstly, the village councils had no budgets adequate for their territories and populations. Secondly, they could not replenish their budgets by taxing either the population, or local businesses. Their budgets were made up in a centralized way by higher-level administrations. The responsibility for maintaining roads and other elements of infrastructure was put on the village councils while only the Kolkhozes and other economic entities possessed actual resources for that. Thus, the village councils’ exercise of local authority was made dependant on Kolkhozes. Nominally, the stature of head of a local council was higher than boss of a Kolkhoz, in actuality it was the latter who had power.

Also, state-owned institutions were under the jurisdiction of local authorities, in the first place those of education, health-care, and some-

times culture (libraries). However, their staff was selected and appointed not by the local authorities but by communist party structures. As for budgets and human resources of post offices and departments of interior affairs were controlled by their higher administrations within the respective ministry. The only actual function of local authorities was to register births, deaths, marriages, etc., as well as issuing references for social security matters.

Thus, the main mechanism of seeing to the interests and actualizing the will and decisions of the population at the local level was de facto blocked. Formally, elections to local Soviets might have, or were to directly influence independent management of a local community's life. In reality, however, this preserved social mechanism of self-organization and self-government was a mere imitation inasmuch as those councils had no influence on decision-making. All those facts testify for real separation of local populations from making decisions about their lives, from local authorities and local political life. Such an alienation was gradually became to hold in people's minds and their attitude towards the possibility and ways of influencing the arrangement of their lives.

This practice of organizing the activity of "local authorities" has retained its main characteristics until today, with the exception of the party control whose function in Belarus took over the so-called "presidential vertical" [power system].

The Soviets and the Party: duplication of power. The relationship between the Soviets and the Communist Party as two power branches deserves being expounded on. It became a cornerstone of the main mechanism of ruling society that made impossible self-government and destroyed local communities. Apparently, the phenomenon of such a party power is a unique to the Soviet Union, China, and some Asian countries modelled after the Chinese pattern (North Korea, Vietnam, earlier Laos and Cambodia). In Eastern European countries and Cuba the communist parties did dominate at the national level, controlled forces, finances, economy, but they exerted their will via constitutional structures imitating democratic institutes. Meanwhile, in the Soviet Union and therefore in the Byelorussian Soviet Socialist Republic (BSSR, Soviet Belarus), the Communist Party was given power by constitution. Structures of the CPSU (in our case the CPB, the Communist Party of Belarus) duplicated Soviet structures everywhere and at all levels. An exception was made only for village councils. Any political unit at any scale down to the district and town had two verticals of power: a Soviet, with its executive committee, and a party branch that formed a structure repeating that of the Soviet. While the party structures posses-

sed real power, the Soviets and their executive committees were subordinate to them.

Back to history, this dual system of power began to take shape during the Civil War and military communism when army officers and military experts were serving under the supervision of party commissars. Officers and experts acted under laws and army regulations, while the rule of the commissars was arbitrary and – given they were authorized to kill – absolute. Lenin's policy of military communism consisted in expanding this militarized rule onto production and administration at all levels. Upon the revocation of military communism, militarized rule was camouflaged by quasi-democratic forms and made slightly more moderate, taking away the power of commissars (or party leaders as their civil counterparts) to decide on people's live directly. Indirectly, however, they remained in the position to do so, via the troops of the KGB and interior ministry. The mechanism of this looked as follows. In each political unit, from the districts up, a department of the KGB and interior ministry was established. Those departments were neither under control of the corresponding level Soviets, nor even party branches. They were answerable to their direct commanders at the next higher level of their vertical and the party structure at the same higher level. Thus, the chairperson of a district or town Soviet or a party functionary were able to direct and control the operation of the KGB and police in their unit, while themselves liable to actions against them by those forces should an order have come from above. This situation remained in the USSR and BSSR for more than 30 years, until late 1950s, and even further in a more complex and disguised form. Overly bureaucratized relations between the party, Soviets, and forces created the liberal facade of Brezhnev's epoch.

Since a certain time, the regime began mask the duplication of the Soviet and party powers by a three-fold procedure of decision-making. At the lowest levels of authority, many decisions were to be made involving trade unions. The system of trade unions in the Soviet Union was molded after the communist party and all the grass-root level decisions, actually made by party branches, were brought to life on behalf of the local administration, party organization, and trade union and corresponding documents were signed by their leaders. Thus, the apparent duplication and later triplication of power was in fact a mere veneer on the total power of the CPSU and during the entire lifetime of the USSR kept isolating the people from influencing the authorities, equally in an individual manner or in the form of any kind of associations, communities, or organizations outside the control of the party.

This conclusion should be illustrated by a classical saying by Lenin, the author of that system: “Trade unions are the school of communism.” Lenin clearly realized the totalitarian nature of the power system he was creating. He also understood that a population organized in communities and capable of initiative cannot be ruled by such a system without brutal, violent compulsion. Aware of that, he explained to his brothers-in-arms that it would take decades and several generations to change over from violent compulsion to voluntary acceptance of such a system. It was a school for the entire population, meant to make violent reproduction of that system into tradition in the course of several generations, so that it could be passed on as if on its own. That was exactly the case in Belarus.

The transition from violent maintenance of this perverse system to tradition was only plausible at the cost of people’s resigning from personal initiative and ability to spontaneously or intentionally organize themselves into communities and viable collectives. The loss of those capacities the system of decision making used in the country with behavior norms and personal qualities of the Soviet people. Not only self-government at the local level was hampered by administrative efforts, it gradually became redundant for people who had voluntarily withdrawn from solving the tasks of managing their lives delegating them to state bodies.

Enterprize-based party structure. We have seen detailed the role of duplicating power system in abolishing self-government. Now we should also consider the organization of the communist party itself since its way of organizing was spread onto all other areas of life in the country which became of the major causes fatal for local territorial communities as well as all other forms of people’s self-organization.

Transforming from an underground terrorist revolutionary party to the ruling and dominating one, the Bolsheviks had to revise the concepts of party construction. Having gained power over a gigantic country, they, on the one hand, had to adopt legal and open forms of existence and, on the other hand, multiply their numbers manifold to penetrate all areas of life and activity. Party leaders or functionaries were to be present without exception in each and every settlement, military element, or enterprize (not merely to be present but to be included in a well-organized, instantly responding organization marked by army-like discipline and obedience). Before, primary branches of the party organizations were created by territorial proximity, but while in power the Bolsheviks began to set up their structures at enterprizes, not territories. In the city, it meant that people worked at places rather than where they lived. Thus, party organizations controlled not the daily life of the people and its conditions, but economy and finances. Party branches

were organized into territorial units at a higher level, e.g. of the town or part of a larger city with the population of several hundreds thousands.

In the country, this approach in its pure form was inapplicable, because households were run by families, and even the communists were not up to instituting family party branches. Therefore rural communities remained main actors within their territories of abode and controlled it. Moreover, the abolishment of large land ownership on the one hand, and secularization (the weakening of the Church's authority and parish communities) on the other hand even strengthened rural communities and made them better possibilities to organize themselves. In 1920s, rural communities were becoming real competition to the militarized party power, and village councils could become mechanisms of local self-government. With the maturing of rural communities and the growth of their economic well-being the communist party was losing its influence in the countryside. Having discovered that, the communists carried out mass collectivization. Then at Kolkhozes, as enterprizes, basic-level party organizations were instituted to exercise real power by using Kolkhoz's resources and economic levers. All economic reasons for collectivization were a mere ideological camouflage.

During the first ten years of their existence, the Kolkhozes were economically inappropriate, with the famine in the Ukraine being the best testimony for that. The communist party needed them to enforce its principles of ruling the country. They took over from individual households entire agricultural production and concentrated all economic resources thus taking them away from local rural Soviets. It took several decades to turn Kolkhozes from instruments of political pressure and destruction of traditional rural communities into agricultural-industrial enterprizes, and yet until the very break-up of the Soviet Union Kolkhozes in general, with the exception of several model ones, has not been made to make profit. Moreover, by the end of the 1950s, Kolkhoz's agriculture could no longer provide the Soviet Union with the amount of food it needed. However, economic troubles and outcomes of collectivization cannot compare with its humanitarian aftermath. The latter consisted in *total proletarianization of the population and the destruction of all traditional forms of co-organizing people into communities*.

The consistent expansion and deployment of enterprize-based party structure made the peasants, now bereft of property, "lose" the need for self-organization. Local communities turned into "labor collectives", life in which required, on the one hand, permanent and mandatory integration into the collective, while on the other hand, forbade any initiative or setting one's own aims.

In the city, the situation was more complex; the enterprize-based principle of party construction allowed for the exertion of party power but could not hamper co-organization of people by their interests. That was where trade unions came into play to administer a final blow to communities. The role of trade unions will be expounded below.

Using enterprizes as the basic for its organizations, the communist party consolidated its power yet it had another, long-term effects: namely, it bound people so strongly to their workplaces that their connections became virtually irrelevant. As a result, in the city neighbors became so unimportant for each other that they stopped getting acquainted. It became normal that city dwellers do not know who lives next door. In the country, where the connections between neighbors are more evident, collectivization and assignment to Kolkhozes made people resort to Kolkhozes even for helping each other. Things that used to be done by communities of neighbors, such as stocking-up forage or fuel, reclamation works, protecting livestock from predators, repairing roads or bridges, etc., were now done exclusively upon permission of the Kolkhoz bosses and by means of Kolkhoz resources. It is indicative that, upon election as president of Belarus, A. Lukashenko stopped the development of farms and the very farmers' movement and started restoring Kolkhozes, overtly admitting that the Kolkhozes for him are a political rather than economic category.

