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THE POETRY OF LOGIC AND THE LOGIC OF POETRY

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1. CONCERNING SOME EASILY PERCEPTIBLE DIFFICULTIES AND THE FUNDAMENTAL DIFFICULTY OF THE PROBLEM

This article will deal with a number of difficult logical and physical problems; after some necessary initial explanations the reader will be faced with problems of increasing difficulties, since like in many other cases, small difficulties point out here to many a greater one. Terminological difficulties can be overcome comparatively easily, but then we shall have to face the authentic and in some meaning tragic paradox of Being. Being familiar with the concept of Relativity, it is easy to get over specific terms and formulae appertaining to it, but we cannot avoid, for instance, a much more difficult problem: what is the meaning of the movement of the sole body in space which is the initial concept to which science has over ages reduced the conception of the Universe.

There are however some circumstances that if not remove the author's guilt then at least extenuate it. Apparently the contemporary reader would often fear facility more than difficulty. The humanity has been convinced that many of its hopes and many heavy apprehensions are connected with very difficult fundamental problems of science. With the most profound problems of Being; with new, strange, paradoxical conception of space, time, movement. With finity and infinity of the Universe, with its non-euclidian geometry, with more and more radical transformations of overall conceptions of the Universe, as well as of only the method and the logic of its cognition. The fundamentalisation of scientific interest is characteristic of our time.

The most profound difficulty of contemporary fundamental science (first of all of the theory of elementary particles and of astrophysics) is that there the investigator is faced with conditions of the infinity, with the Universe as a whole, and, on the other hand, with the microcosm, with ultra-microscopic world. In the real fact, the above-written "on the other hand" becomes increasingly less exact now that the investigation of Metagalaxy can be less and less precisely separated as the "other hand" from the investigation of microcosm and *vice versa*.

In the contemporary physical and astrophysical conceptions, some logical paradoxes connected with such inseparability have recently become more and more distinctively visible; quoting Laplace one can say that the Reason is obliged not only to go forward but also to go deep into itself, in order to change its canons. The transformation of these canons changes the relation between logic and poetry. In the traditional conception, poetry gives an expression to a parallel, sensually conceivable stream of cognition. Thus in all times one spoke about "poetic" landscapes, of dawns and sunsets. Nowadays there grows the poetry of logical, or better metalogical, generalization. There are a number of its great historical prototypes in didactic poetry, if only to quote Lucrecius' poem in *Divina Commedia*, but the difficulty (the fundamental one and therefore deserving a capital letter of Difficulty) remains. The poetry not only expresses the pathos of the cognition of the world, but also gives to this cognition an important, by no means alogical, but metalogical impulsion that transforms logical canons. The poetry of cognition has now an epistemological effect which is very important for decision of fundamental problems.

On what is this effect based? And what is the logical nature of poetry not only as a literary phenomenon, but as a generalised determination applicable to all cognition and transformation of the world, to all culture, which has only received the most distinctive and classical expression in poetic speech? The fundamental difficulty of this question is that contemporary synthesis of poetic and logical cognition of the world demands, at least at the first glance, the deprivation of what seems to be the very substance of synthesized poles. A "logic" poetry as much as a "poetic" logic contradicts the traditional opinion about both concrete poetry of local sensual images and about abstract logic identifying the concrete *h e r e - n o w* and taking the cognition away into the region of infinite and sensual, incognized *universalia*. Such a difficulty is connected with a more general difficulty of the contemporary conception of the world, which refuses to accept the classical opposition of the local *h e r e - n o w* and the universal, all-enveloping *o u t - h e r e - n o w*.

