

**LOGIC, METHODOLOGY
AND PHILOSOPHY OF SCIENCE
AT WARSAW UNIVERSITY
(2)**

**Edited by:
Anna Brożek, Jacek Juliusz Jadacki,
and Witold Strawiński**

JACEK JULIUSZ JADACKI

HEINRICH SCHOLZ AND THE LVOV-WARSAW SCHOOL*

1. Life and work

Heinrich Scholz's life is well known in Münster. There is no need to go over his *curriculum vitae* at full length here. I would like to register only the facts which are of interest from the point of view of Scholz's connections with Poland.

The first such fact is that Scholz studied in Berlin under the supervision of Alois Riehl. The philosophical views of Riehl were formed in the atmosphere of herbartianism. The same went for the philosophical views of Franz Brentano, the teacher of Kazimierz Twardowski, who was the founder of the Lvov-Warsaw School. Riehl and Brentano were surrounded by Johann Herbart's pupils during their studies in Germany and in Austria. This fact is probably a source of Scholz's posterior aversion — and Jan Łukasiewicz, one of Twardowski's pupils — to Immanuel Kant as well as to kantianism.

The second of those facts is that Scholz — inspired by the Warsaw Logical School — created in 1943 the Institut für mathematische Logik und Grundlagenforschung. By creating this institute, Scholz crowned his attempts towards planting analytical philosophy in Germany. Scholz conceived this design — as he stressed himself — following the Warsaw example (*"nach dem Warschauer Vorbild"*).¹ His idea was similar to the idea brought forward by Twardowski at Lvov University in the end of 19th century; and it was identical to an idea that Łukasiewicz had before him when he took the Chair of Philosophy at Warsaw University in 1915.

The third such fact is that Scholz's ties with Twardowski and his school were not limited to ideological ties. Scholz came into personal contacts with representatives of the Lvov-Warsaw School. These contacts resulted in his two visits to Poland in the thirties. During his visit in 1932, Scholz delivered three lectures, in Warsaw and in Lvov. On the 18th of October he talked about „Die moderne Prädikatenlogik als die erste exakte Darstellung der aristotelische Ontologie” at the 370th meeting of the Warsaw Philosophical Society. On the 25th of October he delivered the lecture „Über analytische und synthetische Sätze” at 320th meeting of the Polish Philosophical Society in Lvov; an annalist noted that one of the participants in the discussion which followed this lecture was Kazimierz Ajdukiewicz. On the 25th of October Scholz repeated his Warsaw lecture at the 321st meeting of PPS in Lvov; Ajdukiewicz and Roman Ingarden took part in the discussion. During the visit in 1938, Scholz delivered on the 19th of December the lecture „Sprechen und Denken. Ein Bericht über neue Gemeinsame Ziele der Polnischen und der Deutschen Grundlagenforschung” at the meeting of the Warsaw Scientific Society, and on the 20th of December he took part in the ceremony at the German embassy in Warsaw, where Hans von Moltke, the Reich ambassador in Poland, handed the scroll of honorary doctor of Münster University to Łukasiewicz.

Scholz's philosophical activity can be divided into two periods: prelogical (up to 1921) and logical (since 1928). The first period is dominated by theologico-philosophical

problems; the second one is filled with logico-philosophical investigations. The transformation of interests is usually explained by his accidental falling upon Bertrand Russell and Alfred North Whitehead's *Principia mathematica* and by his studies of this work in 1921. It is worth saying that reading this book challenged the logical interests of Łukasiewicz and Leśniewski as well.

The fourth fact which I would like to stress in connection with the above explanation is that there existed additional reasons for Scholz's philosophical conversion. These issues were the subject of a conversation between Scholz and Twardowski in Lvov, on the 25th of October, 1932. According to Twardowski, „great troubles” and a consequent „loss of faith” had something to do with Scholz's conversion. He chose logic — instead of the philosophy of religion — as the subject of his investigations, as it was a discipline „most abstract and far from shooting problems”.²

2. Scholz's views against the background of the Lvov-Warsaw School

The philosophical views of Scholz are constituted by four ideas: the ideas of antispeculative deductionism, antidogmatic conservatism, anticonstructivist realism, antihypothetist illuminationism.

According to the **antispeculative deductionism**, philosophy — if it is meant to be a scientific philosophy (and not a speculation) — ought to use the analytical method. Tadeusz Czeżowski called this method „the method of analytical description”. „It is a feature of the philosophical trend called „analytical philosophy”, represented in Poland, among others, by Kazimierz Twardowski. [...] In philosophical research [...], where we set ourselves a task of solving the most difficult problems created by reality, the method of analytical description is the most infallible — if not the only — method giving a perspective that our results will be as objective as possible and that they will have a fast value.”³

The language of scientific philosophy ought to be, according to Scholz, clear (intersubjectively intelligible) and exact (accurate). A similar position was taken by Twardowski. He wrote a well-known text which was a kind of manifesto of the so-called clearlists (Polish „jasnościowcy”; Tadeusz Kotarbiński's term); it must be remembered that all of Twardowski's pupils took themselves for «clearlists». This manifesto reads: „An author who does not know how to express his thoughts clearly does not know how to think clearly either, and therefore his thoughts do not deserve our efforts to guess them”.⁴

After Scholz, philosophical theories ought to have a form of interpreted axiomatic-deductive systems.⁵ Ontology, in particular, can be identified with interpreted mathematical logic. For „the philosophy can be described as *mathematical philosophy* in a certain deep sense [of the term]. [...] It can be also apprehended as mathematics transposed with essential restrictions to the sphere of philosophical matters, and in this well defined sense — as *mathesis universalis*.”⁶ The project of Scholz in this area does not differ from a project formulated by Łukasiewicz. He wrote: „Scientific philosophy should start its construction from the beginning, from foundations. To start from foundations means to make, in the first place, a survey of philosophical problems and to choose from among them only those problems which can be formulated intelligibly, rejecting all the others. Mathematical logic can already be useful in this preliminary work, for it fixes the meanings of many expressions belonging to philosophy. Then,

we ought to attempt to solve the philosophical problems which can be intelligibly formulated. The most useful method of realising such a task seems to be again a method of mathematical logic: the deductive, axiomatic method. We need to base on sentences as intuitively clear and indubitable as possible; such sentences should be taken as axioms. As primary or undefined notions, we need to choose expressions whose sense can be universally explained by cases. We should try to limit maximally the number of axioms and primary notions, enumerating all of them carefully. All remaining notions need to be unconditionally defined on the grounds of primary notions; all remaining theorems need to be unconditionally proved on the grounds of axioms and by means of directives of proving accepted in logic."⁷

Antidogmatic conservatism requires analytical philosophers not to slight their own tradition⁸ — reaching as far back as Plato and Aristotle,⁹ and then Descartes¹⁰ and Leibniz.¹¹ A special position in this tradition is occupied by Frege.¹² For Frege — as Scholz writes — „was the first to present logic in such a way that it can compete with a mathematical theory, being superior to all mathematical theories in respect to exactness and accuracy. To achieve this magnificent aim, [Frege] created the first genuinely Leibnizian [i.e. artificial] language"¹³. This formula of Scholz harmonises with Łukasiewicz's opinions of mathematical logic. We read in Łukasiewicz: „The logic created by mathematicians fixed a new measure of scientific exactness, much higher than all previous measures of exactness; in consequence, the logic opened our eyes on the nothingness of philosophical speculation”.¹⁴

However, the remaining philosophical tradition must not be treated only as a cemetery of badly posed problems. It is true that — as Łukasiewicz wrote — „when we approach the great philosophical systems [...] with the criteria of precision set up by mathematical logic, these systems fall to pieces as if they were houses of cards. [...] The logical theories which often underlie them are practically all erroneous.”¹⁵ However, the idea is to use the method of creative interpretation, recommended by Twardowski in the reconstruction of the history of philosophy. In Tadeusz Kotarbiński's approach, this method is described in the following way: „An adherent of creative interpretation tries [...] to understand a given problem better than an investigated thinker. [...] He set himself an ambitious task to understand a given thinker more clearly and more deeply than this thinker could understand his own views.”¹⁶

In particular, we ought to maintain a critical attitude towards Kant. Here we have Łukasiewicz's opinions concerning Kant: „Everywhere we have addle notions, unintelligible sentences, unfounded theorems, contradictories and logical fallacies”.¹⁷ One of the most heavy fallacies of Kant is — according to Scholz — that he illegitimately recognised logical laws as analytic judgements not referring to reality.¹⁸ Under **anticonstructivist realism**, truths belonging to the «theory of foundations», including theology,¹⁹ or „metaphysical truths”, „bind of course [...] also in the real world. [...] [However,] a scope of their validity is [...] incomparably larger [in comparison, e.g., to laws of physics]. The scope of their validity contains the totality of possible worlds.”²⁰ Possible worlds create a logical frame for every description of the real world. Even the will of God is subject to logical laws; this fact does not limit God but rather deifies logic. Łukasiewicz expressed a similar thought in the following words:

„Whenever I work even on the least significant logistic problem, [...] I always have the impression that I am facing a powerful, most coherent and most resistant structure. I sense that structure as if it were a concrete, tangible object, made of the hardest metal,

a hundred times stronger than steel and concrete. I cannot change anything in it; I do not create anything of my own will.”²¹

Imposing the requirement of constructability upon logical objects is a manifestation of arbitrary anthropomorphism.

