



## BOOK REVIEW

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### FORMAL AND INFORMAL METHODS IN PHILOSOPHY

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This book is Volume 113 of the *Poznań Studies in the Philosophy of the Sciences and the Humanities Series*, being the 12th book of the subseries *Polish Analytical Philosophy*. It consists of 16 chapters authored by different scholars, most of which address the Polish tradition of analytic philosophy, especially the Lvov-Warsaw School—one of the most notable movements in this country’s intellectual history, founded by Kazimierz Twardowski (1866–1938). As it is the case with many other movements, the tenets of the School’s members are not uniform. However, a distinguishing feature of the Lvov-Warsaw School is an analytic approach to philosophy characterized by the use of particular formal and less formal methods developed by its members. More often than not, there is a strong emphasis on logic. How philosophy was done in this school can be inferred from the book itself since, as the Editors note in the Introduction, “the majority of the authors of the presented volume are genetically connected with the Lvov-Warsaw School, namely being indirect students and followers of members of the first generations of this formation” (6).

In what follows, I provide an overview of each of the chapters. Not in all cases do I also offer my opinion on the texts or the theses provided therein. But before that, let me give a few general remarks about the collection as a whole. First of all, I believe this volume would be a valuable addition to the library of anyone interested in the history of analytic philosophy and the methodology of philosophy. The Lvov-Warsaw School is not widely mentioned in philosophy curricula, and upon reading this book I strongly believe this omission should be rectified. I do, however, have a few critiques of the book. One considers the title. The Editors claim that it

“refers to the tension between formal and informal elements in the way of practicing analytical philosophy” (2). However, this tension is not explicitly explored in the present volume, exception being Chapters 2, 4, 6 and 9, the only texts that mention the word “informal” in the relevant sense. Most of the texts *do* talk about, propose and use various (historical) formal and informal methods, but the two opposing accounts are seldom contrasted. My second concern is about the cover of the book. It features two photographs depicting two scholars, but nowhere in the book does it say who these people are. I have some ideas about which members of the Lvov-Warsaw School they might be, but I’m not as sure as to be comfortable enough to share my hypotheses. I think this information should have been made available also to the readers not (that) familiar with the School. Lastly, some of the chapters may have benefited from a closer proofreading.

1) Mieszko Tałasiewicz: “Metareflection: A Method for Philosophy” (pp. 9–40)

This chapter offers “a phenomenological description of a way in which one can practice philosophy” (12), in opposition to a (more popular) stance according to which the method of philosophy is the conceptual analysis of data given to us by philosophical intuition. The author stresses the importance and indispensability of the first-person view in philosophy—calling this method “metareflection”—where intuition is not wholly dispensed with, but is understood as being “made on the basis of explicit reasoning” (24) and “is subject to calibration and correction” (27). Especially interesting is the term “conceptual synthesis”, which “involves having to introduce new technical terms or attaching a new technical sense to previous everyday expressions” (15). We should, however, be extra careful when dealing with concepts referring to vital social practices, such as justice and responsibility, where the usual understanding of the terms arguably needs to be preserved as much as possible.

The author doesn’t accept philosophical exceptionalism, arguing that scientists themselves surely can and often do engage in philosophy, but that in philosophy there is a difference of degree to which the first-person analysis is (supposed to be) used. Nor can, he continues, philosophers just “spout nonsense” (28) about things empirically verifiable. He emphasizes the importance of philosophical training, especially of the distinctions introduced in the philosophical tradition, to name a few: Brentano’s intentional vs. unintentional states, act vs. content vs. subject of presentation in Twardowski, and Donellan’s referential vs. attributive use. The view proposed in this chapter also incorporates a stance towards

thought experiments, which are not understood as merely a “cheap substitute for a real-life experiment” (34).

This paper, the longest in the book, offers an engaging and thought-provoking introduction to the volume. (But, on the other hand, it does not explicitly concern the philosophy of the Lvov-Warsaw School, so those who came for an introduction to this particular brand of philosophy may perhaps skip to the second chapter.) As the author himself admits, further elaborations of some claims made in the text “would require a book, not a paper” (26). It is certainly something to look forward to.

## 2) Jacek Jadacki: “Semi-Formal Analysis of the Formality-Informality Opposition in the Spirit of the Lvov-Warsaw School” (pp. 41–55)

The main thesis of this chapter is that opposing formal to informal theories—especially in the case of logic—“has no rational basis” (48). The author claims that there is no such thing as an informal theory—a theory can only be more or less formal. But he also claims that “there is no formula that would be fully formal” (50), i.e. ‘contentless’, since variables always have a range, i.e. a domain. He develops his argument by first meticulously specifying and distinguishing all the transformations one can do on sentences, namely: enlargement, generalization, extrapolation, variabilization, standardization, schematization, and clarification. All of them are needed to eliminate the unwanted features of (the arguments put forward in) the natural language, such as ellipticity, amphibolicity, polysemia, occasionality, and approximation. Following the philosophical tenets of Łukasiewicz, Ajdukiewicz, Bocheński and Twardowski, he concludes that “[i]n practice, what is practiced under the banner of ‘informal logic’ is sometimes the result of operations that have been called ‘clarification’ here, or [sometimes] such an extension of classical logic that would be [a] more adequate theory of argumentation” (53).

