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Characterising Context-Independent Quantifiers and Inferences

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Abstract:
Context is essential in virtually all human activities. Yet some logical notions seem to be context-free. For example, the nature of the universal quantifier, the very meaning of "all", seems to be independent of the context. At the same time, there are many quantifier expressions, and some are context-independent, while others are not. Similarly, purely logical consequence seems to be context-independent. Yet often we encounter strong inferences, good enough for practical purposes, but not valid. The two types of examples suggest a general problem: how to characterise the context-free logical concepts in their natural environment, that is, in the field of their context-dependent associates. A general Thesis on Quantifiers is formulated: among all quantifiers, the context-free ones are just those definable by the universal quantifier. The issue of inferences is treated following the approach introduced by Richard L. Epstein: valid ones are an extreme case, the result of the disappearance of context-dependence. This idea can be applied to an analysis of a form of abduction, called "reductive inference" in Polish literature on logic. A tentative Thesis on Inferences identifies the validity of a strong inference that is context-independent.
Keywords: philosophical logic, context-independence, context-dependence, quantifier, generalised quantifier, inference, validity, abduction.

1. Introduction

Context is essential in virtually all human activities. If there are exceptions, it seems that they can be found most easily in logic. Some logical notions seem context-free. The matter is not that simple, however, because each application of a notion, even a logical one, depends on the context of the application. For example, the universal quantifier refers to all elements of either an explicitly defined or intended domain. The domain constitutes its context. However, the nature of the universal quantifier, the very meaning of "all", seems to be independent of the context. Similarly, all real-life inferences and also mathematical proofs — especially proofs within living mathematics as opposed to official presentation of results — are context-dependent because they use many assumptions known or assumed to be true in the context of the specific reasoning. However, purely

logical consequence seems to be context-independent, and it is sometimes operative in the binding mathematical as well as real-life conclusions.

Whereas "all" seems context-free, there are many quantifier expressions, and some are context-independent, while others are not. Similarly, sometimes the logical consequence is hidden inside an inference, while much more often we encounter strong inferences, good enough for practical purposes, but not logically valid. The two types of examples suggest the general problem, here applied to logic only, namely, how to characterise the context-free logical concepts in their natural environment, that is, in the field of their context-dependent associates. This approach is generally not adopted in logical considerations, even in the philosophy of logic. The focus usually is on the strictest notions, the ones most independent of context and the easiest to treat in a formal way. The other concepts, like the quantifier "many" or inference by abduction, are treated as strongly disconnected from the familiar logical formal(ised) concepts.

To consider the context-free notions as special, maybe extreme, cases in a broader field of related context-dependent notions can hopefully shed light on all these concepts and seems to agree more with the "man on the street" approach, for whom presumably all notions are context-sensitive. It would be good to have a general method or approach covering all such situations, but there is no guarantee that a uniform way of characterising context-independence is possible. Below, the two above-mentioned issues, that is, quantifiers and inference, are analysed separately, using distinct approaches. The issue of quantifiers is treated in the way presented with more details by Krajewski (2018). A general thesis is formulated: among all quantifiers, the context-free ones are just those definable by the universal quantifier. The issue of inferences is treated according to the approach of Epstein (1998; 2002 – see also his 2011–2015), where, however, the subject is not presented as a study of context-(in)dependence. To be sure, this treatment of arguments is not fundamentally novel; it does stress, however, better than more standard accounts, the unity of all inferences. The valid ones constitute an extreme case, the result of the disappearance of the need to look for counterexamples, or of the lack of context-dependence. This approach can be applied, as mentioned first by Krajewski (2012), to an analysis of a form of abduction called "reductive inference" in Polish literature on logic since Łukasiewicz (1911).

2. Context-free Quantifiers Among Quantifiers

In logic, from Aristotle to Frege to mid-20th-century predicate logic, only two quantifiers were incorporated: the general and the existential. They are still the only ones taught in basic general logic courses. Because in classical logic $\exists$ is the dual of $\forall$, that is, $\exists = \neg\forall\neg$, we can say that only the universal quantifier is added. Some other logics, such as intuitionistic logic, lack interdefinability, but non-classical logics are excluded from the present analysis.

From the perspective of linguistic realities, it is not clear why the general and existential quantifiers are the only concepts distinguished from among all possible quantifier expressions of the natural language. In natural language, there are dozens of quantifier expressions, that is, expressions that state or estimate the number of objects of a certain kind or the size of a collection, or compare sizes, etc. They include phrases like "all", "always", "nowhere", "almost never", "most", "infinitely many", "many", "from time to time", "a few", "quite a few", "several", "just one", "at least one", "an overwhelming part of", "as many as", "roughly as many as", and many more. In mathematics, some other quantifier expressions are used, for example "there are finitely many", "there are uncountably many", and "the set of … is dense in …", and the phrases like "almost all" are given various precise meanings in specific mathematical theories.

What could be the reason for the distinguished role of the familiar quantifiers in logic? First, simplicity. "All things" corresponds to the full set — either of all things or of all things in our universe of discourse. "At least one thing" corresponds to the notion of non-empty set. At the same time — and this is the second reason — we can see the general quantifier as an abstract counterpart of the operation of generalisation, one of our most important mental faculties.

The third reason for the distinguishing of ∀ and ∃ from among all possible quantifiers has to do with logical complexity. The number of nested quantifiers is a good indicator of logical complexity. The quantifiers ∀ and ∃ provide an excellent measure of complexity if the number of alternating nested quantifiers is counted. The realisation of this possibility gave rise to the Kleene–Mostowski hierarchy, classifying the sets obtained from recursive sets by a series of projections and complements. Other similar growing chains of ever more complicated objects have been established, such as the analytic hierarchy. From such a perspective, these simple familiar quantifiers look like anything but trivial. It is also of interest that neither Aristotle nor other pre-modern logicians considered nested quantifiers. The power of quantifiers, even the simplest ones, is seen only when several are combined. This is the fourth reason: these simple quantifiers bring much more expressive power than it would seem at first glance. When the standard additional machinery available in logic is employed, many new quantifiers can be defined. Some of them can be easily defined within first-order logic, for instance the numerical quantifiers: "there are exactly n", in short $\exists^{!n}$, "there are more than n", in short $\exists^{>n}$, and their combinations (like "there are three or four"), etc.

In higher-order logics and in set theory, many more quantifiers can be defined. Definitions in mathematics are expressed in the technical language of a given branch, but logicians have been able to express these definitions in the language of logic. Thus, for instance, "there are infinitely many" cannot be defined in first-order logic, but it can be defined in second-order logic. The Henkin quantifier, the first example of a branching quantifier, namely "for every x there exists y, and independently of that for every z there exists t such that $R(x, y, z, t)$", also goes beyond first-order logic, even though it reflects such a way of using the familiar quantifier expressions corresponding to ∀ and ∃ that can be found in natural language; this quantifier is easily defined in second-order logic: "there exist functions f, g such that for every x and for every z $R(x, f(x), z, g(z))$". The phrase "there are uncountably many" also defines a quantifier, but it makes sense only in reference to a background set theory. Unexpectedly, this quantifier can be recursively axiomatised (Keisler, 1970). There are many more examples of mathematical quantifiers. They suggested to mathematical logicians the concept of a "generalised quantifier".

Generalised quantifiers were introduced to logic by Andrzej Mostowski in 1957. The formula $(Qx)\varphi(x)$ is satisfied in a model M = $(M,\ldots)$ iff the set $\{a\colon \mathrm{M} \models \varphi[a]\}$ belongs to the family of subsets of M that serves as the interpretation of Q. (Thus, ∀ is interpreted as $\{M\}$ and ∃ as the family of all non-empty subsets of M.) This notion was useful but was not sufficient for many formulations that are used in natural language. Mostowski quantifiers are all of type <1>. A more general definition was introduced in 1966 by Per Lindström, who allowed quantifiers of an arbitrary type $<n_1,\ldots,n_k>$ that bind more variables and apply to several formulas, and in a model M are interpreted as relations between subsets of M (in the case of monadic quantifiers of type <1,1,…,1>) or, more generally, relations between relations on M.

Mostowski and Lindström were mathematicians, so they made an important assumption which obviously seemed necessary to them: they considered only the quantifiers that are invariant with respect to isomorphism. The assumption in the case of monadic quantifiers amounts to the fact that only the size of the sets defined by the quantified formulas matters (cf. Peters & Westerståhl, 2006; Westerståhl, 2016). The assumption that logic should be completely topic-neutral constitutes the reason for admitting into logic only the quantifiers invariant under isomorphisms. Other mathematical properties can be defined by isomorphism-preserving quantifiers. Yet they are insufficient to model some quantifier expressions commonly used in natural language.

It is clear that logic is poorly equipped, if at all, to deal with many of the quantifier expressions listed above. For example, the concept "many" is different from the more logical quantifiers and seems hardly definable in general, since its meaning depends on the situation in which the term is used. It is seriously context-dependent. Peters and Westerståhl (2006, p. 213) call it "strongly" context-dependent, and some authors call it intensional. To evaluate a sentence with such a context-dependent quantifier, we need an appropriate understanding of the world, or at least of the appropriate fragment of the world. Logic itself is not sufficient. To know whether it is true that *many* women at my university are pregnant or that *many* have been to the Himalayas, we need

to know how many women of a given age are, on average, pregnant, and how many go to the Himalayas. It is similar with quantifier expressions like “a few”, “several”, “a huge number”, “rarely”, “often”, etc., and even more obviously with “surprisingly many”, “almost everyone”, “virtually nowhere”, etc.

Despite the initial impression that the quantifier “many” is not definable, one could try to define it formally, or to model it, by adding a variable σ and defining “many” as more numerous than or equal to (the interpretation of) σ. This new variable can be either a numerical one, interpreted as a cardinal number, or a set variable, interpreted as a certain set *S*. Then “*many x*’s (satisfying φ)” is defined as having at least as many members as *S*, or as the requirement that the cardinality of the set of the values of *x* that satisfy the interpretation of φ is not smaller than the cardinality of *S*. The set *S* depends on the context; it is chosen specifically for each interpretation.

The problem with this attempt is that the definition of “a few” is the same, only with “<” instead of “>”. And the phrase “more than a few” is formalised exactly as is “quite a few” and “many”. And do we normally identify “many” with “more than a few”? Hardly. So, everything depends on the context, and introducing σ is of no help. Only the context counts.

An important feature of this formalisation is that “many” defined as “more than σ” is not invariant with respect to isomorphisms. What is more, the quantifier “many” lacks some monotonicity properties. It may happen that

$$\mathfrak{M} \models [(\forall x)\,(\varphi(x) \rightarrow \psi(x))]$$

and still

$$\mathfrak{M} \models [(\mathit{Many}\ x)\ \varphi(x)\ \&\ \neg(\mathit{Many}\ x)\ \psi(x))].$$

For example, if in my class of 20 persons at the University of Warsaw there were 8 students reading entire books, including each of the 7 who are pregnant, there would be many pregnant students and not many readers in the class.

It was just mentioned above that when linguistic quantifier expressions are reconstructed within logic, the requirement of context-independence is formulated as invariance with respect to isomorphisms. It seems that context-independence means that any extralogical terms referring to some specific fragments of the world are irrelevant for the understanding of the formula. The topic covered in the statement is of no consequence — only logic counts. The idea is that there is no need for any specific knowledge about the world, its physical or social aspects.

To attempt another thesis identifying the context-independent quantifiers, let us briefly recall what kind of thesis is meant here. Church’s thesis is the best-known example of a thesis identifying a formal concept with an intuitive one. The mathematical concept of recursive function is identified with the intuitive concept of effectively computable function. For a long time, the general conviction was that such a thesis can be justified by various arguments, but there is no way to prove its correctness because the intuitive concept is too vague to be part of a proof. However, in recent decades there have been various attempts to prove the identification. Namely, a proper analysis of the intuitive concept of computability can provide principles that make possible a demonstration that a function satisfying them must be recursive. There are more examples of similar theses, for instance “the Cantor–Dedekind thesis” that real numbers are defined by the appropriate set theoretic constructions. (For a discussion of Church’s thesis and the other examples as well as references to the literature, see, e.g., Krajewski, 2014.)

Now, it is the context-independence applied to quantifiers that is the intuitive notion we want to characterise. In addition to topic neutrality and invariance under isomorphisms, we can try to look at the ways the quantifier can be defined. It seems that whatever definition is formulated, it cannot be expressed without taking some specific logic into account. This is because quantifiers are logical objects that function within a logical framework. On the other hand, it would be necessary to emphasise their logical nature but ignore any specific logic. Any quantifier Q can give rise to a

"logic" L(Q). Then Q is trivially definable in this logic. To avoid this triviality, let us call a (classical) logic *basic* if it is first-order, second-order, n-th order, type theory, or set theory. Hence the following thesis: A quantifier is context-independent iff it is definable in some basic logic. Because the common part of all such logics, as far as quantification is concerned, is the universal quantifier ∀, we can reformulate the thesis as follows: A quantifier is context-independent iff it is ∀-definable in some (basic) logic. Since we admit definability either in first-order or second-order or higher-order logic or in (formalised) set theory, and the general quantifier appears in each of these logics, we can say in short:

A quantifier is context-independent iff it is definable in terms of ∀,

or briefly,

Thesis on Quantifiers: Context-independence = definability in terms of ∀.

It is seen that the position of the general quantifier, or rather of our two familiar quantifiers, ∀ and ∃, is vindicated. This is the fifth — in addition to simplicity, the faculty of generalisation, the measuring of complexity, and the expressive power — and rather unexpected reason for distinguishing ∀: in the presence of the appropriate amount of logical machinery but with no generalised quantifiers, ∀ suffices to define all context-independent quantifiers. Thus, the power of the universal and existential quantifiers is claimed to be even stronger than it seemed on the basis of the definability of so many quantifiers by ∀, which is the empirical evidence for the quantifier thesis. According to this thesis, the power of ∀, at least in relation to quantifiers, extends to the whole realm of context-independence.

3. Context-free Inferences Among Inferences

Logicians like to say that a good inference is the one that a) is valid and b) whose premises are true. In everyday life, however, there are good inferences which have plausible but not certain premises, and the conclusion is made more plausible by the premises, but still might be false even when the premises are true. To present the two types of arguments in a uniform way, let us say that an inference is valid, resp. strong, if it is impossible, resp. hardly possible, for the premises to be true and the conclusion false at the same time. Thus, if an inference is (merely) strong, there is a possible way for the premises to be true and the conclusion false, but all such ways are unlikely, hopefully highly unlikely. This approach, proposed by Richard L. Epstein (1998; 2002), follows the accepted logical tradition, but remains particularly close to everyday arguments. The uniformity of the approach is methodologically and didactically satisfying.

Obviously, strong inferences can be more strong or less strong, whereas valid ones do not admit degrees, as they cannot be less than fully valid. It is also clear that valid arguments are just the extreme instances on the scale of the strength of arguments. What is more, the strength of strong arguments must be determined subjectively, because we need to imagine how probable it is to have a counterexample, that is, a situation in which the premises are true and the conclusion false. Our knowledge of the subject matter of the premises and the conclusion is essential. A strong argument that is not valid is so not due to the logical form only. Still, its strength can result from an application of a formal scheme, for example of the form: "Almost all S's are P; r is S; therefore, r is P", which is an excellent example of a strong but invalid inference. Does its form mean that it becomes a formal inference? Not really. The quantifier "almost all" is imprecise and, even more important for the topic of this paper, it is highly context-dependent. Its interpretation depends on the nature of the phenomena to which it is applied.

Context-dependent quantifiers bring problems that do not occur in context-independent logical considerations. It is possible to imagine schemes of seemingly very strong inferences, involving informal quantifiers, that are not valid because they fail in special circumstances, for

example in the domain of infinite sets. Take, for instance, the inference "Almost all A's are B; many A's are C; therefore, some B's are C". In the realm of finite sets, this is a valid inference. Yet its premises seem to be true and the conclusion false if A is the set of all sets of natural numbers, B consists of all elements of a fixed ultrafilter on A (which is one of the standard mathematical interpretations of "almost all"), and C is the set of all finite sets of natural numbers.

For every general treatment of strong arguments, it is necessary to admit plausible but not necessarily certain premises. This assumption reflects our common mode of reasoning. Then some problems occur that are absent in inferences that are evaluated only on whether the premises and conclusion could be true or false. For example, when there are very many premises, the uncertainty can be compounded so that a false conclusion results. A good case is provided by the "lottery paradox": if all 10 million lottery tickets are sold to a similar number of people p_1, p_2, …, p_n, we can safely assume that "p_1 doesn't win", "p_2 doesn't win", …, "p_n doesn't win" are all virtually true; after all, the probability that a given ticket does not win is 99.99999%. From this, a valid inference, by complete induction, can be made that nobody wins, which is patently false.

Strong inferences are of interest not only because they are close to everyday arguments. Another application of the concept of a strong inference can be made to the concept of explanation, that is, searching for reasons of observed phenomena. Often called abduction, sometimes induction (see Douven, 2017; Epstein, 2002), or in Polish logical literature "reduction" or "reductive inference" (see Łukasiewicz, 1911), it is usually considered as a means of reasoning not only different from deduction, but sharing no common ground with it. Yet it can be seen as another example of a strong inference. One way to describe it is as follows. We observe (the truth of) B and want to find its reason, that is to say, an A such that $A \Rightarrow B$, where the symbol "$\Rightarrow$" denotes the reason, which is much more than the material implication $A \rightarrow B$. What it means is a difficult problem, as the logical analysis of the concept of explanation has no standard formulation (see, e.g., Epstein, 2002). Anyway, what we do, either explicitly or intuitively, can be rendered as an analysis of possible causes of B and rejection of all of them but one, that is, A:

$$(*) \qquad B, A \Rightarrow B, [A_1 \Rightarrow B, \neg A_1], [A_2 \Rightarrow B, \neg A_2], [A_3 \Rightarrow B, \neg A_3], \ldots \ / A,$$

where "/" indicates inference.

To get a formulation closer to the usual logical calculus, we can model the causal relation $A \Rightarrow B$ by $(\forall s)\ (A^{(s)} \rightarrow B^{(s)})$, where s corresponds to a situation. That is, for each situation s, if A related to or applied in that situation holds, then B also holds in that situation. Similarly, for $A_i \Rightarrow B$, we have $(\forall s)\ (A_i^{(s)} \rightarrow B^{(s)})$. Finally, we replace A, B, $\neg A_i$ by $A^{(c)}$, $B^{(c)}$, $\neg A_i^{(c)}$, respectively, where c is the current situation that is being considered at the moment in which we want to find an explanation. Then the inference is of the form:

$$B^{(c)}, A^{(c)} \rightarrow B^{(c)}, [A_1{}^{(c)} \rightarrow B^{(c)}, \neg A_1{}^{(c)}], [A_2{}^{(c)} \rightarrow B^{(c)}, \neg A_2{}^{(c)}], \ldots \ / A^{(c)},$$

which is a simplified form of the original (*). This notation is simpler and possibly more suggestive, but it is far from clear whether every causal relation can be reduced to a general statement of the kind $(\forall s)\ (A^{(s)} \rightarrow B^{(s)})$. Some authors do claim that explanation should involve reference to a general law (cf. Epstein, 2002, p. 249).

Whatever analysis of explanation and notation is followed, the key for the assessment of the inference is how well we can imagine and reject the possible reasons A_i's. We need to know the subject matter of B, the circumstances in which it can appear, its possible causes, etc. The better we know them, the more adequate is the list of possible additional premises of the form $[A_i \Rightarrow B, \neg A_i]$. The longer and more complete the list is, the stronger is the conclusion, because it is less and less probable for all the premises to be true and A false. Usually, there is no way to make the list complete; various wild possibilities are imaginable, even if hardly possible. We can only hope that we can realise all realistic possibilities. The inference is then strong even though it remains fallible: it is still possible, though improbable, for all the premises to be true and the conclusion false.

