

The Rise of Logical Semantics in the Lvov-Warsaw School: Introduction

1. The role of the Lvov-Warsaw School in the rise and development of modern logical semantics is indispensable. However, although the contribution of Alfred Tarski, in particular, his definition of truth and his model theory, is usually noted and appreciated in historical and systematic presentations of the issue, the significance of other School members is not commonly recognised. Below, we present a set of five papers related to the origin of logical semantics in Polish logic and philosophy. This five-voice aims to provide a fuller picture of the Lvov-Warsaw contribution to semantics.

The origin of the Lvov-Warsaw School is connected with the personality of Kazimierz Twardowski, who started his teaching activities in Lwów¹ at the turn of the 20th century (more details on Twardowski and his impact – see Brożek, Jadacki 2020). Problems that Twardowski considered central to philosophy lie at the intersection of several disciplines: descriptive psychology, logic, grammar (theory of language), metaphysics, and epistemology. They concern mental states, their language signs, and their relation to external and internal objects. Following his Viennese teacher Franz Brentano, Twardowski adopted the scholastic thesis of intentionality, according to which every mental act, namely presentations, judgements, emotions, and acts of will, refer to something external to these acts. In his *Habilitationsschrift*, Twardowski strictly distinguished the contents of mental acts from their objects, irrespective of the metaphysical status of these objects. He provided such a convincing justification for this distinction that it became commonly accepted in early analytic philosophy. Twardowski also examined the “semantic” version of these

¹ The city where Twardowski established his school had a turbulent history in last 120 years. That is why various versions of the city name are in use. The term “Lviv” is used in reference to contemporary city, being a part of independent Ukraine. However, here the following convention is adapted: we use the term “Lwów” when referring to the city in the period 1895–1939, namely the period of the activity of Twardowski and his students there. In the name of Twardowski’s school, we use the version “Lvov-Warsaw School” as this form is commonly used in English publications about the school in recent decades.

problems: namely treating names as counterparts of presentations, and sayings (sentences) as counterparts of judgements. He noticed that the two semantic functions of names, i.e. connotation (or intention) and denotation (or extension), are analogues of contents and objects of presentations, respectively. He roughly accepted but also critically analysed the idiogenetic conception of judgements according to which judgements are *sui generis* acts consisting in acceptance or rejection of the existence of some objects; he felt the need to introduce the concept of state of affairs (relation between objects). All of these problems were central to Twardowski's early writings, starting with his German dissertation *On the Content and Object of Presentations* (1894), and belonged to the content of his lectures in psychology and logic in Lwów.

After moving from Vienna to Lwów and starting his teaching activities among Poles, Twardowski wrote almost exclusively in Polish. One of his first papers published in Polish was the article *On So-Called Relative Truths* ([1900] 1999a) where he refutes alethic relativism and defends the thesis that every true judgement is true always and everywhere. An illusion that truth is something relative comes from the confusion of judgements with language expressions that are often elliptic, unclear, and ambiguous. Once again, Twardowski's arguments became convincing – this time among his students, who in a great majority accepted the absoluteness of truth, although they often expressed it in a semantic form (instead of judgements, they spoke of disambiguated sentences). Another important element of Twardowski's conception of truth is the strict distinction between the essence of truth (which Twardowski understood in a classic way) and the criteria of truthfulness. According to him, various non-classical (e.g. pragmatic or coherence) theories of truth take the criteria for the essence.

Another related issue examined by Twardowski concerned the relationship between speech and thought. He was convinced that although there is no strict parallelism between the two activities in question, some thoughts, first of all on abstract objects, cannot be expressed without language. That is why we cannot omit linguistic matters in philosophical investigations. However, language shapes the way we think, not always in a way we are aware of. It happens that we are misled by language phenomena when analysing the problems of logic or metaphysics. Aware of that, the founder of the Lvov-Warsaw School advised his students to use linguistic tools, but with appropriate caution.

Twardowski carefully examined the rise of mathematical logic and the developments of formal methods. However, he was highly suspicious of the (over)use of formal methods. His objections were concerned mostly with the fact that symbols began to be used by enthusiasts of new logic without reflection on what they represent and before their interpretations were established. Another reason for Twardowski's objections to some ways of doing mathematical logic was the following: logic was, for him, the tool of correct thinking

which can and should be applied by any intelligent human being. Thus, this tool should not involve operations which are too complicated and which cannot be learned easily or which require special skills². Still, starting from the academic year 1899/1900 Twardowski presented the new trends in logic to his students in Lwów and shared his objections with them. He expressed his views on the overuse of logical tools most openly and firmly in his programme text *Symbolomania and Pragmatophobia* ([1921] 1999b).

2. We call the LWS “a School” because of the importance of the didactic activities of its representatives and the teacher–student (as well as student–student) interconnections. Twardowski put a great effort into teaching. Through the lectures, he familiarised his students with traditional problems of philosophy and current debates on these problems. At his seminars, he carefully trained selected students to work independently and creatively in philosophy.