In my understanding of the author’s point, all that informal logic purports to do can be done formally, in the spirit of the Lvov-Warsaw School. Also, the very analysis that the author provides, which is according to his theory (merely) semi-formal, can itself be done more formally, but such an analysis is “waiting for its creator” (54). Personally, although I find the arguments proposed in this text compelling, I find that the author does not engage enough with the literature from the field (mis)identified as informal logic. The author quotes only a passage from the editorial introduction to the first issue of journal *Informal Logic* from 1978 where it is clearly stated that the informal logic means different things to different people, as well as the entry on informal logic from the *Stanford Encyclopedia of Philosophy*, where it is, admittedly, stated that “the goals of informal logic have been pursued in the Polish tradition of ‘pragmatic logic’” (53, n. 10).

But there surely have to be *some* (methodological) differences, especially given that there's a lack of an agreed-upon definition, demarcation and goals of the field the author criticizes.

3) Marcin Będkowski, Anna Brożek, Alicja Chybińska, Stepan Ivanyk and Dominik Traczykowski: “Analysis – Paraphrase – Axiomatization: Philosophical Methods in the Lvov-Warsaw School” (pp. 56–74)

This chapter offers a reconstruction of three methods of doing philosophy used by the members of the Lvov-Warsaw School: analysis of concepts, semantic paraphrase, and axiomatization. It starts with a short yet informative description of the philosophical program of the School, pointing to some differences in approaches among its key members. In keeping with the tradition, the authors take a clear stance towards the notion of method in philosophy: “We share the view of the members of the LWS that philosophy is a science in a broad sense, and that various methods are used in it” (58). Their definition of method is—not altogether unobjectionably—tied to the aim of the research: “[T]he most useful definition of ‘method’ is one relativized to the aim” (58). The authors offer an evaluation of methods with respect to reliability, providing a distinction between reliable and infallible methods, as well as between local and global methods. Preceding the reconstruction, the four basic ingredients are outlined needed in order to characterize a given philosophical method, one of them being a clear indication of the applied conceptual or technological tools.

In the main part of the paper, the authors provide the successive stages of each of the three philosophical methods. They reconstruct them from the methodological remarks of the members of the School, as well as from the way they deal with specific philosophical problems. They draw from Łukasiewicz, Czeżowski, Twardowski, Ajdukiewicz, Kotarbiński and Leśniewski, and give (reconstructions of) examples from their works. To the reader, the preferred way of dealing with philosophical problems in the Lvov-Warsaw School is clear from the outset, and can be summarized by this sentence from the concluding section of the paper: “[It] is easy to notice the linguistic approach to problems and the trust in the instruments of logic (broadly understood)” (72). In the said section, we also find a brief comparison of the Lvov-Warsaw school and other similar movements in early twentieth-century analytic philosophy.

As a not-fully-initiated reader, I left with one question still lingering. The sophisticated formal methodology and the utmost clarity of the concepts used by the Lvov-Warsaw School notwithstanding, there is still one term that escapes definition: “[I]n each of them [i.e. methods of the School] an

important role—at some stage—is played by intuition” (71). Not that intuition cannot be defined or accepted as a kind of insight, but—in my own opinion—it may forever remain a nebulous term.

4) Friedrich Stadler: “From Methodenstreit to the ‘Science Wars’ – an Overview on Methodological Disputes between the Natural, Social, and Cultural Sciences” (pp. 77–100)

This chapter presents several historical variants of the dispute about the unity versus the plurality of the scientific method. The author wants to show that the same/similar debate arose many times throughout history in many different guises and under many different names, covering related problems like, for example, unity vs. plurality of sciences, adherence to vs. rejection of different “cultures” of the sciences (i.e. of humanities, social and natural sciences), identification of vs. differentiation between understanding and explaining, and opposing views on the context of discovery and the context of justification.

In the introductory part, the author provides a brief overview of the variants of the Methodenstreit, providing more than a dozen of its historical iterations. Some of them are discussed in more detail in subsequent sections of the chapter: disputes in economics between the Austrian School and the German Historical School beginning in 1883, the Methodenstreit in the historical sciences lasting from 1891 to 1899, the debate around Hempel-Oppenheim’s calls for methodological unification, different views about and around the Vienna Circle, competing interpretation of Weber’s stance on methodology, and, finally, the “science wars” related to the Sokal hoax. All these disputes, the author suggests, can be investigated both from meta-theoretical and contextual points of view. This is done in the present text as well: We are given a plethora of influential names and works, where the influences are in each variant of the dispute meticulously traced back. But all the different positions are also summarized and classified according to their underlying philosophical assumptions, although not all of them arose in the field of philosophy *per se*.