Let us assume that the event B must have a cause, which seems to be an instance of the Leibnizian principle of sufficient reason that lies at the foundations of the scientific worldview. Then we can say that the following is true:

$$B \rightarrow (A \vee A_1 \vee A_2 \vee A_3 \vee \ldots).$$

This premise is implicit in (*). What we get is:

$$B, A \Rightarrow B, [A_1 \Rightarrow B, \neg A_1], [A_2 \Rightarrow B, \neg A_2], [A_3 \Rightarrow B, \neg A_3], \ldots$$
$$B \rightarrow (A \vee A_1 \vee A_2 \vee A_3 \vee \ldots)$$
$$/ A.$$

Now, it is evident that in the above inference the formulas with "$\Rightarrow$" are not really needed; they indicate that the formulas A_i are not arbitrary sentences but *bone fide* causes. (As noticed by a referee, the expression "$A \vee A_1 \vee A_2 \vee A_3 \vee \ldots$" suggests an existential quantifier, "there exists a cause". The problem of inference is thereby related to the problem of quantifiers.) The impact of the new premise is especially clear if we are able to list *all* possible causes of B. Then we can claim that

$$B \rightarrow (A \vee A_1 \vee A_2 \ldots \vee A_n),$$

and have a valid inference, not just a strong one, using this added premise. In this case, the premises $A_i \Rightarrow B$ are completely superfluous. Removing them, we get a valid deductive inference:

$$B, B \rightarrow (A \vee A_1 \vee A_2 \vee \ldots \vee A_n), \neg A_1, \neg A_2, \ldots, \neg A_n / A.$$

If there is another possible cause A_0 such that $A_0 \Rightarrow B$ and there is no reason to claim that $\neg A_0$, the conclusion must be modified to $A \vee A_0$.

In order to connect the issue of strong inferences to context-(in)dependence, let us repeat that valid arguments are extreme cases of strong ones. Strong arguments are heavily dependent on the context. We need to use our knowledge of the situation to which the argument refers and imagine possible ways in which the premises can be true and the conclusion false. Logicians love the fact that valid arguments can be infallible due solely to the logical form of the premises and the conclusion. Then inference is made by an application of a law of logic, or a tautology in a logical calculus, and the dependence on context disappears. Only the form counts. Thus, among the strong arguments, the deductive ones, that is, those based on logical tautologies (in some logical system) can be seen as the context-free ones because only their form counts and their contents are irrelevant. Generalising from deductive to all valid arguments, including those that might not be expressible as a tautology in some logical calculus, we get the tentative

Thesis on Inferences: A strong inference is valid iff it is context-independent.

While the implication "validity $\rightarrow$ context-independence" is formed by generalisation, it can be justified by a belief that validity always results from deductiveness, which is another strong thesis. The reverse implication, that context-independence of a strong inference forces its validity, is based on the idea that non-validity would require a possible counterexample (true premises and false conclusion) and that would indicate the context on which the inference is dependent.

4. Conclusion

Two fundamental logical notions — quantifier and inference — have been analysed from a hitherto unrealised angle. In each of the two cases, strict variants of the notion have been identified as

context-free varieties of a more general category in which many less strict but useful and widely used variants of the notion are present. It would be of interest to find out whether it makes sense to analyse other concepts in a similar way.

The kind of context-dependence to which our present analysis referred was not the same for the two notions: in the case of quantifiers, the meaning depends on the situation in which a quantifier expression is employed; in the case of inferences, the relation between premises and conclusion depends on possible situations in which the premises would be true and the probability of their occurrence. For quantifiers, the *Thesis on Quantifiers* has been proposed, identifying the context-independent ones with those definable in logic by the universal quantifier, the prime example of a context-independent quantifier. The tentative *Thesis on Inferences* identifying the validity of a strong inference with context-independence seems reasonable, but to justify it, one should exclude the possibility that some inferences can be valid for a good reason other than being deductive, that is, based on tautology in some logical system, so that they could be context-dependent in some way.

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Jan Łukasiewicz and His German Ally. A History of Łukasiewicz-Scholz Cooperation and Friendship

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Abstract:
The article presents interpersonal relations and mutual influences between German logician Heinrich Scholz and Polish scholars, first of all Jan Łukasiewicz. The background for presenting these relationships consists of reflections on the development of logic in Poland and various conceptions of how to apply logic to philosophical issues. Firstly, Jan Łukasiewicz's program of logicisation of philosophy and his search for allies is presented. Secondly, the forms of cooperation between Łukasiewicz and Scholz, as well as contacts between the latter and other Polish scholars are sketched. Finally, forms of Scholz's help to Polish friends during the tumultuous period of World War II are examined. The article provides also some reflections on the approach to logic in various European centers of analytic philosophy and historical comments on the continuity of philosophical and logical schools.
Keywords: Jan Łukasiewicz, Heinrich Scholz, history of logic, axiomatic metaphysics.

1. Introductory Remarks

In standard biographical articles on Henrich Scholz, there are hardly any mentions of his relations with Polish logicians and philosophers.[1] This is highly astounding since historical documents testify that the exchange of ideas between Scholz and Poles was intensive and mutually fruitful. Besides, there are numerous similarities between the program of applications of logic in philosophy applied in the environment of Jan Łukasiewicz and Scholz's approach to these issues. The Warsaw-Münster analogies and similarities are much more numerous and striking than the Warsaw-Vienna or Münster-Vienna ones.

Scholz is described by Łukasiewicz as a person "connected with the Warsaw Logistic School by bonds of collaboration and friendship." The present article aims to present the scale and forms of interactions and influences between the German logician and Polish scholars, in the first place Łukasiewicz, who found in the Scholz his "ally." The interactions and influences will be shown from the perspective of Łukasiewicz's program of "logicisation" of philosophy.

I start, in point 2, with some general remarks on how logic and its applications were viewed in the Lviv-Warsaw School (Lvov-Warsaw School); especially in light of the tension between Kazimierz Twardowski and Łukasiewicz's approaches to logic. Then, in point 3, I sketch Łukasiewicz's program and the testimonies of his search for cooperation. In point 4, the analogies and areas of cooperation between Scholz and Polish logicians will be characterized. In point 5, I present the interpersonal relationships between Scholz and Łukasiewicz, Twardowski, as well as other Polish philosophers and logicians. In point 6, I concentrate on the role that the initiated friendship played in the dramatic period of World War II. I end, in point 7, with recapitulation and some general remarks.

2. Twardowski, Łukasiewicz, and Logic

In Poland, the attitude towards logic and its application to philosophy in the first half of the 20th century was largely the result of the interaction between two great personalities: Twardowski and Łukasiewicz. The crucial impulse for the development of scientific philosophy and mathematical logic in Poland came at the turn of the 19th century from Lwów.[2] In this city, then a Polish city being a part of Austro-Hungary empire, the chair of philosophy was given to Kazimierz Twardowski. The last one was a Pole born and Vienna and a student of Franz Brentano, and he aimed to instill "the spirit of scientific philosophy" in Poland.

Twardowski's view of logic was a complicated matter. On one hand, he considered logic, as well as descriptive psychology, the basic philosophical discipline, the organon of all sciences, including philosophical disciplines. He also tracked the newest tendencies in logic, among others the origin and development of mathematical logic. In his approach to the theory of judgment, reasoning, and concepts, he refuted psychologism for the position that combined anti-psychologism with anti-platonism which makes him an original representative of his epoch.

On the other hand, Twardowski was highly suspicious of the (over)use of formal methods in logic. He considered logic as a science of correct thinking which is applied in sciences and everyday thinking and thus he was convinced that the application of any mechanical procedures could be dangerous in this matter. Twardowski expressed these reservations most strongly in his text "Symbolomania and Pragmatophobia" (Twardowski, 1921). Twardowski's pragmatic attitude towards logic and his anti-platonism was often taken, also by his students, as a latent attachment to psychologism.

For the origin and development of mathematical logic in Poland, Twardowski's teaching practices were maybe more important than his views. Already his first lecture in Lwów (1895/1896) concerned logic (in a rather traditional frame), and all his students had to take logical courses. In the academic year 1900/1901 he lectured on "new tendencies" in algebraic logic. Although his attitude towards the presented tendencies was critical, the content of these lectures made a strong impression on some of his students, among others on Łukasiewicz.

The future founder of many-valued logic was one of the earliest and most talented Twardowski's PhD students. The role of the teacher in Łukasiewicz's development was indispensable. It was Twardowski who encouraged him, initially a student of the Law Faculty, to move to philosophy, and to take up logical matters (induction/deduction distinction; analysis of the concept of cause). Łukasiewicz owned to Twardowski also first logical impulses, as well as inclinations to scholasticism and Aristotle[3]. At the same time, Łukasiewicz was not satisfied with the way Twardowski dealt with logical matters and gradually became fascinated by mathematical ways of dealing with logic. He had also (as happens with gifted students) a strong need to be independent of his teacher. Later he wrote: "Because I approached logic by taking into account the mathematical direction, I became completely independent of Twardowski" (Łukasiewicz, 2013, p. 67).

All of that led to a "logistic turn" which took place while Łukasiewicz was still in Lwów. The first impulses came from Twardowski's teaching as well as from the lecture of Russell's *Principles of Mathematics* (1903), through which Łukasiewicz got to know, among others, about

Frege's results. The culmination of this turning period was Łukasiewicz's book "O zasadzie sprzeczności u Arystotelesa" [On the Principle of Contradiction in Aristotle] [1910], which included an *Appendix* on mathematical logic. This book became strongly influential in the environment. First of all, Stanisław Leśniewski joined his enterprise. In 1915, Łukasiewicz became the chair of logic at the University of Warsaw, newly reopened thanks to the decision of the German occupation authorities. He was joined by two other Twardowski's doctoral students: Leśniewski and Tadeusz Kotarbiński. This "triumvirate" became the pillar of Warsaw School of Logic which soon brought fruits in excellent and original results in mathematical logic. A "purely formal" work was accompanied by studies in the history of logic, initiated with Łukasiewicz's work on Aristotle, and continued with his studies in stoic logic. For Łukasiewicz, it was important to demonstrate that the new mathematical logic is a "natural" continuation (and generalization) of the best ancient logical traditions.

Łukasiewicz's "independence" of Twardowski was however never full. Many facts may testify that Łukasiewicz took Twardowski's opinion regarding logic and its applications into account. The emphasis on an intuitive interpretation of logical systems became an often-noted feature of Polish logic. This is probably one more influence of Twardowski who expressed his reservations about considering logic to be playing with "meaningless" symbols. Searching for applications of mathematical logic in philosophical investigations could also be a kind of "dialogue" with the "old" professor. Łukasiewicz and Twardowski shared some additional metaphilosophical views, namely dissatisfaction with classical philosophy (in case of Łukasiewicz, mostly towards modern logic and philosophy, in case of Twardowski mostly towards 19th century speculative philosophical systems) combined with optimism, namely the belief that (at least some) philosophical problems are meaningful and generally may be solved. However, while Twardowski found the way of healing philosophy in descriptive psychology and conceptual investigations, Łukasiewicz became convinced that only mathematical logic provides "the method" of philosophy that finally would make progress in philosophy possible.

This is how the program of logicisation of philosophy was born.

3. Jan Łukasiewicz's "Call For the Method", and His Search For Allies

Łukasiewicz was convinced that mathematical logic may offer something very important for philosophy. But what exactly? Can it be applied, for instance, to solve classical philosophical problems, such as determinism, realism, or mind-body dependency?

Łukasiewicz ardently believed that logic may be applied to study such problems. He articulated his approach to philosophy most lucidly in 1927, during the 2nd Polish Philosophical Congress in Warsaw where he presented the lecture "For the Method in Philosophy" published a year later [1928].[4] The congress was perhaps the most important philosophical event in Poland in the interwar period and Łukasiewicz's opening talk made a strong impression on its participants.

The content of Łukasiewicz's "call" is as follows. He starts with a critical assessment of the existing philosophy. To make progress in this field, one has to start anew, "from scratch," "from the foundations." At first, the philosophical problems should be revised to find those that can be formulated precisely. In Łukasiewicz's view, such problems are, among others, the questions of classically understood metaphysics (in an Aristotelian manner) as the most comprehensive theory of reality. The subsequent phase involves the application of a deductive, axiomatic method to address the selected problems. This phase comprises several stages: (i) Selection of sentences serving as axioms, chosen for their intuitive clarity and certainty. (ii) Identification of primitive notions within these axioms, provided that their sense may be elucidated comprehensively through examples. (iii) Providing definitions for non-primitive notions. (iv) Constructing proofs for theses that are not axioms. Łukasiewicz adds that the axiomatic theories created in this way should be confronted with the data of intuition and the results of natural sciences, in order not to construct fictions.

Łukasiewicz added that realization for such a program is a work for generations and that the application of "the method" in philosophy is a collective endeavor. It was thus obvious that allies to

contribute to this collective work had to be found. Of course, he had some supporters of his program in his close environment. Among others, Leśniewski's systems, Ajdukiewicz's "semantic epistemology," Zygmunt Zawirski' axiomatic metaphysics, Alfred Tarski's semantic theory of truth, and, of course, his own three-valued logic, may be considered as a partial implementation of his program.

However, Łukasiewicz searched for allies also in other scientific centers. He refers to some results of this search in his 1929 paper "On the Significance and Needs of Mathematical Logic in Poland" [1929]. Firstly, he mentions Rudolf Carnap:

> When I visited Vienna in 1928, I learned from him [i.e., Schlick] that in the series of J. Springer's Company in Berlin, entitled *Schriften zur wissenschaftlichen Weltauffassung*, a book by an associate professor of Vienna University, R. Carnap, containing a critique of philosophy from the point of view of mathematical logic, will be issued soon. (Łukasiewicz, 1929b, p. 431)

Unfortunately, Carnap's idea of the relation of logic to philosophy, his "purely syntactic" (at that time) approach, and, last but not least, his negative attitude towards metaphysics, did not make him a serious co-operator of Łukasiewicz. The latter could learn Carnap's position in detail during Carnap's visit to Warsaw in 1930.[5] A few years later, Łukasiewicz pointed out the main metaphilosophical differences between Warsaw and "the Viennese":

> [Contrary to] the Viennese [...], [who] consider certain problems, such as causality or determinism, problems from the domain of language syntax, [...] [I consider them] metaphysical problems, which require an empirical solution. [The view] of the Viennese [is also incorrect] [...] on the relation of *a priori* sciences to reality. It is true that within every logical system, logical statements can be solved regardless of experience; however, with respect to application to reality, certain logical systems can prove better than others, and then it is experience that will determine which of these systems should be deemed right. (Łukasiewicz, 1936, p. 69)

Secondly, in the paper on the needs of mathematical logic, Łukasiewicz mentions the establishment of relations with Scholz which appeared to be long and fruitful.

Before coming to the characterization of these relations, let us add that Łukasiewicz's "call for the method" was also answered during the next Polish Philosophical Congress which took place in Cracow eight years later, in 1936. In the announcement of this congress, the application of logic to philosophy was indicated as one of the main areas of interest. One of Cracow's contributions to this area is worth mentioning in the context of Łukasiewicz's Scholz relations. It was the meeting on applying logic to catholic theology and philosophy, later referred to as establishing the so-called Cracow Circle. To the group, founded under the patronage of Łukasiewicz, the following logicians and philosophes belonged: Józef M. Bocheński, Jan F. Drewnowski, rev. Jan Salamucha and Bolesław Sobociński. The objective of the group was to modernize Catholic theology and philosophy with the use of mathematical logic. Its members initiated applying logic to the analysis of theological concepts (such as the concept of analogy) and reconstructions of reasonings (such as proofs of God's existence). Unfortunately, World War II drastically finished the Circle's activity: rev. Salamucha died as a chaplain during the Warsaw Uprising in 1944, father Bocheński and Sobociński found themselves in exile, and Drewnowski, although he remained in Poland, did not undertake an academic career. Still, the Circle's ideas are developed today in the contemporary logic of religion and the analytic philosophy of God.

4. Scholz's "Response" to the Łukasiewicz's Call

The parallels in Łukasiewicz's and Scholz's biographies are striking. Both turned to mathematical logic as mature scholars. Both were disappointed by the state of contemporary philosophy and searched for "the method" for philosophical investigations. Both were fascinated by Aristotle, scholasticism, and great logicians such as Leibniz, Frege, and Russell. Both were interested in applying logic in metaphysics and the history of logic.

Scholz started as a theologian and philosopher of religion. After habilitating in theology and receiving PhD in philosophy, he was, in the years 1917-1919, a professor of philosophy of religion and systematic theology in Breslau; then from 1919 to 1928, he was a professor of philosophy in Kiel. In 1928, he moved to Münster where he worked first as a full professor of philosophy. In 1936 he started teaching logic and in 1943 he became the first German chair for mathematical logic. Scholz's logical "turn", which took place 15 years after Łukasiewicz's, was then much more striking and deep. The reason for the turn was probably his crisis of faith (his talk to Twardowski could suggest this, see below) and criticism towards traditional philosophy. Openly, as the reason for such a radical change of interests, Scholz indicated the contact with Russell-Whitehead's *Principia mathematica*, which became a certain illumination for him. The impulse was so strong that Scholz began his studies in mathematics and mathematical logic and soon, in the late 1920s, he became one of a few true specialists in this domain.[6]

Since Łukasiewicz actively searched for allies and since Scholz's position suited so well to the assumptions of Łukasiewicz's program, their cooperation was something natural. An additional factor was that both Łukasiewicz and Scholz were "born" educators and, therefore, both were able to cooperate effectively with other researchers in creative teams. However, when the cooperation was established?

For sure, the first contact took place before 1929. In particular, in his paper from 1929, already quoted above, Łukasiewicz referred to a letter he got from Scholz in the Summer of 1928:

> Professor of philosophy H. Scholz, who was recently active at the University of Kiel and is currently a professor at the University in Monastery in Westphalia, wrote to me in a letter dated August 13, 1928: "(I) would like to inform you..., that for the past five years, I have introduced axiomatics and logistics as a philosophical study subject here in Kiel, and therefore, I would like to request that you keep me informed about everything you publish in this field. Unlike almost all German university professors of philosophy, I am deeply and firmly convinced that the future of scientific philosophy will be found in these two areas, and for the time being, only in them." (Łukasiewicz, 1929, p. 431)

Was it the first Scholz's letter to Łukasiewicz? If yes, then what was the direct reason Scholz wrote it to Łukasiewicz? Is it possible that Scholz read Łukasiewicz's "Call for the Method" or rather he learned about Łukasiewicz's work from other sources, maybe from Moritz Schlick? Perhaps this riddle may be answered through further archival research.

Anyway, the connection was established and from that moment on, Łukasiewicz and Scholz exchanged their results and papers. Let us picture this cooperation by listing its published testimonies. In the paper "On the History of the Logic of Propositions" (1934), Łukasiewicz wrote:

> I rejoice in having found in H. Scholz, *Geschichte der Logik* (Berlin, 1931), p. 31, a supporter of this point of view [i.e. Łukasiewicz's interpretation of the Stoic dialectic ad a logic of propositions]. [...] In connexion with [...] [the] controversy between the Stoic and the Peripatetic schools, we are ultimately confronted with the question, whether the Stoics understood anything about the meaning in principle of their propositional logic, and, in particular, whether they were aware of having created a system of logic different from Aristotle's. Scholz believes that we must answer the first part of this question in

> the negative. For the second part of the question we have at our disposal two hitherto little-noticed accounts. (Łukasiewicz, 1934, p. 77)

In the paper on equivalent calculus (1937), Łukasiewicz states that the term "deductively equivalent" he owes "to the [...] paper of [Hans] Hermes and Scholz." Also in the "philosophical" paper on Descartes, Łukasiewicz mentions that it was Scholz who realized the "hidden" inference in the famous "I think, therefore I am" (Łukasiewicz, 1938).[7] Another mention appears in the paper on the problem of the foundations of mathematics Łukasiewicz 1941).[8]

Let us now list Scholz's mentions of Łukasiewicz. He described Łukasiewicz as "a leading Polish logistician," and calls him a "revered and dear friend from Warsaw" ("*verehrt liebe Warschauer Freunde*"). He considered Łukasiewicz's paper on Chrysippos logic from 1934 as "the most beautiful twenty pages from the history of logic." Scholz also emphasized the significance of Łukasiewicz's results in many-valued logic: "Łukasiewicz was the first to attempt to construct a system of such three-valued propositional logic, and he succeeded! Through years of painstaking work, this system has now been developed to meet all the demands placed on such a system today" (Scholz, 1938, pp. 262–263).

