The laws of reason and logic in Nikolai Vasiliev's system[1]

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ABSTRACT. The ideas of Russian logician Nikolai Vasiliev concerning the status of the law of contradiction are discussed in this article. The arguments presented in his article 'Logic and meta-logic' are deeply explored bringing to light the weakness of his philosophical theory. His 'imaginary' logic is a system that describes not the system of the laws of reason, but relations in which objects of some ontology stand to each other. Comparing the fundamental idea of Vasiliev to the classical concepts of reason brings us to a better understanding of the fact that philosophical intention of Vasiliev has been left unfulfilled.

Keywords: laws of reason, laws of logic, Nikolai Vasiliev's logic

The issue of the correlation between traditional logic and modern one is one of those which retain their controversial nature for many years. It is not surprising, because, as long as logic stays a philosophical science, it keeps asking itself about its origin and its subject. In this article, the issue of correlation of the laws of logic and those of reason is discussed being put within the context of ideas of a well-known Russian logician, Nikolay Vasiliev. In Vasiliev's works the investigation of the nature of logical laws acts as a foundation for building the systems of non-classical logic. The intrinsic connection between solving a philosophical problem of the nature of logical laws and the possibility of building a new logic seemes obvious to Vasiliev. Although it does not seem that obvious to us anymore, Vasiliev's theories keep attracting vivid interest whenever the nature of the logical is discussed.

My interest in Vasiliev's logical theory has been aroused by the fact that some of my colleges have recently developed a deep interest in his theories and seem to have found in his writings a range of fascinating logical ideas. The fact of these ideas being fertile does not cause any doubts. Though, it seems to me, that it is not so much the ideas themselves that are fertile but the ingenious and enthusiastic incentives given to them by Vasiliev.

In this article I am going to focus on his work *Logic and meta-logic*, where he provides a foundation for a statement which is both crucial and fundamental for his 'Imaginary logic'. According to this statement: 'Thinking may change, but it is not everything there that is changeable' and also 'there are some absolute logical truths but it is not all the truths of logic that are absolute' [1, p. 331(96)].

This statement is grounded by Vasiliev with several, partly interconnected arguments, which I intend to analyze critically. Let's briefly recreate the way of his argumentation.

The first argument points out the existence of analytical and synthetic truths, whereof the first are necessary while the second are not. Do all the laws of logic have analytical character? This is the question which Vasiliev raises drawing on the similarity of the laws of logic and those of geometry. Vasiliev keeps stressing the parallelism existing between his imaginary logic and the imaginary logic of Lobachevsky.

The second argument is based on this similarity. Vasiliev argues that, if the 5th postulate of Euclid is independent from the others and so maybe substituted by some other argument without any contradiction arising, then the similar condition should lead to the similar consequence for the law of contradiction. In other words, having got rid of the law of contradiction, that is allowed contradiction as logically possible, we, in case that it is not dependant on other logical laws, should not have any non-contradictory results. The assumption seems paradoxical because, while, on the one hand, a contradiction is allowed, on the other hand, we expect it not to lead to a contradiction, that is, to this very thing which has just been allowed. In fact, Vasiliev, in his own, indistinct way, presupposes both inside and outside ways of considering logical reasoning. These ways today we would call the levels of meta-language and

object-language. Allowing a contradiction as possible, in Vasiliev's theory, means that predication may turn out both true and false at the same time, but the fact itself either takes place or does not. The further developing of this idea leads Vasiliev to two kinds of negation, whereas the logicians following him this way have been brought to constructing many-valued and paraconsistent systems.

The third argument is an ontological one. Vasiliev points at the world of fulfilled contradiction created in the systems of Nicolaus Cusanus and Hegel. 'When they were thinking contradiction as existent and actual, were not they thinking logically?', Vasiliev asks. Being carried away, as it were, by this argument, he speaks further on about the Earthly logic of the law of contradiction setting it against the logic of some remote corner of our Universe, where contradictory things may exist. In that remote place, he argues, reason would become accustomed to the triple division of propositions into the true, the false, and those having the third meaning, and would act accordingly. It should be mentioned again that the assessments of such a reason would stay double-semantic, that is, noticing, or grasping a contradiction as existing, such a reason would not be able to assert the existence of a contradiction along with its absence. Hence, Vasiliev derives the dependence of some logical laws on the conditions of experience, e.g. he tries to provide a foundation for their empirical nature. Changing of empirical sphere leads then to changing of their laws. In this he follows Kant, who divided logic into the general (pure) one and the applied, although, according to Kant, the latter is the sphere where the laws of pure logic are applied to specific experience.

