Axiomathes (2020) 30:327–346
https://doi.org/10.1007/s10516-019-09458-7

ORIGINAL PAPER

# Epistemological Field and Constellation of Fact in Wittgenstein's and Popper's Philosophy

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Received: 18 April 2019 / Accepted: 12 August 2019 / Published online: 23 August 2019


**Abstract**
In this article, a comparative analysis of Karl Popper's falsifiability theory and Ludwig Wittgenstein's theory of meaning in the context of the historical-philosophical approach to the problem of new knowledge formation and justification is undertaken. An assumption is made that the constellation of fact is connected with the possibility of the emergence of an epistemological field. Researchers have repeatedly addressed this issue; however, one important detail received no due attention: Popper's counter-arguments regarding Wittgenstein's view on semantic paradoxes show the fundamental difference of these philosophers' views on the sign and the signified (language and world), which contributes to the analysis of new knowledge formation. Arguments that concern both early and late periods of Wittgenstein's philosophy are used in this study. The uncertainty of the demarcation criterion (according to Popper) allowed analyzing Wittgenstein's position as to how and why different rules of inference form different epistemological fields.

**Keywords** Fact · Epistemological field · Wittgenstein · Popper · Theory of meaning · Falsifiability theory

## 1 Introduction

In the broadest sense, the consideration of the problem of fact is a consideration of the problem of the constellation of fact[1] (as different interrelated factors).[2] However, it is the interconnection of these different factors in a single continuum of

[1] In this work, the constellation of fact refers to the epistemological organization of the interaction of different factors and elements that form new aspects of the view on previously known states of affairs.

[2] In this context, Jimmy Plourde's new discussion on the terms of Wittgenstein's *Tractatus* is relevant: state of affairs, fact, and situation. In the discussion, facts are proposed to be interpreted as the existence and non-existence of states of affairs, and situations as possibilities for the existence and non-existence of states of affairs (Plourde 2016).

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fact that raises questions related to the justification of the possibility of this interconnection. In other words, each individual constellation of fact is conditioned by a certain possibility, the verisimilitude of which depends on the assumptions made. This is the general representation of the position according to which ideas of something are formed. But the problem of fact, or rather of its constellation, is complicated by the fact that these ideas are completely different: scientific, religious, everyday, etc. Moreover, even the *scientificity* of fact itself is the object of countless arguments due to the well-known discussion of the first half of the twentieth century (the approach of logical positivism's representatives), according to which scientificity is conditioned by an empirical conformity to the utterance. As for the other facts, everything here rests on the accepted initial basis, according to which *something* is considered indisputable. Thus, each of these directions has its own specific relevant criteria of verisimilitude. Although, from the standpoint of logical positivism, science differs from metaphysics (which implies everything that is non-scientific) in *scientificity* (Smit 2015), the question arises about the verisimilitude of scientificity itself (Baker and Hacker 2005). The point is that, as Popper repeatedly stressed, the nullification of metaphysical grounds leads to a simultaneous nullification of scientific grounds: "(According to the rules of logic we can for example say: From the conjunction of 'Twice two is four' and 'Here is a black raven' there follows, among other things, 'Here is a raven'.) It would not even be enough to demand that from the theory together with some initial conditions we should be able to deduce more than we could deduce from those initial conditions alone. This demand would indeed exclude tautological theories, but it would not exclude synthetic metaphysical statements. (For example from 'Every occurrence has a cause' and 'A catastrophe is occurring here', we can deduce 'This catastrophe has a cause'.)" (Popper 2002b:64–65). However, Wittgenstein's statements concerning the occurrence of metaphysical truths that are not subject to logical analysis (Saulius 2016) had been given additional comprehension, which led to the development of the theory of meaning.

It is known that there are two opinions regarding Wittgenstein's concepts. My research position is in line with the opinion according to which the late theory of meaning is the result of the transformation of the theory of meaning presented in the *Tractatus Logico-Philosophicus*; therefore, despite the fact that Popper's criticism is mainly related to the concept of the *Tractatus* (he referred to Wittgenstein's later works as unreadable), given the transitivity of Wittgenstein's theory of meaning, it can be assumed that this criticism implicitly affects the concept of meaning as usage.

In the context of this study, I confine myself to examining primarily *scientific* and *nonscientific* ideas or facts in terms of the possibility and justifiability of asserting and denying the same thing. For example, John Watkins has repeatedly wondered about what the criteria of progress Popper applied to scientific knowledge are (Watkins 1984). In my analysis, I will compare Wittgenstein's concept of meaning and Popper's concept of falsifiability.

The first aim of this study is to find out why it is permissible to use different criteria of verisimilitude within different types of discourses, and why these different criteria of verisimilitude are ultimately caused by a linguistic factor, according to

which a decision is made about the justifiability or unjustifiability of a particular type of discourse, of a fact.

The second aim of this study is to analyze the processes of formation of new knowledge as one of the main results of the multifunctional activities of the knowing subject; therefore, none of the concepts analyzed in this context can be prioritized. The theory of falsifiability and the theory of meaning are different research methodologies, and their comparison, in my opinion, can bring us closer to a more accurate understanding of these problems.