Scholz's statements about other Polish logicians and philosophers were also full of praise – this mainly concerned representative of the Lvov-Warsaw School, including Kazimierz Ajdukiewicz (with his "great interpretation of modalities"), Maria Kokoszyńska (with her "excellent study on absolute truth") and Tarski.[9]

Last but not least, let us mention Scholz's enthusiastic reaction to the program of the Cracow Circle. Scholz, a former theologian, and supporter of rationalization of beliefs, wrote about the day of establishing the Cracow Circle (Die Mathematische Logik und die Metaphysic. *Philosophische Jahrbuch der Gorres Gessellschaft*):

> In my judgment, September 26, 1936, is a day that deserves to be recorded in the annals of Neoscholastic philosophy. On September 26, following the Third Polish Philosophers' Congress in Cracow, a group of Polish Neoscholastics convened to discuss, under the leadership of K. Michalski and with the participation of J. Lukasiewicz, the extent to which Neoscholastic philosophy should embrace this new logic. The result of this meeting is now available in a separate book, spanning nearly 200 pages, titled *Myśl katolicka wobec logiki współczesnej* [Catholic Thought and Modern Logic], *Studia Gnesiensia* XV, Poznan 1937. (Scholz, 1938, p. 264)

Scholz even revealed that he learned Polish to follow the Polish works in this domain: "I have learned Polish to follow the works of Polish logicians written in the native language. So, I am somewhat better situated with this book than most German philosophers" (Scholz, 1938, p. 264).

At that time, Scholz got in touch with father Bocheński whose books he read and recommended.[10]

Here are the main points of these (often mutual) inspirations, not counting detailed solutions.[11] Firstly, the postulate of the use of analytic methods in philosophy, including metaphysics, and aiming at giving the philosophical theories a form of interpreted axiomatic-deductive form. Secondly, the a requirement to use clear and intelligible language in philosophical investigation. Thirdly, referring to the best philosophical traditions and interpreting the history of logic and philosophy through the prism of the newest results. It is evident that the pro-philosophical, and in particular pro-metaphysical attitude distinguished Warsaw-Münster Alliance from the anti-metaphysically oriented Viennese. Another matter is that the differences in this attitude toward metaphysics mainly arose from the fact that the concept of metaphysics was differently handled in these environments, as noted already by Kokoszyńska.

Scientific inspiration is only one sphere of Warsaw-Münster influence. Another, not less important, was the didactic sphere. The phenomenon of the Warsaw School (uniting young people interested in logic and philosophy) was something striking for all who visited Poland at that time,

including Ernest Nagel, Carl Menger, and Carnap. Scholz stated openly that Institut für Mathematische Logik und Grundlagenforschung was founded by him "*nach dem Warschauer Vorbild*" (see the next point). His initiative was similar to an idea brought forward by Twardowski at the University of Lwów at the end of the 19th century and it was identical to the plan that Łukasiewicz undertook when he obtained chair of philosophy at the University of Warsaw in 1915.

5. Interpersonal Relations

Interpersonal relations, in the form of meetings and correspondence, provided important impulses for the development of the mentioned cooperation. In the context of Scholz-Łukasiewicz contacts, these relations have particular meaning.

However, let us start with the first direct contact which took place in the 1930s.

Scholz visited Poland twice. The first visit took place in 1932 when he gave lectures both in Warsaw and Lwów. In Warsaw, on October 18th, Scholz delivered the lecture "Die moderne Prädikatenlogik als die erste exakte Darstellung der aristotelischen Ontologie" at the 370th meeting of the Warsaw Philosophical Society. From Warsaw, he went to Lwów where Kazimierz Twardowski was still active although retired. Thanks to Twardowski's diaries, we know some details on that visit.

On the first day of his visit, Scholz gave the lecture "Über analytische und synthetische Sätze" at the 320th meeting of the Polish Philosophical Society. Twardowski reported this day as follows:

> October 25, 1932. Professor Scholz visited us for lunch. He shared his difficult life experiences. As a result of these experiences, he lost his faith, which he had mainly practiced in the field of philosophy of religion. He turned to logistics as something entirely abstract, far from troubling issues. However, his broader philosophical interests remained. This was evident in his lecture in the evening at the Polish Philosophical Society, titled "On Analytic and Synthetic Propositions." In the afternoon, Scholz stayed with us until four o'clock, and in the evening, when I went to the society's meeting, I picked him up at George's Hotel. There were many people present. I welcomed Scholz with a short speech in German, pointing out that the study of logistics in Poland began in Lwów. The lecture was well-structured, clear, and concise, delivered very effectively, lasting an hour and almost three-quarters. (Twardowski, 1997, p. 248)

Let us stress some important elements of this note. Firstly, it seems that Scholz talked with Twardowski on his private matters, including the reasons for the crisis of his faith. This had to be interesting to Twardowski whose attitude towards the church was very complicated (he was not an orthodox Catholic but believed in a personal God). Interesting enough to mention it in the diary.

Secondly, it is worth emphasizing Twardowski's high estimation of Scholz's lectures. It is not usual; Twardowski was rather a severe reviewer of the presented talks. The series of epithets as "well-structured, clear, and concise, delivered very effectively" was something exceptional.

Thirdly, Twardowski emphasized in his introduction to Scholz's lecture that the systematic study of logic by Polish scholars began in Lwów, adding at the same time that the author of the first Polish work in the field of mathematical logic was Stanisław Piątkiewicz, a teacher from Przemyśl. It is significant that in his speech Twardowski expressed his awareness of the fact that exactly he was the initiator of this systematic research in the field of mathematical logic in Poland at the end of 19th century. The exposure of this fact was probably related to the fact that in the early 1920s his relations with Łukasiewicz "warmed up," and at the end of his life, Twardowski's reservations about the use of mathematical logic in philosophical research significantly decreased – or even disappeared. In the 1930s, Twardowski accepted the existence of the "logistic direction" in his school and even encouraged this kind of research. Scholz and his philosophical work could play a certain role in this change in Twardowski's attitude.

Anyway, Scholz's first lecture made such a great positive impression on the listeners that he was asked (possibly spontaneously?) to repeat in Lwów his Warsaw lecture the next day. Once again, let us rely on Twardowski's notes from October 26th:

> October 26, 1932. At seven o'clock, Scholz gave his second lecture. One could say the same about it as about yesterday's lecture, but with the added remark that it was even more beautiful. He spoke on "Modern Predicate Logic as the First Exact Representation of Aristotelian Ontology." After the lecture, [Roman] Ingarden and Kazik [*scil.* Kazimierz Ajdukiewicz] joined the discussion. The knowledge of Aristotle and the interpretation of certain concepts in his metaphysics were truly fascinating. The lecture made a strong impression on everyone, as could be observed. After the discussion, I bid farewell to Scholz with a few heartfelt words, thanking him for the intellectual feast he had provided us. (Twardowski, 1997, p. 248)[12]

The second visit of Scholz in Warsaw took place in 1938 already after Twardowski died and only a tear before Hitler's troops attacked Poland. Then the main reason for this second Warsaw trip was that Łukasiewicz got a doctorate *honoris causa* from the University of Münster; the diploma of honorary doctorate was taken from Münster by Scholz as a certain gift for Łukasiewicz for his 60th birthday. At a meeting of the Warsaw Scientific Society, Scholz gave a lecture, this time entitled "Sprechen und Denken. Ein Bericht über neue Gemainsame Ziele der Polnischen und der Deutschen Grundlagenforschung."

It is worth quoting larger fragments from this lecture, delivered by Scholz in the "demented times":

> It gives me great joy that at this moment and in this place I can refer to something that is very close to my heart, namely the bond that connects us with our Polish – and especially Warsaw – friends. This bond was established through research that, in a new and proper sense of the word, can be described as foundation research [*Grundlagenforschung*]. It can be described as foundation research because it attempts to achieve ultimate clarity [of our claims]. [...]
>
> When we talk about these things, we cannot forget about the school that brought them to life: [that is about] [...] the Warsaw School; among its representatives [apart from Professor Łukasiewicz and Professor Leśniewski] I must also mention Professor Tarski with his fundamental works on the methodology of deductive sciences, and especially with his work formulating a consistent concept of truth for these sciences. [...]
>
> In Warsaw, what we had been working on in Münster since 1928 (since 1935 as the "Münster Group") was accomplished [...]. [Namely, it was shown] that philosophical problems can [...] be solved by applying mathematical methods – and with a success that is not possible today using any other method. [...] The fact that we can now conduct this type of research, at this level, with this sense of form and content, is essentially [...] the work and merit of [our Warsaw friends].
>
> It is unthinkable that we would be without the Warsaw model – without the personal impressions and memories that I took with me from my first stay in Warsaw in October 1932, without the series of signals that have run from Warsaw to Münster since then, and without what, above all, all my noble friend, Professor Łukasiewicz, personally told me – they could have made such progress. During this period, he visited Münster three times, and I cannot truly comprehend what, thanks to these visits, I and all of us experienced in the most beautiful sense of the word. (Scholz, 1939, pp. 2, 5, 5, 29)

Even if we take into consideration that it was a speech prepared for the special occasion and thus is to some degree exaggerated, in the light of these words, the scope of the influences and inspirations taken from Warsaw by Scholz and his "Münster group" has to be viewed as enormous.

On December 20th, a ceremony took place at the German Embassy in Warsaw, where Hans von Moltke, the Reich ambassador in Poland, consigned the scroll of *honoris causa* doctor of the University of Münster to Łukasiewicz. Łukasiewicz recollected these events as follows:

> Professor Scholz and the dean of the Faculty of Natural Sciences in Münster, Professor [Adolf] Kratzer, appeared at our apartment in Sewerynów. They brought with them the honorary doctorate diploma in philosophy from the University of Münster. This diploma was awarded to me on the eve of my birthday at the German Embassy. Ambassador Moltke, with whom we were on friendly terms, hosted a breakfast, attended by guests from Münster and embassy members, as well as many of my colleagues from the University, including Rector [Włodzimierz] Antoniewicz, Professor [Tadeusz] Zieliński, [Stefan] Pieńkowski, [Stefan] Mazurkiewicz, [Adam] Krokiewicz, Leśniewski, [Czesław] Białobrzeski, and others. Also present was the director of the scientific fund, Stanisław Michalski. Professor Scholz delivered a beautiful speech in which he emphasized the debt of Münster's logical school to Warsaw. (Łukasiewicz, 2013, pp. 37–38)

It would seem that this cooperation will continue and become something fruitful in the future. Unfortunately, the "big (political) history" made things different.

6. The Strength of Friendship

Let us now recall the tragic events in the life of Jan Łukasiewicz between 1939 and 1945 and the role Scholz played by trying to rescue him from fatal conditions.[13]

In September 1939, during the Polish defense against Hitler, Łukasiewicz lost all his belongings, including his library and manuscripts. Due to German bombs, all his belongings went into ashes. Together with his wife, between 1939 and 1944, Łukasiewicz lived in the provisional house of professors. Since the university was closed, Łukasiewicz worked in the "neutral" Warsaw City Archives[14] (mainly as a translator). Since Łukasiewicz's salary was very low and there was a shortage of food in the city, Scholz tried to help Łukasiewicz financially. He also wanted to help him to find better work in German administration but this proposal had to be refuted by Łukasiewicz since working directly for the occupiers was unacceptable for the Poles.

In the years 1939-1944, Łukasiewicz, as well as other Polish philosophers and logicians, was also involved in secret teaching. Any form of education in Polish language on an over-primary level was strictly forbidden in Poland occupied by the Germans as Poles in the Nazi's plan were to serve as workers for the "higher race". The involvement in the Polish secret university, as well as in all other forms of underground resistant movement, was punishable by the death penalty. Still, the Polish professors fulfilled their teaching duties, convinced that the preservation of the Polish culture and continuity of collective scientific work is worth even risking life. Worth mentioning, among talented "underground" students there were two later renowned logicians: Helena Rasiowa and Andrzej Grzegorczyk.

After Hitler started to lose the war to Stalin, it became obvious in Warsaw that the city would be taken, sooner or later, by the Red Army. And this was what Łukasiewicz, an anticommunist and former minister in Ignacy Paderewski's government, was afraid of even more than German occupation. In the letters to Scholz, he also mentions that many members of his wife's family were deported by Bolsheviks to Siberia and some of them already died.

Łukasiewicz decided to escape Warsaw already in 1943. Scholz actively took part in this plan by helping him with getting permission at first to Beeskov by Berlin and then to Münster. Łukasiewicz reported:

> We wanted to go to Switzerland and Professor Scholz has already arranged the matter with Professor [Ferdinand] Gonseth in Zurich. But it was impossible to get German

> authorities' permission to go to Switzerland. It was easier to get the permission to the "Reich" as the "Reich" began at that time only a fiew miles west of Warsaw. On the ground of such a permission, on July 18, 1944, we went by train to Münster hoping that our friend would be able to help us to go further. But two days later, on July 20, the bomb-plot against Hitler broke out, and crossing the border became impossible for us. (Łukasiewicz, 2013, p. 13)

What an irony that Łukasiewicz who managed to escape from Warsaw before the Warsaw Uprising, got into the heaviest bombing of Allies against Hitler. Instead of in the ruins of Warsaw, Łukasiewicz spent the end of 1944 in the ruins of Münster, before he was rescued by von Kempski, a German of Polish origin and Scholz's colleague.[15] Although Łukasiewicz could not realize his plan to go to Switzerland, after some changes of places, he managed to find luckily a scholarly position in Dublin.[16] As an anti-communist, he could not come back to Poland hidden under the Iron Curtain.

Scholz's help for Łukasiewicz was only one of many manifestations of his true friendship with the Poles. These are some other examples. In November 1939, almost all professors of Jagiellonian University were arrested by Germans and sent to concentration camps. One of the imprisoned professors was rev. Salamucha, a catholic priest, a student of Łukasiewicz, and a member of Cracow Circle. As already mentioned, thanks to Scholz's interventions by the German authorities, Salamucha was released from prison. Scholz also played a certain role in keeping Tarski's contact with family. He helped Tarski to communicate from the USA with his wife and children who stayed in Poland. He also saved Bocheński's manuscripts during the war.[17]

Scholz's active help to Polish friends during the war had serious consequences for him. To actively help them, he had to get in touch with the Nazi government. After his interventions, he got a "reprimand" from the Minister of Science. He was also twice visited by the Gestapo. On the other hand, Scholz was attacked for publishing in the regime newspaper *Das Reich*. After the war, in the correspondence with Evert Beth, he explained his acts for these two reasons: help for Polish friends, and the will to preserve the institutions and research in Münster.

Worth mentioning that both Scholz and Łukasiewicz – became the subject of unfair accusations repeated till today by some historians of logic and philosophy: accusations of pro-Nazism and anti-Semitism of both great thinkers. As for Scholz, it is important to mention three testimonies: of Łukasiewicz, of Kotarbiński, and Henryk Hiż (a pupil of the first two). Łukasiewicz wrote in a letter from 1947 to Bocheński on Scholz: "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. [...] He has never been a Hitlerian. Still, in the autumn of 44, he deprecated Hitlerians" (Łukasiewicz, 1988, p. 522). In 1965, Kotarbiński, in the "Foreword to the Polish edition" of *Geschichte der Logik*, wrote about Scholz:

> He was [...] a proven friend of the Polish logical community. He gave numerous proofs of this, not only by spreading favorable opinions about its achievements in Germany, but also by helping his Polish colleagues in various ways in bad times. At the same time, he firmly and indignantly distanced himself from racial prejudices. In general, he left behind the memory of a man with an ethical attitude deserving of deep respect. (Scholz, 1965, p. 6)

At last, in 2000, Hiż described the following incident that speaks for itself:

> Around 1937, Scholz visited Warsaw. They were difficult years. The German Embassy hosted a reception. Invited Kotarbiński refused to come and apologized personally to Scholz, who understood his reasoning. At this party (or maybe another time, due to the honorary doctorate for Łukasiewicz) was Władysław Witwicki and his wife. As they came up in line to Ambassador von Moltke, he said loudly to his wife: "No shake hands

> with this lady; she is a Jew". [After this event,] Scholz visited Tarski. He said at the beginning of the visit: "I come to show that there are still decent Germans." (Hiż, 2000, p. 58)

As for Łukasiewicz, three facts should be mentioned that determine his actual attitude to these matters. Firstly, when he was the rector of the University of Warsaw, he firmly (and effectively) opposed the demands of some student groups to introduce a *numerus clausus* for students of Jewish origin. This is confirmed by his official speeches and the testimony of his doctoral student, Maria Ossowska. Secondly, in his scientific environment, there were many Poles of Jewish descent. It is no coincidence that the authorized script of his lectures on *Elements of Mathematical Logic* was prepared by Mojżesz Presburger; Łukasiewicz's MA student was Mordechaj Wajsberg; a special place was occupied by Tarski, co-author, doctoral student, assistant and later docent (with the obvious patronage of Łukasiewicz). Thirdly, Łukasiewicz was among those who supported (unfortunately unsuccessfully) in favor of granting Tarski the vacant chair of logic at the University of Lwów. As we can see, the practice of insinuations is not a recent invention.

7. Closing Remarks

Sometimes the relationships between thinkers and their thoughts can be considered regardless of any personal connections between them. However, in the case of Jan Łukasiewicz and Heinrich Scholz, their friendship, subjected to the most severe trials, was an extremely important context for their scholarly exchange. The cited sources make evident that Jan Łukasiewicz found in Scholz a true ally in realizing his program of "logicization" of philosophy, which involves applying mathematical logic where it can contribute to a better framing or sometimes resolution of classical philosophical problems, including metaphysical ones. It is also evident that in the school established by Łukasiewicz in Warsaw, as well as in the broader phenomenon represented by the Lvov-Warsaw School founded by Twardowski, Scholz found a model worthy of emulation within his environment. The development of the relationship established in 1928 and evolving over the decade through collaboration and friendship was hindered by dramatic historical events. Heinrich Scholz excellently fulfilled the role of a true friend who does not abandon others in need, doing everything possible to save their lives and the results of their work.

Let us note, in the end, that for both Scholz and Łukasiewicz the possibility of scientific and didactic work was something essential, worth the greatest sacrifice, and at the same time something that sustained them through life. This is vividly and beautifully demonstrated by remarks about the latest logical results appended to their wartime correspondence.[18]

Scholz managed to maintain the center for mathematical and logical research established in Münster "*nach dem Warschauer Vorbild* ", and this institution continues to exist to this day. The Warsaw center, due to World War II, was destroyed and did not regain its pre-war glory, although research in the Lvov-Warsaw School tradition was in some forms continued by those who survived and remained in Poland, to the extent permitted by the post-war communist authorities. The fact that logical and philosophical research was continued in Warsaw and Münster is yet another factor that distinguishes these centers from Vienna. There, scientific philosophy did not regain favor for a long time after the war.