According to **antihypothetist illuminationism**, philosophical theorems ought not to be clearly and strictly formulated and included into an axiomatic–deductive system, but also all of them, including axioms, ought to be justified. „[They] ought to be incessantly confronted with intuitive data and experience as well as with results of other sciences, especially natural ones. In case of incoherence, the system should be corrected by formulating new axioms and selecting new primary notions. One should care incessantly for contact with reality lest one should create mythological entities like Plato’s ideas or Kant’s things in themselves, but understand the essence and the structure of the real world in which we live and act.”²²

The manner of justifying a logical — as well as philosophical — theorem ought to be distinguished from the manner of discovering them. „Objects of mathematics [...] [and logic] exist in themselves like Plato’s ideas.”²³ The same holds for the objects of philosophy understood as *mathesis universalis*. In Scholz’s opinion, we receive the knowledge of necessary truths — concerning these objects — thanks to God’s illumination. Łukasiewicz declared similarly that „by strenuous work [...] [he] arrive[s] at unshakable and eternal truths [of logic]. Where is and what is that ideal structure? A [philosopher–]believer would say that it is in God and is His thought.”²⁴

3. Scholz on the Lvov–Warsaw School

Scholz spoke of the representatives of the Lvov–Warsaw School with the greatest approbation.

In the first place, this approbation concerns **Jan Łukasiewicz**.

The paper „Philosophische Bemerkungen zu mehrwertigen Systemen des Aussagenkalküls” (1930) written by Łukasiewicz — „a leading Polish logician” — was recognised by Scholz as „an important and very interesting work”, although he regarded Leibniz as a precursor of the idea of three–validity; in his work „Specimina Iuris III” (1669) Leibniz formulated in fact „the first matrix of three–valued logic”.²⁵ It was Łukasiewicz — „a reverend and dear friend from Warsaw („verehrt liebe Warschauer Freunde”) — who called Scholz’s attention to some embarrassing (and *prima facie* unseen) consequences of the thesis that axioms of logic are sentences true in every (possible) world.²⁶ Close to the outbreak of the second world war, Scholz announced that „the next issue of our *Inquiries* will be filled mainly by Prof. Łukasiewicz’s masterful solutions given in Warsaw to two competitive problems formulated in Münster”.²⁷

Scholz made no bones about saying that he owed many of the inspirations for his logico–historical works to Łukasiewicz’s investigations.

Asserting that the construction of propositional logic was the Stoics’ merit, Scholz stressed that „Łukasiewicz was the first to formulate this assertion”. He added: „I must admit that his paper convinced me further that what I have said — against «good» tradition — in the continuation of my work in favour of saving the Stoic’s honour was right”.²⁸ For his side, Łukasiewicz mentioned proudly that his paper „Zur Geschichte der Aussagenlogik”, delivered during the Philosophical Congress in Prague in 1934

was considered by Scholz „the most beautiful twenty pages from the history of logic”.²⁹ This paper, published finally in *Erkenntnis* (1935/1936) and characterised as a model dissertation (“die bahngreckende Abhandlung”), constituted a basic source of information on Chrysippos’s logic.³⁰

The only critical remark aimed by Scholz at Łukasiewicz concerned the so-called paradox of logical determinism, formulated by Aristotle. He saw a mistake in this paradox. Hence he was anxious about the fact that for Łukasiewicz this paradox is “the base of a new kind of logic (cf. J. Łukasiewicz, „Philosophische Bemerkungen zu mehrwertigen Systemen des Aussagenkalküls)”. However, Scholz added in a footnote: „As I understand, Łukasiewicz does not think that Aristotle’s argument is valid; he considers it only as sufficient ground for discussion. In my opinion, it is enough to be a starting point of his extremely interesting logic. According to my knowledge, this logic is the first example of *non-Aristotelian* logic in the strict sense of the word, i.e. a logic containing sentences which would be *false* in Aristotelian logic.”³¹

Alfred Tarski was the second representative of the Lvov-Warsaw School who was mentioned by Scholz appreciatively.

He wrote in 1939 (the date is telltale): „Among representatives of the Warsaw School I must mention [...] Prof. Tarski with his fundamental works on the methodology of deductive sciences, and especially his work formulating a noncontradictory notion of truth for these sciences”.³² Of course, the fundamental work („die grundlegende Arbeit”³³) he mentioned was *Pojęcie prawdy w naukach dedukcyjnych*. In Scholz’s opinion, the definition of *truth* given in this work is coherent with the classical conception of this notion.³⁴ Scholz refers to this work for an exact presentation of the Liar antinomy.³⁵ Tarski himself remarked (in a footnote added in 1956) that „after the original of this paper had appeared in print, H. Scholz in his article „Die Wissenschaftslehre Bolzanos. Eine Jahrhundert-Betrachtung” [...] pointed out a far-reaching analogy between this definition of consequence [according to which the sentence *X* follows logically from the sentence of the class *K* if and only if every model of the class *K* is also a model of the sentence *X*] and the one suggested by B. Bolzano about a hundred years earlier.”³⁶ For Scholz, the fact that there is no reference to Bolzano even in Tarski’s work is a testimony of the general ignorance as to Bolzano’s works.³⁷ In 1941 (the date is of no little importance), Scholz admitted that his method of making precise the notion of *general validity* („der Allgemeingültigkeit”) had been modeled on Tarski’s work, which Scholz recognised as a strictly philosophical work in the proper sense of the word.³⁸ In 1944, Scholz added that the notion of *logical truth* was made precise in this work; he had in mind the notion of *logical truth* as a truth valid in each possible world.³⁹

Apart from these references, in his lectures on logic, Scholz appealed to the irreducibility of axioms of implication proved by Tarski⁴⁰ as well as to Wajsberg’s theorems.⁴¹ He also made use of the notion of *logical consequence* defined in Tarski’s work „Über den Begriff der logischen Folgerung” (1936).⁴² Discussing Pascal’s contribution to the analysis of the notion of *definability of predicates*, Scholz indicated the fact that the essential work („grundlegende Arbeit”) in this domain is Tarski’s paper „Einige methodologische Untersuchungen über die Definierbarkeit der Begriffe” (1935), in which he formulated two definitions of definability and proved that one resulted from the other. Two other papers by Tarski, i.e. „Fundamentale Begriffe der Methodologie der deduktiven Wissenschaften I” (1930) and „Grundzüge des Systemkalküls” (1935), were also recognised by Scholz as essential, this time for the explanation of

Pascal's methodology from the point of view of the modern theory of knowledge.⁴³

Scholz knew and placed a high value on **Kazimierz Ajdukiewicz's** works, among others, his „Założenia logiki tradycyjnej” (1926); Scholz found in this paper — as he wrote — „the strictest interpretation of Aristotelian moods” (1926).⁴⁴ On the other hand, he spoke very well of an analysis of Occam's logic made with the help of modern logical tools in the works of **Rev. Jan Salamucha**, murdered in Warsaw during the second world war by Germans („während des Krieges in Warschau von den Deutschen ermordeten”), and those of **Rev. Józef M. Bocheński**.⁴⁵ Scholz characterised these works as „an innovative inquiry” into this area (of knowledge). Scholz noticed also that the Carnapian notion of *syntactic language* („Syntaxsprache”) has its analogue in Tarski's notion of *metalanguage* which is called „semantic language” („Semantiksprache”) by **Maria Kokoszyńska** in her excellent study („in einer feinen Studie”) „Über den absoluten Wahrheitsbegriff und einige andere semantische Begriffe” (1936).⁴⁶ Kokoszyńska's „beautiful approach” („die schöne Betrachtung”), „Bemerkungen über die Einheitswissenschaft” (1937/1938) is a work that Scholz refers to for details concerning the thesis that the notion of truth for a given language cannot be formulated in the same language.”⁴⁷

In Scholz's works there are many positive opinions on the whole group of Polish logicians in the inter-war period.