Wittgenstein's concept of meaning[3] can be generally reduced to the following: the meaning of a word is its use. Given the fact that we are talking about three different aspects of reality, it makes sense to note that subject—language—world find their equivalence in the following pattern of elements: I—meaning (a word used in a well-defined situation)—theory (statement or hypothesis). Obviously, the design of a theory is predetermined by concepts (their meanings) that are elements of this pattern. A person that determines the use of the word as appropriate or not designs one or another theory. Thus, the subject that determines the meaning of a word (as possible situations of its use) forms new knowledge, creates not only theories, but also designs systems of their justification (without the latter the former would hardly be of interest). Naturally, in the context of this approach (the meaning of a word is its use), we are talking not only about scientific theories, but also about other phenomena of the social life of the subject of knowledge (metaphysical concepts, social mythologems, legal systems, religious practices, etc.).

Popper's concept of falsifiability proceeds from the fact that observation (as the empirical world the subject of knowledge specifically) is the condition under which a scientific theory can be refuted. Here Popper speaks exclusively about a scientific theory. It is also important that any observation is a certain conceptualization of a state of affairs. In other words, any observation as the basis of new knowledge, etc., is an opportunity directly determined by language.[4] Popper does not accept this because meanings of terms or concepts are just a tool that is formed as a result of an existing problem: "Even where a term has made trouble, as for instance the term 'simultaneity' in physics, it was not because its meaning was unprecise or ambiguous… It is very unlikely that it would have led to much if someone had started, apart from a definite physical problem, to improve the concept of simultaneity by analysing its 'essential meaning'…" (Popper 1966:270). However, a term is a tool that must be used when forming hypotheses and theories; therefore, the possibility of falsifiability of a theory is, among other things, the possibility of using a different meaning of a term (or another term). Such an approach to the theory of falsifiability can be useful from the point of view of solving the problem of demarcation between

[3] I must note here that the early Wittgenstein's concept, which Popper repeatedly called the theory of 'meaning' or 'sense' (Popper 1966:755) and which affirms the need to clarify the meaning of terms to achieve language clarity (this is the main goal of philosophy), seems to be the initial stage of the late concept of meaning in retrospection; therefore, when analyzing the latter, this factor should be taken into account.

[4] To support this position, it suffices to recall the ontological argument of Willard Van Orman Quine: "So I have insisted down the years that to be is to be the value of a variable" (Quine 1990:26).

the scientificity and metaphysicality of systems in the context of analyzing the role of the linguistic factor in the process of knowledge formation.

To reach the aims of the study, the following problems are solved: firstly, the factors Popper used to explain why, from the standpoint of logical positivists (Rudolf Carnap in particular), science, along with metaphysics, has no indisputable grounds are analyzed; secondly, the similar in the principles of the analysis of the *meaninglessness* of utterances or facts in the approaches of Wittgenstein's early and late philosophy is determined; thirdly, the empirical and logical facts[5] showing that the conditions of the actualization of the choice of the meaning of contradictory utterances are potentiality and necessity are compared; fourthly, the problem of how and why the linguistic factor is the only tool that provides a real interaction of a logically possible world (fact) and an empirical world (fact) for individual consciousness, and this is how this interaction becomes intersubjective is analyzed.

The working hypothesis of the study is that the comparative analysis of Wittgenstein's concept of meaning and Popper's concept of falsifiability shows that the constellation of fact is determined by the creation of new epistemological fields[6]; the factor for creating new epistemological fields is the linguistic factor; the linguistic factor creates the possibility for relating a reality of individual consciousness and Reality.

The methodology of this study is presented by the following methods.

1. The method of rational reconstruction (proposed and applied by Imre Lakatos) is used to conduct a proper comparison of Popper's falsifiability theory and Wittgenstein's theory of meaning within the historical and philosophical approach. Based on rational reconstruction, it is shown that Popper's arguments about the grounds for metaphysical statements are not always grounded with respect to Wittgenstein's arguments.
2. The analytical method is applied in connection with the need to consider structural elements of complex structures (different grounds of verisimilitude in different types of discourses). This allows specifying the possible principles for the formation of new knowledge regarding the long-existing data.
3. The method of explication makes it possible to analyze the role of the linguistic factor in creating intersubjective reality on the basis of considering the interaction of a logically possible world and an empirical world.

[5] A logically possible fact is a logically possible world (according to Saul Kripke, the abstraction of possible states of the real world), constructed by a logical order; the simultaneous empirical presence of this fact is not always possible.

[6] An epistemological field is a certain discourse domain or a discourse, the core of which is fact with all its logically possible interpretations. Each subsequent interpretation becomes possible as a result of the emergence or formation of new knowledge, a new definition of one or another element of this discourse, etc. The totality of all these interpretations creates a single discourse domain that refers to a specific fact.