Empirical nature of some logical laws is founded by two following lines of argumentation.

Lets' follow the first one. A criterion of any law's empirical character consists in its ability to be eliminated. It means that a law may be substituted by another so as to retain its non-contradictory nature. It should also be said that Vasiliev considers the empirical as a criterion for being beyond logic and rationality. The empirical character of the law of contradiction is provided with grounds by the very fact that imaginary logic does exist — the logic where con-

tradictory predicating is just one of the ways to predicate, although the logic of propositions is still the classical one.

The second proof of the empirical character of the law of contradiction is based on Kant's formula of this law. According to this formula 'There is no object which predicate can be contradictory to the object itself'. Vasiliev founds his law of contradiction on incompatibility of objects' qualities, i.e. on it being impossible to predicate more than one quality simultaneously, which, according to Vasiliev, creates a basis for negation. Incompatibility of qualities, argues Vasiliev, is an empirical condition.

The forth argument brought forward by Vasiliev actually is the developing of the third. Empirical logic is claimed to be something which is created in the process of 'life and struggle' and serves as 'a live organism, a means of struggle, and a reflection of both environment and a man'.

If we forget for a while who Vasiliev is, and make an attempt at an objective investigation of his arguments, then we can't but admit that they are hopeless.

His referring to the imaginary logic of Lobachevsky is hardly suitable. As it is well known, Lobachevsky first tried to prove the 5th postulate of Euclid expecting that the supposition of it being negated would lead to a contradiction. After he had found that it hadn't been the case, and having discovered a new geometry, he tried to find a model for this new science. Later on, Beltramy managed to do this. As for the law of contradiction, as Vasiliev sees it, the case is completely different. When he speaks about predication, he postulates its triple character straight away, at the same time, strongly emphasizing the retaining of classical laws on meta-level. Thus not only the system of postulates, but the very principle of the theory functioning is being changed. While with negation of the fifth postulate of Euclid nothing has happened either to the ways of constructing conclusions, or to the character of semantically assessing geometrical statements, negation of the law of contradiction by Vasiliev turns out to belong to an 'inner' sphere of some phenomena, namely, to the phenomena of predication, but not to logic itself. Predication, in its turn, may be three-valued. Vasiliev does not examine whether this triple character is compatible with other

principles of classical logic. The result of such an examination is easily predictable, but Vasiliev does not comment on changing the meaning of the thesis he defends.

Just as far from Vasiliev's theoretical efforts stays intuitionism, which, as we remember, rejects the law of the excluded third as a result of having adopted semantic attitudes different from those of classical logic. Here, we may see a clear case of applying a method of investigation correlated with that of Lobachevsky. Vasiliev's pointing out the synthetic character of the statement 'The sum of a triangle's angles equals two square angles' corresponds with Kant's views, but it has nothing to do with the laws of logic. Moreover, if we add to this formula a concretization 'on the surface with a zero curve', then we'll have a still synthetic proposition, but of an apodictic character, which would reflect, according to Kant, a result of pure contemplation. It is rather risky to refer to a distinction between analytical and synthetic in Kant's theory for the sake of purely logical investigation. In his *Critique of Pure Reason*, synthetic character is asserted for elementary arithmetical equations, while general laws, such as commutativeness of adding, are claimed to be analytical. To criticize Kant's concepts of analytical and synthetic is a common place thing. In fact, according to Kant, when we are thinking the sum $5 + 7$, we are not thinking the number '12'. But are we thinking '2' anyhow differently from the sum '$1 + 1$'? If, when thinking $a+b$, we, according to Kant, are thinking $b+a$, does it mean then, that when thinking $(a+b)(c+d)$, we actually are thinking $ac+ad+bd+bc$ as well? Concepts of analytical and synthetic are interpreted by modern logic rather along Leibniz's way of drawing a distinction between truths of reason and truths of fact. Then, deduction of a logical law from a system of postulates of any concrete logical system becomes a regulative of analytics of judgment. Kant understands logic as a science of 'necessary laws of understanding and of reason in general, or what is one and the same, of the mere form of thought as such' [2, p. 528(320)]. He agrees with Leibniz in this, and it shows also in his rejecting any possible psychological roots of logic. Kant especially emphasizes, that logic is a rule for any application of either the reason or understanding. Moreover, it is such a rule, which is uncovered in the process of investigating of how