Scholz wrote in 1931: „In the last ten years, thanks to Jan Łukasiewicz, Poland has become the main country, and Warsaw the main center, of logistic investigations. [...] [I mean, among others] works published in *Fundamenta Mathematicae* [...] by Stanisław Leśniewski, W[acław] Sierpiński, Alfred Tarski and others. I must at least mention Leon Chwistek [and his] „The theory of constructive types. Principles of logic and mathematics” [...] (1925).”⁴⁸

Scholz considered the representatives of the Warsaw School as discoverers of Frege. Łukasiewicz noticed that Frege had been the first to create propositional calculus and to introduce the notion of *independence of axioms*. Leśniewski proved that the axiom of extensionality did not allow for the results looked forward to by Frege.⁴⁹

„Warsaw friends” were also people — according to Scholz — who put Leibniz's⁵⁰ and Frege's ideas into practice.⁵¹ In the Warsaw School, initiated by Łukasiewicz and Leśniewski — a new style of practising philosophy was developed. We owe a „new [rational] comparative linguistics” to „Polish friends.”⁵² They created: (a) new Leibnizian (i.e. artificial) languages, (b) standard theories of these languages, and (c) grounds for comparative studies concerning them.

Scholz summed up: „Talking about the Warsaw School, we talk about the fortress („Hochburg”) in the domain („Kontinent”) of comparative inquiries about Leibnizian languages.”⁵³

4. The Lvov–Warsaw School on Scholz

Two testimonies of how **Kazimierz Twardowski**, the founder of the Lvov–Warsaw School, estimated Scholz have endured to our times. Scholz, invited by Twardowski, delivered two lectures in Lvov, in the autumn of 1932, as mentioned above. In his *Diaries*, Twardowski wrote about the first of these lectures in the following words: „The lecture was perfectly constructed, clear, limpid, very well delivered”.⁵⁴ He judged the second lecture equally well: „The same can be said about this lecture [...], but with the addition

that it was still more beautiful. [...] The knowledge of Aristotle and the manner of interpreting certain notions of his metaphysics were really extremely interesting. As it could be noticed, the lecture strongly impressed the whole audience."⁵⁵ The author of the paper „On the clear and unclear style of making philosophy” (1919) could hardly formulate a better praise.

Twardowski’s pupil, and the main pillar of the Warsaw School, **Jan Łukasiewicz**, described Scholz as „a devotee of scientific philosophy grounded in modern logics”.⁵⁶ However, he made references first of all to Scholz’s logico–historical works.

On the one hand, Łukasiewicz expressed his satisfaction as to the fact that Scholz accepted in *Geschichte der Logik* (1931) the view on the Stoics’ dialectics as a propositional logic, defended by Łukasiewicz since 1923.⁵⁷ **Jan Franciszek Drewnowski** added later that this logic (what was fully revealed not earlier than by Łukasiewicz and Scholz) „was known and developed by medieval Schoolmen.”⁵⁸ Scholz claimed also that Scholastic logic reached a much higher standard than the logic of the next ages; this achievement of Scholz was especially stressed by **Rev. Jan Salamucha**.⁵⁹ Łukasiewicz also noted Scholz’s hypothesis from *Geschichte der Logik* that „Galen is probably not responsible for the fourth figure”.⁶⁰

On the other hand, Łukasiewicz based his analysis of Descartes’ formula „*Cogito, ergo sum*” on Scholz’s.⁶¹ Namely, following Scholz, Łukasiewicz admitted that this formula expressed an inference, and not a conviction; but only a conviction can be estimated as to its being true or false. Thus Descartes’ formula does not fall under such an estimation. Moreover, the inference expressed by the formula „*Cogito, ergo sum*” is an enthymematic inference. After completion, it has the following form: „If I think, then I exist; I think, so I exist.”⁶² After many years, **Eugeniusz Wojciechowski** paid attention to the fact that Scholz really considered such a possibility of interpreting Descartes’ formula, but „he rejected this interpretation as inadequate, for Descartes himself protested against it.”⁶³

Łukasiewicz admitted also that Scholz served as his source of inspiration in the investigation of the axiomatisation of intuitionist propositional calculus constructed in 1930 by Arend Heyting. This investigation resulted in proving that „the three-valued calculus proves to be stronger and richer than the two-valued”, i.e. the latter can be interpreted in the former.⁶⁴

Scholz’s works belonging to the domain of the history of mathematics commanded the attention of **Leon Chwistek** who, while not a member of the Lvov–Warsaw School, was very near to being one in many respects. He accepted Scholz’s view from „an interesting discussion” in „Warum haben die Griechen die Irrationalzahlen nicht aufgebaut?” (1928) that „the essential reason of why the Greeks did not develop a concept of irrational numbers was that they had no concept of rational numbers”.⁶⁵ In this work, Scholz impugned also the prejudice that the Greeks were finitists; this prejudice had been objected earlier in Poland by Jan Sleszyński.⁶⁶

The representatives of the Lvov–Warsaw School were interested mainly in those works of Scholz that concerned the history of logic.

We may suppose that **Tadeusz Kotarbiński** shared three of Scholz’s philosophico–historical opinions from *Geschichte der Logik*: (a) that the Stoics were not aware of the logical anteriority of their logic in relation to Aristotelian logic⁶⁷; (b) that the authors of *Logic* from Port Royal were probably the first logicians who treated methodology as a theory of methods of mental operations⁶⁸; and (c) that „la Logique de Port–Royal, peut

encore être lue avec profit de nos jours, bien qu'elle ait été écrite il y a fort longtemps de cela en 1622".⁶⁹

Tadeusz Czeżowski also had a very favorable opinion of *Geschichte der Logik*; he called it a monograph of the history of logic which was concise but „standing on the level of the state of knowledge of the present day.”⁷⁰

But Czeżowski was interested mainly in Scholz as a metaphysician — a representative of one of the three types of modern metaphysical theories. Czeżowski distinguished axiomatic, inductive and intuitionist metaphysics. He wrote: „The first one is a modern form of former speculative metaphysics; the assertions of axiomatic metaphysics are interpretations of the assertions of the extended theory of propositional functions (the theory of predicates and theory of relations) which are obtained by substituting the term „thing” or „empirical individual” for nominal variables, and the terms „feature”, „quality” or, in many-place functors, „relation” for functor variables of propositional functions. The hypothetico-deductive theory obtained in this way is an extended Aristotelian first philosophy. An example of this kind of theory is provided by Scholz’s logico-ontological investigations [*Mathesis Universalis*, 1961].”⁷¹ In particular, Scholz’s *Metaphysik als strenge Wissenschaft* is a „standard example” of axiomatic metaphysics.⁷²

The same opinion was held by **Kazimierz Ajdukiewicz** who claimed that Scholz was right in naming some parts of mathematical logic „metaphysics” („in its primary sense”).⁷³ **Stanisław Kamiński** also stressed this fact many times⁷⁴, paralleling (rather incorrectly) Scholz in this context with Benedykt Bornstein, the author of *Teoria Absolutu* (1948).

Ajdukiewicz appealed to Scholz also in the case of justifying the thesis that operators (including quantifiers) were not complex but simple expressions. According to Ajdukiewicz, „there are ways of writing operators which make this clear. Professor Scholz, for instance, writes „x” instead of „(Πx)”.”⁷⁵

In general, Ajdukiewicz ascertained to his satisfaction that Scholz was „a sympathizer of logicising empiricism”.⁷⁶ **Rev. Józef M. Bocheński** considered Scholz as a classical representative of analytical philosophy; he stressed at the same time that Scholz was an extreme Platonist, because according to him even the negation „must be somewhere”.⁷⁷ According to **Rev. Jan Salamucha**, the fact that such outstanding logicians as Łukasiewicz and Scholz, together with other representatives of the so-called Group from Münster (*Gruppe von Münster*), spoke for the thesis that mathematical logic (logistics) is functionally independent from positivism.⁷⁸

Geschichte der Logik was, in general, positively estimated also by **Rev. Antoni Korcik**. In his opinion, „the author used the respective literature thoroughly and accurately”.⁷⁹

But Korcik — appealing to his own investigations — questioned Scholz’s identification of the so-called Galen’s figure with the traditional fourth figure and showed that Galen’s figure is a separate figure consisting of three Aristotelian figures.⁸⁰

Korcik also announced some small historical corrections to Scholz’s work. He noticed namely that: (a) the second edition of Julius Pacius’s *Aristotelis Organum* (1617) was published not in Frankfurt but in Hanover; (b) the first attempt of the axiomatisation of classical logic was taken up not by Girolamo Saccheri (1697) but by Johann Christoph Sturm (1669); (c) Sturm is also a precursor of Franz Brentano in taking into account

sylogisms of four terms; (d) Rudolf Lotze (as well as, e.g., Gottfried Wilhelm Leibniz and Gottlob Frege) considered the copula „is” in sentences of the type „S is P” as referring to identity, but only for the sake of «signifying» and not of meaning; (e) the principle of excluded middle was criticised by Robert Grassmann (1872) much earlier than by Letzen Brouwer (1908); (f) the idea of non-Aristotelian three-valued logic appeared before Jan Łukasiewicz (1918) in Nikolai Aleksandrovič Vasilev (1912), and the idea of anti-Aristotelian logic — in Elias Schlegel (1688).⁸¹

Scholz's works belonging to the domain of philosophy of religion have become an object of interest among Polish philosophers only lately.

