Józef M. Bocheński and the categorial reconstruction of concepts in the Lvov–Warsaw School

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Abstract

In this article, Józef M. Bocheński is presented as a representative of the methodological tendencies of the Lvov–Warsaw School (LWS). Special attention is given to the reconstructive analysis of concepts, the categorial trait of this procedure, and examples of its application by Bocheński. First, some historical and substantial arguments are presented for including Bocheński in the LWS. Secondly, the procedure of the reconstruction of concepts applied in the LWS is characterized. Then the attention turns to the categorial trait of the analysis as indicated by Bocheński. Finally, two examples of Bocheński’s categorial reconstruction of concepts are presented. The article ends with a recapitulation and general remarks.

Keywords Józef M. Bocheński · Lvov–Warsaw School · Analysis of concepts · Reconstruction of concepts · Categorial analysis

Introductory remarks

Bocheński summarized his philosophical program in the sentence: “The task of a philosopher is to analyze and not to moralize” (Bocheński, 1988, p. 98).¹ Moreover, according to Bocheński, “all that is alive in philosophy today is analytical” (Bocheński, 1985a, pp. 163–164). Bocheński was not only a typical analytic philosopher, but he also believed in the special importance of analytic philosophy.

Analytic philosophy is not a uniform movement; it has several branches or currents. There are some strong arguments for including Bocheński into the Lvov–Warsaw School (“LWS” in short), the Polish branch of the analytic tradition. The LWS was initiated by Kazimierz Twardowski in Lvov and developed by his students in many academic centers throughout Poland. This affiliation is not obvious in the case of Bocheński, though. Usually, only direct or indirect students

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of Twardowski are included in the LWS. Bocheński was a Pole and even studied in Lvov for a short time (at the Faculty of Law), but he never attended lectures of members of the LWS, and he attained his Ph.D. in Fribourg, Switzerland under the supervision of Mark de Munnynck (Bocheński, 1975, p. 16). However, in gymnasium, his mathematics teacher was Zygmunt Zawirski, an early student of Twardowski. Bocheński mentions it in his autobiography:

My math teacher was Zygmunt Zawirski, later a well-known Cracow analytic philosopher. [...] I was always a top student in mathematics and physics. I learned mathematics that essentially exceeded the program; for instance, I was good at infinitesimal calculus. (Bocheński, 1975, p. 11)

Then, in the 1930s, Bocheński began working with the Warsaw members of the LWS. He declared:

In [...] [the 1930s], my very vivid contact with representatives of the Polish analytic school took place. I knew practically all of them, including Stanisław Leśniewski, Jan Łukasiewicz, Leon Chwistek, Kazimierz Ajdukiewicz, Tadeusz Kotarbiński, and Alfred Tarski. With Łukasiewicz, a real friendship was established. (Bocheński, 1975, p. 18)

Following the 3rd Polish Congress of Philosophy in Cracow, which took place in 1936, the Cracow Circle was established, sometimes referred to as the Catholic branch of the LWS. Bocheński, Jan Łukasiewicz, Jan Drewnowski, and Jan Salamucha became the leading members of this group.

These personal relations are only partial justification for counting Bocheński as a member of the LWS. The second and more important reason concerns the content and the spirit of his philosophy. His work represented certain features common to all branches of analytic philosophy, but it also possessed some traits peculiar to its Polish branch. These special traits include: respect for traditional philosophical problems, the use of logical tools to deal with these problems, and the interest in logic as such. One may add here that Bocheński's attitude towards the history of philosophy and logic was "Łukasiewiczian" (the greatest manifestation of which was Bocheński's *Formale Logik* (1956)) and his attitude towards ontology was "Leśniewskian" (logic was considered by both of them to be formalized ontology). The presence of these features was the reason that Bocheński was often counted not only among representatives of the LWS but also considered to be a direct member of the Warsaw School of Polish logicians. As he commented:

It must be emphasized that I have never listened to any lecture of any Polish logician—so if I am sometimes included in this school, then that is correct only in this sense that I adopted, as long as I could, the "style" of thinking and writing predominant in it. (Bocheński, 1975, p. 17)

In fact, Bocheński considered himself a self-taught scholar in the domain of mathematical logic. Years later, he recalled:

In Fribourg as an autodidact [...] I learned the new logic. (Bocheński, 1975, pp. 16–17).