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Notes

1. See, for instance, the entry in *Stanford Encyclopaedia* only mentions Scholz's financial support for Łukasiewicz during WW2 – see: (Peckhaus, 2022). However, various aspects of Łukasiewicz-Scholz relations are partially presented in (Besler, 2021) and (Besler, 2022), (Besler et al., 2024), (Jadacki, 2005), (Molendijk, 2023), and (Schmidt Am Busch & Wehmeier, 2007).
2. The city in question, presently Lviv, the capital of Western part of independent Ukraine, had a very turbulent history in the last 120 years, and was a part of four different countries. When I refer to the previous period of the city's existence, namely first decades of the 20th century, I use Polish term "Lwów". In the name of the School, founded in this city by Kazimierz Twardowski, I use the term "Lvov-Warsaw School," since this version is used in all standards English entries and books on this intellectual group.
3. Łukasiewicz wrote to Twardowski in 1905: "This *interest in scholasticism* and Aristotle which you, Professor, managed to evoke with your lectures on the *history of ancient and medieval philosophy*, the esteem and affinity you expressed towards the scholastics, various fragments of your works […], and primarily, this *truly scholastic moment in disputing and reasoning* due to which I received my training in logic, all resulted in a dramatic change in my philosophical views, that can, however, be explained genetically, as the change was impacted by the environment, which celebrates the tangible, and was due to sustained work on my issues, where I believe I managed to obtain many new and important results. I was aided by the fact that Brentano was a Dominican and had written a monograph on Aristotle" (Łukasiewicz, 1998, p. 470). Italics mine, AB.
4. English translation of this talk is included as an appendix to (Brożek, 2022).
5. Detais of Carnap's visit are presented in (Brożek, 2021).
6. It seems that Scholz became interested in modern logic due to his teaching duties. It is known that he lectured an introductory course in logic 1920/1921 based on "traditional" Jevons' handbook. Possibly he discovered *Principia mathematica* while looking for new sources for his lectures. See
7. "These critical words do not come from me. They were already uttered six years ago in the German journal *Kantstudien* (vol. 36, 1931) by Professor Heinrich Scholz from Monastery in Westphalia, one of the advocates of scientific philosophy based on contemporary logic, and he had connections of cooperation and friendship with the Warsaw School of Logic" (Łukasiewicz, 1938, p. 372).
8. "We must be most grateful to Mr Heyting for undertaking, in 1930, to formalize the propositional calculus in the spirit of intuitionism. He succeeded in constructing a system of axioms for the intuitionistic propositional calculus. I shall not discuss these axioms here, but I shall present here a result I obtained in May of this year following a suggestion of my respected friend, Professor Scholz of Münster, which will make it easier to compare ordinary and intuitionistic propositional logic" (Łukasiewicz, 1941, p. 281).
9. A review of Scholz's statements about them can be found in (Jadacki, 2005). In this article, are also quoted opinions by representatives of the Lvov-Warsaw School (beyond Łukasiewicz and Twardowski himself) about Scholz – among others, opinions by Ajdukiewicz and Tadeusz Czeżowski.
10. "In the few months that have passed between the drafting and the publication of this work, the logician from the Dominican order, J.M. Bochenski, working at the Collegium Angelicum in Rome, has released two books that must still be mentioned here. I'll begin with the most recently published, an introduction to the new formalized logic written in Italian: *Nove lezioni di Logica simbolica*, Roma 1938, Angelicum, 183 pages. A few weeks earlier, as a gift from the author, the second book came into my hands: "Z histori logiki zdań modalnych" [From the History of the Logic of Modal Propositions], Lwów 1938, Wydawnictwo Oo. Dominikanów, 145 pages. The first real history of the theory of modalized statements from Aristotle to William of Ockham! […] Four significant figures emerge from the ranks in a manner that we previously knew nothing about: Aristotle, Theophrastus, Albertus Magnus, and William of Ockham. They appear with all their humanity in a peculiar magnitude that is not exaggerated when one wants to capture it with the words of the poet: "Stay a while; you are so beautiful!" (Scholz, 1938, p. 290).
11. See also (Jadacki, 2005, pp. 100–102).
12. There are three more entries on Scholz in Twardowski's *Diary*: (i) "October 12, 1932. "At noon – urgent correspondence, including [a letter] to Prof. Scholz in Münster, who promised to come to Lwów with a lecture at the invitation of the Polish Philosophical Society." (ii) "October 27, 1932. At noon, I went to the hotel to pick up Scholz, and from there, I went with Kazik [Ajdukiewicz] to the train station to see off our guest. Ingarden was also at the

station." (iii) "March 27, 1934. In the afternoon, I wrote a letter to Scholz." See respectively: (Twardowski, 1997, pp. 246, 248–249, 334).

13. See also (Schmidt Am Busch & Wehmeier, 2007) who tells the story of Scholz's help form Łukasiewicz through the prism of the correspondence and unpublished memories of von Kempski. Here, I focus more on the Polish sources.
14. See (Łukasiewicz, 1956).
15. The dramatic adventures of Łukasiewicz and his wife was described by Łukasiewicz in his *Curriculum Vitae* (1956), his Memories (2015), as well as in (Jadacki, 2005) and (Jadacki & Kinsella, 2022).
16. Łukasiewicz described his way from Germany, through Belgium to Ireland in (Łukasiewicz, 1956).
17. The help Scholz provided to Łukasiewicz during the war was recently described in detail and with the use unpublished documents in (Schmidt & Wehmeier, 2007). Incidentally, the fact mentioned by the authors that Łukasiewicz did not write from emigration to his Polish colleagues in the country after the war for fear of exposing them to harassment from the communist authorities was described *expressis verbis* by Łukasiewicz himself in his letter from 1947 to Father Bocheński: "I haven't heard anything from Warsaw so far; I do not write to anyone myself, because I do not want to endanger anyone. I have not even written to Father Michalski in Cracow, because I am afraid of harming him" (Łukasiewicz, 1998, p. 521).
18. See (Besler et al., 2024).

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The Nature of the Anti-Psychologistic Turn in Kazimierz Twardowski's Philosophy

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Abstract:
In this paper, I analyze the shift in Twardowski's views between his early psychologistic theory of logic and his later anti-psychologistic theory. In particular, I point out that the interpretation suggesting that this change merely involves Twardowski enriching his ontology with products encounters a certain problem in light of his earlier views. To present this problem more precisely, I discuss the foundations of Twardowski's theory of products, focusing on aspects relevant to the issue of psychologism. Based on this, I reconstruct Twardowski's theory of logic and highlight where he identified the fallacy of psychologism. I contrast this reconstructed theory with Twardowski's earlier views at key points and demonstrate that the difference between his early psychologistic theory and his later anti-psychologistic theory is a matter of a shift in emphasis rather than a significant change in the theoretical system itself, and that Twardowski himself understood it as such.
Keywords: Twardowski Kazimierz, anti-psychologism, product, internal complement, abstraction, philosophy of logic.

1. Introduction

One of the most lively debated problems in European philosophy at the beginning of the 20th century was the relationship between logic and psychology. Many authors of this period, in one way or another, reduced logic to psychology, holding the position commonly referred to as psychologism (in logic). However, at some point, this trend began to reverse. The impulse for the widespread departure from views that reduced logic to psychology came among others from Husserl, who presented arguments against such an approach in the first volume of the *Logical Investigations* (1901/2001). One of the philosophers who joined this anti-psychologistic turn was Kazimierz Twardowski. As he attests in his autobiography,

> But Husserl's *Logical Investigations*, which appeared some years later (1900/1), convinced me that it is impossible to treat psychological, that is, empirically acquired, knowledge as the basis of logical, thus a priori, propositions. My book on the basic con-

> cepts of didactics and logic [(Twardowski, 1901)] was written prior to my study of Husserl's work, so that in it I still came forth as an "exponent of psychologism" [Psychologist]. But my psychologism of that period manifests itself more in the demarcation of the material to be dealt with than in the manner of its treatment. For I maintain in general that the opposition between psychologism and anti-psychologism in logic is ultimately an issue that pertains to the scope of its domain rather than to the theoretical grounding of its propositions. (Twardowski, 1926/1999, p. 31)

In light of the above quotation, it seems quite reasonable to divide Twardowski's work into two stages: psychologistic and anti-psychologistic. Such a division is suggested, for example, by Jan Woleński's remarks in the book *Logic and Philosophy in the Lvov-Warsaw School* (1989). To specify more precisely the nature of the change in Twardowski's views, Woleński proposes distinguishing between ontological psychologism and methodological psychologism. Methodological psychologism can be defined as a position according to which in a given scientific field (e.g., logic), methods specific[1] to psychology should be applied. In the case of Twardowski, these would be methods specific to a certain variant of Brentanian descriptive psychology. On the other hand, ontological psychologism would be a position according to which the subject of study of a given science (e.g., logic) consists of certain mental objects. Based on these distinctions, Woleński describes the change in Twardowski's thinking as follows: "Twardowski was at first a methodological and ontological psychologist, but later (from 1902 on) he abandoned ontological psychologism. Husserl's influence was not without importance in that respect (Woleński, 1989, p. 41)."

This opinion is also echoed by Kleszcz (2020, pp. 79-93), who, while describing Twardowski's philosophical development in this regard, expands upon the interpretation put forth by Woleński.

However, the mentioned anti-psychologistic turn is associated with a certain puzzle. As evident from the above quotation, Twardowski claims to have moved away from psychologism after 1901, yet in his book *Zasadnicze pojęcia logiki i dydaktyki…* [Basic Concepts of Didactics and Logic…] (1901), he still is a psychologist. However, before transitioning to anti-psychologistic positions, he published the essay "On So-called Relative Truths" (Twardowski, 1900/1999; Twardowski, 1900/1965), in which he criticized theories that recognize the existence of relative truths. The problem, however, is that certain formulations in this essay suggest that at this stage, he already has a theory that deals with psychologism no worse than the theory presented later in his essay "Actions and Products" (Twardowski, 1911/1999; Twardowski 1911/1965), which is considered a mature expression of his anti-psychologism. If this is indeed the case, then the above fragment, in which Twardowski acknowledges that it was Husserl's *Logical Investigations* (1901/2001) that convinced him of anti-psychologism, becomes entirely perplexing.

In this text, I aim to delve deeper into the presented problem and propose a preliminary hypothesis to resolve it. To accomplish this, in Section 2, I enumerate the types of sources essential for reconstructing Twardowski's thoughts regarding psychologism and briefly discuss various issues associated with utilizing these sources to interpret his views. Then, in Section 3, I present selected fragments of the theory of products that Twardowski thoroughly developed in his work "Actions and Products" (1911/1999; 1911/1965). The discussion is confined to matters directly related to his anti-psychologist theory of logic, specifically focusing on characterizing products, their classification, the status of non-enduring products, and a theory of meaning based on this framework. Building on this foundation, in Section 4, I explore Twardowski's views on the subject of logic and the specific methods of logical research, contrasting them with his understanding of psychologism and its perceived fallacies. Finally, in Section 5, I contrast the reconstructed theory of logic with Twardowski's earlier views and propose a solution to the presented problem.

2. The Sources for Reconstruction of Twardowski's Anti-Psychologistic Turn

To understand the nature of Twardowski's anti-psychologistic turn, we must first delve into how Twardowski understood the fundamental issues concerning the problem of psychologism, including the subject of psychological research, the subject of logical research, and the very essence of the psychologistic theory of meaning.

To fully reconstruct Twardowski's views on these issues, at least four types of sources are important. The foremost and most significant source is his published works. Following this are his unpublished notes, the majority of which are currently being made available, encompassing his notes for presentations or lectures. The third source is Husserl's *Logical Investigations* (1901/2001), which, according to the passage cited above from Twardowski's autobiography, contributed to his change of views. The fourth source is the texts of Jan Łukasiewicz, a student of Twardowski, who was a staunch opponent of psychologism.[2] Although the first of these sources is uncontroversial, the remaining ones are associated with certain problems.

The problem with unpublished writings is that in the case of some of them, we don't know to what extent they reflect Twardowski's thoughts, because some are unfinished, and some consist of lecture notes during which he presented not only his point of view. Therefore, in some cases, it is uncertain whether these are views reconstructed by him or views he holds. As an illustration of this problem, we can cite, for example, the texts of programs of logic for gymnasia included in the first volume of Twardowski's "Inedita" (1922/2023, pp. 35-47) to which a series of notes was appended, one of which reads: "My theoretical convictions conflict with pedagogical considerations." (1922/2023, p. 47). In my opinion, this observation suggests that when reconstructing Twardowski's theoretical thought, we should not treat the content of these programs on par with the content of lectures. However, they can be a valuable indication of his approach to good pedagogical practice. These circumstances highlight the need for caution among researchers of Twardowski's views who utilize unpublished writings. Context becomes paramount in interpreting particular statements. However, it is essential to note that in reconstructing Twardowski's theoretical thought, the content of his lectures should not be deemed less significant than that of texts prepared for publication. Twardowski himself admitted in his "Philosophical Autobiography" (1926/1999, p. 30; 1926/1992, p. 31-32) that many of his theoretical findings were solely presented during lectures, without further intention for publication.

The problem with using Husserl's *Logical Investigations* (1901/2001) in the reconstruction of Twardowski's anti-psychologistic turn lies in the fact that even if we introduce the idealizing assumption that Twardowski fully understood Husserl's work[3], his specific agreements with Husserl's approach remain unclear beyond the comments found in his own writings and these comments are confined to passages where he discusses the issue of psychologism. Consequently, any attempt to interpret Twardowski's thoughts through the lens of Husserl's work inevitably involves a degree of speculation. Likewise, assessing Łukasiewicz's influence on Twardowski regarding this matter presents difficulties. While it is evident that Twardowski was familiar with Łukasiewicz's stance, as evidenced by their correspondence (Łukasiewicz, 1905/1998, pp. 468-471), it remains uncertain whether all of Łukasiewicz's arguments resonated equally with Twardowski.

Since comparing Twardowski's theory with Husserl's on one hand and with Łukasiewicz's on the other would require more extensive research, in this article, I will primarily focus on Twardowski's published writings and certain excerpts from unpublished writings.

3. Outline of Theory of Products

The natural starting point for considerations regarding Twardowski's approach to psychologism seems to be his work "Actions and Products" (1911/1999; 1911/1965), as many analyses of Twardowski's thought treat this work as directed specifically against psychologism in logic.[4] Although this view may seem exaggerated considering how little space is devoted to logic in this work, it is undeniable that the distinction between actions and products played a fundamental role for

Twardowski in delineating the subject matter of logic and psychology. In this work, Twardowski observes that "a rigorous demarcation of products from actions has already contributed enormously to liberating logic from psychological accretions." (1911/1999, p. 132; 1911/1965, p. 240). Therefore, to understand the nature of this change in Twardowski's thinking, one must understand the theory itself.

The starting point for Twardowski's theory of products is rooted in certain linguistic facts. In his work, he mentions a series of word pairs such as "to run – a run," "to think – a thought," "to speak – a speech," "to draw – a drawing," and shows that there are significant semantic differences between the words in these pairs. According to him, the first words in the discussed pairs denote actions, while the second words denote products. Twardowski also points out that when we want to use a noun to denote an action, we usually use verbal nouns (substantiva verbalia, gerunds) such as "running," "thinking," "speaking," or "drawing." Furthermore, the semantic differences between the words in the aforementioned pairs are significant enough that something can be asserted about the product that is not asserted about the corresponding action, indicating that products and actions differ from each other. For example, if we say that a decision has not been put into action, we do not mean to say that the act of deciding has not been put into action (Twardowski, 1911/1999, p. 115; Twardowski 1911/1965, p. 226).

In elucidating the concept of products, Twardowski (1911/1999, p. 108; 1911/1965, p. 220) characterizes them as something that arises as a result of the respective actions. According to Twardowski, a drawing arises from the act of drawing, a run arises from the act of running, and a thought arises from the act of thinking. In connection with this definition, Izydora Dąmbska (1975, p. 255) rightfully pointed out that such a characterization is insufficient because it would lead us to conclude that all effects are products of certain actions. For example, the product of singing would not only be the song but also the fact that the singer has somewhat worn vocal cords. However, such a situation would render Twardowski's entire concept meaningless in theoretical terms because firstly, it is universally agreed that actions have effects, and secondly, it is entirely unclear how the existence of consequences would free us from the problems of psychologism.

However, Dąmbska's reconstruction is not entirely correct because Twardowski provides another condition which, although difficult to consider as an objective characteristic of products, allows us to identify them and distinguish them from other effects. Apart from detailed linguistic analyses by Twardowski, we can say that if there is a noun that can serve as the internal complement of a certain verb, then the denotation of this noun is a product of the action denoted by that verb (Twardowski, 1911/1999, p. 107; Twardowski, 1911/1965, p. 219). The given noun is an internal complement[5] in two cases: (1) when it appears alongside the verb within an etymological figure (for example, the noun "dance" in the expression "to dance a dance" is an internal complement); (2) when for the entire phrase consisting of the verb and the noun functioning as its complement, there exists a synonymous verb without a complement (for example, the noun "jump" in the phrase "to execute a jump" is an internal complement because there is a verb "to jump" which means the same as this phrase) (Twardowski, 1911/1999, p. 107; Twardowski, 1911/1965, p. 219).

Dąmbska, of course, is aware that Twardowski extensively discusses verbs with internal complements, but she denies that Twardowski limits himself to them in his work. However, upon closer analysis of this work, it turns out that all nouns designated by Twardowski as products meet the criteria for internal complements, and in cases where we may have reasonable doubts about whether a given noun meets this criterion, Twardowski indeed asserts that it does.[6]

Another important element for the discussed problem in the work "Actions and Products" (1911/1999; 1911/1965) is the divisions of products. Firstly, Twardowski categorizes products, much like associated actions, into physical and mental (psychical),[7] and among physical products, he distinguishes a special subclass, namely psycho-physical products. A product of this kind arises from a psycho-physical action, which is a physical action influenced by a mental action.[8] Particularly important examples of psycho-physical products are words. Secondly, Twardowski divides products into enduring and non-enduring ones. Enduring products are those that exist longer than the action that produces them, while non-enduring products are products that exist only as long as the

action that produces them lasts. Non-enduring products include, among others, all products of mental actions.

Based on such a characterization and Twardowski's use of terms like "product" or "arising as a result of a certain action," one could rightly assume that, like enduring products, non-enduring products exist as something dependent yet simultaneously distinct from the actions that produce them. In this view, the act of thinking would relate to thoughts as playing an instrument does to the sounds produced. The sounds are entirely dependent on the actions of the player but are nonetheless separate from them. Although this interpretation may seem plausible at first glance, it is not in line with Twardowski's intention, as he adds the following remark in a footnote: "Non-enduring products do not exist in actuality separately from the corresponding actions, but only in conjunction with them; we can only analyze them abstractly apart from these actions (Twardowski, 1911/1999, p. 119)."

A similar remark can also be found in the text "O psychologii, jej przedmiocie, zadaniach, metodzie, stosunku do innych nauk i o jej rozwoju" [On psychology, its Subject, Tasks, Method, Relationship to Other Sciences, and Its Development] (Twardowski, 1913/1965, p. 268), where it is stated that mental products form a specific whole with the corresponding actions, and only through abstraction and analysis can actions and products be distinguished.[9] These passages suggest that the relationship between actions and products is much closer than it might initially seem. In other words, to use another Twardowski's term, it can be said that non-enduring products are metaphysical parts[10] of the respective actions, while representations of these products are what he calls "analytical concepts."[11]

In light of such a characterization, it seems that the difference between actions and products is merely conceptual, meaning that the distinction between actions and products exists only at the level of objects of given analytical concepts, while in the object itself to which these concepts refer, there is no difference between actions and products, meaning that the products Twardowski speaks of are merely mentally conceived objects.[12] However, such an interpretation would be inconsistent with how Twardowski describes the process of abstraction. He clearly distinguishes between the attributes that an object possesses and the attributes of a given object that we mentally represent in a concept (Twardowski, 1910-1914/2023, p. 266).[13] Furthermore, by specifying the attributes extracted in abstraction, he states the following: "Sometimes we call those extracted attributes 'detached attributes,' because by extracting attributes, we detach them, so to speak, in thought from the concrete object in which they reside." (Twardowski, 1910-1914/2023, p. 263). The word "reside"[14] used here clearly indicates that the attributes themselves, which are extracted from the subject of abstraction by Twardowski, are conceived realistically, rather than, as the considered interpretation suggests, anti-realistically.[15] Therefore, I believe that such an interpretation should be rejected, and we should understand products as metaphysical parts of actions, which are simultaneously really distinct from those actions.[16]

Based on this theory of products, Twardowski also outlines a broad theory of meaning. In the context of our discussion, the most important aspect is its fragment concerning the meaning of words. The meaning of a given linguistic expression, which is a particular psycho-physical product, consists of all the products of such mental actions that influence the psycho-physical action, of which the expression is a product, provided that this psycho-physical product can become a partial cause of the emergence of a similar mental product, or mental product which is the same as the original one, in someone. To put it more concretely, if I utter a certain sentence, under normal circumstances, the cause of uttering that sentence is the judgment I have made. If this sentence can cause the emergence of the similar judgment, or judgment which is the same as the one I have originally made, in myself or another person, then that judgment is the meaning of that sentence. Such sentences that arise as a result of certain acts of judgment Twardowski one can call "statements."[17]

At this point, however, one could have several legitimate doubts. Firstly, can it be claimed within this conception that language users in a given community employ the same meanings of words since a given psycho-physical product can evoke more or less different mental states in different individuals? Secondly, what about sentences we are merely considering the truth of?