Thus **Bogusław Wolniewicz** noted that Scholz in *Religionsphilosophie* (1912): (a) called into question the existence of the «experience» of *sacrum*;⁸² (b) ignored — as many philosophers of religion — the importance of the problem of death; if he mentioned in his book a horror of death and a hope of immortality, he did it only in the context of discussion on sources of religiosity, indicating namely that there were religious people who were not afraid of death.⁸³

Andrzej Lubomirski thought of Scholz in a much better way in this respect. He wrote that „Scholz's ideas [...] had great impact not only thanks to their clarity and simplicity, but also — and probably first of all — because of **courage of faith** in the dignity of the human being as an entity that is capable of participating in the sphere of *sacrum*; and by **courage of humility**, expressing itself in the conviction that only thanks to the Creator's grace we were able to overrun the limit between finitude and infinity”.⁸⁴

5. Personality

Among Polish philosophers, **Jan Łukasiewicz** was the person who kept the closest relations with Scholz. For that reason, in Łukasiewicz's writings, we find many notes concerning Scholz as a person.

In letters to Twardowski, Łukasiewicz characterised Scholz — after his visit to Warsaw in 1932 — in the following words: „Prof. Scholz is immensely pleasant and likeable, sincere and with winning manners, but for a long time he has been suffering from ulcers of the stomach; hence he must be careful of his lifestyle and after dinner he must rest in bed. He is interested very much in the history of art.”⁸⁵ „Everybody was favourably impressed by him”.⁸⁶ In 1936, Łukasiewicz visited Münster on Scholz's initiative; after this visit, he wrote to Twardowski that he was received „unusually cordially” and brought home „the best associations connected with this twelve days' journey”.⁸⁷

Two years later, in one of his publications, Łukasiewicz describes Scholz as a person „connected with the Warsaw Logistic School by bonds of collaboration and friendship”.⁸⁸

Many mentions concerning Scholz are in Łukasiewicz's unpublished *Diaries*. We find there, e.g., a description of an evening in February, 1936, „in which nearly thirty professors took part”, and during which „Scholz proposed witty toasts to his colleagues”.⁸⁹ There is a description of an event just before Christmas of 1938 in the oldest Warsaw church of Our Lady, in which Scholz felt religious affection of such a depth that „though evangelical, he kneeled down and prayed” fervently.⁹⁰ However, first of all, there is a description of efforts made by Scholz during Hitler's occupation of

Poland, in the years 1939–1944, to improve the conditions of his friend's life. Thus, we come to know that Scholz procured a clerical post in the Municipal Archives in Warsaw for Łukasiewicz; this position did not secure even a minimum of means of subsistence, but at least it protected against a forced working deportation to Germany.⁹¹ Thanks to Scholz, Łukasiewicz received in 1944 passes to the Reich; it enabled him to run (with his wife) to Münster from the German–Russian front, drawing near to the capital of Poland.⁹² In Münster, Scholz procured passports for the Łukasiewicz's, which was the necessary condition for getting food ration cards. Scholz also secured a residence for them: initially in his home,⁹³ then in a hospital, then in Meklenbeck near Münster,⁹⁴ and in the end in a hospital again.⁹⁵

It is small wonder that after the war — in his correspondence to Rev. Józef M. Bocheński — Łukasiewicz complained of the lack of response to his letters to Scholz,⁹⁶ who finally addressed him „after more than full year's silence”.⁹⁷ However, first of all, Łukasiewicz rectified calumnies on Scholz which started going rounds. He wrote: „Your news on Scholz, Father, is strange. In my opinion, he is an exceptionally good and honest German. During the war, he saved us as he could; he got the late Salamucha out from Dachau; he pled even for Jews. I could not believe that „he was the first to hoist a Hitlerian flag at the end of the war”, for he had never been a Hitlerian. Still, in the autumn of [19]44, he deprecated Hitlerians; in November of [19]44 he left Münster, and at the end of the war, he was to be in Göttingen.”⁹⁸

Other representatives of the Lvov–Warsaw School spoke also very highly of Scholz.

Tadeusz Kotarbiński — after Scholz's death — stressed that „he was a well-trying friend of the community of Polish logicians. He proved this not only by presenting their achievements in the best light but also by bringing help to Polish colleagues in bad times.”⁹⁹ **Kazimierz Ajdukiewicz** also called him „a friend of Polish logicians.”¹⁰⁰ According to **Jan Franciszek Drewnowski's** testimony, „Scholz had taken to speaking Polish in order to study our logical works.”¹⁰¹ **Rev. Józef M. Bocheński** described a characteristic event: „Leaving Poland illegally in December [of 1939], I feared to take [...] an offprint [of my paper on Theophrastus' logic] with myself, because it was said that Germans (or Muscovites?) had shot a Polish philosopher only for the reason that custom-house officers took a mathematico-logical text found on him as a cryptogram. Therefore I sent my offprints to Scholz; he not only kept them in his seminar, but also announced in its bulletin that this work was with him. One can imagine my terror when one day, opening *The Times* in London, I read a piece of information that Münster had been raided by a sea of flames.”¹⁰²

Scholz went a long way to save **Rev. Jan Salamucha**.¹⁰³ On the 6th of November 1939, together with another 182 professors of the Jagiellonian University in Cracow, Rev. Salamucha was arrested by Hitlerians and committed, first in the camp in Schsenhausen, and then in the camp in Dachau. It was thanks to Scholz's interventions that he was liberated from Dachau.¹⁰⁴

Appendix

1. Kazimierz Twardowski's oration in honor of Heinrich Scholz

Highly Honoured Professor! It is a special joy for us that we can bid welcome to you, Professor, in the circle of members of the Polish Philosophical Society. We are especially grateful to you, Professor, that you decided by our request to come back from Warsaw to your home *via* Lvov, and that you are kind enough to share some results of your works with us personally. Going from Warsaw to Lvov, Professor, you travelled the way that logistical interests and inquiries in Poland had covered before in the opposite direction. However, it does not mean that these interests and these inquiries left Lvov; by no means! What I have in mind is that they started in Lvov. For the first Polish work on logistics (i.e. algebraic or mathematical logic, as they said at this time) appeared here, in Lvov, in 1888. I mean the work „Algebra in Logic”, published in the proceedings of the IVth State Secondary School by the then director of this school, Stanisław Piątkiewicz. Eleven years later, during the academic year 1889/90, at the Lvov University, I delivered lectures on „Reformatory tendencies in the field of formal logic”, acquainting our youth with attempts which — including George Boole's system — prepared modern logistics. At that time Jan Łukasiewicz was one of my students; then he stood to mathematical logic, and it became one of main domains of his investigations. He became a Privatdozent of the Lvov University and was able to devote his interests on his own as well as with some of my pupils: above all, Leśniewski and Ajdukiewicz. Important changes in many fields caused by the world war took Łukasiewicz to a professorship at Warsaw University, where the chair was taken also by Leśniewski and Ajdukiewicz (until his vocation for Lvov). Thus Warsaw became a centre of logistical inquiries and the seat of the logisticians' community, which increased and increased constantly thanks to the teaching activity of the above mentioned professors. The work of Warsaw logisticians as well as their Lvov colleagues — represented by Ajdukiewicz and Chwistek (who had moved lately to Lvov from Cracow) — is successful; this is reflected by the fact that publications of Polish logistics attracted the notice of foreign scholars. As a result of this fact, a wish to establish personal relations arose. And you, Highly Honoured Professor, arrived in Poland to gratify this wish. Welcome cordially and take the floor; it is my greatest pleasure to invite you to deliver your lecture.