In this paper, I want to concentrate on another peculiarity of the LWS that is easy to find in Bocheński's works, namely the way members of the LWS practiced the analysis of concepts. It has recently been shown—in Brożek et al., 2021; Brożek, 2020—that there are also some elements of conceptual analysis applied in the LWS that distinguish it from the analytic procedures applied in non-Polish branches of analytic philosophy. Moreover, Bocheński was not only aware of the existence of these analytic peculiarities, but he also stated that he analyzed concepts in this way. Thus, we have another reason to consider Bocheński as a representative of the LWS. More importantly, thanks to the reconstruction of the procedure of analysis applied by Bocheński and others, we may enrich the toolkit of analytic philosophy.

The structure of the present paper is the following. First, the procedure of the reconstruction of concepts applied in the LWS is characterized. Then the attention turns to the categorial trait of the analysis as indicated by Bocheński. Finally, two examples of Bocheński's categorial reconstruction of concepts are presented. The article ends with a recapitulation and general remarks.

Reconstruction of concepts in the tradition of the Lvov–Warsaw School

When we look at the way the philosophers of the LWS dealt with philosophical problems, three main methods stand out: the analysis of concepts, paraphrase of sentences, and axiomatization of theories (Będkowski et al., 2021, Brożek et al., 2021). However, axiomatization is applied quite rarely and only as a final step in forming theories. The two remaining methods are more commonly used. On the one hand, to deal with philosophical problems, much work is required before theories can be axiomatized. At this preparatory stage, methods other than formal ones have to be used. On the other hand, providing the analysis of a philosophical concept or finding appropriate paraphrases of some statements may also be separate aims of a philosopher. Hence, both the analysis of concepts and paraphrase of statements may be applied as independent methods or as auxiliary procedures.

Let us now present the most important elements of the procedure of concept analysis as it was applied in the LWS.

Firstly, adherents of the LWS were aware of the crucial role of conceptual analysis in philosophy and within their School, especially. Twardowski often advised his students to take the analysis of a certain concept as a subject of investigation. From among 45 doctoral dissertations prepared under his supervision, over a dozen consisted in various types of concept analysis. Various traditional or rather “new” concepts from all philosophical disciplines were taken into consideration. It is not surprising that Kazimierz Ajdukiewicz, presenting the program of “Polish anti-irrationalism” at the 1937 Paris Congress, emphasized that the School “directed its main efforts to conceptual analysis” (Ajdukiewicz, 1960 [1937], p. 252). In fact, the analysis of concepts in various forms was practiced by all members of the LWS from Twardowski [the author of “On the essence of concepts” (1999 [1903])] and Łukasiewicz [the author of “Analysis and Construction of the Concept of Cause”

(1961 [1906]) through Tarski [and his “The Concept of Truth in Formalized Languages” (1983 [1933])] to Bocheński [the author of “Analysis of Authority” (1974)].

Secondly, the procedure of analysis applied in the LWS remained relatively steady despite the profound changes that happened in the history of the LWS, including the “semiotic turn” and the switch from psychology to logic. Twardowski initially brought to Lvov the spectrum of problems discussed in Franz Brentano’s environment in Vienna. That is why most of the early analyses in Lvov belonged to descriptive psychology. However, Łukasiewicz was already openly moving the analytic procedure from psychology to logic. Step by step, the analyses of judgements and presentations were supplemented by the analyses of sentences and meanings of terms, etc. Moreover, it was revealed that the procedures of analysis may seem quite similar independently of views about the status of concepts. The crucial thing is to accept that concepts (at least in the logical sense) are meanings of terms and that they are given in definitions. This convention was accepted by Twardowski,² repeated by Łukasiewicz, and sustained across all the generations of the LWS. Of course, in the history of the LWS, one observes a far-reaching evolution of tools applied in analysis and the general framework of philosophical investigations.