understanding carries out its cognitive activities. Thus, to question the thing, which is defined as a law of logic, would mean, according to Kant, to deprive both reason and understanding of their capability to act. In the case of Vasiliev's idea, and following Kant's way of thinking, we would have to bring forward a hypothesis, that thinking is possible without the law of contradiction, that is, that such a law is not logical. In this case, a difficulty arises: we should decide whether it is with using the law of contradiction or without it that we should discuss the results of accepting such hypothesis. The example of Lobachevsky here cannot serve us a guiding point because of the difference in the subject of investigation, which has been already pointed out.

Ontological arguments demonstrated by Vasiliev are the weakest and most unconvincing. The concept 'contradiction' has many meanings so that it is not advisable to mix up the meaning usually assigned to the term in logic with the meaning it acquires in philosophical theory, where contradiction may be understood as the presence of opposing tendencies in an object or a phenomenon. His explaining the origin of the law of contradiction through referring to 'life and struggle' just adds some not very sophisticated phychologism to this terminological confusion. To say something in his defense, we can remember here a lot of authors who exploit the concept of contradiction as a metaphor not caring or caring too little about either logical, or philosophical precision.[2]

Finally, the proofs of empirical nature of some logic laws fall apart. The first one makes a logical circle as it explains the empirical character of the law of contradiction through postulating the possibility to build a logic without this law altogether. But, the first step towards building of such a logic consists in claiming the law of contradiction as not functioning in predicating. And there are no attempts made, as we've seen, to consider whether the law is compatible with other principles or not.

The second proof is based on the actually wrong understanding by Vasiliev of Kant's formula and on his changing the thesis, as it were. Vasiliev takes no notice of Kant's example 'No uneducated

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[2]Alen Badiou gives a good example of how simply logical interpretations of the law of contradiction may be used for producing a postmodern text. See: [3].

person is educated' where we actually deal with contradictory predicates. He keeps saying that 'white' and 'black' are incompatible instead of talking about 'black' and 'not-black'. Thus, instead of considering the impossibility to negate actually a predicate an object possesses, Vasiliev is considering the predicates which are not logically related in this way. The law of contradiction is understood by Kant as a general formal condition of knowledge agreeing with itself, as condition sine qua non, which comes before the question of truth is raised [2, pp. 558—559(358)]. Moreover, formality here means independence from any content, and so much so, that counter-posing of 'black' and 'white' contradicts Kant's interpretation, where it is only for logical counter-position of 'A' and 'not-A' that the place is found. Kant thinks that understanding and reason never deviate from conforming to necessary for them logical laws, whereas all the mistakes and false concepts come from the actions of sensual cognition: we confuse our subjective foundations for judgments with objective ones, truth — with its appearance. The cause and origin of all mistakes and false ideas, as Kant put it, lies in the precipitation and rashness with which we use our understanding [2, pp. 560–561(361)]. This remark by Kant is interesting in that it does not allow of any alternatives to the existent logical laws. Reason and understanding of a madman or of a primitive person act in accordance with the same laws, which control and organize the most perfect mind in the world.