“The party's driving belts and the school of communism”: however important is for each person his or her professional activity or other (non-professional) ways of making a living, there is some free time one gives to recreation, socialization, education, hobby or interests, religious rites etc. The communist way of running the country is organic at war or while rebuilding of a destroyed country, however, with certain economic stability and people starting to enjoy some free time the communist party felt its monopoly for power jeopardized. To minimize the threat it strived for control over people's free time, leisure, education, and even religious rituals.

Through different periods of its rule, the Communist Party of the Soviet Union invented various forms of controlling non-productive parts of people's lives. One of them was to make them spend their time cultivating gardens at their dachas (a small plot of land with a cabin) which, firstly, enabled them to cope with shortage of food, and secondly, split them during the time outside their jobs. Yet the main form of free time control was the Soviet trade unions. The state transferred into their possession the entire infrastructure of recreation and most of entertainment. With their incomes, Soviet people could not afford to travel, spend a holiday at a sea, take a sanatorium treatment, or do expensive sports; however, all this could be

paid by trade unions. Thus, the latter were de facto able to control most of free time of the people. All the Soviet people without exception were members of trade union organizations at their workplace, paid membership fees, and were entitled for some tours or sanatorium vouchers, sometimes “for free”, sometimes for a symbolic price. *Therefore the Soviet people no longer needed individual initiative or co-organization to satisfy their interests or engage in hobbies.* Those were delegated to trade unions. Rare exceptions emerged only during the so-called *stagnation epoch*, when hikers, amateur singers-and-songwriters, or young people with exotic interests received a possibility for spontaneous self-organization. It was those manifestations of independence in the shape of informal, exterritorial communities that became the foundation of political and social activity during Perestroika.

Additionally, we should remind the reader about a peculiarity in the Soviet trade unions, namely uniting employees and executives of enterprizes. All the co-workers of any enterprize, from a worker to the director, were members of one trade union organization, a branch of a ministerial trade union. Even the ministers, members of government, were members of their respective trade unions, with the exception of ministries without their own trade unions in which case their ministers joined the trade union of public servants. The Soviet trade unions united people at enterprizes but controlled their lives outside them and had nothing to do with settling labor disputes and conflicts.

Thus, trade unions played a crucial part in controlling individual life of the Soviet people. They filled up the gaps not covered by the party or enterprize administrations. At the same time, they also served to maintain the enterprize-based principle of management, binding all human communication to a structure beyond people’s control. In addition to Lenin’s saying about trade unions being the school of communism, there is one by Stalin in which he called trade unions “the driving belts of the party”. Their purpose was to render unnecessary, and in some cases even impossible, spontaneous association of people by their interests or any self-organization outside their workplace.

4. The Area of Private, Personal Life

Since their first years in power, the Bolsheviks tried to control social life, well aware that no forms of such a control could be stable and long-term without the intervention and modification of private life and private space. We have described some forms of control related to reorganization of production and

the structure of society management, now let us proceed to control over private and personal life. It was exercised in three main forms:

1. Direct violence and compulsion.
2. Distribution of material wealth and resources.
3. Ideological pressure in the forms of campaigning, propaganda, and, most importantly, education.

Violence and compulsion are beyond our present discourse, while two latter forms we will go into detail on now.

The housing issue. The Soviet system from its very beginning has concentrated all means of production and material resources, in order to bind each and every citizen of the country. No-one should have had the means to make living independently of the system.

Within our subject we will confine ourselves to distribution of housing. It was one of the most effective levers of interfering with the sphere of people's private lives, as well as subjugation and control, used by the Soviet system, from its early years until its very end. As early as in the 1930s Mikhail Bulgakov formulated anthropological consequences of housing distribution in the USSR by writing "Muscovites remain the same, only corrupt by the housing question."

Having nationalized virtually the entire pool of houses in the cities, the Soviet system gained control over migration processes and demographic reproduction. But that was not enough. The priority aim of the Soviet housing distribution policy was to destroy habitual social ties and relationships, which was achieved in several ways. Let us mention but a few of them, either the most mass-scale, or the most striking ones.

The communal apartments. The entire housing pool in the major cities of the Soviet Union was nationalized, including houses of higher classes, tenement buildings, and everything else, probably with the exception of private houses built for a single family. Nationalized apartments and blocks were divided into separate rooms, in each of which one family was lodged. Everything outside those "lodging" rooms was considered facilities of collective use, including the kitchen, toilet, corridor, pantries, etc. In some cases the previous owners of apartments or entire houses, usually representatives of higher classes, Intelligentsia (intellectuals), or highly skilled workers, were not resettled or repressed but left to live there just like other dwellers. It was called "compaction", and such apartments – "communal". Some communal apartments were homes for several tens of families.

First communal apartments were organized with the best intention to provide those in need with housing. With time, the shortcomings of the communal apartments became apparent, by their influence on people and their

relationships they produced no less threat than the shortage of housing. Firstly, there were problems in sharing those areas of collective use. Secondly, a discrepancy in life styles, culture, tradition, rituals, and even hygienic skills of representatives of different society layers lodged together in those apartments. As early as in the 1920s the notorious 'Kommunalka' (in Russian it is a slang-abbreviation of communal apartments) became a synonym for brawls, conflicts, interpersonal tension, and dissention. Gradually, a specific life style and a kind of human relations developed in the communal apartments. Eventually, although it had taken decades, the Soviet people learned to live in Kommunalkas and get along, yet those skill and accord were obtained *at the price of resignation from free choice of lifestyle, unification of ways of life and eradication of class, ownership, cultural, ethnic, and religious traditions*. An averaged way of life and lowered level of demand became wide-spread. It became a habit to suppress one's individuality for the sake of peace and quiet in a collective one had practically no opportunity to leave due to the institute of propiska (address registration) which we will touch below. At the same time, even the settling of peace among neighbors did not give push to the development of local communities. Firstly, the unification was arrived at not through negotiation of views and interests, but via their eradication. On the contrary, communities do organize themselves on the basis of common interests, values, and aims. Secondly, the inhabitants of communal apartments, despite living there for several generations, could not relate to that dwelling as their property that requires care and long-term planning. The fragility of material and social stature, just as life itself, and dependence on decisions beyond one's competence required rather the skill of individual search for a better life (a snug nest) than any joint maintenance, cooperation, or co-organization.

The barracks. In early Soviet years, speedy urbanization with short investment resources brought influx of migrants from backward and depressed regions to fast-developing towns. Labor force demand surpassed housing capacity for the new-arriving workers. Usually, the issue was resolved by building cheap dwellings for temporary lodging of workers. At the early stages of industrialization in pre-World War II period such cheap houses were barracks: single- or two-storey buildings made of substandard wood or construction scrap. Stationed there were workers, builders, and construction experts. However, due to the organization of the Soviet planned economy, upon construction of a new enterprise the budget for capital construction was cut which was why practically everyone who had not managed to receive a permanent abode remained to live in a barrack. Over time, insulated barracks became a permanent dwelling for several generations.

In the better-off 1960s and 1970s new-type barracks were being built for workers and migrants: the so-called hostels or “small-family” hostels. The small-family adjective came about when nobody retained any illusion in respect of their provisional character. In 1980s, updated “barracks” were being built out of the same materials as normal mass-construction houses, and even outfitted with a minimum set of commodities. Life in barracks, and later in hostels was simultaneously marked by several factors detrimental to the survival of communities: the temporariness of abode, competition for breaking away to more comfortable conditions, realized futility of those aspirations, and, most importantly, the feeling and awareness that almost nothing depends on oneself. Those factors produced the parasitical and paternalist attitude in the Soviet person who never felt as a full owner of his or her dwelling. Children bred in those kinds of homes, and sometimes creating their own families in them, are marked by low self-appraisal, lowered social demands, obedience, and lack of initiative. Attempts at finding support through appeal to solidarity or mutual help in barrack neighborhoods are hopeless.

Khrushchev’s city planning reform. The housing problem became particularly acute on the turn of 1960s. To tackle it, a special programme of housing construction was deployed stretching over several decades and moulding the outlook of Soviet cities, including Belarusian ones. That outlook remains also today. The programme consisted in accelerated, mass construction of cheap blocks of compact flats with a standard set of conveniences and services. Whole areas of cities were built like this, construction sites spanning many a kilometer square. The main feature of such a dwelling is a limited space. Yet those flats were perceived as an advantage, being separate flats. Most of them were single- or two-bedroom flats designed for a so-called nuclear family: a husband, a wife, and one or two children. This programme made it possible to house most of Kommunalka’s inhabitants and get rid of most of the barrack areas. Later, in the 1970s, city areas made up of rural-like wooden houses, the so-called private sector, were brought down, the inhabitants receiving flats in blocks.

The social and demographic consequences of that programme were disastrous and hardly reversible. Those scarce flats, the popularly nicknamed *Khrushchevkas*, nearly completed the destruction of the traditional multi-generational family earlier normal for European ethnicities of the USSR, including Belarusians. By disrupting families and scattering them across the city, the *Khrushchevkas* killed the Soviet person’s last possibility to get an experience of living in a miniature community – an extended family that often included unrelated members. Extended families remained

a means of passing down tradition, values, and ways of life unrelated to Soviet norms. Thanks to their solidarity and standing for one another such big families could survive in the hardest of times.