Cf. Twardowski, *Przemówienie*.

2. Heinrich Scholz's correspondence with the Ministry of Foreign Affairs of the Reich concerning the matter of Jan Salamucha

(a) The first letter of Heinrich Scholz

Münster i. W., d. 16 April 1940. An das Auswärtige Amt, Kulturabteilung. Berlin, Kronenstr. 10. — Es scheint mir, dass ich verpflichtet bin, die Aufmerksamkeit des Auswärtigen Amtes auf die Person Herrn Prof. Dr. Jan Salamucha OP [sic!], zu lenken. Herr S. hat der Theologischen Fakultät der ehemaligen Krakauer Universität angehört. Seine Krakauer Adresse ist gewesen: Bernardyńska 3. — Herr S. ist der erste gegenwärtige Kenner der noch fast unerforschten spätmittelalterlichen Logik. Durch eine Reihe von ausgezeichneten Arbeiten hat er sich dank der Aufschliessung dieser Logik mit den exakten Hilfsmitteln der neuen mathematisierten Logik grundlegende Verdienste erworben. — Diese mathematisierte Logik ist eine grundeigentliche Schöpfung des deutschen Geistes. Sie geht auf den grossen deutschen Meister Gottlob Frege (1848–1925) zurück. Einen Denker, um den die Welt uns beneidet und für welchen endlich auch einmal wir Deutschen werden wissen müssen, was wir ihm schuldig geworden sind. Hiernaus ergibt sich, dass Arbeiten, die mit den Mitteln dieser Logik in einem bahnbrechenden Sinne durchgeführt sind, zugleich in einem prägnanten Sinne der Ehre des deutschen Geistes dienen. Es ergibt sich ferner, dass ich als einziger anerkannter Vertreter dieser mathematisierten Logik an einer grossdeutschen Hochschule seit einer Reihe von Jahren mit Herrn S. in einem lebhaften brieflichen Gedankenaustausch gestanden habe. In zwei Begegnungen habe ich ihn auch persönlich kennengelernt. Er hat einen sehr starken positiven Eindruck auf mich gemacht. Herr S. ist, wie angedeutet, Ordensgeistlicher. — Nach dem 6. Nov. 1939 ist Herr S. mit den übrigen Mitgliedern des Krakauer Lehrkörpers in das Konzentrationslager Sachsenhausen bei Oranienburg abtransportiert worden. Mitte Februar sind die Betroffenen, so weit sie das 40. Lebensjahr überschritten hatten und noch am Leben waren, nach Krakau zurückgeführt worden. Herr S. hat das 40. Lebensjahr noch nicht erreicht. Er ist zurückgehalten worden mit allen, die in demselben Falle sind. Für einige von ihnen ist mir bekannt geworden, dass sie inzwischen nach Dachau abtransportiert worden sind. Es ist möglich, dass dies auch auf Herrn S. zutrifft. Für Herrn S. ist zu meiner Kenntnis gelangt, dass jedenfalls der psychische Zustand, in welchem er sich schon Anfang Februar befunden hat, besorgniserregend gewesen ist. — Es ist ferner zu meiner Kenntnis gelangt, dass italienische

Gelehrtenkreise, die sich um diese neue mathematisierte Logik bemühen, schon seit Monaten um Herrn S. sehr ernstlich besorgt sind. Ich habe jetzt erfahren, dass Herr S., wenn er freigelassen würde, seine Studien in Italien fortsetzen könnte und dass er dort auf das Wärmste begrüßt werden würde, da man an seiner Mitarbeit stark interessiert ist. — Ich möchte mich also auf das Nachdrücklichste dafür einsetzen, dass geprüft wird, ob Herr S. nicht freigegeben werden kann. Dies müsste sobald als möglich geschehen. Sonst ist zu befürchten, dass seine Gesundheit so zerrettet ist, dass die Freilassung zu spät kommt. Dies würde nicht nur für die deutsche Wissenschaft, für die ich in diesem Falle verantwortlich bin, einen unersetzlichen Schaden bedeuten, sondern es würde auch eine Rückwirkung auf wissenschaftliche Kreise in Italien haben, für welche ich Grund habe zu vermuten, dass sie im politischen Interesse unter allen Umständen vermieden werden sollte. — Der Fall scheint mir so ernst zu sein, dass ich dringend darum bitte, dass mir auf diese Mitteilung sobald als möglich ein Bescheid zuteil wird. — Heil Hitler! — O. Prof. d. Philosophie der Mathematik und Naturwissenschaften a. Universität Münster I. Westf.

(b) *The answer of the Ministry (the 27th of April)*

Es wird hier keine Möglichkeit gesehen, auf die Freilassung des Professors Salamucha hinzuwirken. Insbesondere käme eine Ausreise des Genannten nach Italien nicht in Frage.

(c) *The second letter of Heinrich Scholz*

Münster I. W., 16. Mai 1940. An die Kulturabteilung des Auswärtigen Amtes. Berlin W 8, Kronenstr. 10. — Am 16.5.1940 ist die beikommende Mitteilung eingeschrieben zu der Kulturabteilung des Auswärtigen Amtes abgegangen. Aus Gründen, die mir auch jetzt noch durchschlagend zu sein scheinen, habe ich am Schluss dieser Mitteilung dringend um einen Bescheid gebeten. Dieser Bescheid ist bis heute nicht eingetroffen. Ich möchte daher meine Bitte um einen solchen erneuern dürfen. — Es ist inzwischen zu meiner Kenntnis gelangt, dass Herr Salamucha zu den Krakauer Professoren gehört, die nicht nach Dachau abtransportiert worden sind, sondern sich noch in Sachsenhausen befinden. — Heil Hitler! — o. Prof. etc.

Cf. Bolewski & Pierzchała, *Losy*, p. 630–632.

3. *The introduction and the conclusion of my paper delivered during Internationale wissenschaftliche Tagung HEINRICH SCHOLZ: Logiker, Philosoph, Theologe (Münster, 23–25 März 2000).*

Ich bin gerührt, hier, an der Universität in Münster zu sprechen.

Der erste Grund ist, dass vor Jahrzehnten zwei hervorragende polnische Philosophen — Jan Łukasiewicz und Stanisław Leśniewski — hier zu Gast zu sein pflegten.

Der zweite Grund ist, dass hier Heinrich Scholz — ein grossartiger deutscher Philosoph, ein Freund von Łukasiewicz — gewirkt hat. Ein Mensch, der dieser Freundschaft auch dann treu geblieben ist, als Deutschland von dem Wahnsinn des Nationalsozialismus ergriffen worden ist.

Der dritte Grund ist, dass es mir bewusst ist, was in Münster vor über 50 Jahren passierte, und was schliesslich das Ende am 25 März 1945 gefunden hat. Die Vernichtung der Stadt — genauso wie die Vernichtung von Warschau im Herbst 1944 — war letztendlich Folge von diesem ideologischen Wahnsinn.

Ich erlaube mir nun, Ihnen ein Fragment von dem nicht publizierten Tagebuch von Łukasiewicz vorzulesen. Es ist ein Tagebuch, in dem er seinen Aufenthalt in Münster im Jahre 1944 beschreibt:

Die Stadt wurde so stark bombardiert, wie noch nie zuvor. Sie lag in Trümmern. Noch vor einer kurzen Zeit, als wir nach Münster kamen, stand noch das berühmte Rathaus, in dem vor 300 Jahren das Abkommen, das den Dreissigjährigen Krieg beendet hat, unterschrieben wurde. In den Kellern von diesem Rathaus haben wir — nach meinem Vortrag in der Aula im 1936 — bei Bier einige schöne Stunden verbracht. Auch das Kaffeehaus gegenüber dem Rathaus stand noch da — dieses Kaffeehaus, das wir oft mit Scholz besuchten, und in dem auch Leśniewski viel Zeit verbracht hat, als er in Münster war. Anfang November hat uns Scholz ermöglicht, in dem evangelischen Krankenhaus Zuflucht zu finden, als der Bombenalarm anging. Das Krankenhaus hatte keinen guten Bunker und rundherum fielen die Bomben. Es war einer der schlimmsten Luftangriffe, die wir in Münster erlebt hatten. [...] Gleich danach verliessen wir das Krankenhaus, um dort nie wieder zurückzukehren. In diesem schwierigen Augenblick haben wir Unterkunft bei dem Domherr Holling, den wir dank Scholz kennengelernt haben, gefunden. [...] Nachdem wir nach einem der Luftangriffe nach Hause zurückgekehrt sind, haben wir festgestellt, dass das Haus zwar noch steht, aber sehr vernichtet ist. [...] Wir mussten uns in einen

kleinen, fensterlosen Keller zurückziehen. [...] Die Wochen danach zähle ich zu den schlimmsten in meinem Leben. [...] Wir hatten ununterbrochen Angst vor Gestapo, deren Funktionäre uns in einen Vernichtungslager schicken, oder uns einfach erschiessen konnten. Wir hatten ständig Hunger, im Keller gab es weder Strom noch Wasser. Ausserdem fielen ununterbrochen Bomben auf uns."¹⁰⁵

Ich möchte diese Bemerkungen mit einer Diagnose und gleichzeitig einem Appell beenden.