## 2 Popper's Falsifiability Theory in the Context of Science and Metaphysics

Despite the fact that Popper's falsifiability theory[7] had been widely popular since 1935, its author experienced a constant need for its further clarification and confirmation; therefore, he was in a continuous discussion on this subject with different representatives of logical analysis. In 1955, for his *Philosophy of Rudolf Carnap*, Popper wrote an article on the problems of demarcation between science and metaphysics, in which he tried to explain why science and metaphysics cannot be separated in terms of the meaningfulness of the former and the meaninglessness of the latter (Popper 2002a:344). This Popper's explanation is extremely important and interesting for several reasons. Firstly, in this work, when analyzing the criterion of falsifiability, Popper addresses not only Carnap's arguments about the meaninglessness of metaphysics, but also the logic of Reality, which, in his opinion, is or can be subject to objectification from the point of view of empirical facts on the basis of the experience they represent. Secondly, Popper believes that the relevance of empirical facts as such is not the basis for overcoming the problems of metaphysics since sooner or later experimental data conditioned by something lead us to completely isolated data, that is, to data that we cannot derive from anything.[8]

Trying to use the principle of objectification not only in relation to the external world as an object given in experience (World 1), but also in relation to one's own theory that belongs to the world given in World 3 (World 3 is represented by theories, art, science, etc.) (Popper 1994), Popper insists that the falsifiability criterion cannot be perfectly precise since it has different degrees; therefore, there are theories that are verifiable, quite verifiable and theories that are not verifiable at all (Popper 2002a:346).[9] On the one hand, Popper takes into account the factor of variability in the falsifiability criterion and associates it with the variability of theories themselves. On the other hand, if theories change, then, ultimately, a state of affairs may arise in which non-verifiable (so-called metaphysical) theories can also get their own falsifiability criterion. Does it not follow from this that the metaphysical nature of a theory can depend on the growth of verifiability? Based on the possible degrees of

[7] I am stressing here that Popper considers falsifiability as a demarcation criterion: "But I shall certainly admit a system as empirical or scientific only if it is capable of being *tested* by experience. These considerations suggest that not the *verifiability* but the *falsifiability* of a system is to be taken as a criterion of demarcation." (Popper 2002b:18).

[8] Popper's example of the non-existence of a perpetual motion machine intends to confirm the possibility of an experimental justification for the denial of the existential (metaphysical) assertion "There exists a perpetual motion machine." Thus, the latter statement is an isolated metaphysical statement, but such isolated statements are found not only in the field of metaphysics (Popper 2002a:347–348). Further in the paper, I will discuss the problem of the demarcation criterion in more detail, from the point of view of the isolation and non-derivability of knowledge (and hence its non-verifiability).

[9] Here it makes sense to pay attention to the fact that Manfred Lube, discussing Popper's World 3, quite accurately notices in one of his works that since the processes of cognition in science differ from the processes of the development of art, since in the first case the existing and emerging knowledge matters, and in the second the change itself causes a new understanding, World 3 can be represented by theories of different types (Lube 2016).

the demarcation criterion, it does. However, Popper makes no such conclusion. Most likely, this can be explained by the incredibly complex relationship between Popper's World 1 and World 3, that is, the relationship between sensuality and utterance.

With Popper's well-known arguments on World 3 (its autonomy and independence from individual consciousness), it is worthwhile to pay attention to the fact that the methodology of science always establishes a connection between a concept or an idea (World 2) and World 3 itself. It is this mechanism that Thomas Kuhn describes in his example of the relationship between Galileo's ideas and the scientific positions of his time (Kuhn 1962). Indeed, the science of Galileo's time (as an element belonging to World 3) and Galileo's views (as an element of World 2), taking into account the argument of the autonomy of World 3, are parallel readings of reality (World 1). However, rules used in interpreting are rules accepted by the community as an acceptable social practice, and by an individual subject, so Galileo is both a participant in social practice and its transformer.

In other words, transformation occurs only when there already exists something that is subject to it. In Kuhn's example, it is Galileo's transformation of the accepted rules of relative motion. Galileo's new observation language is the result of the transformation of the understanding of reality (Feyerabend 1975). As a result, the endless series of concepts and ideas (World 2) is what is conditioned by reality (World 1), an aspect of its views. However, I believe the problem of the interconnection of World 1 and World 3 in Popper can be reduced to the fact that the applicability of methods and the justification of statements depend entirely on the historical situation and the experience of the scientist (Hubner 1978). Therefore, the emergence of a new idea is the creation of a new language (World 2) as a tool for a new reading of reality (World 1), which in future ensures the emergence of new social practices: entirely new directions in science and culture (World 3).

If the limit of empiricism is the formation of concepts (Wittgenstein 1978), then it is quite obvious that World 3 and World 1, being in permanent interaction, have something very vague as a limit. Of course, this state of affairs resembles Alfred Schütz's approach to the intersubjectivity of the social world (Schutz 1967): Popper's World 3 is a constantly renewing convention that exerts an opposite effect on World 1 by creating all new social practices.