To the first of these problems, Twardowski responds as follows:

> However, insofar as we regard that psychophysical product as a product that signifies some sort of mental product, the disparity among the mental products elicited by it does not go too far – there must be a group of common attributes in these individual mental products. And it is precisely these common attributes (in which these individual products accord) that we ordinarily regard as the meaning of the psychophysical product, as the content inherent in it, provided of course that these common attributes correspond to the intent with which that psychophysical product was utilized as a sign. (Twardowski, 1911/1999, p. 127)

Thus, if, for example, a sentence was uttered to inform someone truthfully about something, the content of that sentence will consist of those components of the judgment that are common to all other users of that language who use that sentence. According to Twardowski, individual users arrive at this meaning through abstraction from the specific characteristics of concrete products, and it is precisely the ability to abstract that enables people to use similar signs that signify the same thing. The fact that Twardowski speaks in this context of the components agreeing rather than being the same suggests, I believe, that these components are not a certain universal that exists in all the thoughts of individuals who use this meaning, but numerically different attributes.[18] Such an abstracted judgment can be termed an "abstract judgment."

The second of the aforementioned problems Twardowski solves through the concept of surrogate products. Surrogate products (also: artificial products) are, in his view, those products that imitate the products of another kind. Thus, although both of these products arise from different actions, one of these actions proceeds in such a way that its product imitates the product of the other. In the case of sentences we are merely considering, we do not deal with judgments that, under normal circumstances, constitute the meanings of sentences, but only with represented judgments. Represented judgments differ significantly from ordinary judgments because the latter assert the existence of their object, whereas represented judgments do not. Represented judgments can be reconstructed using the phrase "I think of x as something that is P,"[19] where P is a shorthand term for the conjunction of all the attributes I associate with the object I am thinking about. Thus, according to Twardowski, under normal circumstances, when we utter the sentence "Lviv is a beautiful city," we have a judgment composed of the subject of that judgment, Lviv, the foundation [osnowa] of the judgment, which is the existence related to that subject, and the quality, which is a statement or denial of that existence about that subject (Twardowski, 1910-1914/2023, p. 273). In this case, it would be appropriate to say that the judgment, which is the meaning of this sentence, is "There exists a Lviv that is a beautiful city." However, if I am merely considering the sentence "Lviv is a beautiful city," I am only thinking of Lviv as something that is a beautiful city,[20] although in this case, I do not necessarily want to acknowledge that there exists a Lviv that is a beautiful city. In this way, Twardowski dismisses the second of the objections raised.

According to Twardowski, linguistic expressions are also something that preserves the associated mental products because even though a given mental product ceased to exist long ago, there still exists a psycho-physical product that, as mentioned, can evoke in someone a mental product similar in significant respects. However, this preservation can lead us to mistakenly conceive these expressions as something permanent and independent of the mental actions that led to their creation (Twardowski, 1911/1999, p. 127; Twardowski, 1911/1965, p. 235).

4. The Approach to the Issue of Psychologism by Twardowski

Against the backdrop of the presented theory of products, we can move on to establish the basic issues related to the problem of psychologism, namely the following questions:

1. What is the subject of logic?
2. What methods are appropriate for studying the subject of logic?

3. What is the subject of psychology?
4. What methods are appropriate for studying the subject of psychology?
5. What is psychologism?

Throughout the reconstruction, I will pay the least attention to issues (3) and (4), which I will address only to the extent that they allow us to better understand the contrast between logic and psychology in Twardowski's approach.

In his work "Actions and Products" (1911/1999; 1911/1965) Twardowski dedicates relatively little space to the subject of logic. Firstly, as mentioned earlier, we learn from this work that according to Twardowski, the concept of product plays a significant role in delineating the subject of logic from the subject of psychology. Furthermore, as one of the examples of the use of the word "judgment," he mentions that it is said that certain judgments result from logical inferences, but because this is only an example, it cannot be taken as an affirmation of such a belief.

A far more significant line of inquiry seems to be Twardowski's remarks regarding the role of artificial statements in logic. According to what has been mentioned above, an artificial statement is a sentence (a psycho-physical product) that imitates a statement but did not arise as a result of an act of judging, but merely as a result of representing judgment (which product is represented judgment). As examples of such artificial judgments, Twardowski cites symbolic notations like "*SaP*" as well as false premises used to illustrate valid reasoning. In the footnote following this passage, we can read the following:

> Bernard Bolzano was the first to consolidate in detail this perspective on the subject matter of logic. Judgments that have been rendered independent from the actions of judging, in the manner discussed above, he termed Satze an sich. Along with Satze an sich, Bolzano also spoke of Vorstellungen an sich, that is, representations that in a similar manner have been rendered independent from the actions of representing (see his Wissenschaftslehre, op. cit., v. I, §§19-23 and 48-53, where numerous quotes are also cited from the works of earlier authors who already came more or less close to grasping these concepts). (Twardowski, 1911/1999, p. 131)

At first glance, it appears that this excerpt contains a view on the subject of logic. This, I believe, has led some researchers to conclude that artificial judgments play a fundamental role in Twardowski's system when it comes to defining the subject of logic and safeguarding it against psychologism. Suggestions supporting such an interpretation can be found in the works of Izydora Dąmbska (1975, p. 256) and Jan Woleński (2022, p. 64-65). Furthermore, these authors suggest that this conception of artefacts is complemented by the concept of the preservation of products.

In such an approach, the subject of logical inquiry would either be (1) artificial judgments as something in which representations of judgments are expressed, replacing the judgments themselves, or (2) representations of judgments that imitate the judgments themselves. The first of the proposed options cannot be correct, and this can be observed based on the following excerpt in which Twardowski characterizes the object of interest for art historians:

> The humanities, on the other hand, abstract from the actual connection between mental products and the mental actions that produce them, treating them as if mental products existed independently of the mental life in which they can truly exist. Therefore, an art historian considers and examines various artistic concepts, and aesthetic tendencies, as if they were something beyond the minds of people living in a given era. (Twardowski, 1913/1965, p. 268)

If the first proposed interpretation of the subject of logic were correct, then, by analogy, Twardowski should believe that an art historian does not study various artistic concepts, but rather certain works of art and books as products in which certain artistic concepts are expressed. However, he clearly states that an art historian studies the artistic concepts themselves. Similarly, if we

were to consider what a historian of philosophy studies when examining the correspondence of author A, in which he discusses the thoughts of author B, according to what Twardowski claims in this passage, we would have to say that he studies what author A thought about what author B thought. However, according to the above interpretation, we would have to say that he studies this correspondence as something in which representations of the judgments of author A are expressed, which replace the judgments of author B.

Does this mean, then, that logic studies representations of judgments that imitate judgments themselves? This also cannot be right, as indicated by the fact that in his lectures on syllogistic, he constantly talks about the relations between judgments, as can be confirmed by the following passage:

> The relation of contradiction between two judgments is expressed in the law of contradiction [and] the law of excluded middle. Together, they state: contradictory judgments cannot both be true at the same time, nor can they both be false at the same time. (Twardowski, 1925-1926/2023, p. 182)

Therefore, it seems that logic, according to Twardowski, investigates certain relations between judgments based on their relation to truth or falsity. This conception is also indicated by the quoted reference to Bolzano. Twardowski suggests that his conception is akin to the logic of the latter, and the concept of a judgment is somehow connected with what Bolzano himself stated. However, it cannot be said that the concept of a proposition (sentence-in-itelf, *Satze an sich*) corresponds to the concept of a presented judgment, as Bolzano also has an equivalent of the presented judgment mentioned by Twardowski, which he calls the idea of a proposition (sentence-in-itself) (Bolzano, 1837/2014, p. 60). Against the thesis that logic investigates presented judgments, one can also raise a doubt of a systematic nature - since presented judgments are not judgments themselves but only their representations, why should they exhibit the same logical relationships as judgments themselves?

At this point, it is reasonable to question what specific role artefacts would play in logic if they are not the subject of logic. To answer this question, it is worth recalling the following excerpt from the lectures on syllogistics:

> And now [we will proceed] to the relations between statements (judgments). The matter now takes a fundamental turn because it concerns the truth and falsity of the 'judgments' *a*, *e*, *i*, *o*. [...] *SaP*, etc. – these are forms of statements. When I say "The judgment *SaP*," it is a shortened expression for: "Every judgment that can be expressed in a statement of the form *SaP*." Now, between the 'judgments' *a*, *e*, *i*, *o* – certain logical relations occur, i.e. concerning their truth and falsity. (Twardowski, 1925-1926/2023, p. 182)

Based on this excerpt, we can learn that in the research process, logicians consider a series of judgments that can be expressed in statements of the mentioned forms and attempt to determine whether there are appropriate logical relations between them, namely relations concerning their truth or falsity. The key point in this context is that the logician only considers these judgments, which is equivalent to simply representing them (they are represented judgments). Similarly, when recording the results of their research, their notes are not just statements but rather artificial (surrogate) statements. Thus, it can be suggested that in Twardowski's view, when a logician in their research expresses a logical formula, for example, MaP, they non-intuitively[21] represent a judgment that can be expressed in such a form, thus having certain general concepts of such judgments. Furthermore, when considering a syllogism in the form of "MaP, SaM, therefore SaP," similarly, they have a set of general concepts of such judgments and try to establish whether the logical relations they are interested in hold between these represented judgments. However, they do not research the concepts by which these judgments are given to them but rather focus on the judgments themselves. There-

fore, their subject matter is entirely universal because they are not discussing judgments issued by someone but all judgments that can be expressed in a given form. If artefacts did not exist, the logician would have to establish relationships between only those judgments that someone somewhere has issued. It appears that although artefacts are not the subject matter of logic, they still play an extremely significant role in the work of logicians. However, do artefacts and the preservation of products, in Twardowski's view, serve to protect us from psychologism?

Before I attempt to answer this question, I would first like to address how Twardowski understands psychologism itself. In this matter, the work "O psychologii, jej przedmiocie, zadaniach, metodzie, stosunku do innych nauk i o jej rozwoju" [On psychology, its Subject, Tasks, Method, Relationship to Other Sciences, and Its Development] (1913) proves to be very important, where Twardowski devotes a short paragraph to discuss this issue (p. 270-271). He characterizes there essentially two views, which he collectively refers to as psychologism. According to the first of these views, philosophical disciplines (i.e., logic, ethics, aesthetics, and theory of knowledge) are direct branches of psychology. According to the second view, philosophical disciplines should be based on psychology, which is the fundamental philosophical science. He then adds:

> The examination of whether psychologism is justified would require a thorough analysis of the subject and methods of the mentioned sciences; however, it can be noted here that the source of psychologism seems to be the confusion between mental actions and mental products, as well as the oversight of the fact that mental products may possess properties whose relations (e.g., relations between judgments regarding their truth and falsity) can be determined a priori, therefore independently of the empirical results of psychology. Criticism of psychologism should not, however, blind us to the fact that our knowledge of even such properties of mental products, as well as the existence of mental products in general, is obtained solely through internal experience and the inferences drawn from it. (Twardowski, 1913/1965, p. 271)

Based on this passage, we know that Twardowski believed that:

1. we can determine a priori the relations between properties (e.g., truth) among mental products (e.g., judgments), and therefore independently of empirical investigations in psychology;
2. our knowledge of the properties of mental products, as well as the existence of mental products, is obtained through internal experience.

What did Twardowski mean by stating that these relations are determined a priori? To establish this, we can refer to (at least) two sources. Firstly, his lecture titled "Psychology of Thinking" (Twardowski, 1908-1909/2014; Twardowski, 1908-1909/2012), and secondly, the later text "A Priori, or Rational (Deductive) Sciences and a posteriori, or Empirical (Inductive) Sciences" (Twardowski, 1923/1999; Twardowski, 1923/1965).

In his lectures on the psychology of thinking in 1907, Twardowski explicitly opposed the treatment of logic as a psychology of thinking or its application. He presents the following argument against psychologism, which we can find in a very similar form in both Husserl (1901/2001, p. 46) and Łukasiewicz (1907, pp. 489-491): the results of psychology are merely probable, whereas the results of logic are certain, hence logic cannot be part of psychology or its application. In the course of discussing this argument, he presents a contrast between empirical and a priori sciences:

> This very nature of being only probable is manifested in the fact that the results in empirical sciences can reasonably be subject to doubt; yet, it is impossible for the results in mathematics, which is a non-empirical or a priori, science which leads to certain results in the strict sense of the word. This is because mathematics does not deal with facts, but rather matters of detached or abstract concepts (called "abstractions" in short) as well as the relationships between these matters. Those arguments are not based on the observa-

> tion of facts but on the analysis of concepts and on deduction. Logic reveals the same nature as mathematics. (Twardowski, 1908-1909/2014, p. 135)

Based on this, we can list several characteristics that a priori sciences such as logic and mathematics would have according to Twardowski:

1. The results of a priori sciences are (rationally) unquestionable/certain.
2. Denying the results of these sciences is absurd.
3. These sciences investigate objects of detached concepts and the relations between these objects.
4. These sciences rely on the analysis of concepts and deduction.

An additional point to the above point 4 may be Twardowski's remarks in the text "A Priori, or Rational (Deductive) Sciences and a posteriori, or Empirical (Inductive) Sciences" (1923), in which he distinguishes a priori sciences from a posteriori ones by referring to the method of justifying their theses. The former appeals to a justification based on a complex of definitions, axioms, and postulates, which serve as the starting point for reasoning (Twardowski, 1923/1999, p. 173; Twardowski, 1923/1965, p. 366).

Based on the above remarks, we can attempt to reconstruct Twardowski's understanding of logic as a science — its subject and method. The subject of logic are abstract judgments, which are given to the logician by appropriate concepts (represented judgments) that enable the examination of various kinds of judgments fulfilling a set of properties (e.g., they can be expressed in statements of a certain form). These must be abstract judgments, and not merely concrete, because reasoning is invariant concerning the specific properties of these products, for example, specific substrate representations that we have in the case of the subjects of judgments, which are objects of detached concepts. Both these judgments and presented judgments are products of corresponding actions. Since both judgments and representations are mental products, they are non-enduring products, that is, certain metaphysical parts of actions that do not exist separately from them. In this approach, logic examines objects on which several acts of abstraction have been performed. First, through abstraction, we distinguish the act of judging from the product of this act, i.e., the judgment.[22] At this stage, several properties characterizing the action as a whole are omitted, such as place or time.[23] Secondly, we abstract from specific features of given products, such as substrate representations that a given person associates with the subject of this judgment. Then, a transition is made from a given abstract judgment to all kinds of judgments that can be expressed in certain statements, which we can simply call general forms of judgments. In the case of these general forms of judgments, the course of abstraction depends on the type of judgment involved. In each judgment, Twardowski distinguishes (1) quality (affirmative or negative); (2) the foundation of the judgment (existence); and (3) the subject (Twardowski, 1910-1914/2023, p. 274), so each form of judgment should ultimately boil down to these elements. In the case of existential judgments, abstraction probably proceeds in such a way that in a given abstract judgment, the subject of that judgment given in the presentation is abstracted, thus obtaining two forms: "There exists P" and "There does not exist P." In the case of categorical judgments, the matter is more complicated, as Twardowski advocated Franz Brentano's idiogenic theory of judgments, so he acknowledged that each categorical judgment can be reduced to an existential judgment (Twardowski, 1910-1914/2023, p. 276). At the same time, considering that the form of categorical statements requires two subjects, it would probably be said that in such judgments we have a certain subject and a distinguished aspect of it. Therefore, when transitioning from an abstract judgment to its form, we omit the given subject and this distinguished aspect, thereby obtaining four forms: "There does not exist S that is not P" (corresponding to "All S are P"), "There does not exist S that is P" (corresponding to "No S is P"), "There exists S that is P" (corresponding to "Some S are P"), "There exists S that is not P" (corresponding to "Some S are not P") (Twardowski, 1899-1927/2023, p. 413). Presumably, in the case of other forms of judgments, Twardowski believed that such a form of abstraction was possible that would allow a given judgment to be reduced to these three components.

In light of such a reconstruction, it becomes clear why Twardowski claimed that logic deals with objects of detached concepts and its method is the analysis of concepts. These objects are the general forms of judgments that are given to us in detached concepts. It is also easy to understand what it would mean for logic to investigate certain relationships – these are certain relationships that can be distinguished among these abstract objects based on whether they collectively maintain truth, for example, whether they are not contradictory.

As for the method, we know that Twardowski believed that by having those objects of detached concepts, we can establish relationships between them, and he regarded denying the results of these considerations as absurd. Why? In the work "A Priori, or Rational (Deductive) Sciences…," (Twardowski, 1923/1999; Twardowski, 1923/1965) he argued that the essence of aprioristic sciences is that they ultimately justify their claims based on axioms, definitions, and appropriate rules of inference. However, this cannot be the final answer because it is relatively easy to deny the conclusions drawn using a series of axioms - it is enough to negate one of the axioms. It seems that Twardowski's ultimate answer is simply that these are self-evident judgments that do not require explanation and are acquired along with the acquisition of the aforementioned detached concepts. This is evidenced, for example, by a passage from the University Logic Course text from 1902/1903, where Twardowski states:

> There are judgments whose truthfulness is beyond doubt: issuing such a judgment entails the incidental conviction that belief in it cannot be shaken. [Two examples:] the law of contradiction [and the law stating that] the part [is] smaller than the whole. [...] But it only takes this one thing, namely, for a person to have certain concepts in mind, for example, the concept of part and whole, for the truthfulness of [the second] judgment to be evident. For such judgments, we use the term "self-evident judgments." (Twardowski, 1902-1903/2023, p. 133)

If the above interpretative hypotheses are correct, it also becomes clear why Twardowski regarded psychologism as false and how he opposed it. Psychologism wrongly assumes that logical relations are studied by examining entire cognitive actions, such as act of reasoning. Meanwhile, logic investigates relations of truth and falsity between general forms of judgments that various judgments may possess. However, these general forms of judgments exist only as a certain component of cognitive actions, and this component can be isolated only through the described multi-level abstraction. However, since the action of abstraction is necessarily connected with the possession of represented judgments, one can concede the correctness of the interpretation according to which artefacts are an essential part of Twardowski's anti-psychologistic solution. However, their role is not to be the subject of logic but rather something through which we recognize the subjects of logic. In a sense, one could say that these represented judgments are to the logician what a microscope is to a bacteriologist – without them, his science is impossible, but they are not the subject of his interest. This characteristic is not limited only to logic but to all sciences that study objects of detached concepts.

At the same time, we must reject the interpretation according to which the concept of preservation of artefacts played any role in the discussed anti-psychologistic turn because firstly, Twardowski defines the independence of such preserved artefacts from the corresponding actions only as apparent, and secondly, because preservation plays no specific role in logic – it is neither a subject nor a cognitive mean to know this subject. Of course, this does not mean that the concept of the preservation of artefacts is irrelevant to the issue at all. However, it is important not because of logic itself, but because of the possibility of science in general. If artefacts could not be preserved, then language would be impossible, and consequently, science in general, including logic, would not exist. Therefore, the concept of preservation cannot be a solution to the problem because both psychologists and anti-psychologists assume some form of such preservation.