The Khrushchevkas also limited the growth of nuclear families. It could sometimes take very long to receive a flat therefore families had to control birth to fit with the flats at their disposal. Additionally, mass construction of faceless residential areas on the outskirts of cities gave birth to the phenomenon of “bedroom districts.” Bedroom here means that they are practically deprived of an infrastructure necessary for active and diversified life; therefore people’s life is limited to their workplaces or the city center concentrating pastime venues. *As a result, at the place of abode people hardly need each other.* All domestic problems get taken care of by the state. In the 1960s, when Khrushchevkas were being built close to the traditional city center, those areas were outfitted with some yard infrastructure: sports pitches, playgrounds, and socialization areas. The more uptown, the less need was there in such an infrastructure. Yards and streets began to extinct, play and sports grounds were more and more used not for kids but for walking dogs or parking cars. Communication between people in city neighborhoods disappeared almost completely.

The institute of propiska. Strengthening the destructive effect of all housing-related factors was the institute of propiska (address registration), which constrained the Soviet people by law. The phenomenon has been well described and analyzed. It is well known in former Soviet countries and abroad that it played a crucial part in limiting the freedom of migration of Soviet people and controlling their private life. Here we will only show how it helped destroy communities and normal forms of social life.

Propiska was means of binding every Soviet person to a certain place of residence, some territorial unit. Economic and cultural discrepancies between different areas can be seen as an analogue of class or feudal privileges. To get born in a capital gave privileges by birth independent from personal talents, capabilities, diligence, etc. However, even life in capital did not guarantee equally high rights, because one could not, for instance, choose a school to go to but was assigned a school local to one’s place of registration. The Soviet regime understood the injustice of the institute of propiska and tried to invent some compensatory mechanisms by allotting quotas, e.g., for entering university for people from the countryside, to somehow put them on a par with city children. There were even quotas for joining the party. Those mechanisms, however, not so much restored justice as strengthened paternalist feelings in the regions with low economic and social status and increased corruption in the privileged ones. While the “poor” grew more and

more accustomed to hoping for sop from the state, the “rich” became ever more confident that acquaintances, connections, and bribes (this phenomenon is called “blat” in Russian and “układ” in Polish) get one anywhere.

Propiska, although binding to a place of residence, merely shared rather than united a person with his or her neighbors because all everyday issues were resolved in the relation between an individual and the state, personified in a functionary, and each person was looking in an individual way of establishing and “improving” that relation.

In its legal form, the institute of propiska which Belarus inherited from the USSR, has remained for quite long, until 2007. Just recently propiska was replaced with registration. Essentially, nothing has changed, which only testifies for the importance of this institute for the preservation of social relations and structure of the society that was once the USSR. In the city, its efficiency has been long ago undermined by the emerging real estate market, whereas in the country it is still in effect, nearly as much as under the Soviets.

Interfering with country people’s private lives. We have just detailed above the institute of propiska that was originally introduced only in cities, and part of which was mandatory introduction of passports for the city population. Meanwhile, rural citizens had no passports until late 1950s. The lack of passports completely deprived them of the freedom of movement. They could leave their village of residence, even to move to a neighboring village, only upon permission from authorities. De facto, it was serfdom re-established. Every peasant family was assigned to a Kolkhoz or industrial enterprise. Collectivization of property was used to reinforce administrative binding. The original collectivization of 1930s encompassed, together with land and means of production, practically entire possessions of families. Later, peasant families were given back part of their property: gardens adjoining their houses, poultry, and smaller livestock like goats or rabbits. However, during the first three decades of Kolkhozes’ existence, the peasants were not being paid money for their labor; instead natural payment was used by means of a special unit – the *workday*. Amounts of workdays were used to determine allotments of food products, including grain, butter, sugar, etc. Peasants could only get money by selling what they received in exchange for their workdays. Once in a while, a campaign was undertaken to deprave the peasants from means of providing their families for. For example, one of Khrushchev’s reforms implied monetary tax on fruit trees simultaneously prohibiting selling home-grown fruits in the market, which resulted in large-scale felling of such trees. Thus, the peasants, despite owning their homes, ended up in a yet more difficult situation than

the city dwellers, having lost both the legal and economic bases of personal freedom. The only ways for peasants to relatively more freedom was either conscription to the army or enrolment into a higher educational establishment with the view of getting a job in a city upon graduation.

Against the backdrop of neo-serfdom, education for peasants was being deployed at a high rate, starting with the illiteracy abolishment programme in the 1920–1930s. Even elementary education enabled them to see the backwardness and injustice of their situation, and made migration to the city an aspiration of virtually every peasant. It gave rise to a widespread notion of a rural citizen as being second-class, a stature spelled as mischief and life failure. Thus, the psychological basis for rural communities was sapped.

5. The cultural revolution, the upbringing of new man, and education

Another major mechanism of destroying communities as a form of people's life and co-organization, a mechanism operating on the level of personality (in the domain of values, views, way of life, and tradition) was the Soviet culture and education. The notion of the Soviet education being the best in the world, widespread in the USSR in its last decades, had serious grounds. Probably no other government in the world has paid so much attention to education as the Soviet system throughout its history. The scope of education was very wide, and the education or more precisely, re-education of the people was a priority task in consolidation and preservation of power.

From its very beginning, the Soviet regime set the task of a “cultural revolution”, along with those of industrialization and collectivization. *Cultural revolution was understood as the education of new man, such a human who would want, be able, and love to live under socialism.* The Bolshevik leaders clearly understood that the person of the preceding epoch could not learn to like socialism, and was probably even unable to learn to live under it. In fact, the task of bringing up a new type of human was solved by three kinds of means.

1. The first type was directly derived from the philosophy of historic and dialectic materialism. Since “existence determines consciousness”, then the moulding of a certain new mentality requires organizing certain corresponding conditions of being. Actually, what we have detailed above partially characterizes the conditions created by the Soviet system. Those were the conditions of life and activity of the Soviet people in various aspects, from participation in political life (the principles of party

construction, self-government) to the regulation of private life through the organization of the residential environment. Those conditions were intended to destroy or largely modify traditional social institutes that are the cornerstones of European societies and nations: private property, law, family, personality, etc.

2. Even the most orthodox Marxist-Leninists realized that even though “existence determines consciousness”, the latter has certain tenacity, inertia, and conservatism. Therefore existence determines it not at once, not always, and not completely, and so there had to be found some other means of control over consciousness additional to manipulating conditions of their existence (life and activity). Such means of control were violence. As a matter of fact, violence had always accompanied wars, and had always been employed by the state as an institute of one group of people suppressing other. But it was the Bolsheviks (not even the Jacobean of the Great French Revolution) who first came to using violence not traditionally (for defence, punishment, or frightening) but as an instrument of consciousness control and education/re-education of large social groups. The Bolsheviks made violence industrial. For example, the introduced concentration camps, invented by British occupants in Southern Africa, but unlike short-term action in an occupied territory they used them as means of mobilizing labor resources and a school for mass re-education. Throughout the history of the USSR waves of violence would wax and wane but never cease. Partially by violence, the representatives of unfitting lifestyles were eradicated, partially terror helped build into the masses elements of the new way of life.
3. And the third kind of instruments for educating new man consisted of educational means proper. The whole education system in the Soviet Union was traditionally referred to as people’s education and enlightenment. It was a precise formulation as the Soviet leaders and ideologists were interested in mass and homogenous education for all Soviet people without exception. As for enlightenment, they interpreted it in the spirit of the French bourgeois revolution. Clearly that Jacobean interpretation implied not only “committees for public safety” and the guillotine but also free-of-charge schools for the masses, mass campaigning, and propaganda. The latter ranged from monumental propaganda in architecture to lullabies’ content. The communist leaders and ideologists oriented towards to aim of bringing up the Soviet person mass media, arts, and even religiosity, deeply rooted in the people. Cinema, theater, popular music, poetry, and prose – all genres were being recruited for cultural revolution. The period of boisterous creative quests was over by the mid-1920s

after which everybody keen on aesthetic search and experiments could continue them in concentration camps while the mainstream of Soviet art, socialist realism, was carefully monitored and controlled by party bodies.

Education itself, meaning the organization of schools at all types and levels also went through a period of creative search and experiment. The Soviet Union tried nearly every pedagogical didactic and organizational idea in fashion at that time and many were invented here. However, by the mid-1930s the Soviet system has finalized its choice and put an end to pluralism and didactic experiments. The whole education system in the Soviet Union from Minsk to Vladivostok was built as a *unified, general education polytechnic school* with highly standardized curriculum and forms and methods of teaching. It was impossible to equalize personal and professional qualities of pedagogues, and yet a standard teaching plan left virtually no space to teachers to manifest their qualities and abilities. The extent of unification was such that a student from a village school somewhere in Siberia could change over to a school in Moscow and continue studying from the place he or she had left at the previous school.

