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LOGIC IN CENTRAL AND EASTERN EUROPE. THE SOCIAL CONTEXT

Abstract: The history of logic in Central and Eastern Europe is still known to very few people. Hardly anybody knows about logical traditions in Russia, Serbia, Hungary, Czech Republic, Bulgaria, while much fewer people know about logical traditions in Bosnia and Herzegovina, Macedonia, Montenegro. As an exception to the rules only two scientific brands have become internationally popular: the Vienna Circle, associated exclusively with Austrian logicians, and the Lvov-Warsaw School, associated with Polish ones. Nevertheless, the countries included in this region have not only the joint history, but also the joint cultural dynamics. This paper shows a social context of logic in this region. The paper consists of excerpts from the Introduction of the book 'Logic in Central and Eastern Europe: History, Science and Discourse' (University Press of America) edited by the author.

The formation of analytic philosophy (and relevant areas: mathematical logic, philosophical logic, philosophy of science) in the countries of Central and Eastern Europe has passed the common thorny way. This formation is linked to the same problems, to the similar search for their solution. Within the limits of this philosophy, significant scientific results have been received. The fact that these results are not always perceived as a natural output of intellectual efforts of logicians and philosophers of those countries is saying of that the world community aspires to perceive a final point of formation of idea, discarding thereby a path along which the idea has passed in its development. Scientific ideas are transitive. They have a point of start and a finish point. The ideas at the finish have been regarding exclusively as a property of world community.

As a rule, we are interested in what appears in finish, while the point of start is not interesting for us. For example, Wittgenstein (1889–1951) first of all is well known as the Cambridge philosopher. We discard the facts of his point of start, we are not interested in the transitive way on which Wittgenstein passed. However, we can detect different facts of direct influence of the Central and Eastern European thought onto him in his point of start. The massive influence on Wittgenstein was exerted by Leo Tolstoy's *The Gospel in Brief*, the book which he purchased at a bookshop in Galicia (the region of modern Ukraine). He was fascinated by Tolstoy's commentary and he was carried the book everywhere he went and recommended it to anyone in distress. Another Eastern European influence was manifested in Wittgenstein's political sympathies which lay on the left. He described himself as a "communist at heart" and romanticized the life of laborers. Once he wanted to become a laborer in the USSR and asked the Soviet government to permit an immigration in the Soviet Union. In 1935 Wittgenstein traveled to Leningrad and Moscow in an attempt to secure employment. He was offered teaching positions, but preferred manual work and returned

three weeks later. He met the Soviet philosopher and logician Sophia Yanovskaya (1896–1966). In 1939 Wittgenstein went on from Berlin to visit Moscow for the second time.

The facts of origin of many best known logicians can play an outstanding role for other illustrations. For example, Kurt Gödel (1906−1978) was born in Brünn (now Brno) having the Czechoslovak citizenship for some time. Emil Leon Post (1897−1954) was born in Augustów (the Polish-Belarusian-Lithuanian town, now Poland). John von Neumann (1903–1957) was born in Budapest (Hungary, to which his ancestors had originally immigrated from Russia). Rudolf Carnap (1891−1970) was connected to Czechoslovakia as well, he taught at the German University in Prague from 1931 to 1935, where he wrote his well-known work *The Logical Syntax of Language* in 1934 [9]. All these circumstances were their starting point of transitivity, while their jobs at universities of the USA were their finishing point. In the mid and late 20th century, the huge number of scientists emigrated from the countries of Central and Eastern Europe. All of them entered academic communities of the Western countries. But all of them had the starting point of their transitivity connecting them not with the West, but with Central and Eastern Europe. In the perception of these scientists this starting point is often ignored. Their transitive loop, train is put outside the brackets. They have been considered up until today as purely American, English or Canadian scientists.

The transitivity of Central and Eastern European scientists, their desire to leave limits of the native land and to enter the world culture genetically refers to the fact that in the late 19th century the region of Central and Eastern Europe was divided among three huge empires: the Austro-Hungarian Empire, the Russian Empire and the Ottoman Empire. All of them were populated by many ethnicities, but within this multiculturality only three cultures reigned: German, Russian and Turkish. Then this determined special horizons for the cultural and scientific creativity, i.e., a special transitivity, tendency for moving to centers. The education degree (more strictly, the inclusiveness degree into cultural main streams) corresponded to a degree of accepting the culture of a dominating center. In the 20th century, the transitivity of Central and Eastern European scientists, their gravitation to world centers was reflected in several emigration waves towards the Western countries, their unconditional acceptance of world science and culture.