Thirdly, the procedure of analysis was not only practiced but also systematized by members of the LWS. As the LWS really was a school, new younger members were trained in philosophical methods by their teachers (or sometimes senior colleagues). It is not always easy to explicate the procedure in use, but within the LWS systematic studies of how to analyze concepts appeared. They are, first, Łukasiewicz’s “Analysis and Construction of the Concept of Cause” (1961 [1906])—a special fragment of this work is devoted to the theory of conceptual analysis—and Czeżowski’s paper on analytic description (2000a [1956]). Moreover, since the analysis of concepts was considered in the LWS to be a procedure leading to the definition of corresponding terms, following the school’s “semiotic turn,” the procedure of analysis was practiced as the theory of definitions. That is why in the works of, for instance, Kotarbiński (1996 [1929]), Ajdukiewicz (1965 [1956]), and Kotarbińska (1990 [1955]), we find many comments in their theories of definitions about establishing the meanings of words.

Fourthly, the analysis of concepts in the tradition of the LWS contains constructive elements. That is why the complex term “analysis and construction” (used by Łukasiewicz) or simply “reconstruction” suits this approach best.³ It was already obvious to Łukasiewicz in 1906 that analysis of concepts may not consist simply in revealing the meaning of corresponding words. As in every science, philosophers may have to (re)construct their concepts and indicate the meaning of terms by means of stipulated definitions. This is the point that obviously distinguishes analysis in the LWS from, for instance, Moorean analysis. In consequence, no paradox of analysis appears based on the conception of reconstructive analysis. This reconstructive

² It is significant that Twardowski distinguished the psychological and logical understanding of concepts, but he did not replace the analysis of psychological concepts with the analysis of logical concepts.

³ It is worth mentioning that, in certain circles of researchers, this approach reveals some similarities to what has recently been called “conceptual engineering”—cf. Cappelen (2018).

approach is also far from the tradition of linguistic philosophy typical of the late Wittgenstein and his followers. Commenting on the differences between the two movements of analytic philosophy, which Bocheński called “analysis in shoe horns” (the logical branch) and “analysis in slippers” (the Oxford branch), he emphasized that the latter movement is a step back in the development of philosophical tools as philosophy needs to keep to the straight and narrow by the use of logical analysis and not get lost in the hazy alleys of natural languages. He wrote:

With all respect to the achievements of such people as the late Wittgenstein and Austin, I think that in fact they are trying to make an anti-Galilean revolution in thinking. The greatness of Galileo consists not in that he created a new physical theory (...) but in that he formulated it in artificial language which enabled him to operate with very abstract concepts. In philosophy, this was done by mathematical logic. Refusing it means—I think—falling back into the past. (Bocheński, 1975, p. 25)

In fact, Czeżowski (2000a [1956]) noted that analysis in the style of the LWS (which he called “analytic description”) was introduced by Galileo and brought to descriptive psychology by Brentano. It was through Brentano, Twardowski’s teacher, that it came into use in the LWS.⁴

Reconstructive elements, which are crucial in conceptual analysis as it was practiced in the LSW, appear also in two other types of conceptual research within the analytical movement. Firstly, there are obvious analogies between the reconstructive analysis and the procedure of explication that was sketched by Carnap (1950) and recently developed by many authors [see, for instance, Carus (2007), Cordes (2017)]. It is, however, interesting that Carnap took as a typical example of explication Tarski’s analysis of the concept of truth, which definitely belongs to the tradition of the Lvov–Warsaw School. Secondly, in some circles of researchers, the reconstructive approach to concepts reveals some similarities to what has recently been called “conceptual engineering” [cf. Cappelen (2018), Chalmers (2020) and Burgess et al. (eds.) (2020)]. The adherents of conceptual engineering declare that the task of philosophers is not only to analyze concepts but also to design new concepts and fix old ones.