2. DISCRETE SPACE-TIME

Let us start from the most abstract of contemporary physical theories. And, at the same time, from the most concrete one: the theory of elementary particles. A few words will suffice to explain this seeming contradiction in terms. Formerly, "abstract" had been understood as the result of liberation of the object from any connections and concrete particularities. In this way Hegel had come to the notion of "being" without any concrete particularity. It was found identical to the opposite notion of "nothing". But the same Hegel had introduced still another conception of abstraction. The result of this abstraction turns out as more concrete, richer and richer in connections and particularities. The contemporary physics has given to such, generally classical, notions unprecedented distinctness. And at the same time, unprecedented complexity and contradiction. The elementary particle—the heir of the classical atom, deprived of any other particularities except location and perhaps dimension and form—is the simplest and yet the most complicated object of the physical world. In a number of contemporary theories the elementary particle appears as a clot of interactions enveloping the whole Universe, as an ultramicroscopic condensation of an infinite or practically infinite world, as something extremely complicated.

A number of heavy *aporiae* of contemporary theory of elementary particles will be perhaps overcome if the conception of quanted space-time, of ultramicroscopic pores of space-time world, of regions where there is already no following division into smaller space and time intervals appears in the science. Let us accept a certain theory, one of those not univocal and quite initial attempts of quantisation of space and time. It proceeds from the assumption that space and time are divisible infinitely, but their unity—space-time, movement, is discrete. In the region of order of 10^{-13} cm and 10^{-24} s one cannot any longer speak about the continuous, further divisible movement of the particle. There the particle does not move, it disappears and then, approximately in 10^{-24} s it appears in the distance of order of 10^{-13} cm from its disappearance. In macroscopic approximation the particle moves continuously and its disappearances and appearances can be observed as displacements-regenerations¹ which are caused through the influence of Metagalaxy, of practically infinite out-here-now.

The Being is a unit of here-now and of out-here-now. The initial paradox of Being comprises the following assumptions: the Past does not already exist, the Future does not exist yet, the Present (in the

¹ B. Kuznetsov, *Complementarity and Relativity*, "Philosophy of Science" 33 (1966), No 3, pp. 199-209.

case of movement of the particule that is just here - now) is a zero-limit between Past and Future, between what does not exist already and what does not exist yet. History of philosophy and history of science both form as if a chain of attempts to solve this *aporia*. For instance, differential calculus permits one to look forward and then to tighten the increase of space into a point and the increase of time into an instant to find their limit relation and to attribute to here - now new predicates—velocity and then acceleration, to see in the being of the particle not only its space-time localization, but also velocity, acceleration, impulsion, energy.

3. MONOVALENT LOGIC

There can be seen a clear-cut analogy between the movement of the particle—a continuous ensemble of its space-time localisations—and a logical continuous passage from one statement to another. It is worthwhile also to notice here that it is not only an analogy, but also a historical connection: from Aristotle till nowadays the continuous movement has been recognized as a physical equivalent of logic.

In Aristotle's physics the movement corresponds to bivalent logic, where every statement may have two appreciations: "true" and "false". When, however, one investigates the continuous variety of here - now of the particle's line of the Universe, the bivalent logic turns into an infinite-bivalent one with an infinite set of double appreciations. The quantum mechanics demands another logic—a trivalent one: side by side with the appreciations "true" and "false" appears the appreciation "probably". And what logic corresponds to a conception of elementary transmutations of annihilations and births of particles in ultramicroscopic cells of space-time?

A monovalent logic yields the only appropriate answer here. The question if a given particle is in present here - now, has the only answer: "it is"; if the particle is not there it means that the particle had not yet assumed another here - now, but had stopped its existence and the question about its location loses the sense, the subject disappears together with the predicate.

The monovalent logic, the logic of always true judgements does not permit to pass from one judgement to another, there are no statements there: "if judgement *A* is true, judgement *B* is also true", or "if judgements *A* and *B* are true, judgement *C* is false", etc. What is therefore the role of monovalent logic in cognition? Perhaps judgements about annihilations and births of the subject are alogical judgements?