The standardization and unification of general school was a model for other types and levels of schools: preliminary, general professional, or highest. There, however, the results were not so noticeable. *The main product of the Soviet school was not knowledge, skills, or qualification of the student: it was the personality of the graduate.* That personality was described in various mythical categories such as “harmoniously, totally developed”, a “politically literate” or “morally stable.” In the early 1960s, they were compiled into an extensive description of the standard, titled “Moral Code of the Builder of Communism.” Despite the ritual-like, declarative description of a general school graduate and the impossibility of meeting an incarnation of those ideal qualities in reality, schools did fulfil their main task – that of bringing up a new model person, even if the “product” actually required different terms for its assessment. Some rough description of this personality type are well known long ago, from artistic images by Elias Canetti to grotesque characters of J. Orwell [4] and to formal, mathematical formulas of V. Lefebvre [3]. The Soviet personality is marked with lack of initiative and dependence on a collective. *The Soviet person is practically incapable of autonomous individual life and needs a collective, yet on the other hand a collective made up of such individuals is incapable of self-organization.*

This peculiarity of Soviet collectivism is especially important within our subject. Upon joining a Soviet collective, an individual member lost

subjectivity, that is, one subdued one's interests and aims to those of the collective. Neither did the collective become a subject; it always remained directed from outside. It is important to understand that both a person and a collective lose the ability to set their own goals, as a result of Soviet education and the cultural policy pursued. Both the person and the collective love the capacity for reflection, therefore they do not understand the origin of goals, take them for granted and naturally inherent to collectives (sic, a goal is ascribed to the collective, not an individual). Therefore, once put together in a collective, Soviet people easily and humbly work towards the achievement of goals none of them shares.

From their childhood, the Soviet people were taught to live in a collective, surrender their will to a collective, follow a collective, and sacrifice a lot for the sake of a collective. Yet never, nor in childhood, nor as adults, they were taught to create communities, set or analyze aims.

The first attempt to teach Soviet students management (the professional qualification of a manager includes the capability of setting aims as well as creating and managing collectives and communities) was undertaken in the mid-1960s by the Academician Trapeznikov who, on return from a trip to the USA, founded a management institute under the patronage of Khrushchev. Several years later, while retaining the name, the institute began teaching the same as other Soviet higher educational establishments: production technologies. Soviet people received management skills by pursuing a career in children's and youth wings of the communist party (Oktyabryata, Pioneers, and Komsomol). Such career undoubtedly developed practical skills of commanding people but not those of managing them as it requires some theoretical knowledge of one's own managing activity. The lack of such knowledge was the characteristic of Soviet party leaders of all ranks. The Soviet and party hierarchy were therefore built through natural selection rather than education and training.

The only, and common, goal for all Soviet and party functionaries was promotion up the hierarchy, which was achieved through the success of the collectives they headed. Each Soviet leader aimed for the success of his or her collective, the indicators of which were not the own aims or needs of the collective but the demands of the next higher leader. Such practice required corresponding attitude and education from a leader. *The Soviet people learnt to ignore their own needs, goals, and aspirations for the sake of achieving other aims imposed on them from outside.*

The cultivation of such a type of education yielded in a state of shock and helplessness at the end of Perestroika, during the period when former Soviet republics gained independence and had to determine their goals and

development strategies themselves. In Russia and some other countries the sole category of population capable of setting aims and self-organization was the criminal elements who came to dominate public life for several years in the early 1990s. In the three Baltic countries, collectives and social structures assimilated foreign goals held by old generations that had been too old to go to Soviet school or by returning emigrants. Meanwhile in Belarus, quite soon an authoritarian paternalist state was restored that became the source of goals and aims for individual collectives and the entire population. It did not take long to bring the whole education system to the original Soviet shape. As a result, the only elements more or less ready for initiative and self-organization are the generations that finished school in the beginning and middle of the 1990s as well as marginalized people, “scrap and waste” of the Soviet education system.

These are the conditions and factors that created the situation we are facing now in Belarus. This brief excursus into the recent past reveals the picture of total and elaborate extermination of local communities. Not only were they ousted by other kinds of social organization, the ability of self-organization was being eradicated as a way of life, thinking, and action. And it was de facto destroyed to the extent that the lack of own goals, consumerism, and expectant attitude are perceived by the inhabitants of today’s Belarus as natural. We need this extensive statement about the absence of local communities in order not to mistake our wishes for reality while applying methods of community development designed and tried out in democratic countries. On the other hand, it is not a reason to resign from working with local communities in Belarus: by being aware of the state of local communities in the country we will take it into account as a circumstance of our activity.

6. The Ways and Techniques of Working with Local Communities. Studying by Doing

Any reasoning about the existence, non-existence, or wrong existence of something must end with a conclusion. The whole range of conclusions can be spun from two logical poles: from “if something is not there it is the way it should be” to “we cannot put up with this status and need to change everything.” We tend towards the latter which in this case means that we need the above detailed explanation and argumentation that there are no communities in today’s Belarus in order to come to a strategic thesis: it is impossible to develop that which does not exist, however, it can

be re-created or just created anew. Numerous attempts at community development in Belarus that have been undertaken over the past fifteen years were not successful for the very reason that attempted to develop Soviet collectives (or other associations of people) mistaken them for communities analogous to those in European or pre-Soviet Belarus. On the contrary, we, by concluding that the Soviet forms of people's associations differ radically from communities inherent in open society or even traditional European society, understand that Soviet kinds of collectives can only develop or change within the Soviet forms and limitations. When it comes to communities as elements of democratic or open society, they need to be created anew, even though from the same people who used to make up former Soviet collectives.

However, whenever we arrive at such a formulation of the task we run into the problem of creating communities where they do not exist and have not existed. What can they be created from? This is a serious methodological problem experts in Europe practically never encounter. There, each time they deal with communities that are already there, maybe underdeveloped, sometimes primitive, sometimes with deviations and flaws. Unlike that, we face the necessity to create communities out of something that is not a community. We could put forth this problem in a theoretical plane, that is, give them a definition (along with definitions of other kinds of groups) and try to develop a theory of communities. Without dismissing the theoretical approach altogether, at present we are more interested in the methodological and activity aspects. How and from what can we organize communities?

We are based on the notion that the theoretical and methodological aspects of the problem can be considered independently of each other and solved in parallel enriching each other if need be. Thus, selectionists had bred new species of animals and plants centuries before Darwin's theory of natural selection or Mendel's genetics. In the development of their theories, both Mendel and Darwin took into account the methods of selection, while the latter broadened and developed their methods thanks to those theories.

Now we have a theoretical dilemma under which either everything that happens to people is conditioned either by rules, norms, principles, and outer conditions of people's activity or by their own human qualities. If the former is the case then a lack of communities in Belarus is only due to some peculiar conditions or factors within Belarusian life or some norms and principles that hamper the appearance of communities. In the second case, we will have to admit that the Belarusians are charged with some peculiar qualities that prevent them from uniting into or creating communities.

We do not have a satisfactory research or empirical knowledge or ma-

terial to make the right choice here. However, we suppose we can involve in the practice of creating communities without waiting for theorists and researchers to give a precise explanation of the absence of communities in Belarus. At the same time, we understand the importance of such a research, and see a possibility for our contribution to it via what is known as *research by doing*, or obtaining knowledge in the course of implementing practical ideas.

At the common sense level it is clear that knowledge should precede activity. In its turn, there must be a way of obtaining knowledge. In social projects, reforms, and even local social transformations an actor often deals with an environment or objects not studied. Should an actor always wait for ready knowledge from researchers most actions would be impossible. In a situation like this, actions precede knowledge. Common sense adjusts itself to this violation of consequence with the help of the principle we can formulate below.

Prior to setting off on a journey, modern tourists and travellers make up a route on maps at their disposal. A map is knowledge preceding a real travel. However, those maps were drawn up by people who once visited those uncharted areas. Pioneers and explorers can be said to typify studying by doing.

Planet is limited in space, therefore we can have maps of any territory. Imagine that relief and landscape of the planet were changing over a lifetime of one generation of people, not over geological epochs. Then every generation would need its pioneers and explorers. Clearly, it is not needed in geography, but the situation is more like this in social studies. Every new generation of actors faces uncharted society. Stable, unchanging society exists only in dreams and ideals of closed society adepts. Actors holding ideals of open society understand that they are to act in the situation of permanent change dealing each time with a new form of society. Hence research by doing is the only possible method under the situation of societies undergoing transformation and reform, also widespread among other methods in open society. Following are several aspects by which research by doing differs from a usual action preceded by knowledge about the object:

1. There is insufficient knowledge about the object.
2. The researcher is ready to act with uncertain or inadequate knowledge.
3. Reflection and feedback are vital in the structure of action.
4. Duality of objectives. An action is aimed both at achieving a result and obtaining new knowledge.

Applied to our subject, this general argumentation implies the following:

1. We know very little about communities and social life in Belarus, especially outside the capital, and we should not present this inadequate knowledge for full-fledged and sufficient.
2. We should be ready to act, that is, create or develop communities in Belarus, while admitting the insufficiency of our knowledge, and not postpone our actions until the missing knowledge is produced by someone else.
3. We should design and plan our actions so carefully as to not go for irreversible actions, so that any mistake we discover through feedback can be timely corrected.
4. We should understand that the value of our actions lies not only in the achievement of a result, which here means the creation and development of communities, but also in new knowledge, including that of mistakes and failures, which we will be able to share with other actors in civil society who create and develop communities.