Fifthly, the procedure of concept reconstruction comprises phases that somehow correspond to the hypothetic-deductive model of empirical research. An addendum should be noted here. We should distinguish the way one analyzes concepts from the way the result of analysis is presented. A ready philosophical text does not always reveal its author’s intentions or state what activities were undertaken to reach a certain result. Predominantly, we only guess what these activities were (codifications of analytic procedures are helpful, but they are quite rare).

⁴ It should be noted that there are obvious analogies between the reconstructive analysis and the procedure of explication that was sketched by Carnap (1950) and recently developed by many authors [see, for instance, Carus (2007), Cordes (2017)]. However, Carnap took as a typical example of explication Tarski’s analysis of the concept of truth, which definitely belongs to the tradition of the Lvov–Warsaw School.

Let us assume that our aim is to analyze a certain concept. The following are the main stages of such an analysis⁵:

(1) Indicating the determinants of analysis.

This is about indicating its corpus, its tools, and its conceptual scheme.

(A) Corpus of analysis. If we do not believe in any secret, “mystical” way of cognizing concepts, we have to agree that there are only two possible, “natural” sources of knowledge about them: real objects that instantiate concepts, or language expressions that carry concepts. For instance, instantiations of the concept of man are real men, while carriers of the concept of man include just the word “man” appearing in different contexts. Thus, we may distinguish two types of corpus or empirical basis of analysis: material and verbal. The material corpus of analysis is a set of instantiations of concepts. The verbal corpus of analysis includes contexts in which the carriers of the concept occur. In analysis taken generally, this may be a set of utterances taken from different areas: natural language or artificial, technical languages of different disciplines. Various corpuses are used in different disciplines and different approaches. One cannot ever examine all instantiations or all occurrences of carriers of the concept. Selection is required. Within reconstructive analysis, it is recommended to consider a small number of typical, simple instantiations of the analyzed concept as well as some representative occurrences of the term in question.

(B) Tools of analysis. Every analysis requires some tools. In the case of analyses of real objects, certain real tools may be used. Here, in the LWS, a typical element in the reconstruction of concepts consisted in logical methods. The conceptual tools of analysis in the LWS included, among others, the apparatus of set theory, formal languages, semiotic distinctions, etc.

(C) Conceptual scheme. This is about indicating the conceptual net in which the analyzed concept is to be included. This conceptual net is either ready or it has to be constructed for sake of analysis.

(2) Processing the data.

At this stage, the corpus data are examined to indicate the components of the concept—in other words, to indicate the essential properties of instantiations or to indicate the elements of the definition of the corresponding term.

(3) Formulating a definition hypothesis.

In this crucial point of analysis, one compiles a list of the elements of the analyzed concept in the form, first, of a hypothetical and provisional definition. This is the moment at which the three aforementioned factors—the chosen corpus, the conceptual background, and the analytic intentions—have to be harmonized. This stage culminates when our conceptual hypothesis is raised to the status of a final definition. It is important that we make use of a rich arsenal of various forms of

⁵ In this paper, for the sake of simplicity, I am talking basically about the analysis of concepts. However, it should be remembered that, apart from the term “analysis of concepts,” there are also the following terms: “meaning analysis of expressions,” “analysis of objects” (to which expressions with a specific meaning refer), etc. However, there is no place here for a detailed comparison of these terms. I limit myself to the observation that the contexts in which these terms function are—under certain natural assumptions—mutually reducible to each other. This is easy to see when one takes into account, among others, my distinction between the material and verbal corpus of analysis.

definitions (classical definition is applied only on special occasions). As in the case of conceptual scheme, our analytical intentions may be simply reportive, but more often, the analysis is connected with conceptual regulation: it is a reconstruction of a concept. Although there are many possible impulses for undertaking an analysis of a philosophical concept, usually it is due to conceptual chaos, instability in applying philosophical terms, or even paradoxes and antinomies in which a given concept is entangled. Sometimes, it happens that the original intention is revised in the course of research.