During his over 30-years-long career in Lwów, Twardowski was happy to find many talented students. Almost 50 young scholars completed their PhDs under his guidance. Many of them later became excellent scholars. In the first decade of Twardowski’s teaching, Władysław Witwicki, Jan Łukasiewicz, Marian Borowski, and Bronisław Bandrowski should be listed among the most talented students. In the second decade: Zygmunt Zawirski, Tadeusz Kotarbiński, Kazimierz Ajdukiewicz, Stanisław Leśniewski, and Tadeusz Czeżowski. In the third decade, there were Daniela Gromska, Izydora Dąmbska, Leopold Blaustein, and Maria Kokoszyńska.

In the development of Twardowski’s school, the problems analysed by Twardowski in a descriptive-psychological form were approached in a more and more linguistic, or semantic, manner. Generally speaking, in the main current of the Lvov-Warsaw School, the investigations into presentations and judgements became more and more investigations into names and sentences: a kind of linguistic turn took place.

The first of Twardowski’s students who seriously modified his teacher’s approach to philosophy was Jan Łukasiewicz. He never accepted Twardowski’s psychological tendencies, took up classical scholastic metaphysical problems, and became extremely fascinated by mathematical logic. After Łukasiewicz became a docent and then a professor at the University of Lwów, his impact on the philosophical environment became similar to that of Twardowski.

An example of a discussion inspired by Twardowski and Łukasiewicz in this period was the exchange of views on the sempiternality of truth and

² Jan Łukasiewicz, one of Twardowski’s first students, wrote years later with a bit of irony that “Twardowski had no aptitude for mathematics and mathematical logic remained always alien to him”. One has to do justice to Łukasiewicz that he provided his (unfair) assessment with the reservation: “As it seems”.

determinism, which took place between Kotarbiński (an anti-sempiternalist and indeterminist) and Leśniewski (a sempiternalist and determinist) (see Leśniewski [1912] 1992; Kotarbiński [1913] 1968).

Twardowski was famous for not imposing his own views on his students, and expecting only the proper expression and justification of their own – precisely articulated – views. So it is not surprising that despite these serious reservations about mathematical logic, two of Twardowski's students, namely Łukasiewicz and Leśniewski, turned to mathematical logic. In logical tools, they found “the measure of precision” which Twardowski hoped to find in observing the general rules of reasoning obligatory in all scientific thinking, and not only in logic. After a Polish university was reopened in Warsaw during World War I, Łukasiewicz was appointed to the Chair of Philosophy there. He was soon joined by Kotarbiński, and Leśniewski. This way the Warsaw branch of Twardowski's school, and the famous Warsaw School of Logic was formed. Alfred Tarski became one of the earliest students of the mentioned logico-philosophical Warsaw Triumvirate.

It would be, however, inadequate to consider two “geographical” branches of Twardowski's school as equally “substantial” branches, namely to consider Lwów as a philosophical-psychological centre, and Warsaw as a purely or mostly logical one. Firstly, as we may easily see, Lwów was the cradle of the Warsaw Logic School, and Tarski was right to state that almost all scholars who worked in mathematical logic in Poland in those days were direct or indirect students of Twardowski. Secondly, the results and developments of mathematical logic were carefully followed in Lwów. Moreover, Twardowski cared for the presence of the representative of “mathematical-logical” direction in Lwów. He considered his beloved student, Ajdukiewicz, such a representative. In fact, Ajdukiewicz contributed to the theory of deduction, and during his two-year-long period of professorship in Warsaw, he collaborated closely with Łukasiewicz, Leśniewski, and young Tarski. After coming back to Lwów, Ajdukiewicz got Twardowski's chair after his retirement. He wrote his most influential (and most known in the world) works in the late 1920s and 1930s, combining successfully the elements of the mathematical-logical and psychological-semiotic currents of the Lvov-Warsaw School. Generally speaking, the representatives of both Lwów and Warsaw branches of the School cooperated and exchanged their ideas. The areas of this exchange and cooperation were the meetings of philosophical, psychological, and logical societies, as well as the journals: “Przegląd Filozoficzny” (published in Warsaw but having its editorial representation in Lwów), and “Ruch Filozoficzny” (mostly informative, published in Lwów but regularly presenting reports of Warsaw events).

3. When it comes to semantics, one should keep in mind that analysing these issues in the first decades of the 20th century was walking on thin ice. Semantic concepts, like truth, or reference, were considered paradoxical (cf. the liar paradox and the paradox of heterological expressions, respectively). Various scholars were working in the direction of solving or at least bypassing these paradoxes.

The way of “bypassing” was chosen by those who tried to equate the concept of truth with the concept of provability. However, in 1930 Kurt Gödel showed that the concept of the true thesis of a given system has a broader range than the concept of the sentence having proof in this system. Among the Poles, it was Ajdukiewicz who initially chose another “bypassing” way of omitting paradoxes, and proposed a conception of meaning without semantics, based solely on syntactic and pragmatic concepts.