The author—as far as I understood—doesn’t take an explicit stance towards the issues discussed in this text, but his position on the role of historical analysis—a topic widely discussed across various iterations of the debate on method—can perhaps be inferred from the following, instructive, quote: “[T]he history of the Methodenstreit facilitates a better understanding and provides good arguments for both sides, in addition to helping to prevent a mere repetition of the good old debates” (97). This chapter is characterized by an abundance of references, which I’m sure makes it hard to grasp entirely for a reader not (that) familiar with the field

of history of science and philosophy. At the same time, however, it offers such a reader a great starting point for future research in the field, at the same time preventing them from re-inventing the wheel.

5) Krzysztof Brzechczyn: “Periodization as a Disguised Conceptualization of Historical Development: A Case Study of a Theory of the Historical Process Developed in the Poznań School of Methodology” (pp. 101–125)

This chapter provides an outline of the philosophy of history of the Poznań School of Methodology, developed by Leszek Nowak and his colleagues. The text starts with an argument for distinguishing between periodization and chronology, where the former is a kind of division that should be more informed by theory. Unfortunately, as the author reports, this is rarely done by historians: they are often not explicit about their underlying theoretical assumptions when dividing time into periods. To this, discussions held in the Poznań School of Methodology are rare exceptions.

The chapter describes two distinct approaches to the philosophy of history taken by the members of the School: the adaptive interpretation of historical materialism and non-Marxian historical materialism. The adaptive interpretation, to which a substantial part of the chapter is devoted, was developed to solve the “well-known interpretive difficulties” of Marxism: It was not always clear how to interpret the cause-and-effect relationships between “global productive forces and relations of production, a social base and a legal and political superstructure, social and economic conditions and particular states of social consciousness” (103). The author provides Nowak’s solution, the adaptive understanding, and describes its three varieties: “[t]he mechanism of the adaptation of systems of production to the level of productive forces”, “adaptive dependency between the superstructure and the economic base” and the adaptive “dependency of social consciousness on social being” (104-5). We also find a diagrammatical representation of the structure of class formation according to Nowak, one of many such representations in this text.

Other members of the Poznań School working within the framework of the adaptive interpretation are also presented. There is description of the periodization of the pre-class epoch in the works of Burbelka, as well as of different conceptions of transitions between “formations”, i.e. sub-periods, in the class epoch offered by Łastowski and Buczkowski. Following the description of the adaptive interpretation, the author presents some problems for it, including the place for, significance and status of “social momentum” (114) in relation to the economic one.

This part of the text leads into the portrayal of the “non-Marxian historical materialism”, developed by Nowak after the application of the adaptive interpretation to “the construction of a theory of socialism appeared to be unconvincing” (118). Here we can find a rather interesting differentiation between the means of production, coercion and indoctrination, but also the author’s critiques of this variety of historical materialism. One of them is about the division of societies into oriental and occidental, which he argues “is too rough to grasp the developmental diversity of non-European societies” (119).

6) Ryszard Kleszcz: “Władysław Tatarkiewicz: Metaphilosophical Notes” (pp. 126–149)

This chapter offers a (partial) reconstruction of Tatarkiewicz’s stance on philosophical method and of his metaphilosophy, the fields he is less famous for than for his work in history of philosophy, aesthetics, and art history. The reconstruction is done based on his numerous works and letters, with ample representative quotations. The paper starts with a description of Tatarkiewicz’s lasting philosophical influences, including Aristotle, Twardowski and British analytic philosophy. We are then given a depiction of Tatarkiewicz’s stance towards analytic philosophy—an approach he opted for, following the postulates of common sense, (conceptual) clarity and precision. The author, however, points out that there are limits set for this kind of philosophizing: “Tatarkiewicz did not overestimate the possibility of using philosophical tools in the domain of religion” (134). The author then goes on to discuss a closely related question of the role of logic in (meta)philosophy, contrasting Tatarkiewicz’s position with that of Łukasiewicz. Tatarkiewicz’s “affinity for analytical thought” (134) notwithstanding, he was closer to an “informal attitude” (135) about logic.

Next, we find a detailed description of the three types of knowledge/perspectives according to Tatarkiewicz: natural, scientific, and philosophical. Natural perspective can be found in every individual and it “does not require any particular education or professional preparation” (139). It gives opinions about the world as a whole. Scientific perspective is, as one can expect, more rigorous, but “does not aspire to gain knowledge about every realm of reality” (140). Both perspectives are, however, “deformed to some extent” (142), each in its own way. But when building a worldview, a choice has to be made, and “[i]f such a choice is to be made from an external, somehow neutral point of view, the role of arbitrator must be entrusted to philosophy” (143). For Tatarkiewicz, the author reports, philosophy is a science in a broad sense, a “discipline with the widest scope and one that uses the most general concepts” (143). It

applies scientific methods but goes beyond them. However, we are not given a definite answer as to what these methods are. Instead, what we find is an appreciation of different views and approaches: “[T]he object of philosophy is not constant but changes depending on the era” (145).