(4) Testing and possibly raising the definition to the rank of a principle.

In the next step, our definition hypothesis is tested. One checks whether the definition fulfils the required criteria, for instance, whether it covers the elements of the corpus, whether it possesses appropriate formal qualities, and whether it fits well within the chosen conceptual net.

On the margin, let us note that at this stage it is useful to test the definitional proposal with some nontypical, possible instantiations of the term, even by means of thought experiments. Here, one often goes beyond the initial corpus, checking how the construction may be applied, and borderline cases and thought experiments may be considered.

It sometimes happens that the result of the reconstruction does not fulfill the criteria and needs to be changed. In such a situation, the previous steps (even the first one) need to be repeated. But if the answers to these questions turn out to be positive, there comes a point known as “raising the definition to the rank of a principle.” From now on, our definition hypothesis is immune to falsification. It can be rejected and replaced, but not falsified.

Categorial trait

Bocheński drew attention to yet another important element of the reconstruction of concepts that has to be added to the picture. In his conversations with Jan Parys, Bocheński distinguished three kinds of analysis. He said:

There have been [three] various conceptions of analysis.

[1] [...] [The first kind of analysis is the analysis in] the Russellian [...] [sense], taken over from Leibniz. (It is also used by the young Wittgenstein.) [...] The world consists of simple elements, distinguished by Aristotle, and these elements correspond to the elements of mathematical logic: those that can be found in *Principia mathematica*. [...] Analysis involves reducing all sentences to just these primitive elements.

[2] The second form of analysis is linguistic analysis. For example, Sartre says that freedom is existence. Beautiful. But what does it mean? The answer: He proposes using the word “freedom” in a way in which it has never been used before.

[3] The third type of analysis is categorial analysis. [...] An example of such an analysis [...] [is in] my book, *What is Authority?* (Bocheński, 1988, p. 84)

What does “categorical” mean here? To explain the term, some distinctions need to be introduced. Imagine we set out to analyze the concept of the human being or the concept of wisdom or the concept of authority. Where should we start such an analysis? Let us recall once again that there are only two possible sources of knowledge about concepts: instantiations of concepts or carriers of concepts.

Take the concept of a human being. Instantiations of the concept of a human being are real human beings. If we want to establish the components of the concept of human beings, we may start with examining just human beings. Carriers of the concept of human beings are terms such as “human being” (and appropriate terms in other languages). If we want to establish the components of the concept of a human being, we may examine the way the term “human being” is used (as concepts are connected with language). Now, let us assume that concepts are properties that jointly indicate the set of all and only instantiations of the concepts and at the same time they are connotations of the carriers of the concepts.

Now we are ready to state what a categorical trait is in conceptual analysis. One of the essential steps of analysis in this approach is to establish the ontic category of the instantiation of the concept and/or the language category of the carrier of the concept. In the course of processing the analytic data, one asks: what is the ontic category of the instantiations of the concept? To which language category do the carriers of the concepts belong?

Bocheński was a wise man. He was younger than Łukasiewicz. He wrote a book on authority. From an ontological point of view, Bocheński is a certain individual; his wisdom is a certain property. Being-younger-than is a certain relation, and that-he-wrote-a-book is a certain state of affairs. Individuals, properties, relations, states of affairs, processes, etc. are examples of ontic categories. The problem of ontic categories became a living problem among the members of LWS as they were inheritors of Aristotle and Brentano; Twardowski introduced these sets of problems in his habilitation thesis and the conception of the object set forth there.

