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The Development of Vasiliev's Ideas and Paraconsistent Logic in Russia and Outside**

A Review of the Second Russian Edition of Vasiliev's «Imaginary Logic»

The second edition of *Imaginary Logic. Selected Works* of N. A. Vasiliev was published in 2025 by Kanon+ Publishers in Moscow under the direction of Professor Valentin A. Bazhanov. The first edition was prepared by Vladimir A. Smirnov in 1989 (Vasil'ev, 1989).

This revised and expanded edition includes a new preface by Professor Bazhanov, as well as the preface from the first edition by Professor Smirnov. Bazhanov reminds us who Vasiliev really was and what he actually did, as well as why his work as a historian, psychologist, literary scholar, symbolist poet, and translator remains of interest.[1] In his preface, Bazhanov states that Vasiliev anticipated some important keys to non-classical logics. He also emphasizes Vasiliev's central significance for a group of thinkers in Russia who contributed significantly to the logical-gnoseological studies that constitute a prominent branch of that country's philosophy.

Vasiliev was a man ahead of his time, and his works only gradually became known as the horizon of logic broadened. Internationally, the Fifth

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[1]Vasiliev completed medical school at the University of Kazan and later graduated from the faculty of history, as Smirnov tells us in his essay (Smirnov, 1989a). Bazhanov, for his part, focuses on Vasiliev's intellectual legacy.

International Philosophical Congress, held in Naples in 1924, allowed for a brief communication in English of the conception of a logic without the principle of non-contradiction and without the principle of the excluded middle. This Naples communication would give some international resonance to Vasiliev's name, because in 1936 his theses were listed in Alonzo Church's celebrated bibliography of symbolic logic (Church, 1936). It was only some decades later, in 1965, that Smirnov — the first Soviet logician to analyze Vasiliev's logical thought in depth — saw his essay on the interpretation of Vasiliev's logic reviewed by David Dinsmore Comey in the *Journal of Symbolic Logic* (Comey, 1965).

Bazhanov reviews the various ways in which attempts have been made to situate Vasiliev within the history of non-classical logics. Kline positioned Vasiliev as a precursor of polyvalent logics (Kline, 1965). The great Soviet algebraist A. I. Maltsev (Mal'tsev, 1976: 474–475), for his part, had already noted that some constructions based on Vasiliev's theses can be understood as modal. For some, Vasiliev, along with Orlov, should be considered one of the inspirers of relevance logics (Bazhanov, 2007: 244–277). Bazhanov also recalls that Smirnov classified Vasiliev's logic as multidimensional, insofar as this logic could produce different and new types of judgments. Vasiliev distinguishes three different structures of judgments: affirmation, negation, and indifferent judgment (here one could even consider a set with different extensions of negation that are associated with different types of negative or indifferent judgments). These distinct structures are considered as different kinds of dimensions. In his preface, Smirnov also points out the importance that Vasiliev's ideas have for dual-intuitionist logic, even if indirectly. If the principle of the excluded middle is not demonstrable in this type of intuitionist logic, then in an anti-intuitionist logic the conjunction $A\&\neg A$ does not constitute a contradiction.

In their prefaces Bazhanov and Smirnov both highlight the fact that the negation of the principle of non-contradiction is central to Vasiliev's thought, and the former defines this idea as the quintessence of the Kazan logician's contribution. Both also assert that, if one considers non-classical logics, Vasiliev's most important connection is to paraconsistent logic, of which he was a precursor. It is true that Smirnov, in his English "The Logical Ideas of N. A. Vasiliev and Modern Logic" (Smirnov, 1989b) and Russian "Multidimesional Logic,"[2] argued that linking Vasiliev to polyvalent, intu-

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[2]Smirnov, 1993: 260. Professor D'Ottaviano, in her preface to the posthumous book by Professor Ayda Arruda (Arruda, 1990), notes that Priest and Routley, in a chapter published

itionistic, or paraconsistent logics would not be entirely accurate, despite the fact that he was one of the first to proclaim and construct a non-Aristotelian logic. However, in his preface to the first edition of Vasiliev's works, Smirnov somewhat adjusts his understanding of Vasiliev's relationship to contemporary logical thought and notes that the interest in his logical texts relates primarily to paraconsistent logics.