In the last section, the author provides a synthesis/summary of Tatarkiewicz’s metaphilosophical and methodological tenets. At the very end, he states that it is “not possible to fully and systematically determine [Tatarkiewicz’s] position” (146) and hence the justification for the wording of the title—metaphilosophical “notes”. Given the flexibility and permissiveness of Tatarkiewicz’s (meta)philosophy, I did not find that to be a disappointment. What I would personally like to have seen, however, is a more detailed comparison between philosophical and natural knowledge, especially given that (if I understood correctly) they both strive to encompass the whole of the world.

7) Tadeusz Szubka: “Casimir Lewy and the Lvov-Warsaw School” (pp. 150–160)

This chapter discusses the reasons why Kazimierz (Casimir) Lewy, a student and later a lecturer at the University of Cambridge, was “rather resistant” (150) to the philosophy of the Lvov-Warsaw School, even though he started his philosophical development in Warsaw and was moved to philosophy by Kotarbiński, a member of the School. In the first section, clearing up first an ambiguity found in the literature about whether it was a paper by or on Kotarbiński that inspired Lewy—opting for the first option—the author describes four episodes of Lewy’s involvement with Polish analytic philosophy. He helped Zbigniew Jordan publish “a general sketch of the pre-war achievements of the Lvov-Warsaw School” (153), and on three occasions he wrote critical reviews of two logic textbooks by Tarski and one by Czeżowski. Concerning the textbooks, Lewy praised the logic therein, but was highly skeptical about their philosophical assumptions.

Initially, while reading the section about these four encounters, I developed an expectation about where the chapter would go next, which ultimately turned out to be wrong. From the tone and wording of the section, I thought the author would make the claim that Lewy’s encounters were partial and unrepresentative, and that he wouldn’t have been as critical had he got more acquainted with the philosophy of the other members of the Lvov-Warsaw School. Instead, the chapter goes on to describe three main reasons for the critical attitude Lewy expressed towards the School. All of them are “diverging philosophical perspectives” (156). Firstly, what distinguished Lewy from the ontologically conservative Lvov-Warsaw

School was the fact that he was “unrepentant in his affirmation of the existence of abstract objects, including concepts and propositions, and of modalities” (156). Secondly, Lewy’s attitude towards logic was “more flexible” (157)—he was open to using other logics that the classical extensional logic to deal with philosophical problems. Lastly, there is “Lewy’s reluctance to weaken the relationship holding between analysandum and analysans in correct analysis” (158), unlike the approach taken by Carnap, which can be said, the author tentatively suggests, to be similar to the approach taken by the Lvov-Warsaw School.

Admittedly the anti-climactic nature of the second section may have been all on me. So, the section about Lewy’s encounters with the School should be read as episodes that provided him with an understanding of what the philosophy of the Lvov-Warsaw School generally was.

8) Srećko Kovač: “Remarks on the Origin and Foundations of Formalisation” (pp. 163–179)

This chapter rehabilitates and argues for a mechanistic view of formal reasoning. The text starts by describing “modern standards of the certainty and exactness of knowledge” set by the founders of modern logic, standards according to which “one cannot be fully satisfied with a given theory until it is formalised, that is, presented in a shape of a formal system” (163). Especially highlighted is Łukasiewicz’s axiomatic approach (to philosophy). Following the works of Łukasiewicz and Bocheński, the author makes the case for the claim that the said standards go back to Aristotle, who not only established formal logic, but also a general theory of axiomatics (albeit, seen from the viewpoint of modern standards, with “some shortcomings in [...] presentation and wording” (165)). As the author explains, “Aristotle’s approach resembled the requirements for a formal system as formulated by Frege” (166).

Next, considering, among others, Frege’s, Hilbert’s, Kant’s and Łukasiewicz’s remarks on formal systems, the author explores the relation between the “sensible givenness” (166) of concrete, written, signs used in concrete proofs and the necessary, i.e. presupposed, “abstract and ‘ideal’ or ‘conceptual’ pre-understanding of expressions” (167). Following the logical and philosophical work of Tarski, Gödel and Turing, the author establishes and defends his central claim that “[t]he concept of a formal system can be rendered precise in its ‘abstract’ (‘absolute’) sense independently of any formalism” (168) and, if envisaged as a Turing machine, can be “reduced to mechanical (and thus causal) terms and rendered objective” (169). Such a view can be attributed to Aristotle, whose understanding of syllogism, the author suggests, “was basically

dependent on causal terms (e.g., premises as causes of a syllogism)” (169). This is tied to Wittgenstein’s reflection on machines, according to whom a machine or a picture of it “can be used as a symbol for a certain way of operation” and thus his “symbolic machine shares its abstractness with a Turing machine” (170). The author investigates some possible influences on Wittgenstein, among which there may be Croatian philosopher Faust Vrančić, whose book *Machinae novae* was a part of Wittgenstein’s private library.