The analog on the ontic category in the domain of the carriers of concepts consists in language (syntactic or semantic) categories,⁶ namely, the most general kinds of lingual expressions. A mature conception of language categories appeared in the LWS in the works of Leśniewski (1992 [1929]); it was developed by Ajdukiewicz (1978 [1935]) and commonly accepted in the logicizing wing of the LWS. In this conception, two basic syntactic categories are admitted: names and sentences, and all other expressions are different kinds of functors. For instance, the expression, “Bocheński was younger than Łukasiewicz,” is a sentence. In this sentence there are two names: “Bocheński” and “Łukasiewicz,” and the expression “was younger than” is a functor that creates a sentence by the addition of two names. Names in this sentence refer to some individuals, and the whole sentence refers to a certain state

⁶ The terms “syntactic category” and “semantic category” are sometimes used interchangeably even in some works by representatives of the LWS. However, it is desirable to distinguish these terms from each other. The term “syntactic category” pertains to a category of expressions distinguished by their syntactic (“grammatical”) function in the complex expression to which they belong, and the term “semantic category” concerns a category of expressions distinguished, to put it simply, according to the ontic category of objects to which these expressions refer.

of affairs, whereas the functor refers to a certain relation. The assignment between language and ontic categories is not so simple. For instance, natural languages usually allow names of objects of various ontic categories, not only “natural” designata, i.e., things. “A man” refers to an individual, but “wisdom” refers to a property and “being-younger-than” refers to a certain relation.

The identification of the ontic category of the instantiation of a concept and the semantic category of the carrier of concepts is sometimes difficult because the carrier of the concept appears not just in one but in various language contexts. Thus, one has to choose the context that is the most basic and crucial. Choosing the correct categories brings the analysis back on track as it helps to indicate the logical tools that may be applied and to indicate the correct form of the definition of the concept. The failure to recognize the appropriate category is often the source of the incomprehensibility of the statements in which this expression appears, and, consequently, a source of verbal gibberish.

There are grounds for recognizing the third type of analysis, i.e., categorial analysis, as a Polish specialty since in the Lvov–Warsaw tradition philosophers drew special attention to categorial investigations.⁷ In Twardowski’s paper about the essence of concepts (1993 [1903]), a crucial point was to decide whether they are a kind of presentation. In his analysis of the concept of ambition (1934 [1900]), Władysław Witwicki states that it is a psychological disposition. Łukasiewicz, in the essential step of his analysis of the concept of cause (1961 [1906]), states that the cause is the first argument of a certain binary relation. In his article of truth (1983 [1933]), Tarski decides that truth is a semantic property of sentences; hence, the term “true” is a metalanguage predicate. Tadeusz Czeżowski, in his ethical investigations (2000b [1965]), argues that values are modes of being; hence, terms like “it is good that” or “it is beautiful that” have the same language category as “it is necessary that,” “it is possible that,” etc. These are but a few examples of many, but they show that Bocheński’s investigations belong to a certain tradition.

Bocheński’s categorial analyses

As examples of the categorial analysis carried out by Bocheński, I will briefly discuss his classic analysis of the concept of authority, his analysis of the concept of the business enterprise, and his analysis of the concept of analogy.

There is no place here to reconstruct Bocheński’s views on authority in detail,⁸ so only the most important points (with respect to the subject of the present paper) will be discussed. In the corpus of his analysis of the concept of authority (1974), Bocheński provides some examples of authority (we may call this his material corpus), some natural language contexts in which the term “authority” occurs, and a

⁷ Of course, categorial element was not neglected in other analytic movements; see, for instance, Hall (1964). However, Hall’s approach is characterized by his attachment to natural-language categories and descriptive (not reconstructive) attitude.