In this regard, the opening of Smirnov's preface is very telling, and in the very first paragraph he says the following:

> One of the points of advancement in contemporary logical science consists in the study of logical systems in which statements that contradict one another can be formulated and correctly used. There are a number of approaches that motivate the introduction of new systems of this kind, but at the center of attention there is the possibility of expressing contradiction within them. These are above all the C_n systems of the Brazilian logician da Costa, who studies the extension of classical logic with complementary negation, so that statements of the type $A \& \neg A$ are not lost and are not always considered false (Vasiliev, 2025: 12).

Further on, Smirnov addresses the importance of paraconsistent logic for contemporary times:

> The interest in paraconsistent logics is now enormous. They have theoretical significance — for the analysis of contradictory statements, logical and semantic antinomies, and the localization of contradictions — as well as having practical significance insofar as, in principle, different and even contradictory information can enter information retrieval systems. Ultimately, this contradictory information should not destroy the system but should remain localized (ibid.: 14).

In his preface, Smirnov also notes that Bazhanov discovered two important reports by Vasiliev: one on his scientific activity, and another on his work trip abroad.

Bazhanov, to whom we owe this excellent second edition, and who, as noted earlier, perceived Vasiliev's rejection of the principle of (non-)contradiction as the quintessence of his logical thought, says in his preface:

> It seems that Ayda Arruda was the first to draw attention to Vasiliev's rejection of the principle of non-contradiction and to his logic free from this law; she was a disciple of Newton da Costa, who had asked her to study the works of the Russian scientist. Quite accurately, Ayda Arruda and Newton da Costa

in 1989 in the book *Paraconsistent Logic, Essays on the Inconsistent*, suggest that Vasiliev "could also be considered, along with MacColl and Lewis, as one of the founders of intensional logics" (D'Ottaviano, 1990: XV).

considered it appropriate to call Vasiliev a precursor of paraconsistent logic (Bazhanov, 2025: 7).

In the text of his introduction, Bazhanov also cites works that he considers most important in the discussion of issues related to imaginary logic. In this regard, he highlights important names in Soviet mathematics, such as N. N. Lusin and A. I. Maltsev, and also refers to the relevance of the pioneering works of Newton Carneiro Affonso da Costa (Costa, 1993) and Ayda Arruda (Arruda, 1990), which he cites in Portuguese. He also mentions the recently edited book by V. I. Markin and D. V. Zaitsev, entitled *The Logical Legacy of Nikolai Vasiliev and Modern Logic*,[3] which includes articles by Professor Ítala Maria Loffredo D'Ottaviano and Professor Evandro Luís Gomes, Professor Juliana Bueno-Soler and Professor Walter Carnielli, and Professor Otávio Bueno. He also refers to a work by the Brazilian logician João Marcos, published by Unicamp in 2005 (Marcos, 2005). In the appendix of the edition, there appears the article by Ayda Arruda, originally published in English and entitled *On the Imaginary Logic of Vasil'ev* (Arruda, 1979), which has been translated into Russian by V. V. Anosova, a researcher whose thesis, published in 1984, deals with the relationship between imaginary logic and paraconsistent logical systems (Anosova, 1984). There are chapters of Russian and non-Russian logicians, such as V. L. Vasyukov, V. A. Bazhanov, G. V. Sorina, G. Priest, etc.