Let us return to the physical pre-image of monovalent logic, to an-

nihilations and births of the particle. An ultramicroscopic transmutation of the particle loses any sense without macroscopic notions. The transmutation means a transformation of a present particle with a given mass, charge, etc., into a particle of another type, with another mass, another charge etc. But mass, charge, duration of life etc. are integral characteristics of movement. Therefore a transmutation reflects a choice of new integral characteristics, and yields a reflection of the infinite set of *h e r e - n o w* into the present *h e r e - n o w*.

The mentioned scheme of world line composed of discrete transmutations illustrates the influence of *o u t - h e r e - n o w* on *h e r e - n o w* that transforms such space-time localisation into something physical. But in its turn, the *o u t - h e r e - n o w* does not exist really, physically, without local actions: the world line composed of world-points as simple space-time localisations of the particle is not a physical but only a geometrical notion. This type of logic as a reflection of a physical being is a unity of a series of predicates concerning the same, identical-with-itself subject; the predicate is dependent on certain bivalent or polyvalent logic, and passages to a new subject are monovalent. Thus the metalogic rules, determining the transformations of logical canons themselves, enter inevitably into the reflection of the world.

Metalogical transformation evidently does not follow from the series of judgements constructed on the basis of present-day logic. They are not deduced from the scheme peculiar of this type of logic: if judgement *A* is true, judgement *B* is also true, etc. They are determined by integral characteristics of old and new types of logic, in the same way as the transmutation of a particle is determined by the values of mass, charge, etc., assumed before and after the transmutation. In other words, metalogical transformation includes the comparison of eventual, expected world-lines. From the point of view of present-day logic, the choice of new logic seems to be free. Actually, the metalogical passage is determined. But it is determined by the integral law connecting the integral *b e f o r e h e r e - n o w* and integral *a f t e r h e r e - n o w*, like in *S*-matrix of Heisenberg, or, if you prefer, like in the case of Mozart when (we are told) the composer would hear all symphony which he had not yet created. Here we see the inevitable break in the chain of univalent deductions of the following judgement from the preceding one.

It is such breaks of continuous transitions from one judgement to another which are the main concern and main subject for investigation of metalogic as a science.

It is precisely in those breaks that axiology can be engaged to logic. However, the inevitable question remains about the advantage of the new logic, about the *v a l u e* of the metalogical passage.



4. AESTHETIC CRITERIA IN LOGIC

The question about the aesthetic value of the new logic seems to be in particular the most inevitable and vital one. Let us consider Einsteinian criteria of "inner perfection" and "external confirmation". The first criterion signifies now not only a logical deduction of the present theory, but also a change of mathematical methods and notions: in special Relativity it is an increasing number of dimensions of observed space; in general Relativity it is a passage to non-euclidian geometry. The quantum mechanics for its "inner perfection" changes the valency of logic. It means that in a specific, particular problem and in a particular explanation of a fact one discovers the infinity. The particular local collision discovers the Infinity cognized by preliminary intuition. In addition, just there, in such an intuitive moment of cognition of the infinity, in what is called "illumination" one can see the substance of the Beautiful. There is no better determination of any artistic creation than the above-mentioned Mozart's remark about an instant in which a composer hears the whole of a not-yet-created symphony. When a scholar is considering the new logic, he is influenced by an intuitive representation of the "inner perfection" of this logic. It is precisely these interruptions, these breaks in the intellectual process, the intuition of not-yet-discovered various equations, the intuition grasping but the most integral preferences of the new logic which create the poetry of logic and make it related to music in which, as Leibniz said, "the soul is calculating without knowing it".

This intervention of the Future in the Present assumes for the investigator the role of Oberon's goblet; truly, as Feuerbach once said, "it creates the logic sensation of immortality".