Following the conclusions drawn about formal reasoning as a mechanical (causal) procedure, the author provides a formal account of this procedure, which “should possess general features of determinacy” (171). As a starting point, he uses Minari’s modal reformulation of Łukasiewicz’s three-valued logic, adapting its axiomatization and adding to the language the tools of justification logic in order to allow for expressing more specified causal justifications. For the proposed axiomatic system, he proves soundness and completeness.

9) Krzysztof Wójtowicz: “The Status of Mathematical Proofs and the Enhanced Indispensability Argument” (pp. 180–194)

This chapter identifies a tension between the two ways of choosing ontological commitments regarding mathematical objects, seen from the perspective of the two versions of the indispensability argument proposed by mathematical realists. The author starts by describing and contrasting the original indispensability argument as first proposed by Quine, and the enhanced indispensability argument advocated by Baker. The former regards as indispensable only those mathematical entities that are logically necessary in scientific explanations, while the latter focuses on those mathematical entities that carry explanatory power.

The central question the chapter raises is the following: Does the explanatory power come from mathematical theorems themselves, or does it (at least partially) come from the proofs of theorems? The author sides with the latter option but notes, however, that it is then important to consider the two different visions about the nature of mathematical proofs. According to the first, “[a] mathematical proof is an intellectual activity which is not constrained by purely formal conditions”, it is “an operation on concepts, and semantic aspects have a non-reducible character” (188-9). On the second view, “[a] mathematical proof is a formal construct whose semantic aspects are insignificant—only compliance with formal rules counts” (189). Even though he recognizes that mathematics is not usually practiced in line with the second view, “[p]roofs from everyday mathematical practice [...] being a mixture of natural and symbolic

languages” (188), the author notes that, from the perspective of ontological commitment, the latter view needs to be taken into account.

Here, the author suggests, the field of reverse mathematics may provide valuable insights, because it establishes the “strength of assumptions necessary to prove theorems [...] [a]nd in terms of ontological commitments—it provides a tool for identifying them” (190-1). In line with the second, stricter, view of mathematical proofs, analyses in terms of reverse mathematics include translating proofs into the language of second-order arithmetic. This, however, “from the point of view of everyday mathematics is a very artificial procedure” (191) and, consequently (and importantly), is likely to have a negative impact on the “explanatory virtues” (191) of the proof. As the author warns, there may appear two versions of a proof, one using weak assumptions but lacking in explanatory power, i.e. “leaving a feeling of cognitive insufficiency” (188), and the other which explains, but uses stronger assumptions. From the perspective of ontological commitment, the author concludes, the enhanced indispensability argument faces a drawback when compared to the original indispensability argument: The use of reverse mathematics helps us to see that more explanatory power may lead to a more baroque (mathematical) ontology.

#### 10) Kordula Świątorzecka: “A Case of Metalogical Explanation of Logical Normativity” (pp. 195–205)

This chapter proposes a view that normativity of logic can be explained in terms of metalogical properties of the inference relation. The author takes inspiration from various philosophical understandings of Kant’s, Frege’s and Carnap’s views on normativity, warning us that they “fluctuate between contradictory interpretations” (195). For instance, there are in the literature opposing answers on whether Kant saw logic as normative. MacFarlane, Hanna and Lu-Adler claim that he did. Alternatively, Tolley “suggests a plausible interpretation of the concept of normativity according to which Kant is not a normativist at all” (196). Situations like these, the author suggests, prompt us to inquire about a precise and non-ambiguous definition of normativity of logic that is in accordance with the standards of modern logic. Her approach thus starts from the “conviction” that “if philosophical creativity is to concern matters in the close vicinity of scientific considerations, then it should consider as much as possible the subjects and the methods of the latter” (198).

The concept of normativity of logic presented in this chapter is restricted to situations where logic is applied to “somehow distinguished non-logical reasonings” (198). These are not reasonings that have nothing to do with logic, they are non-logical only because they are not put forward in a

language of symbolic logic. A further restriction is that the given approach, for the sake of simplicity, considers only non-logical reasonings expressed in a language which is “morphologically similar” (198) to that of propositional logics. To build her case, the author provides preliminary notions from the contemporary methodology of deductive systems. Among other things, she offers precise definitions of structural consequence operation, valid inference, logic, and well-defined logic. She then presents a morphologically similar language to express simple reasonings, as well as a way to formalize it in the language of propositional logic. It is in this sense, the author suggests, that we can understand normativity: “To phrase the description of [...] reasonings in normative terms, we can say that they respect norms of a given logic, or that the logic is normative with respect to them” (202). On this approach, “the question of the normativity of any reasoning is reduced to the problem of the existence of a formalization that translates a reasoning into a generally verifiable inference” (202).