That is why Vasiliev tries to avoid polemics with the tradition of classical rationalism. Also, it is hardly suitable to mention Leibniz in this context because the latter, when describing the law of contradiction, talks about the impossibility to simultaneously predicate something to an object and to negate this predication; and also, he explains the impossibility for a statement to be true and to be negated at the same time: '...any proposition (be it either an affirmative or a negative statement) may be either true, or false; where, if a statement is true, then its negation is false; if a negation is true, then it is the affirmation that is false. If the truth of something is negated, then (obviously) this something is false; whereas, if something is negated as false, then it is true' [4, pp. 299(138)]. In his *Theodicy* Leibniz puts it this way: 'of two contradictory propo-

sitions one is necessary true, and the other is false' [5, §44]. In his *Monadology* Leibniz calls the law of contradiction a 'great principle', due to which we 'think as false that, which in itself contains a contradiction' [6, §31]. For Leibniz, as well as for Descartes, the laws of logic belong to those which are absolutely necessary and indispensable for reason, to the eternal truths, that are uncovered by reason without any other experience, but the experience of thinking itself, and are innate to thinking. Certainly, as Leibniz observes, it is not anyone that can uncover the truths innate to one's consciousness. This requires certain efforts, but if these efforts done, the result is achieved which is apodictic [7, Book 1, Ch. 2, §12]. Here Leibniz is more cautious than in the passages cited above. Uncovering of some absolute truths requires, certainly, not any data of experience, but carrying out intensive thinking activity in connection with experience. We can trace here the influence of Plato's theory of knowledge as remembering, which is related in his dialogue *Menon*. This theory is interesting in its drawing a line between obvious truths, which are easy to grasp and the truths, which can be uncovered and understood only with the combined efforts of both a teacher and a student. In epistemological logic such a division corresponds to actual and potential knowledge. To the latter the knowledge of truth of arithmetical equation belongs, in which two serious polynomials are on the left and the right side: to get an assuredness in an equation being true it is necessary to do the required calculations correctly. Plato, as well as Leibniz, would not place the law of contradiction among truths of this kind, because its application is a necessary condition for all thinking operations. This means that the law of contradiction belongs to ever actual knowledge.

All in all, Vasiliev follows Mill's interpretation of the law of contradiction without escaping Mill's lapse in argumentation pointed out by E. Husserl in his *Logical Investigations*. As we know, Mill claims the law to be empirical when there are no grounds for it to be so. In other words, instead of scientific empiricism, the results of which are not to be ignored, we are faced with the simple arguments of common sense, which, in their turn, disguise the metaphysical premises, that hold experience as the only source of cognitive forms.

So, as it happens, the whole article *Logic and metalogic* should be considered as a failure. The intuition underlying this work is of a more serious nature though.

To correctly assess possibilities of applications for Vasiliev's ideas it is worthwhile to remember the classical concept of the laws of reason.

We cannot consider as trivial the statement which claims that the laws of logic are the laws of reason as such. It is so not because today we have a number of various 'logics', which someone may consider to be alternatives to each other; and also, not because Vasiliev apparently was the first to open the door for these logics to emerge.

Classical concept of laws of reason goes down to Aristotle and Leibniz. Hegel is undoubtedly among its supporters. I'm going to present here some crucial points of this concept along with the criticism aimed at them.

First of all, Leibniz holds the laws of logic to be those of reason as well because they are discovered by reason itself as being self-evident. Certainly, under scathing attacks of modern criticism aimed at the theory of cognition the self-evidence of Leibniz and Descartes may be shattered. Both these philosophers were helped and supported by the natural light of reason given to men by God and in its light showing the self-evident. Yet, our intuition is similar to that natural light only in that its effect is perceived by us as something not dependant on our empirical self, but rather as a result of functioning of transcendental grounds of our thinking. To some extent, we may pass it by without paying much attention. What intuition deals with is not as important as the way it functions. In other words, the laws of reason are still obvious for us, though only to that degree which is available for us.

Secondly, this degree of evidence (obviousness) is certainly much weaker than the one Leibniz talks about. Leibniz's obviousness was issuing directly from God, who had given us this ability to investigate truth, while ours is pre-determined empirically. This is caused by the fact that, although these transcendental grounds of obviousness have been formed out of the sphere of our conscious activity, still it has occurred in the process of our forming as psychologically

wholesome entities. It is here that the theoretical foundation lies for claiming the laws of logic not the laws of a universal reason, but the laws of a concrete, specific reason — the reason of a specific person, specific period and so on.