Therefore the poetry of logic is evoked by its mobility, by its connection with the cognition of the Universe, and it ensues from its ontological and epistemological value. These affinities create in logic certain contemporary equivalents of Epicurean "clinamen", the spontaneous declinations of atoms from their ordered macroscopic laws. Yet they are truly contemporary equivalents. Epicurean "clinamen" showed some autonomy of individual processes: started from the conception of Nature it was then carried into the theory of society and thus permitted Man to avoid the fatalist predestination, the feeding of doom: "since the intellect does not cause all that is necessary it should not therefore be blamed and renounced in the name of necessity"².

In contemporary science non-aprioric metalogical "clinamen" do not only show autonomy of local, individual here-now but also they

² Lucretius II, 289-291.

present their dependence on the Whole. And they even show their counter-influence on the Whole, the influence of what is local and finite on the Infinite. Such interconnection of the individual with the general, of the finite with the infinite, of element with the set was not completely represented by Hegel's notion of "true infinity", being in every of its finite elements. The particular, local, finite not only submits to the general, not only expresses it, not only revolts against it, but also changes it. And this connection of the local and concrete with the infinite, the connection of Logos with Sensus, makes the scientific mind pictorial, emotional, poetic.

5. THE LOGIC OF POETRY AND POETIC INVARIANTS

Now there is also a reverse problem: if one can apparently find the poetry in logic, perhaps the opposite is true as well. However, in the attempts to find the logic in poetry, one must not lapse into this not-too-pleasant attitude which Pushkin attributed to Salieri: "I check up harmony by algebra". Will poetry keep its Mozartian soul?

The point is that Salieri's algebra was a determined algebra with determined invariants, which having a geometrical form would find a place in the series of Klein's Erlangen geometries. The reader does not need to be reminded, surely, that in 1872 Felix Klein in his Erlangen lecture introduced the hierarchy of more and more radical transformations and, accordingly, of more and more general geometries, where each geometry was determined by its own invariant: in the metric geometry it was distance, in topology it was the number of dimensions. These were the sense-transformations. If one applies here the classical comparison of the reason and the sense, the reason transformations will signify the passages from present algebra to another, from present geometry to another, from present logic to another. These are non-Erlangen transformations.

They had already existed in classical science but in non-classical physics transformations of a law by its local application has become very evident. Basic physical principles, mathematical axioms, logical laws can all become transformed.

What are then the invariants of those radical non-Erlangen transformations? Such invariants are inevitable collisions, paradoxes, contradictions, questions that every epoch poses for the following one to solve or at least to tackle. These invariants induce in the human soul a feeling of a not-created symphony, that emotional and intellectual animation which has received the name of inspiration. The moment when the not-created symphony becomes heard is the moment when the Infinite,

all the following series of new events, sensations and thoughts are alloyed. This is an infinite out-here-now seen in the local here-now.

Poetry in its proper sense can itself be considered as a transformation. A number of constataions, generalizations and emotions are joined in any poetic creation. They receive an air of a system of words determined and ordered metrically, phonetically and semantically. This is what makes poetry the most general determination of the aesthetic effect of Logos, of cognition, of scientific deduction. Poetry is as emotional as music, but it operates with words, *i.e.* with a universal means of generalization, systematization, logic. This ambivalence of poetry permits to see in it a logic, not covering but generating an emotional effect. Semantically, phonetically and metrically regulated systems of words must evoke in the reader's soul the same emotional effect that had determined the mentioned effect in the poet's soul. There is an invariant of poetic creation, of this transformation of thoughts, emotions and moods into the word system, and of the following transformation of this word system into the complex of thoughts, emotions and moods. But the transformations of moods into words and of words into moods do not belong to the series of judgements characteristic of the determined logic of Salieri's "algebra". Therefore, looking for the logic of poetry, we come back to the poetry of logic: poetry as a transformation forms metalogical breaks in logical deductions.