The author recognizes some pragmatic limitations of the proposed view, the most serious probably being that simple reasonings are in her approach expressed in a language designed to be similar to that of propositional logic. This is, however, not the language used in philosophical reasoning, the formalization of which may prove significantly more difficult. She leaves this concern for another occasion, but notes that rephrasing philosophical talk to fit the language of logic may also be considered a normative task. It remains to be seen if less formalistically-minded philosophers will find this approach to normativity understandable and/or convincing.

#### 11) Sébastien Richard: “Leśniewski’s Intuitive Formalism” (pp. 206–228)

This chapter describes the philosophical position of Stanisław Leśniewski, which Tarski calls “intuitionistic formalism”. As Leśniewski never fully explained how this position was to be understood, the author sets out to explain/reconstruct what it is and how Leśniewski applied it in his work. The text starts with an explanation of the name of the Polish logician’s philosophical stance: his view of formalism and of intuition.

The author claims there are two parts to Leśniewski’s philosophy: critical and constructive. The first “concerns some formal systems built by other logicians” (207), where these systems are criticized on account of their meaning. In the construction of a formal system, we should at every point know what its constituting expressions are about: “The formalism [...] comes after the intuition in order ‘to encode and communicate’ it in a more precise way” (208). This is in opposition to Hilbertian formalist stance in philosophy of mathematics, where statements and symbols have meaning

only relative to the role they play in a theory, although Leśniewski, like Hilbert, takes an axiomatic approach. Intuitionistic formalism also cannot be subsumed under Brouwerian intuitionism since, as the author notes, Leśniewski accepts the principle of excluded middle. Recognizing there is a tension between intuitionism and formalism, the author opts for another name given to Leśniewski's philosophy—"intuitive formalism".

These considerations are followed by a reconstruction of the meaning of the term "intuition", which for the Polish logician is both about the language and the world, concerning "how to speak about the way the world is" (211). In the description of the critical part of Leśniewski's philosophy, we are also given some concrete examples—his position on Russell and Whitehead's *Principia*: the critique of their use and explanation of the assertion-sign and the critique of their equivocation of the two readings of the negation-sign.

Regarding the constructive part of intuitive formalism, the author describes how this philosophy is used by Leśniewski in construction of his three formal systems: Protothetic, Ontology and Mereology, the motivation for which is to find a more "intuitive" solution for the Russellian paradox of classes which was, as the author states on multiple occasions, discovered independently also by Leśniewski himself. The text concludes with a clear description of Mereology, the system based on Protothetic and Ontology, where its philosophical assumptions are made explicit and distinguished from those of other systems proposed to solve the antimony of classes.

Having read this chapter, I can indeed say that Leśniewski's solution to me seems to be superior to Russell's—a case in point being the identification of "every unary collective class with its unique element" (225)—and I would recommend this text to anyone who decides to grapple with (the solution to) "Russell's" paradox.

12) Zuzana Rybaříková: "The Case of Logic: Łukasiewicz-Prior's Discussion on Logic" (pp. 229–238)

This chapter concerns the philosophical differences between Łukasiewicz and Prior that lead them to use opposing systems of logic when approaching philosophical problems. Even though the title announces that what will be addressed is the "discussion" between these two logicians, the reader should rather expect a *contrast* between their views, featuring a lot more of Prior's comments on Łukasiewicz's work than *vice versa*. However, this "asymmetry of discussion" may well be the result of historical facts rather than a flaw of the chapter: Łukasiewicz may just have

not engaged that deeply with Prior's work, but the text, especially given its, in my opinion, misleading title, leaves this mystery unresolved.

The opening section outlines and explains the possible origins of some similarities between the views of the two logicians (and philosophers). The two remaining sections are dedicated to the logic/philosophy of Łukasiewicz and Prior, respectively. Concerning the former, we find a description of his view of the philosophical method, which he considered to be wanting in comparison to the precise methods of natural sciences, leading him to an analysis of philosophical problems by means of (developing) mathematical logic. The author discusses the philosophical topics considered by Łukasiewicz, most notably his analysis and rejection of determinism and his view of causality, influenced particularly by Łukasiewicz's "passion for human freedom" (231, n. 1), which ultimately led him to reject "the meta-logical law of bivalence" (233). We also find an informative description of different many-valued logics developed by Łukasiewicz, but also remarks on his anti-psychologist stance, his preference towards extensional logic and his possible Platonism.