Besides the centrifugal forces affected by the prevalence of three cultures only, there were also the opposite forces routed to the cultural differentiation, i.e. to the development of small cultures. In turn, the confrontation between centrifugal forces and cultural differentiation generated a disintegration of Austro-Hungarian Empire, Russian Empire and Ottoman Empire.

All three empires were powerful centers of regional influence and they were in permanent confrontation among themselves. These centers could be compared with three competing religions: in the Austro-Hungarian Empire Roman-Catholics formed the dominant community, in the Russian Empire Orthodox Christians were dominant and in the Ottoman Empire Moslems had this position.

The regions administrated by the Austro-Hungarian Monarchy were very diverse in point of ethnic culture and religion, but dominating positions were occupied nevertheless by the German culture, in consequence of that we may notice, in science and education of this region the indisputable priority was given to the German philosophy for a long time. In the logic area, the German authors understanding logic as propaedeutics for philosophy dominated as well. With respect to content, logic has been reduced by them to psychology. Many philosophers were captured by ideas of Immanuel Kant. In the late 18th century, one of the best-known textbooks in Austria was *Elementa philosophiae recentioris* [1] by Frederick Christian Baumeister (1708–1785), in the mid 19th century such a book appreciated by the

Austrian education of that time was *Philosophische Propädeutik* [2] by Joseph Beck (1803–1883). The Austrian way of logical studies was perceived very positively in many countries bounding with Austria, such as Romania. The Austrian textbooks in philosophy and logic were translated into national languages in those countries.

The creation of national consciousness of different ethnic groups within the limits of the Austro-Hungarian Empire caused the disintegration of that empire, as well as the necessity of the development of own independent philosophical-and-logical traditions. The well known Lvov-Warsaw School of philosophy and logic became one of the brightest young traditions which arise in the beginning of 20th century. In Lvov the main figure was Kazimierz Twardowski (1866–1938), the founder of this school. Another land, where modern logic began to develop very fast, was Croatia (the region with the Catholic majority). In the late 19th century there researches in the field of algebra of logic were carried out. In 1847, Vatroslav Bertić (1818–1901) offered a rudimentary algebraic language of "thoughts and concepts" (including variables, constants, equality sign) to which the law of substitution is added.

Another powerful center of influence in the Central European region was presented by the Ottoman Empire (Turkish Empire or Turkey) lasted from 1299 to October, 29th, 1923, when the Republic of Turkey was officially proclaimed. The Empire was at the center of interactions between the Islamic and Christian worlds for six centuries. In many respects, one can state that the Ottoman Empire was an Islamic successor to the Eastern Roman (Byzantine) Empire.

The situation that the Orthodox Christians of the Balkan countries could receive independence of Turks too late, only in the second half of the 19th century, had to affect the later development of philosophical and logical traditions of these countries. For instance, the first authentic theological product in Montenegro arose only in the 19th century, it was the book entitled *The Ray of the Microcosm* [3], written by Petar II Petrović Njegoš (1813–1851), the most eminent figure in the world of philosophy and theology in Montenegro. The first logical handbook in Bulgaria [4] was written only in 1861 by Vassil Hadjistoyanov Beron (1824–1909).

In the Orthodox regions of Central Europe the Greek philosophy, first of all neo-Aristotelism, dominated. For example, the immigration of a significant number of Greek scholars in the Romanian countries, Wallachia and Moldavia in the 17th century, was affected by the increasing power of the Ottoman Empire. The Greek scientists created there centers of science, in which philosophy and logic were taught in Greek and Latin. Just in the 19th century the Greek language was replaced in the Academies of the Romanian countries with Romanian.

Much more promptly philosophy and logic developed in the Orthodox regions supervised by the Russian Empire. The powerful philosophical tradition was generated in the 19th century in Kyiv (Kiev) with an original approach to logic. For example, Ivan Skvortsov (1795–1863) proposes the division of his logic into three parts: (1) the logic of reason or theory of thinking (notion, proposition, inference); (2) the logic of mind or theory of cognition (analytics of feelings, analytics of common sense and analytics of reason); (3) methodology or the doctrine of application of laws and forms of thinking in the process of cognition. As well as the Austrian scientists, the Kyiv philosophers tended to follow psychologism, a theory of reducing logic to a psychology of thinking. However, their psychologism was not so empirical but of speculative or even theological nature and it had a religious basis.