Europa wird wieder — wie zu Zeiten von Łukasiewicz und Scholz — von einer Welle des gefährlichen Irrationalismus überflutet. „Postmodernismus“ ist ein von den Namen dieses irrationalistischen Geschwätze. Die Welle ist schon hoch in Deutschland; auf gefährliche Weise wird sie auch in Polen sichtbar. Das ist meine Diagnose.

Wir müssen uns diesem Überfluss von einem intellektuellen Schund widersetzen. Ich bin fest davon überzeugt, dass es gute Gründe gibt, dass sich Deutsche und Polen — denen die Gefahren des Irrationalismus bewusst sind — zusammentun. Ich glaube auch, dass es noch bessere Gründe gibt, gerade Scholz und Łukasiewicz als Paten zu wählen. Daran möchte ich appellieren.

Die erste wichtige Aufgabe wäre, eine Auswahl von Schriften herauszugeben: von Łukasiewicz — auf Deutsch, von Scholz — auf Polnisch. In Warschau gibt es Leute — junge Philosophen — die diese Aufgabe aufnehmen könnten. Ich möchte hoffen, dass sie hier, in Münster, Mitarbeiter finden würden.

References

- Ajdukiewicz, K.: Syntactic connexion (1936). In: Ajdukiewicz, „*The scientific world-perspective*“, p. 118–139.
- Ajdukiewicz, K.: O tzw. neopozytywizmie (1946). In: Ajdukiewicz, *Język*, p. 7–28.
- Ajdukiewicz, K.: Logika, jej zadania i potrzeby w Polsce współczesnej (1951). In: Ajdukiewicz, *Język*, p. 127–142.
- Ajdukiewicz, K.: *Język i poznanie*. Vol. II, Warszawa 1965.
- Ajdukiewicz, K.: „*The scientific world-perspective*” and other essays, Dordrecht–Boston 1978.
- Barone, F.: Heinrich Scholz. In: C. Giacon et al. (ed.), *Enciclopedia filosofica*. Vol. V, Firenze 1967, p. 1111–1112.
- Bolewski, A. & Pierzchała, H.: *Losy polskich pracowników nauki w latach 1939–1949*, Wrocław 1989.
- Bocheński, J. M.: O filozofii analitycznej. In: *Ruch Filozoficzny*, vol. XLVII (1990), no 1, p. 35–41.
- Bocheński, J. M.: *Wspomnienia*, Kraków 1993.
- Chwistek, L.: *The limits of science* (1935), New York — London 1949.
- Czeżowski, T.: Zagadnienie istnienia świata w świetle przemian metodologicznych (1951). In: Czeżowski, *Odczyty*, p. 34–43.
- Czeżowski, T.: O metodzie opisu analitycznego. In: Czeżowski, *Odczyty*, p. 197–207.
- Czeżowski, T.: *Odczyty filozoficzne*, Toruń 1958.
- Czeżowski, T.: Klasyfikacja rozumowań i jej konsekwencje w teorii nauki (1963). In: *Filozofia na rozdrożu. Analizy metodologiczne*, Warszawa 1965, p. 161–184.
- Czeżowski, T.: *Logika*, Warszawa 1968.
- Dąbrowska, I.: O ewolucji niektórych metalogicznych i matematycznych poglądów G. Fregego w świetle I tomu *Nachgelassene Schriften*. In: *Ruch Filozoficzny*, vol. XXX (1972), no 3–4, p. 245–251.
- Drewnowski, J. F.: U progu nowoczesnej syntezy filozoficznej (1958). In: *Filozofia i precyzja*, Lublin 1996, p. 165–180.
- Hermes, H.: Heinrich Scholz aum 70. Geburtstage. In: *Mathematisch-physikalische Semesterberichte*. N.F., vol. 5 (1955), p. 165–170.
- Jacob, A. (ed.): *Encyclopédie philosophique universelle*. Vol. III, t. 2, Paris 1992.
- Kamiński, S.: *Nauka i metoda. Pojęcie nauki i klasyfikacja nauk* (1961), Lublin 1992.
- Kamiński, S.: O naturze filozofii (1961). In: Kamiński, *Jak filozofować?*, p. 45–53.
- Kamiński, S.: Aksjomatyzowalność klasycznej metafizyki ogólnej (1965). In: Kamiński, *Jak filozofować?*, p. 135–149.
- Kamiński, S.: Próba typologii metod filozofowania (1975). In: Kamiński, *Jak filozofować?*, p. 63–70.
- Kamiński, S.: *Jak filozofować?*, Lublin 1989.
- Kempski, J. v.: Bemerkungen zu Heinrich Scholz. *Grundlegun der Metaphysik*. In: *Archiv für Philosophie*, vol. II (1948), p. 112–124.
- Kneale, M.: *Mathesis universalis* [...] by Heinrich Scholz [review]. In: *Mind*, vol. LXXIII (1964), no 290, p. 302–303.
- Köhler, E.: Heinrich Scholz. In: P. Edwards (ed.), *The encyclopedia of philosophy*. Vol. VII, New York — London 1967, p. 324–325.