Regarding Prior, the author provides an outline of his philosophical development, followed by a depiction of the influence the Polish logician had on him. We find out that Prior at first adopted Łukasiewicz's system of logic, but later "discovered several controversial aspects" (235) therein. Prior criticized Łukasiewicz's systems on account of, among other things, allowing the law of contradiction and the law of excluded middle not to hold universally, and not being genuinely indeterministic. Prior also, unlike his Polish fellow logician, preferred intensional logic and was a nominalist. In the concluding paragraph, the author states that "[i]t was primarily the philosophical convictions of both authors that gave rise to the differences in their views on logic" (236), ending the text with a thought-provoking question: [D]oes it still mean that mathematical logic is a precise tool in philosophy, if the choice of the system of logic is affected by the philosophical preferences of each philosopher?" (237).

13) Aleksandra Horecka: "The Semiotic Method in Art Theory and Aesthetics in the Lvov-Warsaw School" (pp. 241–256)

This chapter is about the various semiotic theories developed by the members of the Lvov-Warsaw School and the proposed applications of these theories to analysis and classification of works of art. It focuses mostly on Wallis's account, but considers in detail also the views of Twardowski, Pelc, Blaustein, Witwicki and Tatarkiewicz. The text starts with the necessary philosophical preliminaries for the application of semiotics to aesthetics and to the theory of art, where the latter is not—

unlike the other two—considered a “philosophical field” (242). (In other parts of the text, however, aesthetics and theory of art are not further distinguished and are considered together.)

In order to successfully undertake this application, the author states, the objects of aesthetics/theory of art have to be understood as/in terms of signs. She describes the two different approaches regarding the ontology of signs: the monocategorical vs. the polycategorical view, suggesting that art is better analyzed in terms of the latter, according to which there are different kinds of signs, and which most members of the Lvov-Warsaw School themselves ascribed to. She then goes on to consider and compare competing definitions and classifications of signs proposed by the members of the School. Special attention is given to the explanation of and the interplay between the three domains of semiotics: semantics, pragmatics and syntax, particularly to different accounts of the latter domain, about which the author says: “In the case of applying the semiotic method to the theory of art, it becomes necessary to develop a specific theory of the structure of semiotic objects and the theory of the combination of multiple parts into a unified harmonious whole” (246).

The part of the chapter concerning the theory of art and aesthetics provides some definitions of (form and content of) a work of art given by the members of the Lvov-Warsaw School, as well as their different accounts on whether there can be a (part of a) work of art that is not a sign. This text, however, is not only theoretical: The author provides photographs in color of Romanesque columns located in the Cistercian monastery in Wąchock in Poland, which she analyzes according to some elements of Wallis’s semiotic syntax. We find out, among other things, why demons are located at the bottom, and flower at the top. A strong conceptual apparatus proposed in the first part of the chapter enables us also to make sense of the claim that “[b]ecause the column as a whole is part of the house of God, it must be entirely good” (249).

14) Marcin Będkowski: “From Concepts and Contents to Connotations: Łukasiewicz’s Theory of Conceptual Analysis and Its Further Evolution” (pp. 257–277)

This chapter offers a reconstruction of Łukasiewicz’s theory of conceptual analysis, i.e. of the methodological remarks present in his philosophy. These remarks were put forward mostly as preliminaries to his analysis of the concept of cause, but, as the author suggests, some scholars consider them “even more valuable than the solution of the main issue” (259). However, the author stresses the fact that “Łukasiewicz’s conception has unfortunately not provoked many comments or studies” (257). Wanting to

ameliorate this situation, this chapter describes Łukasiewicz's understanding of concepts, his view of conceptual and logical analyses (with an emphasis on the use of inductive and deductive method), as well as, importantly, his underlying philosophical assumptions—all of which are guided by “the ideal of accuracy offered by the deductive sciences” (258). But it does not stop there.

Having provided a recapitulation of Łukasiewicz's methodological tenets, the author recognizes some “minor deficiencies”, but also some “more serious errors” (265) therein. Among the former is a lack of explanation of the difference between a concept and objects that fall under it; among the latter is simultaneous acceptance of conceptual realism and the claim that concepts are constructed. The author admits he would not set out to give the problems “the attention they undoubtedly deserve” (266). He does, however, offer an amendment to Łukasiewicz's philosophy which makes clearer the relations between concepts, names of concepts, meaning of names, designata of names and connotations of names.

The chapter also provides the views on conceptual analysis of some other members of the Lvov-Warsaw School, considering the influences by and on Łukasiewicz. For instance, we find out that it was probably Łukasiewicz who made Twardowski, the founder of the School, change his position from psychologism to moderate antipsychologism. We also find an interesting analysis of Łukasiewicz's and the Committee's opinions on his habilitation dissertation, with which he was ultimately not satisfied with, and which the Committee accepted not on account of the positions expressed, but on account of analytic rigor and clarity. Following is a description of the School member's diverging (but also fluctuating) positions on the relations between meaning, content, connotation and concept, on which there are two opposing tendencies: to identify—as Łukasiewicz does—or to differentiate—as done by, among others, Ajdukiewicz and Kotarbiński. The text ends with a (invitation to a further) comparison between Łukasiewicz and Moore, who “can be regarded as the pioneers of the 20th century philosophical analysis” (274), but among which the former is undeservingly less popular.