However, it is not true to claim that in the European territories of the Ottoman Empire local logical traditions were not formed within the limits of Islamic culture. The highest

Islamic erudition among the European regions of the Turkish Empire appeared in Bosnia and Herzegovina. It is known that in '*madresahs*' of Bosnia and Herzegovina studies were organized at three levels: (1) at the initial one, grammar and syntax of Arabic, arithmetic and geometry, logic, rhetoric and apologetics were studied, (2) at the next level, the same subjects were studied, but with more extensive textbooks, (3) at the highest level, certain branches of the Sharia law, interpretation of Koran, corpus of the Islamic tradition, etc. were taught. The most authoritative textbook for logic was *Risale-i erbea.* This book consisted of four parts: 1) *Dede Džengi* (On Reasoning), 2) *Risale-i vadijje* (Introduction to Logic), 3) *Feride* (On Metaphor in Arabic) and 4) *Isagudži* (On Logic). Many Muslims of Bosnia and Herzegovina continued their education at the prestigious schools and institutions in Istanbul, Baghdad, Syria. Logical works in Bosnia and Herzegovina were written in Arabic. In them one mainly dealt with the commentaries on *Aristotelian logic* and *Porphyrian isagogics* (logical classification of propaedeutic study) written by the Arabian logicians (al-Farabi, al-Kindi, Ibn Sina, Ibn Ruzda).

The third powerful center of influence in Central and Eastern Europe was the Russian Empire existed from 1721 until the February Revolution of 1917. It was the predecessor of the Soviet Union. At one point in 1866, the Russian Empire stretched from Eastern Europe, across Asia, and into North America. The Russian Empire was a Christian successor to the Mongol Empire, thus it inherited the political type of management with hard centralism and absolutism from the Mongol Empire (however, after Europe-oriented emperors, Peter the Great, Peter III, Catherine II, etc., the Russian Empire became quite westernized).

Despite the social problems undermining the Russian society from within, in the Russian Empire one detected a well developed logical tradition that was linked, probably, with very good mathematical education. Logical researches in the strict sense were fulfilled mainly at the Kazan University and the Odessa University. Platon Poretsky (1846–1907), the professor of the Kazan University was one of the most known Russian founders of modern logic. For example, Louis Couturat [5] evaluated Poretsky's methods as a culmination in the development of algebra of logic for that period. Evgenie Bunitsky (1874–1952), the professor of the Odessa University was the known Russian logician specializing on algebra of logic, too. His research interest was taken in applying some results of algebra of logic in arithmetic, and also in defining the number of members in logical polynomials. Other prominent logicians who were carrying out the highly rated investigations in mathematical logic in Russia were Victor Bobynin (1849–1919) and Jan Sleszynski [Ivan Sleshinsky] (1854–1931), the latter was professor in Odessa, then in Cracow, in fact he became the first professor of mathematical logic in Poland. The Russian textbooks on logic were of good quality. In many neighbor countries they were translated into national languages. For example, the book *Logic as a Part of Theory of Knowledge* [8] written by a prominent Russian philosopher and psychologist, Alexander Vvedensky (1856–1925) in 1912 was one of the most popular Russian logical textbooks. It was translated into Latvian in 1921. In Latvia the given translation became the first textbook in logic.

The Fatherland Front in many Central and Eastern European countries against the Nazi occupation, as well as popularity of anti-imperialistic ideas proceeded under a Communist-dominated political coalition, making a contribution to the defeat of Nazism, this allowed the Soviet Union to extend and intensify its sphere of influence on Europe after the World War II. Thus, on the one hand, the Red Army released the Central and Eastern European countries from the Nazi regime, but, on the other hand, thanks to the fact that the Red Army remained in these countries, it could politically influence a creation of new independent Socialist states because the Red Army forces still stationed in the country and exerting de facto control.

In the Soviet Union the ideological control over all sorts of creativity was carried out: over art, science, religion. It was considered true (at the official level) that Dialectic Materialism, the philosophical theory which was developed within the tradition of Marxism–Leninism, should be a unique true ideological base of any creativity. The philosophical significance of this tradition was the lowest. This theory was too general and as a result it concerned nothing in fact. With its help it was possible to explain (but not to predict) any phenomenon: natural, social, mental. In this theory three supreme laws of existence (dialectics laws) were put forward: (1) the *law of the transformation of quantity into quality and vice versa* (this law expresses the fact 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* (this means that the contradiction is the source of all movement and life), (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). However, they are too general that with their help it is impossible to predict anything. They do not give an output into the area of real technologies. According to Karl Popper, a theory which can be never falsified and which is capable to explain anything is not scientific. Dialectic Materialism was of this case.