5. What Distinguishes the Anti-Psychologistic Stage From the Psychologististic One?

If the above interpretation is correct, we can contrast it with Twardowski's views expressed before 1902, which he considers to be the moment of departure from psychologistic views. It is easy to notice that the fundamental element of the above theoretical construction is the concept of abstraction. However, in this regard, there was no change between the psychologistic and anti-psychologistic stages, because already in (Twardowski, 1898/1965, p. 156), he had a developed theory of abstraction, and nothing in his writings suggests that anything changed significantly in this respect. Furthermore, a key element of the mentioned theory of abstraction is the concept of represented judgment, which can replace judgments in certain cases, for example, when we understand what someone says, although we do not want to say that it is so (Twardowski, 1898/1965, p. 149-150). Therefore, it can be said that in terms of describing cognitive mechanisms, nothing changes significantly.

In this regard, Twardowski's text that happens to be extremely interesting is "On so-called Relative Truths" (1900/1999; 1900/1965), in which he presents an argumentation showing that the theory positing the existence of relative truths is false because all examples of alleged relative truths are not such. Although at first glance one might suppose that the very term "judgment" used in this text indicates that there is no mention of mental actions here, it would be rather a mistaken assumption, considering that Twardowski only later became aware of this difference. At most, one could argue that Twardowski uses the word "judgment" in both of these senses because he is not yet clearly aware of the difference between them. However, it is not this term that is interesting, but the argumentation itself, or rather the assumptions underlying it. Twardowski argues that truth is simply a true judgment. Relative truth, on the other hand, is truth that is true only under certain circumstances, i.e., a judgment that is true only under certain circumstances. The greater part of Twardowski's argumentation relies on showing that relative truths would have to meet two criteria. Firstly, they must be judgments that become false with a change of circumstances, but remain unchanged in every other aspect. Secondly, they must be judgments that only become or have become false with a change of circumstances. Furthermore, "one may only speak of one and the same judgment if […] the same subject of the judgment is given, the same predicate, the same quality, number, etc." (Twardowski, 1900/1999, p. 149; Twardowski, 1900/1965, p. 317).

Thus, in light of the above characterization, we are dealing with an object that has the following properties:

1. It can be true or false.
2. It can be entertained by different individuals in different circumstances.
3. Its criteria of identity depend on its subject, predicate, quality, quantity, etc.

Regarding point 2 of this characterization, regardless of whether we adopt the interpretation directly suggested, meaning we are dealing with the same judgments held by two individuals, or we adopt the interpretation presented in "Actions and Products" (Twardowski, 1911/1999; Twardowski, 1911/1965) according to which common features of two numerically different acts account for our ability to speak of the same judgments, from the perspective of the reconstructed theory of logic, this does not change anything. As for point 3, practically the entire argumentation revolves around demonstrating that in many cases of alleged relative truths, we are dealing with a change in the meaning of the expressions used. However, according to the later theory proposed in "Actions and Products" (Twardowski, 1911/1999; Twardowski, 1911/1965), the meaning of an expression is nothing other than the product of the act of judging, i.e., a judgment.

Therefore, it seems that on the side of the object, everything is exactly the same as in the case of the later anti-psychologistic theory. In both cases, we have a certain action, in both cases, a certain meaning is distinguished, which we can abstract, and ultimately, in both theories, we can in a sense talk about different people having the same judgment. It is also impossible to assume that something has changed regarding what would distinguish judgments from each other, as already in (Twardowski, 1894/1977; Twardowski, 1894/1965), he acknowledges the idiogenic theory of judgments. If so, what is the difference? At first glance, one might assume that the difference lies in

the fact that in the later period, Twardowski recognized the apriority of logic. However, this is not true, as evidenced by the following text from the University Logic Course of 1898-1899:

> "Laws" in the logical sense we call judgments, whose subject concerns relations of necessary connection. These relations pertain either to the necessary coexistence of certain attributes, properties, etc. or to the necessary succession of certain phenomena. The necessity, which can be affirmed simply by considering the concept of objects, hence the necessity derived from the contemplation of the concepts of objects between which it holds, is termed 'logical necessity,' or 'a priori.' (Twardowski 1898-1899/2023, p. 77)

Therefore, it seems that Twardowski's theory did not change significantly in its essential aspects. However, this would contradict how he described his philosophical development. In light of this, should we conclude that Twardowski was mistaken in this matter, or perhaps consider that the above reconstructions are incorrect in some aspect? I believe we should reject both options and once again refer to the previously cited passage from the biography, where the last two sentences play a crucial role in our problem:

> But Husserl's *Logical Investigations*, which appeared some years later (1900/1), convinced me that it is impossible to treat psychological, that is, empirically acquired, knowledge as the basis of logical, thus a priori, propositions. My book on the basic concepts of didactics and logic [*Zasadnicze pojęcia dydaktyki i logiki do użytku w seminariach nauczycielskich i w nauce prywatnej*(1901)] was written prior to my study of Husserl's work, so that in it I still came forth as an "exponent of psychologism" [Psychologist]. **But my psychologism of that period manifests itself more in the demarcation of the material to be dealt with than in the manner of its treatment. For I maintain in general that the opposition between psychologism and anti-psychologism in logic is ultimately an issue that pertains to the scope of its domain rather than to the theoretical grounding of its propositions**. (Twardowski, 1926/1999, p. 31)

I believe that in light of the above analysis, the last sentence becomes more meaningful than upon initial reading and is the key to solving the mentioned puzzle. And my proposed answer to it is that the difference between the psychologistic and anti-psychologistic stages does not involve a significant change in the system of ontology, but rather a shift in emphasis. Through reading Husserl's text, Twardowski assures himself that logical investigations do not concern the acts of thinking themselves, leading him to the conviction that it is the general forms of content (meanings) of those acts of thinking understood as their dependent (metaphysical) parts that are the subject of logic. In this spirit, he seeks a way to better express this intuition and place it in a broader theoretical context. In the course of these investigations, he finds a series of linguistic differences that align with this distinction, and also provide hope for the theoretical unification of the field of psychology. In this way, Twardowski develops the theory of products. However, non-enduring products, which are the only products of mental acts, are not something he adds to his ontology as an additional theoretical postulate, but rather something that was already part of his system. In this work, he only finds linguistic anchoring that allows him to isolate them as a particular kind of objects of detached concepts, which are important from a theoretical point of view. Thus, the change in Twardowski's thinking can be likened to the situation of a person who, for a while, believed that rhythmics is a science that describes a musical composition, until at some point, they realized that it is a science that describes not the entire composition, but only a certain dependent element of that musical composition, namely rhythm. Such a change, however, is not a change in ontology – it is not that a new entity is postulated that was overlooked by the earlier theory. Rather, from the beginning, it is a certain layer of the already recognized object that is accepted but not paid attention to because it is believed to have nothing special about it.

According to Twardowski, the issue of psychologism does not concern the theoretical justification of judgments because it is still rooted in a particular kind of internal experience, namely (multiple) abstraction performed on acts of judgment – without such abstraction, we would know nothing about logic.

The proposed hypothesis, however, is inconsistent with the previously mentioned opinion of experts on Twardowski's work, who argue that in the later phase of his career, Twardowski moved away from ontological psychologism. According to my hypothesis, there is no change in the ontology system at all, only a reidentification of the object of logic, thus merely delimiting the scope of logic differently. It seems to me that the above reconstruction is correct, so I have nothing else to do but to invoke the ancient adage: "Amicus Plato, sed magis amica veritas."

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Notes

1. Specific methods of a given science can be preliminarily defined as those methods that are used in that science and are not used in any other science. This definition assumes, of course, that we are somehow able to distinguish between individual sciences.
2. Betti (2006) argues even for the thesis that it was Łukasiewicz, not Husserl, who played the most important role in changing Twardowski's views, contrary to the declarations of the latter.
3. I believe that the assumption that a given author fully understands the work they are reading should be the starting point for interpreting any author and should only be challenged when we have compelling reasons against such an approach.
4. Such an opinion can be found, for example, in the following works: (Ingarden, 1938), (Fisette, 2021), (Cavallin, 2001).
5. The concept of internal complement should not be confused with the concept of direct object. In the sentence "James plays football." the word "football" is a direct object, but it is not an internal complement (object), because it does not meet the criteria for internal complements.
6. In Polish an example of such a doubtful noun could be the word "pojęcie" (concept), which Twardowski pairs with the verb "pojmować" (to conceive). Although we can say in Polish "mam pojęcie x" (I have a concept of x) or "posiadam pojęcie x" (I possess a concept of x), it will not be synonymous with the expression "pojmuję x" (I conceive x). Expressions "pojmuję konia" and "mam pojęcie konia" are certainly not synonymous in Polish and the first one is arguably not even allowed by the system of meaning of the Polish language. This, however, need not be taken as a problem for Twardowski's theory, because the expression "Pojmuję x" functions as a technical term which could be rendered roughly as follows: "I think about x as something that is P.", where P is a shorthand for a conjunction of all the

features I associate in this moment with the object I'm thinking about. The entire phrase "as something that is P" is meant to convey that what I think about a given object is merely represented judgment. (More on represented judgment below.) If so, then in this case, it is clear how this expression meets Twardowski's criterion, as it falls under the schema "I think a thought." As far as I understand the meaning of the word "conceive" in English, it can be applied to all objects, and one can say "I conceive a horse," although it is a rather rare expression and its immediate meaning associations are quite different. However, it is not excluded that other expressions used by Twardowski may imply incorrect usage in English. In such a case, it should be noted, as in this case, that a given expression may be a technical term in Twardowski's philosophy.

7. The division between what is mental and what is physical is of course present from the outset in Twardowski's thought, see for example (Twardowski, 1894/1977, p. 1; Twardowski, 1894/1965, p. 3).
8. It should be noted at this point that the formulated criterion of being a psychophysical action leads to the conclusion that the class of psychophysical actions will include actions that we would not initially classify as psychophysical. This will be the case, for example, with the activity of sweating. If I sweat in a certain situation, it may be because I am nervous, so there is a certain mental activity that influences the physical activity, so sweating should be classified in this case as a psychophysical activity.
9. It may be worth noting that in this text Twardowski suggests that a mental action and a mental product constitute a certain whole, which is a fact, whereas reading the quoted fragment from the treatise "Actions and Products" (1911/1999; 1911/1965) might lead to the conclusion that the action itself is that whole. It is impossible to fully consider this problem here, so in the further part of the text, I will treat the action itself as the overarching whole in relation to the product, as it seems more natural from a linguistic point of view – we would call the "passing a judgment" an action rather than just "passing." I believe that adopting the second option does not affect the reconstruction presented by me in any way.
10. "Metaphysical parts (also called logical by some) […] [are] parts which can only exist within the whole they belong to but cannot exist without the whole. We do not speak of metaphysical parts that a whole can be divided into them, but rather, that they can be discerned within the whole." (Twardowski, 1902-1903/2014, p. 162; Twardowski, 1902-1903/2012, p. 157)
11. "Analytic concepts are the representations of such objects as need to be set apart from a larger whole by means of analysis, objects of which it is possible to have an intuitive representation only in conjunction with that whole." (Twardowski, 1924/1999, p. 84; Twardowski, 1924/1965, p. 301)
12. Such an interpretation is suggested, for example, by the remarks of Maciej Witek in the book *Spór o podstawy teorii czynności mowy* [The Dispute Over the Foundations of Speech Act Theory] (2011), where he argues that "in the case of speech, the difference between the act of uttering (utteratio) and the utterance, which is the product of this act (utteratum), is not real but conceptual. Kazimierz Twardowski draws attention to this fact in the work 'Actions and Products.'" (p. 44; translation mine). A similar interpretation is also proposed in: (Brandl, 1998). In the case of this article, however, it should be emphasized that Brandl proposes this interpretation not only based on the interpretation of what Twardowski wrote, as he considers it insufficient to decide between the conceptual and ontological interpretations but also because the conceptual interpretation better deals with the issue of psychologism. I think Brandl is mistaken in both respects, but in this article, I only demonstrate that the available writings of Twardowski rather point to the ontological interpretation.
13. The editor of this volume of Inedita, Jacek Jadacki, suggests that these texts were written before World War I, with the second text in this part being dated after 1910. However, assuming that they were indeed written before World War I, we can more accurately determine the date of these texts, namely the year 1914. My proposed dating stems from the fact that in both of these texts, Twardowski refers in footnotes to the work of Daniela Tennerówna [Gromska] (1914), in which she demonstrated that the terminology used by Twardowski is misleading, and this text was published precisely in 1914. However, I do not have access to all the information that served as the basis for such dating, and the fact that Gromska's text was listed in the bibliography with the correct date leads me to suspect that the editor had other reasons not to date the text to 1914. Perhaps these texts were created over a longer period, and only the mentioned fragments were introduced in 1914.
14. In the original Polish text, Twardowski uses the word "tkwić," which could also be translated as "to inhere."
15. The terminology on this subject is heterogeneous. Some would call such anti-realist positions nominalism, but others would classify trope theories as nominalism, which, however, recognize the existence of individual qualities but deny the existence of universals, which hardly can be called anti-realism regarding properties. As an example of a paradigmatic anti-realist theory regarding properties, one can mention Kotarbiński's reism, see e.g., (Kotarbiński, 1949/1966; Kotarbiński, 1949/1986).
16. Another argument in favour of Twardowski conceiving attributes realistically may be that when discussing divisions of objects among real beings, he distinguishes attributes, among which he includes, for example, the decisiveness of belief. See: (Twardowski, 1926-1927/2023, p. 43).
17. In this regard, I differ from Szylewicz's English translation, as he translates Twardowski's term 'powiedzenie' as a 'sentence,' which can be misleading. This is because 'powiedzenie' has a narrower meaning than the word 'sentence' [zdanie]; not all types of sentences (e.g. imperative) are statements (in the proposed sense), but even not all indicative sentences are statements (in the proposed sense), but only those whose cause is a judgment. My proposed translation

diverges from the typical meaning of the term ‘powiedzenie’ in Polish, which could be roughly translated as ‘utterance.’ However, this deviation is due to Twardowski’s proposed definition of the term, which deviates from the normal meaning, at least from the perspective of the contemporary Polish language.

18. Therefore, I believe that Twardowski’s position on properties should probably be characterized as some type of theory of individual properties (“abstract particulars,” to evoke associations with the class of theories associated with this unfortunate term), whereby the objects we perceive possess these properties in some way, rather than them being mere reflections of our cognition or language, and at the same time, no two objects share the same properties. However, this issue would require a more in-depth analysis than what I have presented above.

19. Another candidate to linguistically convey the concept of a represented judgment could be “I think of x, which is P.” I believe that the phrase proposed in the main text is better because if we substitute “this object” for x, then in the case where one of the attributes from P is not actually possessed by the object, we would obtain a false sentence. With the proposed phrase, there is no such problem. It should also be noted that the expression “I think of x, that it is P” would also be unacceptable because it informs the recipient that the speaker believes that x exists. For example, if I say, “I think of Tralalinka, that she is very wise,” then in normal circumstances the recipient will conclude that I believe Tralalinka exists. However, if I say, “I think of Tralalinka as someone who is very wise,” the recipient will understand that I am thinking of someone, but will not be inclined to attribute to me the belief that Tralalinka exists. Even if it’s not the case, it will at least refrain from attributing to me the belief that Tralalinka is very wise. Of course, in normal circumstances, I can say, “I think of Holmes, that he is a worse detective than Poirot,” because most interlocutors living in the same culture will know that both Holmes and Poirot are fictional characters, which results in a kind of contextual “tuning.” Yet another potential candidate for this linguistic equivalent could be “I think of the existence of x being P,” which would be a literal rendering of the concept of a represented judgment. However, I’m not sure if Twardowski meant that, for example, in every act of imagination we think of the existence of the given object, and not just of the object itself regardless of its existence. Due to this uncertainty, I will use the previously proposed phrase. However, I do not exclude the possibility that ultimately the latter phrase would be the most appropriate interpretation of Twardowski.

20. At this point, I must emphasize that this is a component of my reconstruction of what Twardowski means by represented judgments. Twardowski does not explicitly clarify this matter in this way anywhere.

21. The English translation uses the phrase “non-intuitively” to render the Polish word “nienaocznie.” However, it must be borne in mind that this does not imply that what is discovered in concepts is non-intuitive (because, as we will see, some of what we discover in concepts is obvious), but rather that during such presentation, no perception related to what is presented is formed. The literal translation of this Polish term into English would be something like: “non-with-one’s-own-eyes-ness.” The word “naocznie” is also used in the expression “naoczny świadek” which means “eyewitness,” in which “świadek” means “witness.”

22. I also suppose that the very act of thinking should be perceived as abstracted from actual mental life, but this is a marginal issue in this context.

23. The reference of a given product to time is not a clear matter. On the one hand, products can be temporally determined, as we can successfully speak of “yesterday’s thought” or “an obligation that arose at a certain moment.” On the other hand, the reference to time is somehow modified through abstraction in some cases, as it is strange to speak of a “thought (about a cat) lasting for some time,” although one can say that “an obligation lasts from a specified date.” It is like that at least in the Polish language. Similar thoughts regarding English words “thought” and “judgments” are expressed in (Geach, 1960, p. 106). Perhaps in the case of products of different actions, different attributes are abstracted. It is also possible to hypothesize that the same words denote concrete products in one case and common components of these products in another (that is, in the case of judgments – abstract judgments). I leave this issue open because it does not have a direct bearing on the problem under consideration.

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The Past and Future of High Technology

Abstract: This interview was given in 2008 by Arkady Zakrevsky (1928–2014), Corresponding Member of the National Academy of Sciences of Belarus (1972), Doctor of Technical Sciences (1967), and Professor (1969). He stood at the origins of the birth of cybernetics in the Soviet Union. He proposed the programming language for logical tasks LYaPAS, on the basis of which a series of computer-aided design systems for discrete devices was created, and methods for implementing parallel algorithms for the logical control of interacting processes. Some monographs: *LYaPAS: A Programming Language for Logic and Coding Algorithms* (N.-Y., L.: Academic Press, 1969; with M. A. Gavrilov); *Boolesche Gleichungen: Theorie, Anwendung, Algorithmen* (Berlin: VEB Verlag Technik, 1984; with Dieter Bochmann and Christian Posthoff); *Combinatorial Algorithms of Discrete Mathematics* (Tallinn: TUT Press, 2008; with Yu. Pottosin, L. Cheremisinova); *Optimization in Boolean Space* (Tallinn: TUT Press, 2009; with Yu. Pottosin, L. Cheremisinova); *Design of Logical Control Devices* (Tallinn: TUT Press, 2009; with Yu. Pottosin, L. Cheremisinova); *Combinatorial Calculations in Many-Dimensional Boolean Space* (Tallinn: TUT Press, 2012); *Solving Large Systems Logical Equations* (Tallinn: TUT Press, 2013).
Keywords: logic, computer science, Soviet Union, technological breakthrough.

Andrew Schumann: In the USSR, mathematics was very strong. Many foreign scientists studied Russian in order to read the originals. What are the reasons for such a powerful tradition?

Arkady Zakrevsky: Mathematics was more or less politically ignored, although formal logic, for example, was pursued. But in general, mathematics was relatively free, since it is difficult for the uninitiated to understand. There were good mathematicians in the USSR, quite at the level.

Andrew Schumann: Is this due to the fact that pre-revolutionary traditions have been preserved?

Arkady Zakrevsky: I cannot tell you. Something must have been preserved. Mathematics teaching was good both at school and at universities. We could even say that it was better than now.

Andrew Schumann: How can we explain the fact that mathematical schools were concentrated in the periphery — in Siberia, for example?

Arkady Zakrevsky: Tomsk has long been the centre of science in Siberia. It was there that the first Siberian university opened; its 130th anniversary was recently celebrated [*A. Sch.*: it was in 2008]. I looked at its history, and there were many people who were deported. They were not allowed to work in Moscow, and these were prominent scientists. Then, science there was well funded. The salary was one and a half times higher than in other places. I myself studied in Tomsk, then had a fellowship at Moscow State University. I can say that in Siberia there was a more working environment. There is more entertainment in Moscow, but in Siberia students came to study and had nothing else to do.