6. ARIOSTO'S POETRY AND GALILEO'S LOGIC

The logic of poetry and the poetry of logic are connected historically: there is constant correlation between different branches of culture and at times, in some critical moments of radical transformation, one can observe evident passages of ideas and methods from one branch to another, from science to poetry, to art as a whole, and from art to science. What is preserved in these passages are the cultural-historical invariants. The process can be illustrated by three examples: the relation of poetry and logic in Ariosto's poetry and in Galileo's creation, by the similar relation between Schiller and Hegel, and yet another parallel drawn between Dostoyevsky and Einstein³.

The search for logic in the fantastic tissue of *Orlando furioso*, in the seemingly chaotic conglomeration of alogical adventures of knights, their ladies, magicians, giants, is on the face of it, a difficult attempt. Yet at the same time it is very difficult to find another poetic work where,

³ See B. Kuznetsov, Notes on Epicurus and Lucretius, Galileo and Einstein and Dostoyevsky in: *Essays on Einstein*, 2nd ed., Moskva 1970, pp. 81-191 (Russ.).

through a conglomeration of alogisms, the new logical canons appear as evidently as in *Orlando*.

Ariosto's poetry, his vocabulary, and particularly his composition, the free-and-easy mixture of fantastic and real scenes, his portrait gallery of characters, his devil-may-care humourous undercurrent—all this reminds one to a certain degree of some elements of culture which were named "carnival" by M. M. Bakhtin. Why should Ariosto ridicule the Middle Ages so mercilessly; why should he laugh at the official ideas and images? What was the object of this attack?

Among various traditional medieval foundations frustrated by Ariosto's poetry was the peripathetic conception of the world, dating from Aristotle. He explains all phenomena, and above all the movement of bodies by the initial and final conditions: a body moves from one place to another because the initial phase is not the natural place for this body and the final one is so. Accordingly, the peripathetic logic is bivalent: for the movement theory only two answers are necessary in the question about the truth of a constation: "the body is in its natural place". Aristotle does not examine the movement from point to point and from instant to instant. A conception differentiated according to conditions was formulated only in the 17th century; in the 4th–16th centuries there had been observed some preliminary approaches to such a theory. This conception was a universal causal idea of the world; it applied causality to the infinite world and to its infinitely small elements alike. As it has been said above, the logic of this conception is not bivalent, it is infinitely bivalent: the movement of bodies is explained by an infinite number of positive answers to the question about the truth of the constation of the presence of the particle in the given point (a real trajectory of the particle according to the least action) and, similarly, an infinite number of negative answers (in the case of another trajectory). This connection of infinite-bivalent logic with the universal causal conception of the world became evident and distinct in the 18th century, but already in the 17th century in Galileo's *Dialogue* it had become an ideal of scientific cognition. Only in the 17th century it had been not a univocal and indisputable constation, but an aspiration, a value, a moment of intense and appropriate emotion. Galileo could not infer his infinite bivalent logic from the traditional peripathetic, bivalent one. There had to appear a metalogic break and metalogic passage, and such a passage demanded not a logical deduction but a moment of emotion, an instant when a symphony not yet created—in this case the symphony of science based on the analysis of the infinitely small—is perceived by intuition.

To such a metalogical passage corresponds the poetry of the *Dialogue*

where aesthetic criteria receive the sanction not only of the epistemological effect of passage but also of the emotional one.

What might Ariosto give to Galileo? Why should Galileo dedicate so much attention to *Orlando furioso*? Why should Galileo's *Postilla and Ariosto*—notes on the margins of this work—become an inseparable part of Galileo's general scientific, philosophical and cultural achievement?

Galileo's poetry—the poetry of logic—was drawing impulses from Ariosto's logic, from the logic of poetry. And what is this logic? Re-reading Ariosto one can share the poet's feelings—the bright anticipation of a new mentality of man and a joyful smile addressed to the Past. The beautiful, rational, causally ordered world which was revealed in the 17th century by Malebranche and Spinoza was in the 15th–16th centuries, in the time of Ariosto, a symphony not yet created. It was not a result of logic, it was its premise. A premise of a metalogical passage; the logic of poetry is metalogic.