⁸ Those interested may consult paper Brożek (2013).

relatively small amount of such contexts drawn from the history of philosophy (this is his verbal corpus).⁹

The first and most crucial step of Bocheński's analysis is to establish what the ontic category of authority is. Establishing this category is not an obvious step because use of the term "authority" in natural language allows many possible answers to the categorial question. Bocheński indicated many different, and categorially incompatible, contexts in which the term "authority" occurs. For instance, one says that somebody is an authority, somebody has authority etc.

Bocheński then focuses on two, categorially different meanings of the term "authority." In the first meaning, authority is a set of some features of persons (Bocheński calls it "psychological" concept of authority). In the second meaning, authority is a certain relation (here he uses the term "sociological concept"). Sentences like "X is an authority because X has authority" are only apparently paradoxical if one explains that, in this context, the term "authority" is used once in reference to a sociological concept and then in reference to a psychological concept. In his analysis, Bocheński concentrates only on the sociological concept for he considers this concept to be the more basic one. He resolves this difficulty, stating that:

(1) Authority [at least the authority in which he is interested] is a certain relation. (Bocheński, 1974, p. 36)

Another apparently paradoxical situation noticed by Bocheński is when X is an authority with respect to Y and, vice versa, Y is an authority with respect to X . The appearance of paradox disappears when one notices that the relation of authority is a three-place (ternary) relation. The basic context is the following: SOMEONE is an authority for SOMEONE ELSE in a certain DOMAIN.

And of course, it may happen that X is an authority for Y in the domain D_1 , while Y is an authority for X in the domain D_2 . This is how Bocheński comes to the conclusion:

(2) Authority is a ternary relation among the bearer, the subject and the domain of authority. (Bocheński, 1974, p. 37)

Let us note that, at the same time, Bocheński fixes the language category of the carrier of the analyzed concept; it is a three-argument predicate: x is-an-authority-for y in-the-domain z .

Establishing this fact, Bocheński acquires the point of departure of the next step of his analyses. First, he asks what the categories are of the arguments of the ternary

⁹ In his analysis of the concept of authority, Bocheński certainly relied on the linguistic corpus of the Polish and German languages. Popular dictionaries of the Polish language—like *Maty słownik języka polskiego* (Warszawa: Wydawnictwo Naukowe PWN, 2000)—note (quite clumsily) two different meanings of the word "autorytet"; popular dictionaries of the German language—like *Gabler Wirtschaft-slexikon*. Taschenbuchausgabe (Wiesbaden: Gabler Verlag, 2001)—indicate (just as clumsily) three such meanings of the word "Autorität." It is easy to imagine what difficulties would arise if the English corpus was taken as the starting point for the analysis of the concept of authority, for which popular dictionaries—like *The New Penguin English Dictionary* (London: Penguin Books, 2001)—register (again clumsily) as many as 12 different meanings!

relation in question. He states that the first two arguments are conscious human beings and the third one may be identified with the set of ideal objects that are the meanings of certain sentences. This leads to a formula that, according to Bocheński, “may be considered a definition of authority in general” (Bocheński, 1974, p. 39).

(3) *B* is an authority for *S* in the domain *D* iff *S* accepts almost all that *B* announces which belongs to domain *D*. (Bocheński, 1974, p. 39)

In the next steps, Bocheński distinguishes epistemic authority (when the domain consists in a set of declarative sentences) from deontic authority (in which the domain is of a normative character). These two concepts lead him to the extensive conceptions that penetrate many areas of philosophy.

In the process, he also uses the logical tools and establishes the formal properties of relations. He states that no good theory of ternary relations has been established, but some derivative binary relations may be characterized. Hence, Bocheński notes that the relation between the subject and the object of authority is irreflexive (no persons are authorities for themselves), asymmetric (if *X* is an authority for *Y*, then *Y* is not an authority for *X*), and transitive (if *X* is an authority for *Y* and *Y* is an authority for *Z*, then *X* is an authority for *Z*). However, the last two properties should be limited to subject–object relations only if they are relativized to the same domain.