7. The “Alive from Alive” Practice

So, our approach to the task of recreating locus in Belarus will be based not on the knowledge of the essence and structure of communities, laws of their appearing and development; instead, we will use the simple practical assumption that *the people who have lived in communities are able to and will transmit their experience, norms, and rules of such life while solving everyday problems*. This is based on the notion of people being adaptable and able to learn. If one's destiny brings one into an existing community, he or she adapts to it and learns the rules and norms necessary to live in the community. This is an ancient practice known as cultural assimilation or, in more modern forms, integration. In Europe and America the practice of integration has been used for years; it is usually described and interpreted as an alternative to apartheid. We are now considering a different aspect of this practice, the possibility of spawning communities through, metaphorically, a kind of “budding”. We have seen successful practices of integration when representatives of other races or people with disabilities are included into collectives and through joint activity or education learn and adopt new group norms and principles of life; simultaneously, older participants in the group learn to accept representatives of another race, culture, religion, or people with disabilities as equal. This allows us to presume that the following practice can be successful in Belarus in respect to the creation and organization of communities:

1. People integrate into already existing, living and functioning communities;
2. Those integrated communities grow;
3. Upon reaching a certain critical mass, the community buds into two or more which continue to live and function on their own.

Such a practice appears to be simple and obvious. We call it “alive from alive”, and thanks to its simplicity and obviousness it may prove successful. There is, however, one problem: where to obtain the original mother communities into which we can begin integrating people with no experience of life in communities. In the previous sections we gave a detailed and hopefully convincing description of how the Soviet system deliberately and consistently destroyed communities. The conclusion we make that the destruction succeeded hold fully true as far as territorial and local communities are concerned. In order to apply the practice “alive from alive” we need to find some communities that managed to survive the Soviet cultural revolution in any form, or appeared after the actions by the Soviet regime ceased to be effective.

The task of discovering such communities also requires serious study. As for practical needs, we can suggest the following. There exist at least several types of communities that have not fallen under the Soviet regime despite its efforts.

Predominantly, those are **religious communities**. There may be other similarly stable kinds of communities, for example, tribal groups in Central Asia or on Caucasus, but they are not to be found in Belarus. The Soviet system did not manage to have done with **criminal communities**. For several times throughout its history the Soviet authorities claimed to have eradicated organized crime (e.g., after the abolishment of NEP in the 1930s and upon recovering from war damages in the 1950s), however, soon after the proclamation of those doubtful victories organized crime reappeared in new forms. We do not pretend at judging whether those communities adjusted themselves to new conditions or reappeared from ground up, yet this is irrelevant for us as we cannot appeal to communities of this kind anyway.

Throughout the Soviet history the regime was trying to suppress professional communities, however, it also needed them and therefore did not crush them but brought them under as much control as possible. However, even if professional communities have survived until today, they are too weak to be of much interest to us. Actually, none of the professional communities has demonstrated any viability over the entire history of independent Belarus.

During Perestroika, the driving force of the process of changes were

groups of people that received a collective name of “Neformaly” (in Russian, this means “the informal ones”). One can suppose that **associations of Neformaly** were at least to a certain extent communities, at least, some of them showed signs of self-organization and activity in relations between themselves, with the state and local authorities, etc. Many Neformaly groups disappeared with the end of Perestroika. Some of them dissolved in political movements, some gave push to the emergence of third sector. Some of them may even have survived until today. The history of Neformaly goes back to Khrushchev Thaw (the end of 1950s). It started as purely outward imitation of certain western movements or trends (the beatniks, hippies, etc.). Later, as the Iron Curtain was gradually getting thin, Soviet Neformaly started to contact their likes in Europe and if their prototypes were extritorial communities or proto-communities then Neformaly slowly adopted their norms and principles of behavior. Not always those movements had positive follow-up, some simply died out, some were weak in numbers, yet nonetheless they are not to neglect.

Another group of peculiar phenomena that at a stretch can be seen as a communities or proto-communities encompass **dissidents and some clubs uniting people by profession or interests**. The examples of those are scientific circles, hiking clubs, amateur singers-and-songwriters, etc. Even though they can be considered as communities with certain reservations, they were schools, however basic, of an alternative lifestyle, the school of self-organization, initiative, equality, democracy, and solidarity in defending their interests.

Thus, for the application of the “alive from alive” practice we may count on cooperation with some communities or proto-communities. Our partners may be religious communities, extritorial professional communities, viable clubs with a history, as well as those third sector organizations that either came out from some communities or were created by them. Our “enemies” and competitors are criminal communities and pseudo-institutions passed down from the Soviet times, such as Kolkhozes, Soviet trade unions, and so-called “governmental NGOs” (the Voluntary Society for Assisting Army, Air Force, and Navy; the Veterans Society, the Union of Women, Red Cross, Pioneers, Komsomol, the Belarusian Republican Union of Youth – BRSM).

8. From Extritorial to Local Communities

The technique and practice of organizing communities alive-from-alive implies that people receive experience of life in communities by becoming mem-

bers of or participants in already existing, mainly exterritorial communities and then pass on and build in the experience in their local area by organizing local communities. For the success of our practice we ought to be confident the experience of living in an exterritorial community can be applied to a local community. Let us see what exterritorial and local communities have in common and where do they differ. We assume that both are:

1. based on mutual interest;
2. capable of self-organization and growing autonomous structures for managing the community;
3. capable of reproduction and viable in the long run through change and inheritance of generations;
4. capable of accepting responsibility for something the community owns or has at its disposal, that is, the communities can handle matters within their area of responsibility and interests.

At the same time, exterritorial and local communities are essentially different from each other:

1. the interests of local communities lie more often within the area of providing for life, whereas exterritorial communities are rather interested either in activity, or in the areas of ideas, spiritual search etc. Therefore participants in exterritorial communities to a smaller extent need each other, are attached to each other, or feel loss on departure or expulsion of a fellow member.
2. Common ownership or management in exterritorial communities is rather virtual unlike evident and tangible in local communities (roads, land, real estate, natural resources). The virtual possessions of exterritorial communities lie in the domain of ideas, norms, cultural and spiritual values. Therefore communication in exterritorial communities is more complicated and intense compared to clearer and more mundane in local communities. The specificity of communication and discourse to some extent complicate understanding between members of exterritorial and local communities and may hamper the transmission of experience from the former to the latter.

In a usual situation, people can be (could also be in Belarus if the above-described historic background) members of exterritorial and local communities simultaneously without transferring the experience of one onto another. Similarly, one can be a member of several exterritorial communities, for example, a member of areligious community, a sports or hiking club, and a professional community and yet distinguish between them and not confuse the norms of different communities. Recognizing this, we should also understand that the transfer of experience into new situ-

ations does not occur automatically but is only possible through reflection and realization. Therefore our situation requires some new actions compared to usual situations when people have experience of community life from as early as childhood. *At every stage of community organizational activity we should stimulate people to discuss the experience they get, exchange their ideas about it, and plan transferring it into a different situation.* At every of the above steps, discussion should be held in a different way bearing in mind that the discourse of exterritorial communities' virtual objects and values is by far different from that of local communities.

Without going into subtle theoretical and methodological differences between exterritorial and local communities or their discourses, let us try to find something in common that makes it possible to transfer experience. In the broadest possible sense, a hint towards an answer can be found in the sustainable development slogan formulated in 1992: *think globally, act locally.* To some extent the reason why exterritorial communities are not bound to a territory is that they target general, global problems. This, however, only holds true as long as they do not set achievable, practical aims. For example, thinking of anthropogenic interference with the climate system implies the global scale and involves the history of civilization and technology in general. However, signers of the Kyoto protocol can be governments of specific countries, hence a specific programme for reducing greenhouse gases emission is related to a territory. More specifically, the implementation of the Kyoto protocol goes down to the local level. This example shows that literally any programme can have several dimensions: the global or exterritorial, the national, and the local levels. Note that the way of solving such problems is through an integral approach at all levels and cannot be actualized at any single level (i.e. only at the national or only at the local level).

Applied to our subject, this can look as follows: *the viability and effectiveness of exterritorial communities in Belarus is to be secured through their involvement into global, trans-national processes.* Through this involvement, Belarusian exterritorial communities retain continuity of norms and traditions and can survive even the hardest of times. Therefore only those communities managed to live or revive thanks to the fact that the bases and norms that unite their members have been being transmitted outside the Soviet society. This is the reason for their viability, unlike territorial communities the basis of which is a relation to a specific territory. This relation was actually destroyed under the Soviet regime. However, true for the survival of exterritorial communities, it does not apply to their activity

and practice. *Successful activity requires defining the area of responsibility or localization of a community.* This is where Belarusian exterritorial communities encounter great problems.

It is also true that Belarusian organizations that represent those or other communities not always seek localization or outlining their area of responsibility. It would seem obvious that Belarus is exactly where Belarusian environmental, educational, youth, etc. organizations can be achieving their aims. However, they mostly prefer not to relate to Belarusian reality. There are also some theoretical grounds provided in favor of such an approach. For example, people refer to the activity of Amnesty International whose members are active outside their countries of nationality and thus are more efficient in achieving the organization's aims. Another example is the anti-globalist movement: the Belarusian anti-globalists are frequent participants in rallies in other countries without even trying to stage one in Belarus. The third example and argument is borrowed from the Soviet past and is related to the Communist International which was waging the "struggle for peace world-wide" with no respect to local wars and aggression, and for which "global revolution" and establishing justice globally were more important than totalitarianism and trampling justice in one's own country. Today this attitude is typical for organizations, movements, and communities on the platforms of pan-Slavism and Slavophilism.