- Korcik, A.: H. Scholz, *Zarys historii logiki* [review]. In: *Studia Filozoficzne*, vol. IX (1966), no 4, p. 171–173.
- Kotarbiński, T. Treść i zakres pojęcia metodologii (1956). In: *Elementy teorii poznania, logiki formalnej i metodologii nauk*, Wrocław 1961, p. 515–523.
- Kotarbiński, T.: *Leçons sur l'histoire de la logique* (1957), Paris 1971.
- Kotarbiński, T.: Introduction. To: H. Scholz, *Zarys historii logiki*, Warszawa 1965, p. 5–7.
- Kotarbiński, T.: Dobra robota w filozofii (1973). In: *Myśli o ludziach i ludzkich sprawach*, Wrocław 1986, p. 3–7.
- Kühn, R.: Heinrich Scholz, *La philosophie de la religion* [summary]. In: Jacob (ed.), *Encyclopédie*, p. 2824–2825.
- Ladrière, J.: Heinrich Scholz, *Mathématique universelle* [summary]. In: Jacob (ed.), *Encyclopédie*: 2825.
- Lubomirski, A.: Frege i Szkoła Lwowsko-Warszawska. In: M. Hempoliński (ed.), *Polska filozofia analityczna*. Warszawa 1985, p. 219–262.
- Lubomirski, A.: Heinrich Scholz: metafizyka logicyzmu, *Archiwum Historii Filozofii i Myśli Społecznej*, vol. 36 (1991), p. 59–72.
- Łukasiewicz, J.: Z korespondencji z Kazimierzem Twardowskim (1901–1937). In: Łukasiewicz, *Logika*, p. 437–506.
- Łukasiewicz, J.: On determinism (1922). In: Łukasiewicz, *Selected works*, p. 110–128.
- Łukasiewicz, J.: Kant i filozofia nowożytna (1924). In: Łukasiewicz, *Logika*, p. 365–368.
- Łukasiewicz, J.: O metodę w filozofii (1928). In: Łukasiewicz, *Logika*, p. 41–42.
- Łukasiewicz, J.: On the history of the logic of propositions (1934). In: Łukasiewicz, *Selected works*, p. 197–217.
- Łukasiewicz, J.: Znaczenie analizy logicznej dla poznania (1934). In: Łukasiewicz, *Logika*, p. 60–67.
- Łukasiewicz, J.: In defence of logistics (1937). In: Łukasiewicz, *Selected works*, p. 236–249.
- Łukasiewicz, J.: Kartezjusz (1938). In: Łukasiewicz, *Logika*, p. 370–374.
- Łukasiewicz, J.: Logika i problem podstaw matematyki (1941). In: Łukasiewicz, *Logika*, p. 70–85.
- Łukasiewicz, J.: Z korespondencji z Józefem M. Bocheńskim (1945–1950). In: Łukasiewicz, *Logika*, p. 513–529.
- Łukasiewicz, J.: *Pamiętnik* (1949) [typescript].
- Łukasiewicz, J.: *Aristotle's syllogistic from the standpoint of modern formal logic*, Oxford 1951.
- Łukasiewicz, J.: *Z zagadnień logiki i filozofii*, Warszawa 1961.
- Łukasiewicz, J.: *Selected works*, Amsterdam–London–Warszawa 1970.
- Łukasiewicz, J.: *Logika i metafizyka. Miscellanea*, Warszawa 1998.
- Roche, Ch.: Heinrich Scholz. 1884–1956. In: D. Huisman (ed.), *Dictionnaire des philosophes*. Vol. 2, Paris 1984, p. 2587–2588.
- Salamucha, J.: Zestawienie scholastycznych narzędzi logicznych z narzędziami logistycznymi (1937). In: Salamucha, *Wiedza*, p. 187–196.
- Salamucha, J.: O możliwościach ścisłego formalizowania dziedziny pojęć analogicznych (1937). In: Salamucha, *Wiedza*, p. 205–225.
- Salamucha, J.: *Wiedza i wiara*, Lublin 1997.
- Scholz, H.: *Geschichte der Logik*, Berlin 1931.
- Scholz, H.: Über das Cogito, ergo sum (1931). In: Scholz, *Mathesis*, p. 75–94.
- Scholz, H.: Augustinus und Descartes (1932). In: Scholz, *Mathesis*, p. 45–61.
- Scholz, H.: Das theologische Element im Veruf des logistischen Logikers (1935). In: Scholz, *Mathesis*, p. 324–340.
- Scholz, H.: *Grundlagen der logistischen Logik*. Sommer (1935).¹⁰⁶
- Scholz, H.: Die klassische deutsche Philosophie und die neue Logik. In: *Actes du Congrès International de Philosophie Scientifique*. Vol. VIII, Paris 1936, p. 4–5.
- Scholz, H.: "Die Wissenschaftslehre Bolzano. Eine Jahrhundert-Betrachtung (1937). In: Scholz, *Mathesis*, p. 219–267.¹⁰⁷
- Scholz, H.: *Studia Philosophica* [review]. In: *Deutsche Literaturzeitung*, J. 58 (1937), H. 50, p. 1914–1917.
- Scholz, H.: Sprechen und Denken. In: *Organon*, vol. III (1939), p. 1–30.
- Scholz, H.: Was ist Philosophie (1940). In: Scholz, *Mathesis*, p. 341–387.
- Scholz, H.: *Metaphysik als strenge Wissenschaft*, Köln 1941.
- Scholz, H.: Gottlob Frege (1941). In: Scholz, *Mathesis*, p. 268–278.
- Scholz, H.: Logik, Grammatik, Metaphysik (1944). In: Scholz, *Mathesis*, p. 399–436.
- Scholz, H.: Pascals Forderungen an die mathematische Methode (1945). In: Scholz, *Mathesis*, p. 115–127.
- Scholz, H.: Zur Erhellung der spätmittelalterlichen Logik. In: *Philosophisches Jahrbuch*, Bd 58 (1948), p. 288–289.
- Scholz, H.: Descartes' Bedeutung für die Umgestaltung des abendlänischen Geistes (1951). In: Scholz, *Mathesis*, p. 95–114.
- Scholz, H.: Jan Łukasiewicz, *Aristotle's syllogistic from the standpoint of modern formal logic* [review]. In: *Deutsche Literaturzeitung*, J. 73 (1952), H. 4, p. 230–236.

- Scholz, H.: In Memoriam Jan Łukasiewicz. In: *Archiv für mathematische Logik und Grundlagenforschung*, vol. 3 (1957), no. 1–2, p. 3–18.
- Scholz, H.: *Mathesis universalis*, Basel–Stuttgart 1961.
- Scholz, H. & Hasenjaeger, G.: *Vorlesungen über die Grundzüge der mathematischen Logik*, Berlin–Göttingen–Heidelberg 1961.
- Tarski, A.: On the concept of logical consequence (1936). In: *Logic, semantics, metamathematics*, Oxford 1956, p. 409–420.
- Twardowski, K.: On clear and obscure styles of philosophical writing (1919–1920). In: J. Pelc (ed.), *Semiotics in Poland. 1894–1969*, Warszawa–Dordrecht–Boston, p. 1–2.
- Twardowski, K.: Przemówienie na cześć Heinricha Scholza, *Ruch Filozoficzny*, vol. XIII (1935), no 1–4, p. 41b–42a.
- Twardowski, K.: *Dzienniki*. Part II (1928–1936), Toruń 1997.
- Wojciechowski, E.: W sprawie Kartezjańskiego Cogito, ergo sum, *Ruch Filozoficzny*, vol. XLIV (1987), no 3–4, p. 292–298.
- Wolniewicz, B.: O istocie religii (1992). In: *Filozofia i wartości*, Warszawa 1993, 160–198.
- Zeigenfuss, W. & Jung, G.: Heinrich Scholz. In: *Philosophen–Lexikon*. B. 2, Berlin 1950, p. 476–477.

Notes on Heinrich Scholz's lectures and publications in „Ruch Filozoficzny”

- Notes of Heinrich Scholz's lectures in Lvov — *Ruch Filozoficzny*, vol. XIII (1935), no 1–4, p. 41b–42a.
- Note on: Scholz, Zur Erhellung — *Ruch Filozoficzny*, vol. XVII (1949–1950), no 4, p. 283b.
- Note on: Scholz, In Memoriam — *Ruch Filozoficzny*, vol. XVIII (1958), no 1–3, p. 127b.
- Note on: Scholz, *Mathesis* — *Ruch Filozoficzny*, vol. XXII (1964), no 3, p. 338a.

Notes

- * This text is an enlarged version of my paper delivered during *Internationale wissenschaftliche Tagung HEINRICH SCHOLZ: Logiker, Philosoph, Theologe* (Münster, 23–25 März 2000). It owes its final form to my well-tried friends, Dr Joanna Odrowaź–Sypniewska and Dr hab. Krzysztof Wójtowicz. I am very grateful to them for their assistance.
- ¹ Scholz, Was ist Philosophie, p. 384.
- ² Twardowski, *Dzienniki*, p. 248.
- ³ Czeżowski, O metodzie, p. 197, 207.
- ⁴ Twardowski, On clear ... styles, p. 2.
- ⁵ Wir können und wollen unsere Arbeit nicht dadurch zur Geltung bringen, dass wir einen möglichst scharfen Strich zwischen uns und dem, was bei uns bis heute im besten prägnanten Sinne des Wortes als Philosophie in Geltung ist, ziehen. Im Gegenteil, wir bemühen uns sehr ernsthaft darum, mit dieser Philosophie, so weit wie möglich in Berührung zu bleiben. Wir wollen die neue Logik, so weit es irgend möglich ist, nicht gegen diese Philosophie, und erst recht nicht im Kampf gegen eine inhaltlich hochstehende Metaphysik durchsetzen, sondern mit einer grundernstlich gemeinten Anknüpfung an alles, was der Vergangenheit so angehört, dass es entweder auf diese Logik hindeutet oder unsere Kritik in dem aufbauenden Sinne hervorruft, so dass wir genau zeigen können, warum man so nicht urteilen darf oder wie man es besser machen kann. Alles übrige wird davon abhängen, ob es uns gelingt zu zeigen, dass man jedenfalls stets dann ein guter Logiker ist, wenn man ein guter Logistiker ist. Wir verketteten also die Arbeit an der neuen Logik in den Grenzen des Möglichen mit dem Versuch eines Philosophierens im Leibniz'schen Sinne. Die grosse Leibniz'sche Idee der philosophia perennis ist auch für uns der feste Hintergrund, von welchem unsere Arbeit sich abheben soll". Cf. Scholz, Die klassische ... Philosophie, p. 5.
- ⁶ Scholz, Was ist Philosophie, p. 373.
- ⁷ Łukasiewicz, O metodzie, p. 42.
- ⁸ Scholz, Die klassische ... Philosophie, p. 4–5.
- ⁹ Scholz, Was, *passim*.
- ¹⁰ Scholz, Über; Augustinus; Descartes, *passim*.
- ¹¹ Scholz, Was ist Philosophie, *passim*.
- ¹² *Ibidem*.
- ¹³ Scholz, Sprechen, p. 3.
- ¹⁴ Łukasiewicz, O metodzie, p. 42.