Let us stop here and look once again at the categorial step of the analysis. One might think that establishing the category of some object or expression is obvious and simple, but it is not. It often happens that the problem of distinguishing between the ontic category of instantiations of the concept and the language categories of the carriers is not raised by philosophers who analyze these concepts, or that it is resolved erroneously. That leads to the failure of the entire analysis.

The analysis of authority is only one of many examples of Bocheński’s works in which the categorial element played an important role. Here are two more examples.

The first is the concept of the business enterprise. Here as well, Bocheński asks, what is the most general genus of the definition of (or the concept of) enterprise and argues that the answer is not easy to give. He states:

Since there are [...] problems in finding the genus, then one should—following an old piece of methodological advice—climb “the ladder of abstraction,” namely, rise to more and more abstract concepts all the way to the most general ones, the categories. But it seems that this climb to the categories is of little help here. Essentially, there are three categories: thing, property, and relation. Now, an enterprise is certainly not a thing, although it contains things; nor is it a property; it does include numerous relations, but is not itself a relation. (Bocheński, 1985b, pp. 7–8)

Not being able to include an enterprise in any of the “basic” or “classic” categories, Bocheński put forward a hypothesis that the enterprise should be understood as a system, a separate category “neglected by philosophers”: “In this situation the proposal is to consider the business enterprise as a system” (Bocheński, 1985b, p. 8).

It is important to emphasize that Bocheński considers this a certain hypothesis that is later to be explored to determine its consequences. This shows that even this categorial element may be included in the reconstructive tendency of the analysis.

The second example is the concept of analogy (Bocheński, 1948), the analysis of which Bocheński considered as one of his important achievements, being “the first mathematical-logical analysis of analogy understood as isomorphism” (Bocheński, 1993, p. 325). Bocheński wrote:

We contend that analogy, as well as univocity and equivocity, is not an absolute property of ONE name, but a relation involving TWO names at least. If this seems contrary to tradition, it is because of the use the classical authors made of the formula “the same name”: they meant two names of the same form but spoke [...] of a single name. [...] No single name is, strictly speaking, univocal, equivocal, or analogical. A single name may have a clear meaning or a confused meaning; but it always has ONE meaning only, and it is not possible to speak about identity or diversity of its meanings, which is required if we have to define univocity, equivocity, or analogy. (Bocheński, 1948, p. 427)

To reconstruct the concept of analogy as a relation, Bocheński constructs a conceptual scheme, introducing the concept of a semantic complex, namely a whole symbolized as $S(a, l, f, x)$ and read “name a means in language l , and in content f , object x .” Not going into detail, let us only state that Bocheński’s idea is to distinguish all the possible relations between the semantic complexes and to consider univocity, ambiguity, and analogy as special cases. In particular:

Analogy will be, according to [...] [my] analyses, a heptadic relation among two names, a language, two contents and two things (at least). The name will be of the same form; the things must be different. (Bocheński, 1948, p. 432)

Once again, categorial investigations and the unconventional resolution of the categorial question play the crucial role throughout Bocheński’s analyses.

Closing remarks

Let us recapitulate the most important theses of this article.

From the methodological point of view, Bocheński seems to be a typical representative of the LWS, the Polish branch of analytic philosophy. Within this methodological tradition, the analysis of concepts plays an important role. Among the peculiarities of this method are the constructive elements and the categorial trait, especially emphasized by Bocheński. This element consists in establishing the ontic category of the instantiations of the concept and the language category of the carriers of the concept. There are many benefits of categorial investigation within the procedures of concept analysis: firstly, avoiding categorial mistakes, secondly, opening the “logical toolkit,” and, finally, determining the appropriate form of definitions.

Bocheński wrote somewhere that analysis had not been analyzed. Let us hope that this paper brings us closer to an understanding of the analytic methods.

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Declarations

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