Thirdly, Leibniz had given quite a successful development to Plato's and Aristotle's teaching of ideas. Leibniz claims that God can neither destroy nor reject an essence, though all the essences had been contained in God's reason before even the universe was created. God of Leibniz as super-reason appears to be over laden with all its creations — both essences and laws. If the hypothesis of God is to be excluded, then there are nor essences neither laws. There are only concepts left created by our concrete reason in the process of reasoning. These concepts are chosen by us quite arbitrarily according to the order and way which are at our disposal here and now. That is why, hypothetically, any other way of creating concepts and working with them is legal, as it were.

To what extent may the alternatives to actually existent reason be represented by this reason itself? This is the question raised by Vasiliev, and he gives the only possible answer — to no extent and under no conditions. But, why is this so?

Independently from its source and from its either empirical or historical state, reason always creates its laws. Reason does not have this possibility to pick up laws while considering different options, but it is always pre-determined by its transcendental ground. Not having a possibility to act differently than it does, reason is deprived of any possibility to contemplate an alternative model for itself. If we want to present any way of reason's functioning as a way possible for it to realize, then actually existing reason just won't be able to assess this new way because it won't be able to see itself acting along the presented new scheme. This means that there is only one actual logic which expresses reason's laws, and everything deviating from it just can not be logic because doesn't come up to the requirements set up by its definition. This is the way it all looks as seen in the perspective of the classical teaching.

Yet, Vasiliev, when talking about meta-logic, has in mind exactly logic, because, as he turns to empirical logics, by which he means some 'imaginary' logics, he uncovers a sphere of formal description

of arbitrary objects, which, just because being imaginary, can not be logical. Vasiliev's intuition is directed at a play with the axiomatic of an arbitrary theory, which, due to some misunderstanding, has happened to be applied to the sphere completely unsuitable for it, — the sphere of logic. The value of Vasiliev's approach for modern logic lies in the fact that it chooses the logic as a universal instrument for analyzing any system of relations. Yet, we should not forget that such an application of logic is tied up not on its nature, but on the fact that the form of logic makes it easier to grasp and understand the very principle of systematic organization of arbitrary objects relations. Logic as a *canon* of reason appears to be very attractive for this role of an instrument of investigation of arbitrary relations. Thus, Vasiliev's approach fulfills those intentions of the 19th century's philosophical tradition which considered logic as an *organon* and tools of investigation and was expecting quite a lot from logic's merge with empirical sciences.

The questions remains open, whether any system of many-value assignment is expressible by means of any meta-language. As it has been already mentioned, Vasiliev retains meta-language as classical so that, having agreed with the presented interpretation of his ideas, we obtain either paraconsistent, or three-value logic, which is to be interpreted in two-value meta-language. Thereby, all the philosophical pathos of building a foundation for an 'imaginary logic', as well as all the efforts to eliminate the law of contradiction, just vanish, or turn out as vain: it turns out that we classically argue about a local non-classical application of reason, which may be interpreted in plenty of other ways, which would inevitably bring us back to classical reason. And why, we may ask, should we not try to realize fully Vasiliev's idea, that is to reason non-classically in meta-level? For if, according to Vasiliev, the law of contradiction is not an empirical one, then there is only one ground for using it in meta-level: it is not an 'imaginary' reality, but an actual one which constitutes the experience that makes us follow this law. It is clear why the reasoning about real world, as well as this reasoning's descriptions in meta-language, should be regulated by the law of contradiction. But turning to 'imaginary' world, where the law of contradiction does not function, we, obviously, leave the sphere of actual, so that

using the law of contradiction in meta-level lose any grounds or justifications. In fact, turning up, as it were, in an 'imaginary' world we should have conformed to its reality, and rejected the law of contradiction in meta-level as well. Although we physically stay in the real world, when creating an 'imaginary' logic, we get transferred to its world in our thoughts, and classical meta-language remains just a means of correlating of the two worlds. The proper realisation of Vasiliev's 'imaginary' logic requires that it is built and interpreted by means of 'imaginary' meta-logic.

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