- ¹⁵ Łukasiewicz, On determinism, p. 111–112.
- ¹⁶ Kotarbiński, Dobra robota, p. 5.
- ¹⁷ Łukasiewicz, Kant, p. 368.
- ¹⁸ Scholz, Die klassische ... Philosophie; *Metaphysik*.
- ¹⁹ Scholz, Das theologische Element.
- ²⁰ Scholz, Was ist Philosophie, p. 362. Alfred Tarski solved this problem in a different way. Cf. Kneale, Heinrich Scholz, p. 303.
- ²¹ Łukasiewicz, In defence, p. 249.
- ²² Łukasiewicz, O metodę, p. 42.
- ²³ Scholz & Hasenjaeger, *Vorlesungen*, p. 1.
- ²⁴ Łukasiewicz, In defence, p. 249.
- ²⁵ Scholz, *Geschichte*, p. 20.
- ²⁶ Scholz, Die klassische ... Philosophie, p. 334–335.
- ²⁷ Scholz, Sprechen, p. 4.
- ²⁸ Scholz, *Geschichte*, p. 31.
- ²⁹ Łukasiewicz, *Pamiętnik*, 3.06.1949.
- ³⁰ Scholz, *Metaphysik*, p. 23.
- ³¹ Scholz, *Geschichte*, p. 76.
- ³² Scholz, Sprechen, p. 5.
- ³³ Scholz, Was ist Philosophie, p. 384.
- ³⁴ Scholz, *Studia*, p. 1914–1915.
- ³⁵ Scholz, Die Wissenschaftslehre, p. 264.
- ³⁶ Tarski, On the concept, p. 417.
- ³⁷ Scholz, Die Wissenschaftslehre, p. 221–222.
- ³⁸ Scholz, *Metaphysik*, p. 72.
- ³⁹ Scholz, Logik, p. 432–433.
- ⁴⁰ Scholz, *Grundlagen*, p. 17.
- ⁴¹ Scholz, *Grundlagen*, p. 23–24.
- ⁴² Scholz, Die Wissenschaftslehre, p. 267.
- ⁴³ Scholz, Pascals Forderungen, p. 122.
- ⁴⁴ Scholz, *Geschichte*, p. 72.
- ⁴⁵ Scholz, *Zur Erhellung*, *passim*. Scholz wrote by mistake that Bocheński — a Dominican — was Salamucha's monastic brother. In fact, Salamucha was a secular priest.
- ⁴⁶ Scholz, *Studia*, p. 266.
- ⁴⁷ Scholz, Was ist Philosophie, p. 385.
- ⁴⁸ Scholz, *Geschichte*, p. 73.
- ⁴⁹ Scholz, Sprechen, p. 4.
- ⁵⁰ Scholz, Was ist Philosophie, p. 384.
- ⁵¹ According Andrzej Lubomirski, Scholz did not see the difference between Frege's views and the views of the representatives of the Lvov–Warsaw School: Łukasiewicz pursued the propositional logic of Frege's *Begriffsschrift*, and Leśniewski was a continuator of *Grundgesetze*. Cf. Lubomirski, Frege, p. 226. But Łukasiewicz — in opposition to Frege — used the function of asserting as well as the function of rejecting. Cf. *Ibidem*, p. 244. He extended also the Fregean notion of *logical value*. Cf. *Ibidem*, p. 245. On the other hand, Leśniewski did not accept Frege's identification of a single set with its element. Cf. *Ibidem*, p. 241.
- ⁵² Scholz, Sprechen, p. 4–5.
- ⁵³ Scholz, Sprechen, p. 5.
- ⁵⁴ Twardowski, *Dzienniki*, p. 248.
- ⁵⁵ *Ibidem*.
- ⁵⁶ Łukasiewicz, Kartezjusz, p. 372.
- ⁵⁷ Łukasiewicz, On the history, p. 200; *Znaczenie*, p. 61.
- ⁵⁸ Drewnowski, U progu, p. 176.
- ⁵⁹ Salamucha, *Zestawienie*, p. 187–196.
- ⁶⁰ Łukasiewicz, *Aristotle's syllogistic*, p. 39.
- ⁶¹ Scholz, Über das Cogito.
- ⁶² Łukasiewicz, Kartezjusz, p. 372.
- ⁶³ Wojciechowski, W sprawie, p. 194.
- ⁶⁴ Łukasiewicz, Logic and the problem, p. 294.

- ⁶⁵ Chwistek, *The limits*, p. 56.
- ⁶⁶ *Ibidem*, p. 69.
- ⁶⁷ Kotarbiński, *Leçons*, p. 69.
- ⁶⁸ Kotarbiński, *Treść*, p. 517.
- ⁶⁹ Kotarbiński, *Leçons*, p. 108.
- ⁷⁰ Czeżowski, *Logika*, p. 257.
- ⁷¹ Czeżowski, *Klasyfikacja*, p. 180.
- ⁷² Czeżowski, *Zagadnienie*, 42.
- ⁷³ Ajdukiewicz, *O tzw. neopozytywizmie*, p. 28.
- ⁷⁴ Kamiński, *Nauka*, p. 312; *Aksjomatyzowalność*, p. 138; *Próba*, p. 64, 69.
- ⁷⁵ Ajdukiewicz, *Syntactic connexion*, p. 131.
- ⁷⁶ Ajdukiewicz, *O tzw. neopozytywizmie*, p. 28.
- ⁷⁷ Bocheński, *O filozofii*, p. 36–37.
- ⁷⁸ Salamucha, *O możliwościach*, p. 217–218.
- ⁷⁹ Korcik, H. Scholz, p. 173.
- ⁸⁰ *Ibidem*.
- ⁸¹ *Ibidem*.
- ⁸² Wolniewicz, *O istocie*, p. 167–168.
- ⁸³ *Ibidem*, p. 168–169, 190.
- ⁸⁴ Lubomirski, Heinrich Scholz, p. 72.
- ⁸⁵ Łukasiewicz, *Z korespondencji z ... Twardowskim*, 20.10.1932.
- ⁸⁶ *Ibidem*, 7.11.1932.
- ⁸⁷ *Ibidem*, 4.03.1936.
- ⁸⁸ Łukasiewicz, *Kartezjusz*, p. 372.
- ⁸⁹ Łukasiewicz, *Pamiętnik*, 23.06.1949.
- ⁹⁰ *Ibidem*, 12.06.1949.
- ⁹¹ *Ibidem*, 20.07.1949.
- ⁹² *Ibidem*, 29.07.1949.
- ⁹³ *Ibidem*, 1.08.1949.
- ⁹⁴ *Ibidem*, 4.08.1949.
- ⁹⁵ *Ibidem*, 7.08.1949.
- ⁹⁶ Łukasiewicz, *Z korespondencji z ... Bocheńskim*, 2.02.1947.
- ⁹⁷ *Ibidem*, 7.10.1947.
- ⁹⁸ *Ibidem*, 27.04.1947.
- ⁹⁹ Kotarbiński, *Introduction*, p. 6.
- ¹⁰⁰ Ajdukiewicz, *O tzw. neopozytywizmie*, p. 28.
- ¹⁰¹ Drewnowski, *U progu*, p. 165.
- ¹⁰² Bocheński, *Wspomnienia*, p. 138.
- ¹⁰³ Eckehart Köhler incorrectly writes that the matter concerned Łukasiewicz. Cf. Köhler, Heinrich Scholz, p. 324.
- ¹⁰⁴ The texts of letters addressed by Scholz to the Ministry of Foreign Affairs of the Reich in the matter of Rev. Salamucha are inserted below, in „Appendix”.
- ¹⁰⁵ Łukasiewicz, *Pamiętnik*, 7.08.1949.
- ¹⁰⁶ A copy of the typescript of 56 pages, kept in the Library of the Faculty of Philosophy and Sociology, Warsaw University, is provided with pencil dedication: “Mit herzlichen Dank und mit herzlichen Grüßen. H.S. Münster i/W, 23.7.35 [p. 1]. The text is divided into two parts: Erstes Hauptstück: Zusätze zur elementaren Aussagenlogik (sheets 1–12); Zweites Hauptstück: Ein System der Aussagenlogik (AL) (sheets 15–58).
- ¹⁰⁷ In the Library of the Faculty of Philosophy and Sociology, Warsaw University, we have a typescript of this work, belonging formerly to Stanisław Leśniewski.