Besides a philosophical component, Dialectic Materialism also had a political component in that the political program of Marxism-Leninism (a victory of communism/socialist revolution all over the world, i.e. an annulment of private landed and instrument property and a creation of laborers' society with an identical standard of living for anybody) was considered. Dialectic Materialism in art meant that Soviet art had to draw its true, "positive" hero from the builders of communism. For example, artists should represent workers and peasants inspired with the new political system.

In science Dialectic Materialism has been forced into application as a mandatory philosophical context of any scientific reasoning. Sometimes this context was more important, than the content of scientific reasoning. For example, Trofim Lysenko's pseudoscientific ideas were regarded to be more suitable to the Marxism–Leninism context, than ideas of genetics. As a consequence, ideas of genetics were stigmatized as bourgeois, and the majority of Soviet experts in genetics were shot, Lysenko began to supervise over development of all biology in the USSR.

The domination of Dialectic Materialism in all spheres of Soviet person's life reduced the role of reflection in social activity: absence of publicity, absence of competing models of behavior etc. Scientific activity is a variety of social activity. Therefore in the Soviet society with a low reflexive attitude towards social activity there was a very specific attitude towards getting a scientific product and scientific activity was organized by hierarchical command methods.

Nevertheless, Soviet mathematics, physics and engineering had world-wide successes. It might be explained as follows. Various external circumstances affected much more on Soviet scientist's research, than on a similar research of Western scientists. Measurably, it was more difficult to publish scientific articles, for example. Therefore under conditions of total isolation of Soviet science the intension in competitiveness of various research groups extremely increased. This, on the one hand, has led a Scholasticism of mathematical knowledge (the Soviet mathematics and physics assumed more strict, exacting style of scientific articles, than it took place in the West), and, on the other hand, humanities in many respects turned to pseudoscientific knowledge.

In such a social frame, the modest undemanding person, who is selfless and attending to science just for the sake of science, appeared Soviet scientist's universal model. This model

was completely satisfied by Victor Shestakov (1907–1987), who became one of founders of cybernetics [11], [12] and was challenging priority with Claude Elwood Shannon (1916–2001) [10]. In the 1930s Shestakov proved that the Boolean algebra describes logically the structure of relay-contact schemes and proposed first regular methods of synthesis based on application of Boolean algebra. Shestakov had many interesting scientific results assuming wide applications, but during the whole of his life was in abject poverty. For Soviet computer scientists, engineers and logicians Shestakov became the model of Soviet scientist, his example: the uncomplaining, modest, shy genius. In a manner, strange behaviors of Grigori Perelman (born 1966) satisfy this type. The latter has made landmark contributions to Riemannian geometry and geometric topology and solved the famous Poincaré conjecture, posed in 1904 and regarded as one of the most important and difficult open problems in mathematics until it was solved. The matter is that Perelman has been refusing all deserved laurel wreaths. For example, in August 2006, Perelman was awarded the Fields Medal for "his contributions to geometry and his revolutionary insights into the analytical and geometric structure of the Ricci flow," but Perelman declined to accept the award. This act speaks first of all that Perelman follows the Soviet scientist's legality, his example of selfless unwittingly repeats Shestakov's predestination.

After Yugoslavia, Czechoslovakia, Hungary, Romania, Albania, Poland, Bulgaria, and East Germany had become people's/Socialist republics, they adopted the ideological system of the Soviet Union, respected Dialectic Materialism as a mandatory philosophical context of any scientific reasoning, the Soviet model of science management and organization and Soviet scientist's model. At that time Russian became one of the scientific international languages nearly to English. Moscow then was one of the most influential international scientific centers. Poles, Czechs, as well as scientists from other countries of the Warsaw Pact studied Russian, and the most recent results of Western science were learned not in English, but in Russian translations. This situation was a bit artificial; it was supported by rather low prices of the books published in the Soviet Union.

Dialectic Materialism was quite antagonistic to analytic philosophy, in particular to Positivistic/Neopositivistic tendencies. One of the formal reasons was Lenin's criticism of Ernst Mach. But the true reason consisted in the technologicality of analytic philosophy, which conflicted with speculative Dialectic Materialism. Planting the new ideology in philosophical communities of Eastern Bloc could not be the simple task. In many countries, such as Poland, Hungary, Slovenia, Croatia traditions of analytic philosophy had been based during the interwar period. For example, in pre-war Slovenia there lived known experts in logic and methodology of science such as Mihailo Rostohar, who published in 1909 *Logic, An Introduction to scientific thought* [6], and Karel Ozvald, who published in 1911 *Logic as general epistemology* [7], based on Husserl-Pfänder's phenomenological logic.