7. HEGEL'S LOGIC AND SCHILLER'S POETRY

The classical logic of obligatory and rigid norms which seem aprioric and precede the cognition, sharply differs from the logic of Hegel, from his mobile conceptions which depend on the object and on the contents of judgements, from his lively generalization about knowledge which is subject to evolution. The way to this evidently not-aprioric logic with evident metalogical passages led not only through official philosophy but also through the poetic achievement of German Enlightenment, through the works of Lessing, Goethe and Schiller. Moreover, this way led not only through the aesthetic conceptions professed by those poets-thinkers but also through their poetic practice, through poetry. After what has been said about metalogic as a result and a condition of the poetic cognition of the world, this historical-philosophical and historical-cultural constatation is easily explicable. The aesthetic cognition of the world permits to pass from one logic to another, to infringe on present logic. Thus the cognition shows the mobility and the non-apriority of logic.

This role of cognition of the Beautiful can be seen in the poetic creation and in the aesthetic conception of Schiller. However, what can easily be seen is far more difficult to illustrate. For when it comes to the change of the logical construction by the aesthetic cognition of the world, it is impossible to speak about the illustration of the scheme, which would assume keeping it fixed and immutable, if only for a moment, whereas poetry plays there an active, reconstructing role and

flows in its concrete schemes, which cannot be reduced to the invariations. Schiller's poetry was an internal impulsion of evolution of his aesthetic ideas. Originally he considered Beauty as something subordinated to Good, subordinated to the moral ideal. The latter, according to Schiller, contained the moral grandeur of man, in his subordination to Duty. The ideal was a subjective and only subjective grandeur involving suffering and frustration caused by the refusal of man's Nature in the name of Duty. It was this tragic triumph of Duty, its victory over Nature which was the main subject pictured by Art; hence, all Art was tragic in its nature.

Yet later the ideal became in the poet's conception reconciled with the Being, with Nature, with History. Then Schiller puts Beauty side by side with Good. Whatever were the philosophical sources of the evolution in their essence, they were undoubtedly connected with poetry. In the *Gods of Greece*, Schiller admires the pagan beauty of Bacchanal plays, but it is not a hymn of joy. It is an elegy: the poet is melancholic for the disappearing beauty. But the evolution does not finish here. A year later, after *Gods of Greece*, there appeared Schiller's *Artists*. In this poem, there is not a single word about the disappearing of pagan beauty, there comes from Schiller's pen an apology of history creating new beauty. Then, furthermore, there is a radical step from Kant to Goethe, and, one could say, to Future, to Hegel's *Letters Concerning the Aesthetic Education of Man*. Beauty is no longer subordinated to Good. Now Schiller conceives of Good as a certain vector; it is determined by a direction, to the goal towards which the activity of man is directed. On the contrary, Beauty is what characterizes the power of human intellect, of man's activity, independently of the direction of action. It corresponds to the scalar value of the vector, to human liberty, to the possibility of choosing the direction, and to the force of movement in the chosen direction. These directions are not of equal value: in some of them the might of human reason and emotion is particularly great. Therefore aesthetic judgement values are not scalars, they are rather tensors.

This is the starting point of a very important idea. Aesthetic perception seems to be perfectly disinterested. Beauty is beautiful not because it yields any "fruit", any positive results. Thus Beauty surpasses the limits of axiology which lies in Good, and, in any case, is connected with a certain notion of value, with disinterested value. In order to clarify the point one may consider here the differentiated conception of value, the division of value as an initial function, determined as a direct interested value, and of value as a derivative of this interested one, for instance its velocity or

its acceleration⁴. The measure of the aesthetic impression is proportional to the force of reason and to the will of the given subject. This Schillerian statement contains an embryo hierarchy of values, corresponding to the higher and higher orders of derivatives of a certain process. From the point of view of Schiller, what is most disinterested, is at the same time most beautiful. It then includes the highest derivatives, transforms the world most radically, includes in here-now the largest and most general spheres of out-here-now.