15) Alicja Chybińska: “Kotarbiński's Methodological Reism: Framework and Inspirations” (pp. 278–296)

This chapter offers a reconstruction of an unrecognized aspect of Kotarbiński's reism. As the author reports, it is widely assumed that the position of this Polish philosopher had two aspects: the ontological and the semantic reism. However, she shows that this can be called into question, also recognizing a place for Kotarbiński's reism regarding methodology.

Along with the said reconstruction, this chapter gives an analysis of the influence of Twardowski, the founder of the Lvov-Warsaw School, on the philosophy of Kotarbiński, his student and thesis supervisor.

Regarding methodological reism, the author starts her argument by distinguishing between the “ontological thesis” and the “semantical thesis” (279) of reism. According to the former, the only objects that exist are concrete objects. According to the latter, every meaningful sentence contains only names of concrete objects or names that can be paraphrased in terms of such names. Unlike Kotarbiński, the author claims that these theses are independent. Tied to, but different from, the thesis about semantics is that about the method according to which one is to formulate their philosophical language and thought. The “semantical thesis” of reism is about clarity of expression and, as the author aptly recognizes, “clarity is a methodological concept characteristic of normative methodology” (282). She formulates four theses expressing different relations between clarity and lack of “apparent names”, i.e. names that do not refer to concrete entities, identifying among them the position held by Kotarbiński. In connection to these theses, she also proposes three postulates of methodological reism, from the weakest to the strongest.

The part of the chapter concerning influence offers ample representative quotations from Kotarbiński and Twardowski in order to prove the (dis)similarities between the positions of the two, as well as to trace the effect the latter had on the former. The author distinguishes between “positive” and “negative” influence Twardowski had on Kotarbiński. Positive influence, i.e. the positions Kotarbiński accepted from his teacher, concern, for example, the view on the connectedness between “the vices of speaking and the vices of thinking” and “respecting the principle of clarity and embodying it both in teaching and in scientific work” (290). What Kotarbiński didn’t accept are his teacher’s pluralistic ontological commitments, which are described in detail. However, the author makes the claim that Kotarbiński’s reism, “an original Polish conception” (294), would probably have not existed had there not been for the differences between him and Twardowski: Having faced his teacher’s position, particularly expressed in his dissertation, Kotarbiński was inspired to develop his own philosophy. On the other hand, it was the fact that Twardowski “neither promoted his ideas over others’ nor forced his own philosophical solutions on his students” (293) that gave rise to an atmosphere in which Kotarbiński could develop his standpoint.

16) Anna Brożek: “Interdisciplinarity: Analysis of the Concept and Some Exemplifications in the Lvov-Warsaw School” (pp. 297–313)

This chapter offers what could be called a philosophy of interdisciplinarity. The chief aim of the text is to distinguish between the essential and merely apparent senses and uses of the term, which is, the author states, presently “accompanied by great conceptual chaos” (298). She starts her conceptual analysis by distinguishing between the five different aspects of a scientific discipline, out of which she gives the most attention to domain or the set of objects, methods and language: Interdisciplinarity will be grounded in differences between the aspects of two or more disciplines. Regarding domains of disciplines, an important and illuminative distinction is made between “material” and “formal object” of investigation. For instance, “[a] man as an individual or man as a species is the material object of many disciplines which approach it from different perspectives, that is they have different formal objects” (300).

This leads to an analogous distinction between two kinds of interdisciplinarity: material vs. formal. The former is exemplified in the above quote. The latter occurs when two or more disciplines study different material objects but use the same tools. An instance of this would be “game theory—invented in the context of gambling and then successfully used in economics, sociology, computer science, biology and ethics” (303). The author stresses, however, that the similarity/sameness of material/formal objects is not sufficient for interdisciplinarity. What is also needed is “a suitable integrating language” (302). Interdisciplinary language, a language of a genuinely interdisciplinary field, should differ from the languages of disciplines it concerns.

Having defined interdisciplinarity in the real sense(s), the author offers a critique of the ways this term is often used, talking about its several “overuses”. Notably, she relates the proposed theory to the real world of scientific practice, observing and questioning the role of institutions and grant providers on various understandings of interdisciplinarity, as well as on the very division of sciences into disciplines. If I understood correctly, according to the theory proposed in this chapter, interdisciplinarity is seen as something temporary: It leads either to an emergence of a new discipline or to a unification of disciplines. This is a claim that, in my opinion, may be disputed while still accepting the overall analysis of interdisciplinarity provided in this chapter.

In the second, shorter, part of the text, the author offers an analysis of the philosophy of Twardowski, the founder of the Lvov-Warsaw School, and his students Witwicki and Łukasiewicz, establishing that the former’s work was interdisciplinary in the material sense, while that of the rest was intradisciplinary, albeit with some “interdisciplinary stamps” (311) that they inherited from their teacher.