In Tomsk, there was less "roof", as they say. Usually, before entrance exams, parents fuss, somehow try to help their child, try to talk with teachers. When I arrived in Tomsk, I was amazed that there was nothing like this in the entrance exams. Applicants came from all over Siberia, but they did not bother the admissions committee. It seems to me that the enrolment was quite objective. I remember some Georgian arrived. He asked how much it cost to enrol: "For us it costs 5,000, and how much for you?" They laughed at him. I was lucky to study there.

Andrew Schumann: Was the organisation of science in Tomsk also freer?

Arkady Zakrevsky: Perhaps, yes. Philosophy was pressing — it was necessary to study the history of the party. It's quite boring; they asked us to take notes and stuff. But our philosophers were also quite free. One of our teachers then went to Moscow and became the director of the Institute of Philosophy there.

I liked that it really was a university. Not a technical one, but a university with philologists, historians, biologists, mathematicians, physicists, chemists... All the students communicated, and this helped. For example, my philologist friends advised me on what to read. They knew where some interesting article appeared. And overall, the atmosphere was good.

Andrew Schumann: Why did the development of mathematics in the country not lead to a technological breakthrough?

Arkady Zakrevsky: Management was not smart enough. This is related to the economy and the general management of the state. A good example is computing, when at a serious level a decision was made to close all research and copy IBM — technologies, machines, and so on. At the initial stage of development, Soviet computer technology was quite competitive. The same BESM (БЭСМ) series machines... There were about six companies that competed with each other in this area. Similar to how the design bureau made airplanes under Stalin. There were about eight of them. They competed, and when the war began, aviation was at the same level. And the computer technology was shut down. Arguments: we need to save money, take what has already been done. As a result, some organisations, universities, and firms closed. We jokingly called Soviet computers Stolenscope [Дралоскоп]. You can do mathematics yourself — you sit at the table and work; there is literature. And technology is impossible without support.

Andrew Schumann: What was the future fate of the people who worked in this field?

Arkady Zakrevsky: When the Research Centre for Electronic Computing (НИЦЭВТ), the organisation that managed computer technology, was created in Moscow, they recruited people, but many theorists did not go there because they did not like it. It had to be done from here to here. Like here in Minsk at Integral, people began to simply copy products. This work is also quite difficult, but unpromising. You will always be in the rear, and you will be controlled. They can plant some

information so that they themselves do not work. This is not entirely reasonable. The countries of Southeast Asia also copied, but they also did something themselves. Take Japan, Thailand. Somehow they were stimulated from above. We were not. Due to, in a sense, incompetent leadership, or maybe worse, because Western companies were interested in this.

Andrew Schumann: Can we assume bribes?

Arkady Zakrevsky: Of course, it is possible. This is a common thing, and a person is not ideal, as they say. Therefore, mathematics gives great freedom. Literature, paper... Now computers have appeared, you can study algorithms. Conduct experiments and so on. It's different with technology. I decided to do a technical thesis in Tomsk. It was dedicated to the digital correlator. This is related to signal reception, detection, recognition. There is such a concept as "process correlation", their connection. Analogue devices were made; they calculated the correlation coefficient. I became interested in this topic in my fourth year of study. The correlator is digital, like a computer. Back then, everything was done with lamps. I was studying and getting something from Moscow. I defended my diploma, and then I decided to quit because it was very difficult to get parts. You are no longer engaged in science, but in ensuring your work.

Andrew Schumann: If the USSR had the opportunity to develop independently, would the technology be of a completely different type?

Arkady Zakrevsky: This requires enthusiasts who know how to do something, and some kind of help. In computing, everything comes down to electronics, microelectronics, technology.

Andrew Schumann: Does modern Belarus have any prospects for a technical breakthrough? Or does the management of science here have the same shortcomings as in the USSR?

Arkady Zakrevsky: There are teams, and everything depends on them. When you have a good microclimate, you can do something. But everything is relative. If you compare it with Ukraine, it gets even worse there. Managers are not always competent. We are being eaten up by bureaucracy. Less time is spent getting results, and more time is spent on endless reports. The Yogācāra school of Buddhism believes that there are two logics: one for oneself, the other for others. When you use your own, the results come out faster. Explaining to someone else is tedious and very time-consuming. And if you have to explain all the time, development stops.

Andrew Schumann: Why has no theoretical logic been formed in Belarus?

Arkady Zakrevsky: I myself worked on applied problems. There is a problem, and we need to solve it. This is the main thing for me. Then you somehow justify the decision, and theoretical results appear. I like it when you are not given a topic from such and such a branch of mathematics, as is often done in term papers and dissertations, but when you delve into the problem yourself, understand it, and find methods for solving it. To do this, of course, you need to become familiar with different areas.

Andrew Schumann: This is probably how the most difficult problems are solved?

Arkady Zakrevsky: This is the right approach. This, of course, requires a somewhat broader outlook. To know where to look, what to apply. This is what the great scientists of the past did. Let's say Gauss was working on the problem of ship stability. Ships capsize when there is a strong storm. They must be designed to be stable. To explain the problem of tides, a competition was even announced. The winner did this for a whole year. We need a good mathematical theory focused on solving understandable problems. But it happens, of course, in different ways. Let's say the theory

of conic sections. When it developed in Ancient Greece, everything was quite abstract. Geometers did not deal with logistics, that is, trade mathematics. But then it turned out that the theory of conic sections is needed to explain the movement of planets and other things. Newton used them.

A lot of work is done like this: delve into some theory, but this does not translate into practice. Most work is done by analogy. There is such and such work, and we need to do a similar one. I myself sometimes liked to find a publication devoted to an interesting topic. From my point of view, it can be bad, done wrong. But this is the impetus: come up with something better.

Andrew Schumann: There are purely theoretical results that do not reach practical implementation...

Arkady Zakrevsky: Yes, a person buries himself like a mole into some problem, feels comfortable because he understands that he alone understands it. It's good if he knows where to apply it. If you don't know, interesting results are often lost. But the theory also pursues some goals.

Andrew Schumann: The lag of science in the countries of the former USSR is growing. Can we say that it will continue to intensify?

Arkady Zakrevsky: Now the situation is unfavourable. Previously, scientists from the republics interacted well and met in different places. The Baltic states — all three countries — and Georgia and Armenia participated there. There was also someone from Central Asia. Ukraine, Russia, Belarus interacted. There was a common environment. This will also develop further — where to go.

Andrew Schumann: Have these ties in the countries of the former USSR weakened now?

Arkady Zakrevsky: They have weakened somewhat, but they are there. Let's say there are good contacts with Estonia, Kharkiv, and Poland. But it's not the same as it was before. Nowadays, it's worse with conferences — it's more difficult to participate in them due to the high fees. The next conference is planned in Spain: the registration fee is 500 EUR, excluding travel and accommodation costs. We do not have the organisation that will pay for this. Recently, I travelled at the expense of the fund, and more often I made an agreement with the host party. They paid because they were interested in me. Previously, conferences of Gavrilov's School were located anywhere, and the costs were very low.

Andrew Schumann: Do electronics have any prospects at all? The gap in practical implementation will also widen.

Arkady Zakrevsky: They have been working on quantum computers for a long time, but I have no information that working ones have already appeared. It's more on a theoretical level, although there seems to be some prospects. If it works, it will be a huge leap. A friend of mine in South Korea worked for two years on such developments. Then he moved on to another topic: robots in the theatre, when they perform, they sing. An interesting direction is developing.

Andrew Schumann: Can we talk about the absence of a qualitative leap in technology?

Arkady Zakrevsky: No. I have a dacha 30 km from the city. We once dreamed of putting a telephone booth there so we could contact home. Now you are lying in bed, and before going to bed you are talking to your son, who is calling from America. This is a qualitative leap. In general, a leap is a transition to digital technology. TVs are now being switched over; telephones have been switched over a long time ago. Previously, because of the crackling noise, it was not clear what the interlocutor was saying.

Andrew Schumann: What about the development of computer technology? Quantitative indicators are growing — the amount of RAM — but it is probably impossible to talk about a real qualitative breakthrough. The technology remains within the same theoretical framework as it was 20–30 years ago.

Arkady Zakrevsky: Remember, as philosophers taught: quantity turns into quality. It really does transfer. New opportunities appear, new technologies. Some time ago, I had a typewriter — now, why do I need it? How many typists have lost their jobs, disappeared as a class? Previously, this also developed quantitatively. Everything was improved, and then it was thrown away. So what? They flew to the moon, also a new achievement.

Andrew Schumann: They didn't fly anymore.

Arkady Zakrevsky: But that's what they're doing. At one time there was a competition to see who would be the first to reach the moon. It didn't work out for us then, and then this idea faded away somewhat. Although they competed well, Gagarin was still the first to fly into space. Much is also explained by the fact that our main attention was paid to defence equipment; it was somewhat cut off from household equipment. Then it turned out that they are on the same foundation — computer technology in both.

Andrew Schumann: Is there a possibility for the emergence of a fundamentally different technology? For example, not on electrical circuits, but on something else?

Arkady Zakrevsky: It is possible on light — on photons, quanta. It is possible in the biofield. It would be interesting to make equipment for recording dreams; it would be in demand. You can make a library of dreams, haha. It's not that fantastic. In all the fantasies of past years, radio communications somehow did not figure particularly prominently. The invention of radio is one of mankind's greatest achievements.

Andrew Schumann: Why do Soviet mathematical schools lose their positions over time?

Arkady Zakrevsky: Young people must work. Now she pays more attention to making money. Many people leave to find a better place. There are also all sorts of schools there.

Andrew Schumann: There are very powerful schools that are not weakening. Like the logic school at Stanford.

Arkady Zakrevsky: Maybe there is. It depends on the students, and on the organisation, and on the microclimate, and on politics — on support. Schools must exist somehow. Gavrilov's School was understandable to everyone, everyone gathered... Interaction, communication, contacts were important. This requires space. Space with a scientific idea, information space.

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Philosophy and Logic in a Time of War

Abstract: This interview was given by Yaroslav Shramko (b. 1963), professor of the Department of Philosophy and rector of the Kryvyi Rih State Pedagogical University (Ukraine). His main research interests lie in the fields of logic and analytical philosophy. He has carried out several projects on modern non-classical logic: 1996–1998, within the Alexander von Humboldt Foundation Fellowship at Humboldt University in Berlin (Germany); 1999–2000, within the Fulbright Program at Indiana University in Bloomington (USA); and 2003–2004, as a Wilhelm Bessel Awardee at Dresden University of Technology (Germany), among others. He has been a frequent invited speaker at international conferences and congresses. He is a member of the editorial boards of several international logic journals, such as *Logic and Logical Philosophy* (Torun, Poland), *Bulletin of the Section of Logic* (Łódź, Poland), *European Journal of Mathematics* (Springer), and *Studia Logica* (Springer). Prof Shramko is the author of "Truth and falsehood: An inquiry into generalized logical values" (Springer, 2011, joint work with Heinrich Wansing) and a number of articles on logic and analytic philosophy in peer-reviewed international journals.
Keywords: logic, analytic philosophy, symbolic logic, logic of first-degree entailment, war in Ukraine

Andrew Schumann: First of all, as a person with Belarusian citizenship, I would like to apologise to you as a Ukrainian for the grief that was brought to your country from the territory of Belarus. The Belarusian society (unfortunately not the state) strongly condemns Russia's aggression. What difficulties did you face personally as the rector of the Kryvyi Rih State Pedagogical University after 24 February 2022? What difficulties appeared in the organisation regarding the educational process and scientific work of the university?

Yaroslav Shramko: The 24th of February 2022 divided the life of every Ukrainian into two parts: before the full-scale aggression of the Russian Federation and after it. Of course, Ukraine has been in a state of undeclared war with Russia at least since 2014, when the criminal annexation of Crimea and the invasion of the Donbas region took place. But February 24 was indeed a turning point. This day made it quite clear for the whole world that Putin and his clique do not need Crimea, Donbas, or any other separate Ukrainian territory; their ultimate goal is the whole of Ukraine. Moreover, they want to restore the Russian Empire, at least within the borders of the former Soviet Union, and to achieve this goal, they will seek to destroy the Ukrainian state and the Ukrainian nation by all means. However, it is now evident that Putin has miscalculated and badly underestimated the Ukrainian people. We are fully committed to fight against the occupiers for our freedom and our country. It was this mood of resistance that dominated our city and our university from the very first day of Russian aggression. As for the Kryvyi Rih State Pedagogical University, our main task was to maintain a high degree of overall organisation, to support our students, faculty,

and all staff, to provide them with a foothold in this difficult time. We also sought to contribute to the resistance against the enemy. There were days in March 2022 when the advance troops of the Russian army approached quite close to the city, and it was very important not to fall into panic. At the university, we organised a volunteer centre, where students and professors wove camouflage nets for the defenders of the city and helped to form and equip battalions for the territorial defence. At the same time, we continued the educational process at the university, although, of course, all classes were held remotely. Well, it was not easy for us then, and it is not easy now, when we have to endure constant rocket attacks on the city, although the Russian troops were driven behind the Dnipro River. But the most important thing is that we retained faith in our victory and have kept the university intact. The vast majority of students and faculty remain in place, and we continue our academic and scientific activities.

Andrew Schumann: How tangible is the support from the world scientific community and their solidarity with the Ukrainian people in the philosophical circles of Ukraine now?

Yaroslav Shramko: From the very first days of the Russian invasion, I have personally felt immense support from and solidarity with colleagues and friends from all over the world, especially from Germany and Poland, but also from many other countries. I received so many emails from logicians and philosophers, both familiar and unfamiliar, offering help, asking what they could do for their Ukrainian colleagues and expressing the strongest condemnation of the Russian imperialistic aggression. I know it was the same with many of my colleagues from other Ukrainian universities. Such support from the world scientific community has been and remains very important to us, and it helps us a lot to withstand all the challenges that we are going through right now. It is also important that we have been able to carry out some practical projects aimed at supporting Ukrainian philosophers. Thus, colleagues from the Institute for Logic, Language and Computation (University of Amsterdam) Sonja Smets and Nina Gierasimczuk contacted the head of the Logic Department at the Taras Shevchenko National University of Kyiv Irina Khomenko and me with the idea of holding a special fundraising logic conference aimed at supporting colleagues in Ukraine who have been affected by Russian aggression. And such a conference, Logic4Peace (https://events.illc.uva.nl/Logic4Peace/About/), was indeed organised in a very short period of time and was held online on 22–23 April 2022. Eighteen international institutions got involved in its organisation, and the conference itself was a great success. All the funds raised were directed to the charitable foundation Voices of Children, which provides humanitarian aid for Ukrainian children, as well as to colleagues at universities in Ukraine who were either displaced or have lost their homes. I think that such events are a vivid confirmation of the solidarity of the international scientific community with us, their Ukrainian colleagues, who together with the whole Ukrainian people are fighting against the Russian aggressors. I can only express my deepest gratitude to all colleagues and to the international scientific community for this support — it is invaluable.

Andrew Schumann: How is philosophical life developing in Ukraine now? Are there any new trends in philosophical reflection? How do philosophers and logicians of Ukraine manage to resist all this horror that has befallen the Ukrainians?

Yaroslav Shramko: It may seem astonishing to some, but after the Russian invasion, philosophical life in Ukraine has not only survived, but has even intensified. I think it is only natural for philosophy to respond to the most acute processes and events in life and society, to try to comprehend them, and to offer its own solutions to the most urgent problems of the day. Of course, in Ukraine the questions of war and peace now come to the fore, including those related to their ethical dimension. Sociopolitical considerations on the development of totalitarian societies, such as modern Russia, which has actually become a fascist-type state, are also very important for understanding how the situation in which we now find ourselves has become possible in the 21st century. It must be said that over the past year, scientific contacts between Ukrainian philosophers

and our foreign colleagues have significantly increased. This finds its expression, for example, in participation in various international conferences, which, thanks to the development of modern technologies, can also take place remotely. I will give just one example of such cooperation and its fruitful results. In September 2022, at the invitation of the president of the German Society for Analytic Philosophy, Prof Geert Keil, a delegation of 10 Ukrainian philosophers took part in the 11th International Congress of the Society "Philosophy and the Public" held at the Humboldt University in Berlin (https://gap11.de/en/index.html). A special colloquium on the war in Ukraine was also organised at the congress, with presentations by both German and Ukrainian participants. The intense scientific contacts during this event were further developed, in particular, by organising an online workshop "Ethics of the Ukraine War" (16–17 February 2023). In turn, on the basis of this workshop, a permanent philosophical seminar was established, which meets monthly online and during which presentations on topical issues of philosophy are made by Ukrainian and foreign colleagues. This involvement of Ukrainian philosophers in the international philosophical community is also helpful in our resistance against the aggressor, because we feel our direct connection to the world civilisation and our ability to contribute to its development, in particular from a philosophical perspective.

Andrew Schumann: What trends in analytic philosophy can be the most promising?

Yaroslav Shramko: If we look at the state of affairs in contemporary analytic philosophy, we can note the tendency towards the unconventional for "standard" philosophy areas, such as experimental philosophy or problems that are at the border between different branches of philosophical consideration, such as ethics, social philosophy, and epistemology (e.g., epistemic injustice or social epistemology). All of this is related to the desire for public relevance of philosophy and for demonstrating its applicability to current social problems, especially those with a moral dimension. Nevertheless, I think that applied philosophy can only have a subordinate importance. At the heart of philosophical knowledge, analytic as well, are still, as has always been, classical disciplines, such as metaphysics, epistemology, or political philosophy. Another thing is that the major breakthroughs in these disciplines seem to have occurred in the first and second third of the 20th century. Since the 1960s and 70s, analytic philosophy has developed most extensively, expanding into more and more new areas, so that it currently encompasses the entire spectrum of philosophical knowledge. I would say that we are now experiencing what might be called a kind of a "textbook period" in analytic philosophy. Over the past 20 years, a great many textbooks, encyclopaedias, guides, companions, etc. have been published on the most important topics and disciplines of analytic philosophy. There are considerably more publications of this kind at present than, say, in the 1980s. This indicates that we are currently undergoing a process of ordering the philosophical knowledge gained in previous times. I am sure that new breakthroughs lie ahead of us. Perhaps they will be linked to advances in artificial intelligence and thus will take place in the field of philosophy of mind. Maybe we can even come up with a solution to the mind–body problem. As for logic, it continues its intense development, which is associated primarily with the investigations of various non-classical logical theories.

Andrew Schumann: Could you give a popular definition for the logic of first-degree entailment that you have proposed?

Yaroslav Shramko: It would be an exaggeration to say that it was I who proposed the logic of first-degree entailment. This logic was introduced by the outstanding American logician Nuel Belnap in the 1960s. Given that the concept of consequence is at the heart of logic as a science (according to Stephen Kleene, "logic has the important function of saying what follows from what"), first-degree entailment represents this concept in its purest form, as a relation between statements that are not themselves consequences. Syntactically, first-degree entailment is an expression of the form A -> B, where neither A nor B contains the connective of entailment ->. Semantically, Belnap and his

student Mike Dunn have shown how this logic can be used to apply to reasoning in computer systems when our databases appear to be incomplete and/or inconsistent. I hope that I (with co-authors) have also been able to make some contribution to the study of this most interesting logical phenomenon, particularly when we are dealing not with individual computer systems, but with their networks.

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Living in Illusion is Dangerous

Abstract: The interview given by Marina F. Bykova, Professor of Philosophy at the Department of Philosophy and Religious Studies at North Carolina State University (USA), and the Editor-in-Chief of the journal *Studies in East European Thought*. She earned her PhD and Dr. Habil in Philosophy from the Institute of Philosophy, Russian Academy of Sciences (Moscow, Russia), where she worked until relocating to the USA in 2000. Bykova specializes in the history of nineteenth century continental philosophy, with a particular focus on German idealism. She has also written extensively on Russian philosophy and intellectual tradition. She has published 11 books and over 250 scholarly articles. Her forthcoming book, *Hegel's Philosophy of Nature: A Critical Guide*, is set to be released by Cambridge University Press in 2024.

Keywords: Russian philosophy, German philosophy, war, Ukraine.

Andrew Schumann: German philosophy has long set the standards for philosophical thought. In the nineteenth century, Polish and Russian philosophy developed under its direct influence. How significant is German philosophy today? In what areas of philosophical research is it most relevant?