Logical Neopositivism of Wiener Kreis was a politically unacceptable philosophy for Communistic regime. Nevertheless, some ideas of this philosophy were saved. This may be exemplified by the Hungarian follower of Karl Popper, Imre Lakatos (1922–1974), who made an appreciable contribution to science of philosophy.

However, Moscow exported to the countries of Eastern Bloc not only Dialectic Materialism. During the post-war period thanks to Sofia Yanovskaya's (1896–1966) diligence it was possible to defend the significance of logic theory, and the latter did not share the fate of Soviet genetics. As a result, for the short time Soviet mathematicians and logicians achieved the major results in the field of theory of algorithms, computability theory, non-classical logic (constructive logic, intuitionistic logic, many-valued logic) etc. The Soviet Union has exported the tradition of mathematical logic to the countries of Eastern Bloc. For

example, many prominent Bulgarian logicians studied in Moscow, among them were Dimiter Skordev (born 1936) who became a famous specialist in recursion theory, Georgi Gargov who worked in intuitionistic logic under supervision of the Russian mathematician Albert Dragalin (1941–1998). In course of time, Andrei Markov jr. (1903–1979), the founder of the Russian school of constructive mathematics and logic, became the most prominent logician in the countries of Eastern Bloc, the leader of one of the most successful logical-mathematical school all over the world of that time.

For the Socialist time, the Polish school of logic and mathematics could keep the leading position in logical areas. The Polish logicians kept close contacts with logicians of the German Democratic Republic and Bulgarian People's Republic.

It is incorrect to think however that any philosophical tradition congenial to Marxism and developed in the countries of Eastern Block has represented a pseudoscientific knowledge. In the context of Marxist philosophy some interesting results in area of logic and science philosophy were achieved, though the majority of researches in the context of Dialectic Materialism were pseudoscientific (especially in the Soviet Union). For example, Evald Ilyenkov (1924–1979) proposed an original treatment of dialectical logic, thus his approach can be considered as the modern version of Kant's transcendental logic or Hegel's speculative logic. This logic parses the formation of knowledge and does not abstract from the content of reasoning. In the German Democratic Republic a special tradition of Socialist philosophy of science, in which most recent results of economic cybernetics and operational research were applied, were developed. This tradition has many interesting results.

This short historical sketch, routed to clarifying a social-historical context of Central and Eastern European logic, analytic philosophy and philosophy of science, shows how much the region of Central and Eastern Europe got political and social shocks for the last two hundred years: national-liberation movements, disintegration of empires, the First World War, the short period of independence, the Second World War, the socialist system and Eastern Bloc, the period of new independence since the 1990s.

A political and social instability in Central and Eastern Europe caused an interruption of philosophical-logical traditions, prevented the creation of large scientific schools. Nevertheless, in the late 20th century outstanding results in logic and computer science were reached by scientists of Central and Eastern Europe.

So, at the beginning the development of computer technologies in the West and in the USSR was independent and in absolutely parallel ways. The USSR practically did not have a time lag (maximum from 1 to 2 years). Let us illustrate it. In 1948 the first-ever computer with a safe program, Manchester Mark 1, created by the English scientists, Sir Frederic Calland Williams (1911–1977) and Tom Kilburn (1921–2001), was put into operation. In 1949 Williams from the Manchester University put into operation another English computer with a safe program, Electronic Delay Storage Automatic Calculator (EDSAC), developed by Sir Maurice Vincent Wilkes (born 1913) from the Cambridge University. In the USSR the first own computer with a safe program, MESM (in Russian *МЭСМ*, Small Electronically Computing Machine), created under the supervision of Academician Sergey Lebedev (1902–1974), was put into operation in 1951. The IBM mass-produced the first industrial computer IBM 701 in 1952. The same year the pre-production operation of Soviet computer BESM-1 (in Russian *БЭСМ*-1, Large Electronically Computing Machine) started and in 1953 the first serial Soviet computer Arrow (in Russian *Стрела*) was mass-produced. Then the Russian mathematician Alexey Lyapunov (1911–1973) proposed one of the first notations of programming languages (operator programming).