Jeremy Shearmur makes an excellent analysis of the interaction of Popper's World 3 and World 1 (Shearmur 2016). He draws attention to the fact that Popper indicated books and libraries as objects of World 3: "Popper would often point to books—and libraries—as important physical manifestations of World 3. He was surely right about this. But the work to which I am referring looks at issues concerning the physical existence of books, their production and dissemination, at who had access to them, and how they were read. Not only are the specifics sometimes fascinating—and important for us to think about today, when the Internet makes available to us vast amounts of material instantly, and at little or no cost." (Shearmur 2016:397). However, the physical existence of books, their publication and dissemination are processes most likely related to World 1 since they are spread in time and occur in different environments (manuscripts and palimpsests; book printing products; e-books, etc.), yet their content is related to World 3. This indicates the social aspect of knowledge, and the fact that the content of World 3 somehow relates to

social circumstances without violating its autonomy: "I would again suggest that we both take note of the social dimension of knowledge to which this work draws our attention, but also that we do not collapse World 3—and its autonomy—into the social." (Shearmur 2016:397).

Popper himself proposed one of the possible tools for resolving this kind of contradiction, an intersubjective approach that not only forms the area of interpretations, but also develops the only relevant interpretation of a particular phenomenon. Naturally, this state of affairs brings together Popper's falsifiability theory and Wittgenstein's theory of meaning,[10] because both the intersubjective approach and family resemblance are conditioned by current social practices: "Popper […] maintained that World 3 can act upon World 1 by altering its structure: for him, the fact that science allows the construction and detonation of an atomic bomb is proof of that capacity. In other words, Popper […] maintained that World 3, to which belong not only scientific theories but also institutions, works of art, and values, is "irreducible" to lower levels (i.e., to both World 1 and World 2) and "exerts a causal influence upon" them—an influence that can be described in terms of downward causation." (Di Iorio 2016:356).

The organization of the world, as well as the organization of experience, is largely conditioned by the ability of the subject of knowledge to understand the object of interest, that is, experience must show what has already become the object of study before it (Galvan 2016). Indeed, gravitational waves as a kind of space–time perturbation, predicted by the general theory of relativity, were first recorded in September 2015 by LIGO sensors in the USA. Thus, gravity waves as an object of experimental observation became a reality (World 1) as a result of a successful social practice in the construction of four-kilometer tunnels with vacuum in them, the creation of special mirrors with unique technologies for their coating and fixation, etc. The technological level of this experiment allowed fixing previously inaccessible experience, which indicates the emergence of a new technique of 'reading' as a new social practice, which, while being an element of World 3, organizes a new view on World 1, the anticipation of which appeared in World 2 long before that.

It is very important to pay attention to the fact that Popper, along with the foregoing, allows the possibility that some statements may belong to science, since they are verifiable, even if their negations are non-verifiable. This suggests that the denial of a scientific theory is inherently metaphysical since it cannot be verified (it cannot be verified because it cannot be falsified). Therefore, in view of the above assumption,

[10] Here it makes sense to pay attention to the fact that Popper separately analyzed Wittgenstein's approach proposed in *Tractatus*, for he did not quite agree with it: "... in the case of Wittgenstein, according to whom every meaningful proposition must be logically reducible to elementary (or atomic) propositions, which he characterizes as descriptions or 'pictures of reality' (a characterization, by the way, which is to cover all meaningful propositions). We may see from this that Wittgenstein's criterion of meaningfulness coincides with the inductivists' criterion of demarcation, provided we replace their words 'scientific' or 'legitimate' by 'meaningful'. And it is precisely over the problem of induction that this attempt to solve the problem of demarcation comes to grief: positivists, in their anxiety to annihilate metaphysics, annihilate natural science along with it. For scientific laws, too, cannot be logically reduced to elementary statements of experience." (Popper 2002b:13).

it is natural to assume that with a certain increase in verifiability such a negation will also be verifiable,[11] that is, scientific. But until this has happened, what can be done with the scientific nature of a theory and the metaphysical nature of its denial at the same time?

Let us return to Popper's example of a perpetual motion machine, which has a verifiable denial of this existential statement. In other words, the form of the denial of an existential statement is verifiable, and statements or existential sentences are not. What is important here is that existential sentences or statements exist; they are clearly formulated in language. However, the question of their (possible or indisputable) exclusion from language would look strange for many reasons; first of all, from the standpoint of the concept of Wittgenstein's *Tractatus* since the *Tractatus* exclusively speaks about the impossibility of a certain kind of utterances: "7. What we cannot speak about we must pass over in silence." (Wittgenstein 1981). The fact is that if the negation of an existential statement is meaningful and not meaningless, then the statement itself is also meaningful since the signs that make it up have a meaning, and they also have it in their negation. So, the negation of the statement "There is no perpetual motion machine," in Popper's terms, is empirically verifiable since we cannot find in our experience a perpetual motion machine as a confirmation. But our search becomes possible only if we know the meaning of the phrase "perpetual motion machine": we can neither intelligently assert nor deny without having an idea of the thing we are to assert or deny. Therefore, if we confirm the negation of the existence of a perpetual motion machine, we confirm that we know the meaning of this term. From the standpoint of the falsifiability theory, since we cannot refute the statement, it is unscientific, but this statement is important, and given the increase in verifiability, anything is possible in future. In the *Tractatus*, it is asserted that metaphysical sentences include signs that have no meaning: "6.53 The right method of philosophy would be this: To say nothing except what can really be said, i.e. the propositions of natural science, i.e. something that has nothing to do with philosophy: and then always, when someone else wished to say something metaphysical, to demonstrate to him that he had given no meaning to certain signs in his propositions." (Wittgenstein 1981). This makes possible an assumption that the impossibility of an utterance and the suppression of something are not the same thing. Impossibility and suppression are not equivalent concepts since in the first case we are faced with the impossibility of further inferences, and in the second case we are not, and we describe a continuum that is relevant for us. Thus, the procedure for excluding something, some utterances from the language, is in fact a procedure for prohibiting the use of something.