And the last argument that the Belarusian exterritorial communities direct against localization of their activity is purely empiric: all previous attempts were not successful. Part of it is that exterritorial communities or organizations representing them simply do not want to make another doomed attempt. Another, and more important part, however, is that any localization, claiming responsibility for achieving some general aims in one particular locality weaken communities, making them more vulnerable for their opponents. The authoritarian Belarusian regime is not strong enough to eradicate all manifestations of the civil society. Some of them it has to put up with, however, it becomes utterly implacable towards any attempts to establish influence alternative to that of the state, even in the smallest local scope. In addition to suppressing exterritorial communities and their representative NGOs, the regime also acts against private business, limiting privatization and private initiative. One can even draw parallels in the regime's attitude towards business and the third sector. Among businesses, the authorities attack companies that own real estate or are somehow bound to a territory, whereas exterritorial business remains freer and off the main focus of the regime. Similarly, among the civil society structures the authori-

ties watch closer those organizations and communities whose activity leaves marks in some specific locale.

In fact, we can state that the most general policy of the regime is to prevent the appearance of any alternative actor in the territory. The state authorities strive for retaining the monopoly as the subject of action in the whole territory of the Republic of Belarus, as it was in the Soviet time. Thus, the creation and development of communities is a strategic alternative to the existing regime. The actors and ideologists of the regime understand it in exactly this way; unfortunately, their opponents not always share this understanding. Most often those who involve in community development in Belarus go into detail on technical issues and get stuck there unaware of the reasons of failure.

Back to the sustainable development principle of thinking globally and acting locally as applied to community organization and development, we have to put specific meaning and content into the ideas of “**what and how to think**” and “**where and how to act**”. Community creation and development implies radical changes at the national scale (not global but large enough to be abstracted from specific action). An action planned at this large scale will bring about drastic changes of the quality and way of life. However, those plans are and will remain unrealistic and utopian unless within it action are made very specific down to the quality and way of life of small local communities and each individual. *Influencing the quality and way of life of individual people and communities is a prerogative of local communities; however, they cannot do it unless they are connected by a common plan with exterritorial communities.* It is impossible to act without thinking. A transformation is always thought of at the national scale and that thought always comes into effect locally. One does not function without the other. Exterritorial communities are possible in Belarus and exist thanks to their involvement into global processes yet they are inactive without representation in local communities. In their turn, local communities cannot appear without the connection and support from exterritorial ones, and cannot exist independently and survive under harsh conditions without keeping such connection.

Nevertheless, exterritorial communities, small groups of people, and even individual representatives of communities and movements sometimes try to localize their activity, apply it to a certain locale. Not only these attempts get rebuffed by Belarusian authorities, they also face consolidated negative reaction of the local population that sees local activity of communities as either unacceptable innovation or an attempt at the privatization of something local inhabitants are used to considering pub-

lic which in the Soviet sense of the word means “everybody’s and nobody’s.”

Let us therefore once again review the factors hampering the organization and development of communities. Based on the above said, we have to see that these factors are more subjective than objective. Rewording a famous quote from K. Popper (‘The Open Society and Its Enemies’) we can speak about attempts to organization communities in Belarus and enemies of those attempts. Among the enemies of open and civil society in Belarus we should take into account both the regime and the consolidated opinion of a majority of local population. Local actions aimed at creating communities are brought forth by global thinking based on dominating in Europe notions of democracy, open and civil society, human rights etc. The problem is that those actions cause resistance of Soviet thinking that pretends at an equally global scale and denies all values of democracy, human rights etc. At the local level, the struggle for community creation and development goes against specific characters, functionaries, or local people of authority, while at the national level this is a clash between the European and Soviet thinking. Hence, concrete actions at the local level must be as much related and coordinated with the process of de-Sovietization as their counteraction is related and inline with the Soviet thinking and mentality.

Thus we can add another detail to the order and programme of actions aimed at the creation and development of local communities. All the participants in the local projects, most importantly their leaders, managers, and activists, should be involved into common thinking (to successfully act locally, they have to think globally), this common thinking can be referred to a de-Sovietization. Until we resign from Soviet notions and the Soviet system of values, we cannot organize local communities. As long as the Soviet system of notions and values is in place, local population in each specific case will opt for habitual Soviet ways of solving even the tiniest of problems. Solving even minor problems on ones’ own, without turning for assistance to the state and local authorities, taking responsibility for one’s decisions is much more difficult than using the patronage of the authorities bought at the price of loyalty. Independence is yet to be learnt, and even learning it does not remove risks and responsibility for mistakes. It takes strong motivation to change a habitual way of life, abandon stereotypes of behavior and the conventional way of doing things. Motivation that can give rise to a nation-wide movement, encourage and keep going local initiatives. Without it, the power and energy of local initiative groups will be unable to endure the pressure from the regime and the silent majority of the population.

9. The Tasks and Areas of activity, the Order of Actions

In order to proceed from the description of the situation, conditions, and opportunities for community development in Belarus to the tasks and methods of solving them we should once again clarify the general scheme of reviving local communities.

- The development of local communities is possible only through people's getting experience of living in communities as an experience of special social relations.
- Only certain kinds of communities, exterritorial in the first place, have retained such an experience in today's Belarus.
- Those "miraculously survived" instances of community life themselves need support and development which can be given through the implementation of ideas of uniting members of exterritorial communities under specific conditions and in a local situation.
- Involvement in exterritorial communities give people the experience of community life.
- In its turn, local work towards general (global) aims can found a basis for uniting local inhabitants around, firstly, people with experience of community life, and secondly, around a task brought in by exterritorial communities and for fulfilment of which there are no adequate local structures.
- Accepting responsibility for solving a new task by a group of people in a particular locale opens the possibility for reviving local communities.
- The presence of exterritorial communities' members in local proto-communities allows for transmitting and building in norms of "new" social relations, for the propagation of community experience.
- Cooperation between exterritorial and local communities multiplies resources and the possibilities of each of the communities on its own, allows for growing social capital and the area of responsibility.

We see this scheme as a basis whence the following kinds of activities are derived:

Firstly, we will be looking for "living" communities, integrate people into them and charge them with the experience of community life. We see the two possible options for implementing this activity:

A) To see ourselves together with the network of participants in our past activity as an exterritorial community, integrate people into us in the territories in which we carry out activity with the idea of further budding of local proto-communities.

B) To look for possible exterritorial communities or at least proto-communities as well as NGOs that can incorporate new members and transfer to them the necessary experience of community life.

Obviously, the implementation of both options takes solving many additional tasks and some actions. Among the tasks we put forth that of research. This, for example, includes defining the criteria and procedures of searching and selecting both proto-communities and people to be integrated in them. A separate task is finding out the ways and mechanisms of integrating people into exterritorial communities. Moreover, for this activity we need specific communities to recognize themselves as subjects of community development activity.

The *second* kind of activity is help and support for the cloned proto-communities in growing social capital and viability. This activity will be based on establishing mutual “infrastructural” relations between exterritorial and one or several local communities. Such relations imply that one community can provide solving some tasks and problems to another. Thus, the social capital of each one of them is increased and such a mutual interrelation allows for one community to become a co-owner of some common property owned by another community.

The *third* kind of activity is PR campaigning and communication. The popularization of life in local communities.

The *fourth* that merits a separate explication is analysis and comprehension of experience taking into account the feedback, reflection on mistakes and achievements, and crystallizing results in the form of methods, techniques, and teaching aids suitable for transmission.

The *fifth* is education and preparation, training the participants in the processes we launch with the aim of community creation and development. This mainly implies, in addition to receiving knowledge, work on the development of reflexivity, capability of setting aims and organizing one’s own and collective activity.

Translating this understanding of activities necessary for the recreation of local communities into techniques thus available for other actors we have the following streamline of actions:

1. Self-identification as the subject of (participant in) the programme for community development in Belarus.
2. Determining programme aims and the system of concepts and vies required for its implementation.
3. Defining a set of characteristics and indicators we can use while distinguish between target communities and those that do not qualify as communities but simulate or pretend to being them.

4. Using the above determined indicators and characteristics we develop the procedure of testing the communities selected for further work (potential communities) against the chosen set of criteria.
5. Drawing up a “database” of potential communities by using available sources of information.
6. Examining the identified potential communities in the database for according to the procedure developed at Step 4.
7. (a) Establishing partnerships with the communities that passed the test at the previous step for joint implementation of the community development programme.
(b) Identifying active, initiative people in the communities that failed the test.
8. Involving the active, initiative people identified at Step 7 into the activity of existing communities so that they receive the experience of life and activity in communities.

An analysis of the above 8 steps may reveal a paradox: we have to establish connections and partnerships at Step 7 and involve activists at Step 8 while we do not have adequate and complete information at Steps 3 to 6. This paradox is widely spread in the practice of pioneers and first explorers. This is where research by doing comes into play. In this approach, characteristics, indicators, and criteria are not given a priori but produced by successful application.

Nevertheless, in our work we use certain targets, in particular, to look for people and proto-communities. Traditionally, NGOs focus in their activity on some target groups defined either by age or by social category (e.g., young people, the handicapped, pensioners, etc.). In our case, we cannot use such characteristics as they lead us astray from our tasks and blur the main problem. Target groups like these in Europe can be organized into communities with some assistance and support because their representatives have or may have experience in other communities. Meanwhile here, on the one hand, our youth or pensioners have no such experience, and on the other hand, even those who now want to help them does not have it. The main problem, however, is that target group communities selected like this are always secondary in respect to those quasi-natural communities that constitute the backbone of the civil society in European nations: the local communities.