While the article by Ayda Arruda cited above appears in Russian in Bazhanov's edition, it is worth remembering that the Brazilian logician, when working on her text, envisioned a book containing her own introduction and the translation from Russian to Portuguese of Vasiliev's three main articles. This book, which includes her essay "N. A. Vasiliev and Paraconsistent Logic" and the translation of Vasiliev's articles,[4] was published posthumously by Unicamp in 1990 as the seventh volume of the CLE Collection, edited and prefaced by Professor Ítala Maria Loffredo D'Ottaviano. In her essay, Ayda Arruda states, regarding the primordial relationship of imaginary logic with paraconsistent systems:

[3]Markin & Zaitsev, eds., 2017. This edition, with chapters by many Russian and non-Russian authors, also contains works by the following ones: G. V. Sorina, E. D. Smirnova, V. A. Bazhanov, W. Stelzner, G. Priest, V. L. Vasyukov, I. B. Mikirtumov, J. Y. Beziau, J. V. T. da Mata, V. M. Popov and V. O. Shanguin, V. I. Markin and D. V. Zaitsev.

[4](1) "Sobre os Juízos Particulares, o triângulo das oposições e o princípio do quarto excluído;" (2) "A lógica Imaginária;" (3) "A Lógica e a Metalógica."

...we believe that any formalization of Vasiliev's imaginary logic leads to a paraconsistent logic. Whether this will also be a polyvalent logic is a matter of detail or interpretation (Arruda, 1990: 13).

CONCLUSION

This second Russian edition of Vasiliev's works comes at an opportune time and shows that Vasiliev's logic continues to inspire researchers in Brazil, Russia, and the rest of the world. It includes Vasiliev's three most substantial works: (1) "On Particular Judgments, the Triangle of Oppositions, and the Principle of the Excluded Middle;"[5] (2) "Imaginary Logic" (under this title are included the famous essay, as well as the theses from the Naples Congress and the text of a lecture on the subject at Kazan University); and (3) "Logic and Metalogic."

The edition clearly highlights the fruitful relationship that can be established between Vasiliev's ideas and paraconsistent systems.

The book also contains ancillary texts for understanding Vasiliev, such as a report of his scientific activities (an important manuscript discovered by Bazhanov) and a significant philosophical work on ethics. The latter work even has a logical bias in its title, "The Logical and Historical Methods in Ethics." It deals with the differences between the ethical conceptions of Vladimir Soloviev and Leo Tolstoy, to which the Kazan thinker applies notions of system, identifying the fundamental propositions (principles) on which these thinkers based their ideas. There are also reviews by Vasiliev, including reviews of Francis Paulhan's *La Logique de la contradiction* (Paulhan, 1911), of Henri Poincaré's *Dernières pensées* (Poincaré, 2013), and even a review of *Die Prinzipien der Logik* (Von Windelband & Ruge, eds., 1912), which brings together articles on the principles of logic by important authors of the time.

Let us not forget that Bazhanov has added some of Vasiliev's symbolist poems to the book, and the final result of this edition is very good. Vasiliev is no longer just the prolific thinker from Kazan, but a man with multiple

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[5]One of the issues discussed in this article, as the title indicates, is the meaning of particular judgments. Vasiliev sees two possibilities: (1) some, but not all, are Y; (2) some are Y. The latter would be very close to universal judgments. Smirnov addresses these issues in his "The Logical Ideas of N. A. Vasiliev and Modern Logic," cited above. In his symbolic reconstruction of Vasiliev's ideas (syllogistic) on judgments, Smirnov introduces the operator T (only some S are P), $T\mathbf{SP}$. In this way, he pays homage to the Russian language, where the word *tol'ko* means "only."

interests, thoughts, and feelings, who by means of only a few texts defini-
tively entered the history of logic. An extraordinary example of this fact is
the aforementioned communication in English ("Imaginary Logic") presented
by Vasiliev to the Naples Congress in 1925, and which Alonso Church, one
of the pioneers of computational theory and Turing's professor at Princeton
(1936–1938), with his intuition for the new, immediately picked up and
included in his famous 1936 bibliography of symbolic logic.

Finally, it can be concluded from the significant presence of works by
Brazilian researchers in the editors' prefaces that Vasiliev's ideas and
the study of paraconsistency in Brazil and Russia are in complete synergy.

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