In connection with the assumption of exclusion as a prohibition on the use of certain signs under a certain state of affairs, let us turn to the problem of rule-following.

[11] In addition, based on the idea of increasing verifiability, we can also assume that some existential statements have big chances to become non-isolated, that is, deducible.

Popper[12] argues that, following the basic premise of Wittgenstein's *Tractatus* (the meaninglessness of metaphysics or metaphysical statements), Carnap concludes that linguistic expression is meaningful when it takes into account the rules of the formation of a given language (Carnap 2003).[13] Consequently, the meaningfulness of language, according to Carnap and the early Wittgenstein, is determined by the fact that phrases of this language follow certain formation rules. Obviously, in this case, the meaningfulness of a phrase is its systemic nature (perhaps, belonging to a specific language game from the standpoint of the theory of meaning of the late period); however, it is still necessary to remember that rule-following in any language is a very serious convention. The example with the famous "Gavagai" problem is the proof of this. But, despite the linguistic factor, Popper constantly returns to the problem of an empirical basis; so he argues that the meaningfulness of a sentence is not related to the rules of language (not to the conventionality of rule-following), but to the nature of what is asserted or denied in this sentence. In other words, a plant is green due to its nature.

This Popper's statement in the context of the late Wittgenstein's theory of meaning seems unconvincing (among other things, we may recall the famous argument between Wittgenstein and George E. Moore about the existence of an external world). Perhaps, Popper is in such a contradictory situation because he ignores the conventional nature of natural language. So the statement "A plant is green" in Russian for an Englishman or a Chinese is just a set of slurred sounds and vice versa; then the question also arises: what about the nature of a plant?

To answer this question, let us turn to Popper's reasoning for meaningless sentences (sentences meaningless in all languages) (Popper 2002a:355–356), which cannot have an alternative, that is, they cannot have an alternative meaningful formulation. To begin with, an alternative in this case could be evidence that a particular sentence (which for some reason is considered meaningless) has what we call meaning (and sense), that is, what Popper himself defines as *nature* in the case of the color of a plant. Moreover, an alternative can even be negative, that is, for example, it can deny the green color of this plant, but thus confirm the existence of some other color, and the existence of a plant (or another denotation of the sentence). There is no alternative only if we are in a field that is not meaningless, but inexpressible, according to Wittgenstein's *Tractatus*. Consequently, we should not speak about meaningless sentences of a writer or speaker, but about what is inexpressible for them, and about what the discourse of a sentence addresses. In other words, an

[12] "Carnap starts with a somewhat different question. His thesis is that all philosophical investigations speak 'of the forms of speech'. The logic of science has to investigate 'the forms of scientific language'. It does not speak of (physical) 'objects' but of words; not of facts, but of sentences. With this, the correct, the 'formal mode of speech', Carnap contrasts the ordinary or, as he calls it, the 'material mode of speech'." (Popper 2002b:77).

[13] Despite the fact that we are talking about artificial languages here, this approach extends to natural language, since the well-known verification criterion of meaning of the early Wittgenstein, shared by Carnap, proceeds from the relevance of similar principles: the meaningfulness of a judgment is determined by the following: (1) all elements that make it up are meaningful, and (2) they are correctly connected to each other.

address in a discourse is an indication of something in the sense of a fragment from Heraclitus, in which the philosopher says that the oracle at Delphi neither reveals nor conceals anything, but gives a sign (Heidegger 1979).