In the Eastern Block, experts of the USSR, People's Republic of Bulgaria, Hungarian People's Republic, Polish People's Republic, Czechoslovak Socialist Republic and German Democratic Republic participated in the development of computers of the third generation (1968–1973). At the same time, in the USSR were created multiprocessor and quasianalog computers Besides, investigations under the leadership of Victor Glushkov (1923–1982) relating to the construction of machine intelligence should be mentioned. In 1965, the research on symbolic transformation methods, which may be considered as prototypes of computer algebra systems, was started in Kyiv. As a result, the specialized computers of the line MIR (in Russian *МИР*: Машина для Инженерных Расчётов, Machine for Engineering Computation in English): MIR-1, MIR-2, and MIR-3 were put into operation in 1965–1972. In 1970, V. Glushkov advanced the Evidence Algorithm, one of the first programmes on automated theorem proving.

However in due course, the Soviet developments of computer technologies considerably lagged behind developments of appropriate analogues in the West. It was caused by two reasons: first, by the hierarchical, irreflexive management of science, which extremely hindered the practical implementation of scientific ideas into creation of commercial machines, secondly, by the non-technologicality of Soviet humanities thinking, which was linked to avoiding analytic philosophy, philosophical logic, critical thinking and other branches of technological philosophy because of ideological motives.

Other reasons are possible too. Arcady Zakrevsky (born 1928), the great Belarusian computer scientist, participated in the creation of the first computers in the USSR and became the developer of the first Soviet programming language for logical tasks LYaPAS (in Russian *ЛЯПАС*), told me in interview that in the 1970s the country leaders made a decision to stop all original developments in the field of computer technics. The decision was to follow copying IBM's models, though sometimes in technical implementation it appeared more challenge, than a creation of own models. Since then developers of Soviet computers have called their "child" Stolenscope (in Russian *Дралоскоп*) for fun. Country leaders' decision looked very strange up and this, undoubtedly, has accelerated the backlog of the USSR in computer technologies. According to Zakrevsky, this decision might be connected to large bribes received by the high-ranking Soviet officials from IBM. After the USSR had quitted race for creation of more and more perfect computers, IBM became the world leader in this sphere. Then the huge number of the post-Soviet and post-Socialist experts in computer technologies emigrated to the West countries, having made in general impossible an independent technological leaping-out in sphere of computer technologies in all post-Soviet and post-Socialist countries.

Many Soviet and Socialist scientists were dealing just with abstract machines and implementations of computer technologies remained just in theory, without hope to find practical applications for them (it was too difficult under conditions of the hierarchical organization of science in the USSR and other countries of Eastern Bloc). Shestakov mentioned above who spent all his life in poverty, despite his genius (he was one of creators of cybernetics), was one of those scientists, whose projects remained just on paper.

Scientists, who worked in the field of symbolic logic, neopositivistic philosophy of science, and analytic philosophy, felt themselves under hard external pressure. Their subjects could not satisfy the context of Dialectic Materialism, as well as Communistic ideology. Thereupon these scientists are reputable that, despite external obstacles, they were able to create significant logical traditions in Russia, Ukraine, Poland, Bulgaria, Czech Republic, Slovakia, Serbia, Croatia, Slovenia, Hungary, Romania and Eastern Germany. Because of the

cold war and isolation of the countries of Eastern Block the promotion and branding of these schools were strongly limited, though their scientific results arouse interest.

Herein the representatives of Vienna Circle and Lvov-Warsaw School were luckier. They received their first significant scientific results interwar. Then the majority of them emigrated to the West countries (first of all, to the USA) where these scientists felicitously joined the academic community thanks to their ideas and mutual support.

As concerns logicians and analytic philosophers of other Central and Eastern European countries, they received their serious results only after the Second World War under conditions of cultural isolation of the countries of Eastern Block. Therefore, in spite of the fact that preconditions for creation of logical and analytic-philosophical schools with world brand (for example, in Serbia, Croatia and Czech Republic) were the same (as well as in case of the Vienna Circle or Lvov–Warsaw School), this did not take place. These schools did not become the same world famous brands mainly for the geopolitical reason, though they should have had an appropriate respect. As we see, science does not develop linearly. A politics very often interferes in scientific dynamics, infringing its natural course. The success of Poles and Austrians was in many respects determined by the fact that they had enough time to make scientific contribution before the Second World War when the world was not divided into the Socialist countries and capitalist ones by the Iron Curtain yet. This curtain infringed the natural circulation of scientific ideas, having made impossible the natural strengthening of scientific schools, which were achieving appreciable results.

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