When singling out targets for our activity, we count on people not their associations. Above we have stated that social structures traditional for European nations have been destroyed in Belarus, now we have also admit that we do not have any worthwhile picture of Belarusian society at our

disposal. While using terms young people or the handicapped etc. we can think them as the corresponding structures in a European society, yet they are different in Belarus. To think them or work with them in any different way is beyond our, and anybody's in Belarus, experience. This makes us target active and initiative people in the periphery of the country not rushing to write them into any social structures or groups.

Shifting the focus from social organizations onto individuals, we still have to figure out the criteria for selecting people we need. Such characteristics as "active" and "initiative" that first come to mind can be assessed through evaluation of the past activity and joint experience. Moreover, we cannot agree with any expressions of initiative and activity. It should be directed activity, meaning that people are to have specific problems, relevant for many or even all the people living in a certain area. Those should also be problems not solvable on one's own but only through involving many other people. And yet that is not enough.

There are practically no people in Belarus with the experience of community life, however, there must be people with a *vital need for communities*. This very need is for us the main target in selecting our "target group". This need stirs people into activity and initiative whereas our task is to be able to detect it.

However, the on-the-surface characteristics are insufficient. Important for us are at least three characteristics. The first one is the possession of free time an active person can use for social activity. Most frequently those categories of people have not much of authority and weight in society therefore we prefer to target people with an average or higher income through their major business, not tied up by overtime work and not seeking profit in social activity.

The second characteristic is independence from the regime and its ideology. Sharing or not the ideology of the present regime, a target person should be independent from the authority's support of his or her activity. For example, in most cases running private business in Belarus does not make people free and independent because its normal functioning, let alone success, is secured through loyalty or corruption. The same applies to teachers, scientific researchers, and even students. Anyway, we are more likely to find independent people among those who have their own business or income in the private sector than among state employees.

The third characteristic is related to the authority, influence, and potential of a participant in our activity, to the extent to which his or her neighbors are ready to trust the person. One of the means the regime uses against the civil society and influential people is to discredit them in the

eyes of the public. Several acts of defamation can neutralize all potential activists in a small town. That is why even such soft criteria make the selection of participants in our projects so extremely difficult.

The complication connected with these criteria consists not only in the fact that such people are rather few, the major difficulty is that an “objective” test against the criteria is not possible as we need to check the candidates by joint action. The same holds true for evaluation and measuring indicators of efficiency of communities being organized. Here one cannot guarantee results in the nearest future.

10. Conclusion

A lot in the state system and social organization of the Soviet Union appeared to be similar to institutions characteristic of Europe. On the turn of 1990s, when the disappointment of the Soviet way of life and the whole complex of social relations became widespread, many thought it was possible to switch over to European forms of life and activity without abolishing the main Soviet institutions, just by filling them with slightly different meaning. It seemed to many that it just took to teach people to work in a slightly different way, make them more active, provide with access to information, and allow to freely manage their own resources. After the break-up of the Soviet Union, some newly independent republics, especially the Baltic ones, got rid of those illusions quite soon. In Belarus they live on. The structure of courts, the police, local administrations, Kolkhozes, schools of all levels, and some other institutions remain unchanged. The main energy and creativity of Belarusians goes for improving the operation of the structures, organizations, and institutions passed down to them from the Soviet Union. The form of this improvement has undergone no change since the end of 1980s, and is usually described in simple countable categories: “more Glasnost”, “more freedom”, “more democracy”, “more resources”, or the other way round – “less bureaucracy and corruption”, etc.

It is funny to see that many Europeans think the same while honestly trying to help solve our problem. There cannot, however, be more freedom there where it has not been, and it is impossible to lessen corruption if people are not familiar with other ways of solving social problems. It is only possible to cut the sums of bribes. Behind those attempts at improvement, the shows through an obvious and simple principle of human activity: it is always simpler to continue some activity than change it radically, abandoning one type of activity and replacing it with another. With the above aid we mean

exactly such an attitude: replacing some activity or institute instead of improving or perfecting it.

The difficulties entailed by this radical approach are obvious. The main principles and activities aimed at reviving communities in Belarus, presented in this paper, are our response to that challenge. However, defining and declaring directions and order of actions do not protect us from the danger of gradually beginning to substitute the activity for reviving communities with more habitual development of that what does not exist. This danger is connected with the difficulty in correlating and aligning individual actions, which are always local, limited in space and time, with general principles, aims, and concepts. Therefore it is very important to find criteria for evaluating specific actions and their efficiency in promoting the general aim. They are called to serve as a protective mechanism against that possible substitution. It is obvious that criteria for improving something are radically different from those of creating something that does not yet exist. In the first case one usually uses well-tried empiric indicators, reflecting quantitative growth (of the number of people, events, etc.).

The second case implies a totally different approach. If human activity were only assessed by empiric, quantitative criteria no progress or innovation would be possible. For example, the first steamboats were worse than their contemporary sailing ships by all parameters. However, people made the decision to develop steamboats, invest in them, leaving sailboats in the romantic past. What drove those people? We think it was logic, analysis, and critical thinking. Experience and evidence were in favour of sailing: those ships could carry more cargo, were faster, cleaner, and simply more beautiful than the first smoking, puffing, and sluggish steamers. Reason was in conflict with experience and evidence, and won, which was later witnessed by new experience.

What does it mean for us to appeal to logic and critical thinking when we plan concrete actions for the revival of communities or evaluate their results? Let us outline the most important points.

Firstly, it is to keep the researcher's attitude to our own ideas of communities and the ways and possibilities of their revival in Belarus, as well as reflexive and critical attitude towards the schemes and concepts of activity we have and use. Hence any, even "negative" result of interaction with people or proto-communities cannot be scrapped, it is to be considered as enriching our ideas of Belarus, the state of communities, the attitudes and motivation of people, and the ways we act.

Secondly, it is keeping in mind the general aims and objectives, in particular, bearing towards radical change instead of improvement and growth.

Such understanding enables us to see and not miss something essentially new, even though barely discernible, and not fall for something flashy yet meaningless. In this respect, one initiative person who tries to actualize his or her own ideas and views on how to organize life in the district or town is more important and promising for us than a “community” grown on principles of Soviet organization that is active imitating the develop of self-government.

Thirdly, it is to understand the scale and system profoundness of the necessary transformations. When we plan and later evaluate specific actions, we build them in, find a place for them in a holistic system of tasks and courses of activity. It is only within an integral system that we can adequately evaluate each event or action. Moreover, results obtained by solving one set of tasks, for example, research ones, immediately entails changes in the understanding of other tasks and their adjustment, e.g., organizing cooperation with local activists.

All the above mentioned determines our work and the evaluation of its efficiency.

The order of actions we suggest may seem lengthy and roundabout compared to many straightforward projects. We could agree with that if we had not analyzed past experience to the conviction that straightforward project only bring illusory results, as similar to real ones as Soviet institutes were merely imitating European or open society ones. The way we suggest, roundabout as it seems, brings us to the goal in a much more direct way than methods well-tried that bring illusory results. That is why we suggest not merely an alternative view and programme of actions for community development in Belarus, but also another approach to gauging the efficiency of activity. This paper appeals to critical thinking and reason. Practice will show the rest.

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APPENDIX

This Appendix offers Results of the Survey of Public Opinion in the Republic of Belarus on November 8–14th, 2004. These results were obtained by “NOVAK” Laboratory, established by Dr. of Sociology, Prof. Andrei Vardomatski in 1992. The specializations of this laboratory are as follows: market surveys, business-to-business research, distribution check, outlet census, elite studies, media research, focus groups, commercial testing, etc. We are thankful to Prof. Andrei Vardomatski who has submitted these results for our issue.

RESULTS OF THE SURVEY OF PUBLIC OPINION IN THE REPUBLIC OF BELARUS NOVEMBER 8–14TH, 2004. “NOVAK” LABORATORY

Andrei Vardomatski
Director of “NOVAK” Laboratory
web-page: www.novak.by

Sample size: 1071 respondents

Q1. HOW WOULD YOU ASSESS THE CURRENT ECONOMIC SITUATION IN BELARUS?

	%
Very good	1.0
Good	14.1
Fair	48.7
Bad	23.6
Very bad	6.5
Can't say	5.3
No answer	0.9

Appendix

Q2. HOW WOULD YOU ASSESS YOUR HOUSEHOLD'S CURRENT STANDARD OF LIVING?

	%
Very good	0.4
Good	11.8
Fair	53.8
Bad	24.3
Very bad	7.4
Can't say	1.8
No answer	0.7

Q3. HOW, IN YOUR OPINION, HAS THE ECONOMIC SITUATION CHANGED IN BELARUS IN THE LAST MONTH?

	%
Improved	8.9
Remained the same	63.2
Worsened	16.8
Can't say	9.6
No answer	1.5

Q4. HOW DO YOU THINK YOUR HOUSEHOLD'S STANDARD OF LIVING HAS CHANGED IN THE LAST MONTH?

	%
Improved	8.0
Remained the same	66.0
Worsened	21.8
Can't say	3.2
No answer	1.0

Q5. HOW DID YOUR HOUSEHOLD'S FINANCIAL POSITION CHANGE IN THE LAST 6 MONTH?

	%
Improved	4.3
Somewhat improved	14.7
Didn't change	49.4
Somewhat worsened	16.8
Worsened	11.1
Hard to say	3.8

Results of the Survey of Public Opinion in the Republic of Belarus

Q6. IN YOUR OPINION, HOW WILL FINANCIAL POSITION OF YOUR HOUSEHOLD CHANGE IN THE NEXT 6 MONTH?