Anyhow, in Popper's terminology, the problem in question is directly related to World 1 and World 3 relationship, that is, to the empirical basis and the linguistic factor; therefore, Popper's statements on the lack of proof that metaphysics is inexpressible in a language relevant to scientific research hide the problem of the relation between the scientific and the metaphysical. In other words, this problem is related to the relationship between the system described by the language of science and the system described by the language of metaphysics (of course, if the meaninglessness of metaphysics for us is its inconsistency with the world of physical objects and states). Perhaps, it is on this basis that Popper comes to a conclusion that the naturalistic theory of meaninglessness proves destructive both for metaphysics and for science. Popper well demonstrates this assumption in the following reasoning: "We may see from this that Wittgenstein's criterion of meaningfulness coincides with the inductivists' criterion of demarcation, provided we replace their words 'scientific' or 'legitimate' by 'meaningful'. And it is precisely over the problem of induction that this attempt to solve the problem of demarcation comes to grief: positivists, in their anxiety to annihilate metaphysics, annihilate natural science along with it. For scientific laws, too, cannot be logically reduced to elementary statements of experience. If consistently applied, Wittgenstein's criterion of meaningfulness rejects as meaningless those natural laws the search for which, as Einstein says, is 'the supreme task of the physicist': they can never be accepted as genuine or legitimate statements." (Popper 2002b:13).

The example Popper gives in connection with protocol sentences based on our sensory impressions (the example of protocol sentences by Otto Neurath) (Popper 2002a:358–359) confirms this idea. The author of this example (the example of subjective experiences and their recording with the help of a physicalist language) is Otto Neurath; he describes the protocol chain of sense experiences of a subject with an indication of their place and time. Thus, what Neurath observes and notes is the actualization of the world (as the subject's world) through synchronization in the language of an individual cognitive flow and an extralinguistic reality. However, if, as Popper suggests, we try to use the concept of intersubjectivity as the foundation of an empirical basis, then in order not to appear in the situation of using metaphysical statements, we are forced to admit that we deal with the phenomenon of linguistic intersubjectivity.[14]

I do not consider the assumption that, based on the criticism of Wittgenstein's theory and the analysis of Carnap's theory, Popper proposed his own theory of language admissible. What Popper did insist on was the exceptional importance of thought and experience (Popper 2002a:273), admitting only the periodical need to

[14] What I mean here is the following: the foundation of the "empirical basis" or "protocol sentences" is subjective experiences that, as such, acquire their relevance only through language; hence, the intersubjectivity of the "empirical basis" is linguistic intersubjectivity.

clarify sentences used, which is another argument in favor of the fact that for him thought and sentences used are elements of different systems.

Nevertheless, in discussing the difference between metaphysical and scientific theories, Popper comes to a conclusion that further thought and experience are needed to better understand this difference. I believe, that is why he refuses to recognize the analysis of language as the essence of Wittgenstein-like philosophy. Therefore, Popper's conclusion that thought and experience are equally contextually equivalent, presented in Chapter 9 of *Conjectures and Refutations* (Popper 2002a:367–368), clearly indicates that both thought and experience for him are outside the sphere of language. This raises another question: if metaphysical statements can still be formulated (as, for example, the archimetaphysical statement of Popper himself about an absolute creature), what kind of statements do they mean when they say that they (sentences) cannot be formulated (Wittgenstein)?

Popper's analysis of the reduction of predicates (Popper 2002a) can help answer this question. On the basis of the analysis, he comes to an expected conclusion that since tests are never conclusive, we can never arrive at primitive predicates. Given the relevance of the linguistic factor, I should note here that Popper is not at all uncomfortable with the assertion of the changeability of meanings of concepts (or terms), which are fixed by their use in contexts: "Thus the meaning of these concepts will be changeable. But this is so with all concepts, including defined ones, since a definition can only reduce the meaning of the defined term to that of undefined terms." (Popper 2002a:376–377). Thus, Popper admits that the meaning of terms depends on their use, which is completely in line with Wittgenstein's concept of language games.

This Popper's criticism is reasoned, for he understands the definition as a legalized practice of a vicious circle, in which everything reduces to undefined terms; therefore, by this logic of reasoning, linguistic intersubjectivity, understanding, thought, and experience are nonsense. However, this logical scheme does not work in the context of Wittgenstein's theory of meaning since meaning is conventional. In this connection, of particular interest is Popper's address (Popper 2002a:363) to the following Wittgenstein's aphorism: "When the answer cannot be put into words, neither can the question be put into words. The riddle does not exist. If a question can be framed at all, it is also possible to answer it." (Wittgenstein 1981). Perhaps, this aphorism points to the intersection of the approaches of logical analysis of language and analysis of the use of real language. Despite the fact that Popper tries to prove the opposite, we have an opportunity to compare Wittgenstein's position regarding the possibility or impossibility of the question and the answer, and the possibility or impossibility of the meaning and the definition here. We see that both cases are not entirely consistent with the real field of application, since the latter has both goal-setting and rationality. The question of the discrepancy between practice and sense received its answer in the context of the theory of meaning.

Proceeding from the arguments and justifications of the demarcation criterion regarding science and metaphysics Popper presents, it is impossible to come to a conclusion that constellations of scientific and metaphysical facts have fundamentally different grounds. The point is that in his reasoning for the demarcation line between science and metaphysics, Popper (unlike Carnap) does not exclude the

similarity factor for these two areas: the factor of the world all our thoughts are around, all our experience is formed from; and means of language constitute this or that (scientific or metaphysical) model of Reality. Indeed, language for Popper is a phenomenon absolutely different from that for Wittgenstein in his early (logical analysis of language) and late (analysis of the use of natural language) period of philosophy. Carnap's "meaninglessness of metaphysics" also has a completely different status for Popper. That is why the problem of the constellation of fact as a possible epistemological field appears to be declared, but not completely resolved in the context of Popper's falsifiability theory.