The ideas of other representatives of the Warsaw Logic School were much more revolutionary. Łukasiewicz and Leśniewski noticed (at the end of the second decade of the 20th century) that in order to avoid the paradoxicality of semantic concepts, it is necessary to strictly distinguish between object language and metalanguage. Semantic concepts belong to the metalanguage. Tarski added to this the idea that the concept of truth (at least in formalised languages) may perhaps be explained by the concept of satisfaction. All of that led to Tarski’s proposal of defining truth in the language of deductive systems (mathematical logic) in 1933. Semantics was finally freed from antinomies.

The programme of semantic reism formulated by Kotarbiński ([1928] 1966) (but under Leśniewski’s considerable influence) can be regarded as another form of purifying the language of semantic “weeds”. There we had to do with the postulate of a rigorous distinction between a given language and its metalanguage; here it was a matter of distinguishing expressions (names in particular) that really mean (or denote) something (in particular, reliable names/terms) from expressions that only apparently mean something (in particular, onomatoids). Kotarbiński’s programme recommended that only expressions of a reistic language or expressions translatable into expressions of the latter language should be regarded as really meaningful expressions. It can be said that the Leśniewski–Kotarbiński programme was a proposal for natural languages, and the Leśniewski–Tarski programme concerned formalised languages.

Of course, similar problems were discussed independently but a bit later by logicians and philosophers in other centres, first of all in Vienna. An intensive exchange of ideas between the Lvov-Warsaw School and the Vienna Circle started in 1930, first when Tarski gave lectures in Vienna and then when Carnap visited Warsaw (see also Szaniawski 1988; Woleński, Koehler 1999). Especially for Carnap, the results of the Poles were a real revelation. In the 1930s, the representatives of both groups met several times at interna-

tional congresses. Among these meetings, perhaps the 1935 Congress in Paris was the most significant for the problem in question since Tarski presented then his results in research on an antinomy-free definition of truth.

4. The present series of papers on the rise of semantics presents the contribution to semantic issues of five members of the Lvov-Warsaw School: Twardowski, three of his direct students (Kotarbiński, Ajdukiewicz, and Kokoszyńska), and Tarski, who was a student of Twardowski's prominent students.

Venanzio Raspa's article examines Twardowski's conceptions of judgments and presentations, and the evolution of these views between 1894 and 1903. This evolution includes introducing the concept of the state of affairs (*Sachverhalt*) as a judgement-correlate and the conception of presented judgement. Raspa also juxtaposes Twardowski's views with Alexius Meinong's approach and proves that these two students of Brentano influenced each other.

The paper of Ilkka Niiniluoto presents the main ideas of Kotarbiński's semantic reism. The author analyses the connection between semantic and ontological versions of reism, the status of reism as a form of physicalism, and Kotarbiński's approach to the problem of truth. The place of Kotarbiński's semantic ideas in the development of analytic philosophy, in particular his possible influence on Carnap, is also discussed.

Jan Woleński's paper places Alfred Tarski's flagship results on truth in the development of logic in general. The use of the syntactic–semantic distinction in Tarski's works is discussed. The author also examines how Tarski's conception of truth strengthens Gödel's results against the thesis that truth may be reduced to provability.

As mentioned above, before 1933, Ajdukiewicz tried to deal with philosophical problems of meaning without the use of semantics. However, Tarski's results changed his attitude and encouraged Ajdukiewicz to make a “semantic turn”, which took place in the mid-1930s. The background and results of this turn are presented in the paper by Anna Brożek. In Ajdukiewicz's *Semantic Version of Transcendental Idealism* (1937), published, by the way, in the journal “Przegląd Filozoficzny” (in Polish), it is also shown how metalogic and logical semantics may be used to elaborate on a *par excellence* philosophical thesis. This extremely interesting approach sketches also a new version of the analytic method, namely the method of semantic paraphrases.

Kokoszyńska, a student of Twardowski and then an assistant of Ajdukiewicz, also played an important role in the rise of the modern version of semantics. She very early noticed the importance of Tarski's results for the established tradition of Lvov-Warsaw investigations on truth, including Twardowski's refutation of relativism. As a representative of the Lvov-Warsaw School, she contributed to the common recognition of these results, among others in Vienna and during the Paris Congress of 1935. Kokoszyńska's views

and role are examined in Alicja Chybińska's paper, supplemented by the translation of Kokoszyńska's letters to Kazimierz Twardowski on these topics.

This correspondence, published here based on the Polish version known from manuscripts, is a very interesting historical document of not only the origin of semantics. It also portrays the teacher–student relation (Twardowski–Kokoszyńska) and provides a penetrating picture of philosophical Vienna and Paris of the mid-1930s. It is also to some degree a psychological self-portrait of Kokoszyńska: one of many independent and creative female members of the Lvov-Warsaw School.

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