It is just this very passage to the more and more beautiful and more and more reconstructing the world, that the internal logic, and what is most important, the metalogic of *Don Carlos* consists in. The poetry of this tragedy corresponds to these two notions. Not only the succession of events, but the building-up of conflict, the increase of importance of what the heroes say, of the internal tempo, even the change of vocabulary, images and tone correspond to them.

First of all, we see the transfer of the play's "centre of gravity" from Don Carlos to marquis Posa, the man who in the greatest measure incarnates Schiller's conception of Beauty of human will-impulsions and thoughts. After the conversation with the king, Posa reveals greater and more radical intentions than what he professed before. Then in every new scene-collision, Posa shows more and more distinctly the growing scope of his ideals. "His only love was the whole world with future generations", says the king about him⁵.

The evolution of Posa's ideas and emotions forms in fact a series of passages to a logic of mind and will. This statement cannot be manifested concretely in a measure equal to the case of evolution of scientific opinions. But what can be named the logic of tragedy becomes in *Don Carlos* more and more rapidly differentiated. And Posa's last remark that "life is beautiful" does not only express a sorrow about life tragically expiring for him. This remark attributes a predicate "beautiful" to life which includes not only the usual logic of actions but the turns contradicting it.

9. LOGIC AND POETRY OF "THE EXPERIMENT IN CRUELTY"

Dostoyevsky's poetry is connected with what was called by Merezhkovsky "an experiment in cruelty". Dostoyevsky would put characters of his novels in some incredibly difficult conditions; there, on

⁴ See B. Kuznetsov, *Value of Cognition*, Moskva 1975 (Russ.).

⁵ F. Schiller, *Don Carlos*, act V, scene 9.

the brink of ruin, on the brink of madness and sometimes over this brink, before an epilepsy attack, after a crime, at the moment of sharp suffering, the man's thought merges with cosmic collisions, exposition grows transparent and through it a cosmic tragedy of Being is seen. There the Cosmos becomes an uncreated symphony. Are these cosmic illuminations localised at moments of "cruel experiment", are they allogical?

They are not. They are metalogical. Dostoyevsky's poetry never leaves the limits of Reason; it leaves the limits of sense. It protests against traditional logic in the name of another one. Traditional logic included some particular judgement in more general ones without changing them. Dostoyevsky's logic, introducing Raskolnikov's, Stavroghin's or Karamazov's ideas into the canons of traditional ethics transforms them. It transforms not only these canons, though, but also ontological principles: to prove it, it is enough to recall the city-phantom, the "Universe without incidents", about which the devil talked to Ivan Karamazov during his visit, or the illusive "eternity like a village's bath house" of Svidrigaylov. The scope of the transformed canons and the radicality of transformation, its concentration on the most local scene, compressed in space and time, the vision of a non-euclidian Universe in a provincial *traktir* where Ivan Karamazov and Aliosha are talking—these are the features most characteristic and particular of Dostoyevsky's poetry.

Einstein observed the functioning of elements of the Universe velocities near to light velocity, in conditions of an enormous concentration of energy. If one compares experiments which gave rise to the formulation of the concept of Relativity with Dostoyevsky's "experiment in cruelty", the analogy will eventually prove not to too far-fetched at all. They are similar by their logic. In both cases it is the logic which considers the transformation of an infinite set by including a finite element, the transformation of a logical canon by including a local case. A measurement of light velocity by an interferometer transforms the conception of space and time. A local astrophysic observation makes it necessary to revise the conception of a finite or infinite Universe. This logic of the transformation of the subject by attribution to it a certain predicate becomes still more evident in quantum mechanics. It is precisely such intuitive (at the beginning) forecasts of the following "external confirmation" and "inner perfection" which create the poetry of non-classical science.