Popper's criticism of Wittgenstein's theory of meaning, which he presented in the notes to Volume II of his *The Open Society and Its Enemies*, is another confirmation of the fact that, for Popper and Wittgenstein, language and its role are different phenomena.

In Chapter 11, Popper says that, since Wittgenstein's theory (*Tractatus*) claims that science explores reality and philosophy clarifies terms by eliminating puzzles and purifying the language, such a theory is not only scholastic and metaphysical (it cannot be refuted), but also highly controversial. Popper cites many quotations from the *Tractatus*, which, in his opinion, prove the inconsistency of Wittgenstein's theory.[15]

However, Popper's arguments allow concluding that the understanding of language of the two philosophers is significantly different.

For Wittgenstein in his *Tractatus*, language is an activity that philosophy clarifies, but this idea of language was transformed; therefore, later language is understood as a sociocultural phenomenon that makes absolutely all sociocultural practices (including science) possible, that is language is a tool for the formation of our ideas about the world in the broadest sense.

For Popper, science is a phenomenon that is not (at least, directly) connected with language; therefore, repeatedly returning to the problem of meaning and sense, he ignores (no matter how paradoxical it may sound) the problem of the impossibility of an extra-linguistic theory (theory outside of language).

Thus, we see an analysis of the relationship between language and reality, on the one hand, and an analysis of the relationship between science and reality, on the other. Science is undoubtedly important for Wittgenstein, and language certainly plays an important role for Popper. However, in Wittgenstein, the fact is that language is a tool of intellectual activity the result of which are certain theories (scientific, metaphysical, etc.). In Popper, science or a scientific theory is claimed to be a tool for the emergence of new knowledge. These are different views on the linguistic factor in the formation of new knowledge.

The mental experiments presented by Popper on the autonomy of World 3 (Popper 1979) raise questions in the following aspect. In its history, mankind has actually

[15] For example: "My propositions are elucidatory in this way: he who understands me finally recognizes them as senseless..."; " 'On the other hand', as Wittgenstein says in his Preface, 'the truth of the thoughts communicated here seems to me unassailable and definite'." (Popper 1966:282); "The totality of true propositions is... the totality of natural science." (Popper 1966:330).

repeatedly encountered the situation of the impossibility of accessing the "libraries" of lost civilizations. An interesting example is the case of the discovery of the Rosetta Stone in Egypt in 1799, on which an inscription was made in three languages: two in Ancient Egyptian and one in Ancient Greek. Up to that point, Egyptian scripts were closed to understanding; however, knowing Ancient Greek well, linguists were able to decipher the hieroglyphic writing over time. In 1822 the linguist Jean-François Champollion published his "Letter to M. Dacier", in which he announced the Ancient Egyptian writing system, and the era of scientific Egyptology began. Its further development allowed the knowing subject to become familiar with the world of Ancient Egypt or World 3, which had previously been completely closed, although not lost as in Popper's experiments.

This example shows the role of the linguistic factor which produces meanings and senses, and is a tool for the activity of the knowing subject. In such a situation, it is difficult to deny the role of the linguistic factor both for World 3 and World 2. I should note here that the theoretical or metaphysical nature of the systems preserved in this or that "library" (Rosetta Stone) is nonessential.

Criticizing Wittgenstein's position in the *Tractatus* on the unification of scientific and metaphysical theories, in which sentences do not matter, as an anti-metaphysical system no different from a metaphysical one, Popper[16] concludes that the understanding of something and disagreement with it is a natural development of science, yet he ignores the basis on which understanding is possible—language as a key element of the knowledge formation scheme which allows to form agreement or disagreement with both theories of science and metaphysical systems.

It is important, as much as possible, to correctly determine the possible boundaries of language ["7. Whereof one can not speak" (Wittgenstein 1981)] rather than distinguish between metaphysicality and scientificity, which Popper himself often describes as concepts the boundaries of which, unfortunately, very often overlap. Both metaphysical and scientific concepts are formulated in language; however, we constantly need new concepts, the meanings of which are determined by new experience. But the development of experience and the transformation of meanings does not bring the knowing subject closer to being able to say "... thereof one must be silent". Language has principles and is despotic; it does not agree with the fact that possible worlds as hypotheses are descriptions of the ineffable. No, they describe the effable which, due to certain reasons, is not actualized; therefore hypotheses are nonsense in terms of the existing state of affairs, its possibility is not foreseeable here.