	%
It will improve	3.9
It will probably improve	17.4
It will no change	36.9
It will probably worsen	12.9
It will worsen	4.1
Hard to say	24.7

Q7. SPEAKING IN GENERAL ABOUT ECONOMIC CONDITIONS IN THE COUNTRY, DO YOU THINK THE NEXT 12 MONTHS WILL BE GOOD OR BAD TIMES FOR COUNTRY'S ECONOMY?

	%
Good	6.9
Rather good	35.3
Rather bad	19.0
Bad	5.9
Hard to say	32.9

Q8. AND SPEAKING ABOUT THE NEXT 5 YEARS, DO YOU THINK THEY WILL BE GOOD OR BAD TIMES FOR COUNTRY'S ECONOMY?

	%
Good	6.9
Rather good	28.5
Rather bad	17.1
Bad	6.1
Hard to say	41.4

Q9. SPEAKING IN GENERAL ABOUT BIG PURCHASES FOR YOUR HOUSEHOLD (SUCH AS FURNITURE, REFRIGERATOR, CONSUMER ELECTRONICS, TV SET), DO YOU THINK IT IS NOW GOOD OR BAD TIME FOR MAKING THESE PURCHASES?

	%
Good	6.4
Rather good	24.0
Rather bad	27.4
Bad	21.6
Hard to say	20.7

Appendix

Q10. SPEAKING IN GENERAL DO YOU THINK IT IS NOW GOOD OR BAD TIME TO SAVE UP?

	%
Good	5.5
Rather good	22.0
Rather bad	26.5
Bad	26.9
Hard to say	19.2

Q11. OVERALL, HOW WOULD YOU ASSESS THE POLITICAL SITUATION IN BELARUS? IT IS...

	%
Safe	9.5
Peaceful	59.1
Tense	20.3
Critical, highly explosive	3.4
Can't say	5.8
No answer	1.9

Q12. IF NEW PRESIDENTIAL ELECTIONS WERE HELD IN BELARUS REPUBLIC SOON, WHO WOULD YOU VOTE FOR IN THE FIRST PLACE?

Q13. WHICH POTENTIAL CANDIDATE FOR PRESIDENCY WOULD YOU NOT VOTE FOR IN ANY CASE?

	12	13
Lukashenko	42.6	25.0
Gaidukevich	1.7	0.5
Goncharik	1.2	1.3
Shushkevich	0.7	1.8
Lebedko	0.6	0.1
Opposition	0.5	0.9
Putin	0.4	0.0
Frolov	0.4	0.2
Statkevich	0.4	0.1
Masherova	0.3	0.0
Poznyak	0.3	3.0
Marinich	0.3	0.0
Chigir	0.2	0.2
Kebich	0.1	0.1

Results of the Survey of Public Opinion in the Republic of Belarus

Vecherko	0.0	0.4
Kalyakin	0.0	0.3
Belarusian Popular Front	0.0	1.3
Against all the rest	0.0	0.8
Other	1.2	1.3
None	6.0	3.2
Hard to say	38.1	51.1
No answer	5.1	8.6

Q14. HOW, IN YOUR OPINION, ARE MASS ACTIONS AGAINST PRICE RISE AND FALL OF LIVING STANDARD LIKELY TO TAKE PLACE IN YOUR TOWN (DISTRICT) NOW?

	%
Quite likely	14.9
Unlikely	72.4
Difficult to say	10.3
No answer	2.3

Q15. IF MASS MEETINGS, DEMONSTRATIONS AGAINST PRICE RISE AND FALL OF LIVING STANDARD TAKE PLACE, WILL YOU PERSONALLY PARTICIPATE IN THEM?

	%
Most probably yes	16.5
Most probably no	71.4
Difficult to say	8.7
No answer	3.4

Q16. IF YOU DIDN'T PARTICIPATE IN VOTING EITHER ON THE ELECTIONS OR ON THE REFERENDUM, THEN WHY?

	%
Participated	81.2
I am not interested in politics	2.0
This will change nothing	4.7
Protest against the authorities	1.5
I don't count on the state and solve all my problems myself, elections and referendum are of no importance for me	2.0
Elections are unfair, no fair counting of votes	1.9
There is nobody to elect	1.5
For personal reasons (was ill, absent, no time)	3.8

Appendix

Hard to say	0.2
Refused to answer	1.2

Q17. IF YOU PARTICIPATED IN VOTING EITHER ON THE ELECTIONS OR ON THE REFERENDUM, WHICH MAIN MOTIVES DID YOU FOLLOW?

	%
Not participated	15.7
I think it my civic duty	48.9
I think my choice can influence the situation in the country ...	14.7
I was afraid of repressions in case of my non-participation	2.5
I was put pressure on (I was forced at the place of my work/ training)	4.3
I came to the polling station through habit, by tradition	9.1
Other	0.7
Hard to say	3.5
Refused to answer	0.7

Q18. IF YOU VOTED ON THE REFERENDUM QUESTION, HOW DID YOU VOTE – “FOR” OR “AGAINST”?

	%
Didn't vote	16.1
For	52.0
Against	22.7
Refused to answer	9.3

Q19. WHY DID YOU VOTE “FOR” ON THE REFERENDUM QUESTION?

	%
Didn't vote	16.1
I trust Lukashenko	22.2
I would have supported the other candidate but I don't see such candidate	10.9
I am afraid of changes and Lukashenko promises stability	8.1
I share both home and foreign policy pursued by Lukashenko .	5.1
Lukashenko ensures the standard of living which is, in my opinion satisfactory for me	3.5
Other	0.7
Voted against	22.7
DK/Hard to say/Refusal	10.7

Results of the Survey of Public Opinion in the Republic of Belarus

Q20. WHY DID YOU VOTE “AGAINST” ON THE REFERENDUM QUESTION?

	%
Didn't vote	16.1
I don't share either home or foreign policy pursued by Lukashenko	5.4
I don't like Lukashenko personality	2.2
I voted for Lukashenko earlier but there should be changing at the presidential post – 12 years are enough	3.4
One must not change the constitution for the needs of one person	6.8
Life presidential government is fraught with abuses, dictatorship	4.4
Other	0.1
Voted for	52.0
DK/Hard to say/Refusal	9.5

Q21. DO YOU THINK YOU HAD ENOUGH INFORMATION ABOUT THE CANDIDATES TO DEPUTIES OF THE RB NATIONAL ASSEMBLY FOR WHOM YOU HAD TO VOTE?

	%
Quite enough	13.8
Rather enough	28.6
Rather not enough	23.6
Absolutely not enough	23.8
DK/Hard to say	10.2

Q22. FROM WHICH SOURCES DID YOU MAINLY GET INFORMATION ABOUT THE CANDIDATES FOR DEPUTIES OF THE RB NATIONAL ASSAMBLY?

	%
National TV channel broadcasts (BT, ONT, STV, LAD)	10.6
Regional TV broadcasts	2.7
Belarusian state newspapers	7.3
Non-state Belarusian newspapers	3.3
Radio broadcasts	5.2
Meetings with deputies and persons empowered to act for them	9.5
Elections leaflets	47.2
Conversations with relatives, friends, colleagues	24.7
At the polling station, from the ballot-paper	2.9
Other	0.9
None	2.2
DK/Hard to say	9.9

Appendix

Q23. DO YOU THINK THE BELARUSIAN STATE TV CHANNELS MAINLY OBJECTIVELY COVERED THE ELECTION CAMPAIGN AND REFERENDUM, FULLY AND ACCURATELY TOLD ABOUT THE CANDIDATES AND THEIR OPPONENTS, REFERENDUM OR THE STATE TV CHANNELS MAINLY COVERED THE ELECTION CAMPAIGN NOT OBJECTIVELY, NOT FULLY AND NOT ACCURATELY IN A BASED MANNER?

	%
Certainly objectively	12.3
Rather objectively	34.3
Rather not objectively	21.1
Certainly not objectively	16.7
Hard to say	15.8

Q24. WHICH TV CHANNELS – RUSSIAN OR BELARUSIAN – IN YOUR OPINION, COVERED THE LAST ELECTIONS AND REFERENDUM MORE OBJECTIVELY?

	%
Russian	31.3
Belarusian	31.4
Russian and Belarusian equally	19.9
No answer	17.4

Q25. ARE YOU AWARE OF THE OPPOSITION PROTEST ACTIONS AFTER THE REFERENDUM?

	%
Yes, I am aware	84.6
No, I am not aware	14.3
Refused to answer	1.0

Q26. WHAT IS YOUR ATTITUDE TO THE OPPOSITION PROTEST ACTIONS?

	%
Unaware	14.3
Fully approve	11.6
Rather approve	15.7
Rather disapprove	22.1
Fully disapprove	21.8
DK/Hard to say	10.4
Refused to answer	4.0

Q27. WHAT IS YOUR ATTITUDE TO THE ACTIONS OF THE AUTHORITIES IN RESPECT OF THE PARTICIPANTS OF THE PROTEST ACTIONS?

	%
Unaware	14.3
Fully approve	7.4
Rather approve	20.3
Rather disapprove	21.3
Fully disapprove	19.5
DK/Hard to say	12.8
Refused to answer	4.3

As we see, the public opinion of Belarusian society in November, 2004, positively enough estimated authority's policy and the current economic situation. It is necessary to notice that since 2004 dynamics of the public opinion were insignificant. Only since January, 2008, a growth of negative and protest estimations in Belarusian society is observed.