Marina F. Bykova: You are asking a very interesting question. As a scholar of German idealism, I am engaged with German philosophy in its historical and contemporary manifestations.

Indeed, nineteenth-century German philosophy was enormously influential and rich in content. It would not be an exaggeration to say that it reached its zenith in German idealism, a cultural phenomenon often likened to the Golden Age of Athens. In Germany, this intellectual epoch is commonly referred to as "classic German philosophy." In addition to the most famous philosophical figures of the era, such as Kant, Fichte, Schelling, and Hegel, this intellectual period is also marked by the work of many other thinkers, including Friedrich Jacobi, Karl Reinhold, Friedrich Schleiermacher, as well as a creatively interactive group of German Romantics that includes literary giants such as Schiller, Goethe, Hölderlin, Novalis (Friedrich von Hardenberg), the brothers Schlegel (Friedrich and Wilhelm), and many other intellectuals with great talents in aesthetics and science.

After Hegel's death in 1831, German philosophy faced an identity crisis, but it continued to thrive, producing new thinkers, ideas, theories, and schools that set the tone for philosophical development in Europe and beyond through the second half of the nineteenth century and into the twentieth century. In addition to the well-known figures of Feuerbach, Marx, and Nietzsche, this period also produced such notable thinkers as Wilhelm Dilthey, Eduard von Hartmann, Adolf

Trendelenburg, and other highly original philosophical minds. When it comes to philosophical movements, Neo-Kantianism, originating in German universities in the 1870s as a revival of Kant's philosophy, dominated the country's philosophical landscape until the First World War. Starting as an epistemological movement and later extending over the entire domain of philosophy, it had a significant impact on contemporary and subsequent philosophical thought, echoed in the early works of Edmund Husserl and Martin Heidegger.

With these two thinkers, we have transitioned into the twentieth century. Looking back at the history of German philosophy from our present, some argue that the rich tradition of German philosophy tapered off, and in the latter half of the twentieth century, France emerged as the intellectual leader of Europe, especially in attempting to transcend the intuitions of individuals engaged in regular political and social life. However, this viewpoint is fraught with tension and reveals a deep-seated division. After the conclusion of World War II, German philosophy faced another crisis, triggered by the traumas of National Socialism and the war. Karl Jaspers, in his lectures published during the Nuremberg trials under the title *Die Schuldfrage* (*The Question of German Guilt*, 1946), publicly posed the emotionally-charged question of German guilt and responsibility for the war's devastation. He advocated critical self-reflection as the sole path toward cultural and political renewal in Germany. The pursuit of critical reflection significantly influenced one of the primary currents of German philosophical thought during that period, which increasingly shifted focus toward social critique, political theory, and morality – central themes for the Frankfurt School in its first and second waves.

Another prevailing tradition was phenomenology, which Husserl considered the genuine means of overcoming the "crisis of humanity." This theme was also central to early Heideggerian existential phenomenology, where it is explored on the plane of "authenticity." In his later works, Heidegger proposed a solution wherein the re-enchantment of reality emanates from within our human agency-in-the-world.

Despite the serious geopolitical upheavals in which Germany played a grim role, the trajectory of German philosophy in the twentieth century was no less exciting and diverse than in the previous century. In addition to figures like Husserl and Heidegger, the philosophical pantheon includes renowned German thinkers such as Max Weber, Oswald Spengler, Hans-Georg Gadamer, Max Horkheimer, Theodor W. Adorno, Hannah Arendt, Herbert Marcuse, and Jűrgen Habermas, to name just a few. These philosophers, among the most famous and studied of the century, played central roles in major philosophical movements like neo-Hegelianism, phenomenology, existentialism, hermeneutics, and critical theory, many of which were originated or advanced in their works.

Given the persistent development of German philosophy over the past two centuries, it is only natural to wonder about its contemporary state. This question is particularly crucial as some commentators express skepticism regarding the current role of German philosophy within the country and on the global stage, suggesting a decline in visibility. I, however, believe this to be a false impression. In my view, Germany remains a wellspring of profound philosophical ideas and practices, addressing issues central to the contemporary world and significantly contributing to the advancement of human knowledge. This holds true not only for areas such as the history of philosophy (represented by figures like Markus Gabriel, Hans Sluga, Vittorio Hösle, Hermann Lübbe, Pirmin Stekeler-Wethofen, Jens Timmerman,and Frithjof Bergmann), cultural theory/hermeneutics (with scholars like Gadamer, Peter Sloterdijk, and Kuno Lorenz), and political and social philosophy (featuring luminaries like Habermas, Axel Honneth, Tatjana Višak, Rainer Forst, Thomas Pogge, Peter Herrmann, and Hans Albert), in which Germans have traditionally excelled, but also in emerging fields like cognitive science (with thinkers such as Thomas Metzinger, Sebastian Rödl, Thomas Khurana, and Hans-Werner Bothe), philosophy of religion (represented by Ruth Lapide), media theory and media ethics (led by Friedrich Kittler and Alexander Filipović), feminism (with contributions from Frigga Haug), information science (guided by Ingetraut Dahlberg), aesthetics (with scholars like Wolfgang Scheppe and Andreas Dorschel), and more.

It is also significant to acknowledge a noteworthy shift in the approach to philosophy and the understanding of its role that we can currently observe in Germany. I am referring to a visible effort to overcome the notion of philosophy as largely theoretical and elitist, the perception of being detached from reality and confined to the ivory tower, and to make the discipline more practically relevant to the challenges of everyday life and thus more appealing to a broader audience. While over the previous two centuries, German philosophy primarily saw its main purpose as the critique of everyday life, excelling in this endeavor, contemporary German practitioners of philosophy appear to be radically reconsidering its social function. They aim to provide intellectual tools that sustain everyday human existence and contribute to improving the conditions in which life is lived.

In fact, it was Habermas who, in his early work, introduced a new, rather optimistic philosophical discourse that went beyond the pessimism of the Frankfurt School's first generation. As one of the most influential public intellectuals in Europe and the world, he utilized public platforms to advocate for this cause. Following in his wake, German philosophers of a new wave have taken the task of publicly promoting philosophical knowledge and making the discipline more relevant to contemporary issues even further. In addition to relying on old academic practices, they also introduced new ones, including the production of popular philosophy books and magazines, offering engaging TED talks, organizing philosophy festivals, and hosting TV shows with philosophical content. Their efforts are already paying off: philosophy in Germany is booming, reflected in growing student enrollment in philosophy courses and an increased demand for ideas within society.

Andrew Schumann: In the book edited by Nikolaj Plotnikov and entitled *In the Face of Catastrophe* [Перед лицом катастрофы] (Münster: LIT Verlag, 2023), the authors, Russian philosophers, try to answer the following significant question: what philosophical premises made it possible to create a militaristic ideology that emphasized the uniqueness of Russian culture over all others? How important is it for Russian philosophers to reflect on their responsibility for the war in Ukraine?

Marina F. Bykova: I am familiar with the collection of essays edited by Nikolaj Plotnikov. The volume's contributors, who, along with professional philosophers, also include historians, sociologists, cultural studies scholars, and essayists, attempt an intellectual analysis of the Putin regime's aggression against Ukraine, seeking to understand social, political, and historical origins of the catastrophe unrolling before our eyes. This is one of the first Russian publications of that kind, and it is very thoughtful and timely. While it may be too early to determine its impact on Russian society, the fact it has already been banned for distribution within the country by the authorities suggests that it is garnering significant attention.

Recognizing a responsibility to society is paramount for intellectuals, especially during critical times of national crisis like the one we are currently experiencing. The war in Ukraine, initiated by Putin's regime, has starkly exposed the problems within Russian society. However, it has also provided an opportunity for intellectuals and the educated classes in general to reclaim and publicly realize their primary role in upholding the preconditions of democratic culture. Intellectuals today bear the responsibility to accurately assess the current crisis, critically reflect on its causes, and strive to develop a synthetic understanding of the present situation in connection with the past and the future.

The recognition of this responsibility inspired me to propose to my fellow Russian émigré colleagues the idea of assembling a collection of essays. This volume, titled *At the Vanishing Point in History*, is currently in production by Bloomsbury Academics and is scheduled for release later this year. The collection aims to address the dire realities unfolding in Ukraine and respond to the calamity that Russia has brought upon itself. Its primary focus is on Russia, which currently stands at a critical historical crossroads, precariously balancing on the brink of oblivion. Composed in English, the volume is primarily intended for Western readers who may require assistance in navigating difficult terrains of Russian history, culture, and politics. Beyond being an endeavor for a critical analysis of the present by conceptualizing it within early and recent Russian history and

intellectual development, this collection also serves as a significant declaration of the authors' civic position as intellectuals deeply concerned about Russia and its future.

In response to your question regarding the importance of Russian philosophers contemplating their responsibility for the war in Ukraine, it is essential to recognize the significant influence of ideas and ideologies on Russian politics. The conflict with Ukraine represents just one of the recent, and arguably most tragic, instances illustrating the impact of ideas on politics, providing a rationale for condemnable actions. Putin's choice to invade Ukraine in February 2022 is difficult to comprehend without considering the prevailing Russian ideological landscape, currently characterized by the belligerent ideology of the "Russian world."

I share your perspective that one of the root causes of the current tragedy lies in the exceptionalist agenda deeply embedded in Russia, with its origins tracing back centuries. In the history of Russian philosophy, this agenda can be discerned through the influence of the Slavophiles. However, as a distinct worldview, it permeated national and social consciousness long before formal articulation in public doctrines. Notably, exceptionalist ideas resurfaced as a central theme in late-nineteenth, early-twentieth century Russian philosophy, gaining renewed emphasis in the works of Vladimir Solovyov, Nikolai Berdyaev, Semyon Frank, Fyodor Dostoevsky, and some other key thinkers of that era. This trend was articulated under various names such as *sobornost'* (spiritual communal interconnectedness), *tselostnost'* (wholeness, integrality), "national unity," "national identity," etc., promoting ideals of autocracy, messianic exceptionalism, and imperial nationalism. Unfortunately, these ideals proved enduring in Russian history, contributing to ideocracy and totalitarianism in the first half of the twentieth century.

It is crucial to acknowledge that Russia's claim to exceptionality, uniqueness, and supremacy poses significant dangers both in political affairs, including international relations with other independent states, and in the realm of creative thought, including philosophical discourse. In this sense, Russian professional philosophers and other intellectuals, who shape the collective societal consciousness through their work, certainly have the important duty of carefully defining and accurately interpreting historical ideas and the meanings inherited from tradition, as well as those newly introduced into public discourse. Moreover, there is an urgent need for the careful analysis and balanced evaluation of the Russian philosophical tradition. In the aftermath of Russia's invasion of Ukraine, there is also an immediate need for a new and objective reinterpretation of Russian culture as a whole. This reevaluation should extend to classical figures and works, subjecting them to critical scrutiny from the perspectives of exceptionalism and national messianism. Such an intellectual endeavor is vital for fostering a nuanced understanding of the cultural and philosophical underpinnings that have contributed to the current geopolitical situation.

Andrew Schumann: What is your personal position on the responsibility of Russians for the war? Is there collective responsibility?

Marina F. Bykova: I personally do not believe in the concept of the collective guilt of a nation, as proposed by Karl Jaspers, and I also reject the notion of "collective responsibility" in any literal sense. Stating that all Russians are responsible for the war in Ukraine implies that Russians, as a people, are more prone to war and violence than others. This assertion borders on racism, does it not?

However, these considerations do not diminish the importance of taking responsibility. We cannot avoid bearing responsibility for the actions of the society we are part of. In today's fractured world, we all have obligations toward humanity. As citizens of our respective states, we also have a duty and responsibility to contribute positively to our communities and strive for the betterment of society as a whole. It is hard to admit that your home country is the aggressor, but living in illusion is dangerous. Therefore, it is crucial for Russians to recognize their personal responsibility for the atrocities committed in their name, however painful it may be. The entire Russian nation and each Russian individually must deeply feel the tragedy and pain that the war unleashed by Putin's regime has inflicted on Ukraine and its people.

There is another relevant detail I would like to mention. While many Western observers reject the idea of collective guilt, some argue that Russians are guilty in a sense of "crimes of omission"—not actively opposing Putin and his regime. As we know, many people did take to the streets at the end of February – early March 2022, and even later, risking their own safety and that of their loved ones. Speculating about the number of protesters and blaming the lack of impact on inadequate total turnout is one perspective. However, I believe the main issue runs much deeper than just the protester count; it lies in the political immaturity of Russian society.

Democracy thrives on civil society, and, suppressed by autocracy (and now almost dictatorship), civil society has historically been weak in Russia. Therefore, it is unsurprising that Russian society is not sufficiently involved in the political affairs of the state, often demonstrating conformity with the regime. Moreover, Russia lacks a democratic culture, largely stemming from the country's elusive and unfulfilled Enlightenment. The primary focus of Russian rulers has persistently been the preservation of imperial absolutism and the dominance of political and religious authority. This focus has hindered Russia's chance for a genuine Enlightenment experience, similar to that which occurred in Europe.

The few decades of relative freedom that Russians enjoyed after the collapse of the Soviet Union provided insufficient time to learn even the basics of democracy and liberal ideals. Russia is in need of a new Enlightenment that reinforces the value of universalism, making it a central feature in political, social, and intellectual discourses. This broader perspective can help overcome the confines limited by "cultural specificity," exceptionalism, and supremacy. Russians require education to enlightenment and "training to freedom" for democracy to take hold. Only an organic intellectual and social renaissance can save the nation.

Andrew Schumann: Is there any philosophical knowledge that can be considered the ideological basis of the Kremlin's militaristic policy? For example, Alexander Dugin considers himself a follower of Vladimir Solovyov (a Russian philosopher of the nineteenth century). Among the supporters of the war are followers of Alexander Zinoviev (a logician and social thinker of the late twentieth century).

Marina F. Bykova: As mentioned earlier, certain philosophical ideas, such as the exceptionality and spiritual supremacy of Russia and its culture, are indeed actively employed by the Kremlin to justify its aggressive stance toward Ukraine. However, I do not believe that any particular philosophical thinker or individual intellectual figure can be considered an ideological "inspiration" for the war or the "constructor" of these new realities. Many utilized ideas are instead products of propaganda that fabricates new myths and fictional realities. The current Russian regime actively instrumentalizes the country's history and intellectual tradition, exploiting both as tools to advance its political objectives.

The practice of extracting historical figures from Russia's past who, in their time, expressed ideas that bear some, albeit faint, similarity to those promoted by today's ideologues, proves effective in influencing public consciousness. Consequently, these figures undergo a transformation, becoming officially "approved" or "accepted" thinkers, and their ideas are curated into a roster of citations available for use by regime officials. Citations are frequently taken out of context or repurposed for objectives different from those intended by the author, leading to distortion of the original meaning of the text. Such manipulations often mislead listeners or readers and undermine the integrity of the author's work. The list of "approved" thinkers predominantly comprises Russian philosophers and writers, a choice justified by the educational level of the Russian population and its inclination toward written discourse. Among the most popular figures on this list are Fyodor Dostoevsky, Nikolai Berdyaev, Vladimir Solovyov, and most recently Ivan Ilyin who is now lauded as a "herald of future Russia."

Neither Zinoviev nor Dugin belongs to the official "pantheon of names" curated by Kremlin propaganda. The notion that Zinoviev is "Putin's favorite philosopher" is rather an ideological maneuver undertaken by some of his conservative admirers, with enthusiastic support of his widow,

Olga Zinovieva. She is the founder and chair of the politically engaged ultra-patriotic and radically nationalistic "Zinoview Club," which operates under the banner of "Russia Today." Similarly, Dugin's celebratory status as "a chief promoter of Russia's war in Ukraine" and "Putin's philosopher" (as declared by Austin Ramzy and Anton Troianovsky in their piece in *New York Times* (21 Aug., 2022); see also Michael Millerman's article in *First Things* in February 2023) is very artificial and extremely inflated. While Zinoviev was indeed a philosopher engaged in research in logic and later contributed to social theory, Dugin has no connection to academic philosophy. He is more of a media personality who posits himself as a "philosophical thinker." Until recently, he has been merely a marginal figure known only among a narrow circle of radical activists, advocates for the ideas of Eurasianism. What has brought him into prominence in the current Russian intellectual landscape is his radical-right persuasion, extreme ethnic nationalism, outspoken support for the exceptionality and civilizational supremacy of Russia, aggressive promotion of Russian "traditional values," and fundamental confrontation with anything Western. All of these closely align with the current agenda of the Putin regime. However, despite this significant overlap, I am skeptical about the influence of Dugin's ideas on the Kremlin and its decision-making mechanisms. It seems that Putin's officials are even attempting to distance themselves from the extreme ideologies bordering on fascism that Dugin supports through political action and an extensive body of writings with immense range and variety. Today, the state appears to be using Dugin (along with other ultra-conservative radicals on the ideological front, such as Alexander Prokhanov, monarchist Konstantin Malofeev, "theoreticians" of the Zinoviev Club, etc.) to retroactively justify the decisions of the authorities.

Andrew Schumann: How can we stop this terrible war?

Marina F. Bykova: We must take a firm stance against Putin's regime, whose aggressive agenda has paved the way for this war. While much debate centers on the question of responsibility, mere discourse falls short; what is imperative is decisive action, which involves the development and staunch defense of one's position.

Do ordinary Russians truly endorse the brutality unfolding in Ukraine under their name? I believe otherwise. The majority of everyday Russians find themselves caught in the middle, confronted with a situation they neither chose nor fully grasp, feeling powerless to effect change. Some opt to disengage from politics, allowing the Kremlin to decide on their behalf. However, maintaining a low profile comes at the cost of unsettling moral compromises.

As intellectuals, we are tasked with utilizing our critical faculties to objectively scrutinize the military confrontation, acknowledging its complexity through a comprehensive examination of historical and contemporary data. This endeavor also opens the door to constructive dialogue among intellectuals on both sides of the divide – a dialogue with the potential to foster peace in the Russia-Ukraine confrontation and ensure the progressive development of humanity on the global stage.

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Book Review: *Libertarian Autobiographies: Moving Toward Freedom in Today's World.* Edited by Jo Ann Cavallo and Walter E. Block. Palgrave Macmillan, 2023

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When I first became exposed to the libertarian philosophy in the late 1960s there were only a few libertarian philosophers who were currently cranking out the philosophy. Walter Block and Murray Rothbard come to mind, as well as Leonard Read. A few years later I became aware of the existence of Hans-Hermann Hoppe. And of course Ludwig von Mises and Bettina Bien Greaves. I was fortunate enough to meet them all over the years. I even got to co-author with two of them.

Since then, the number of libertarians who have become active in publishing has increased dramatically. Jo Ann Cavallo and Walter E. Block have done an excellent job of assembling the autobiographies of many of the most prominent libertarian philosophers, economists, historians and sociologists. Department chairs and deans could use this volume as a recruitment tool if they need to add a professor to their faculty to increase intellectual diversity on their campus. What these authors have to say has become increasingly important in recent years, as much of the world seems to be descending into various forms of totalitarianism. The authors in this volume provide alternatives to much of the current intellectual thinking.

Every one of the autobiographies is interesting. Many of them are inspirational. Some of the individuals lived under tyrannical governments at some period in their life, which makes their escape to freedom even more impressive, as their life experiences propelled them to tell their story.

There is a joke that if you have 10 libertarians in the same room they will have 12 different opinions. That is true of the contents of this book. Although they can all claim the label "libertarian," they disagree on some issues, and they come from diverse backgrounds. Some are anarchists; others are not. Some are atheists or agnostics. Others belong to or affiliate with several religions. Some have switched their religious views over the years. Many of them started out as something other than libertarian and have changed their economic and political views as they learned how to think logically.

The structure of the book makes for easy reading. The chapters do not follow each other like a novel or textbook, so there is no need to start at the beginning. You can start by picking the chapters of the authors you have read, heard of or perhaps met and proceed from there. I hesitate to say this book is "mandatory" reading because libertarians cringe at the mention of that word, so I will just say that you should place this book at the top of your list of things to read and leave it at that.