[16] "<Wittgenstein>asserted in 1931 that scientific theories are' not really propositions', i.e. not meaningful. Theories, hypotheses, that is to say, the most important of all scientific utterances, are thus thrown out of the temple of natural science, and therefore put on a level with metaphysics... The anti-metaphysical theory of meaning in Wittgenstein's *Tractatus*, far from helping to combat metaphysical dogmatism and oracular philosophy, represents a reinforced dogmatism that opens wide the door to the enemy, deeply significant metaphysical nonsense, arid throws out, by the same door, the best friend, that is to say, scientific hypothesis." (Popper 1966: 284).

In this case, Popper's claims that Wittgenstein in his *Tractatus* proposed the solution for all philosophical questions through the use of nonsense[17] lose their validity.

In this connection, Popper's conclusion concerning the contradiction or self-contradiction (not paradoxicality) of Wittgenstein's theory of meaning is extremely interesting. Arguing over the problem of paradoxes, like the paradox of the liar,[18] Popper makes an absolutely fair conclusion that this theory does not escape metaphysics. However, his further reasoning about the content of the three army boxes, which symbolize the division of language expressions into three classes (true, false, meaningless) and are not sufficient to determine the true meaning of certain statements, brings us back to the fact that Wittgenstein's (now "self-contradictory") theory of meaning is still set by the correlation of world and language.

Naturally, the problem of the scientificity of a statement/hypothesis/theory is associated with the problem of demarcation: the well-known principle of falsifiability (and verification) is nothing more than a method, with its own rather complicated argumentation, which allows demarcating various systems. However, what determines the scientificity and metaphysicality of the analyzed systems, if not conventions to which we are parties? The implicit justification of the falsifiability criterion can relate to this assumption because the scientificity of a theory is determined by the possibility of its refutation while metaphysical systems cannot be refuted. At the same time, Popper also admitted the possibility that the demarcation (scientificity) criterion could also be inside metaphysics since "<t>he proper aspiration of a metaphysician [...] is to gather all the true aspects of the world (and not merely its scientific aspects) into a unifying picture…" (Popper 1982:211). This assumption, contrary to its author's wish, actualizes the following Wittgenstein's thesis "5. Whether a proposition can turn out false after all depends on what I make count as determinants for that proposition" (Wittgenstein 1969–1975), which again demonstrates the role of the linguistic factor in the formation of knowledge or ideas [in the pattern of elements: I—meaning (a word used in a well-defined situation)—theory (statement or hypothesis)], appealing to the theory of meaning.

One can incessantly discuss the problem of the demarcation of science and metaphysics, but all these discussions are nothing but systems of inferences formulated within the framework of specific semantics. The question of the correlation of reality and language/theory is an urgent question. Without doubt, reality and theory are not equivalent, but for the knowing subject one is impossible without the other ["1.13. The facts in logical space are the world." (Wittgenstein 1981)] since the formation of knowledge as a system of certain inferences is the emergence of a new aspect of reality.

[17] "... That we can communicate unassailably and definitely true thoughts by way of propositions which are admittedly nonsensical, and that we can solve problems 'finally' by propounding nonsense... For now we have a new kind of nonsense at our disposal, nonsense that communicates thoughts whose truth is unassailable and definitive; in other words, deeply significant nonsense." (Popper 1966:283).

[18] "... We find that a theory which implies its own meaninglessness is not meaningless but false, since the predicate 'meaningless', as opposed to 'false', does not give rise to paradoxes. And Wittgenstein's theory is therefore not meaningless, as he believes, but simply false (or, more specifically, self-contradictory)." (Popper 1966:337).

## 3 Linguistic Factor: Intersubjectivity of Logico-empirical Structures

Returning to the analysis of Popper's view on the scientific and metaphysical nature of theories, I should stress that the philosopher faces the problem of the relation of the rules of inference of statements about facts, things, etc., and statements describing these facts, things, etc. as such. In fact, the rules of statement inference and statements are different linguistic levels. Moreover, different rules of inference form possibilities of different interpretations, each of which represents one or another variant of fact.[19] In other words, the constellation of fact is the application of certain rules of inference. To some extent, we can assume that Popper demonstrates this conventionalist attitude when he, like Carnap, admits the applicability of artificial (formal) languages to reality since the ultimate aim of building up a logical calculus is to ensure the possibility of using statements without inference rules, except for the very principle of inference (Popper 2002a:349). Consequently, logical calculi can be applied to reality (to the facts of the world) because fact as a fundamental element of an epistemological field occurs when a calculus (a principle of statement inference) is applied. Popper's example on traffic rules and traffic itself confirms this: road traffic in a particular area is normal or disrupted depending on the road signs that are installed in this section of the road; although the signs and the traffic situation themselves are not the same, but without the former, we will not be able to assess the latter either as normative or as non-normative. This is what Wittgenstein most probably has in mind when he says that road signs are attributed meanings by the rules of inference, since the latter are the rules for using these signs (Wittgenstein 1978).

However, Popper's analysis of the applicability of formal language to reality raises another question: is language (including the formal one) part or element of reality (Goncharenko and Goncharenko 2016)? In Popper's analysis, language is not part of reality; although Popper himself does not comment on it, obviously believing that comments are superfluous.[20] Therefore, proceeding from the fact that language, according to Popper, has an indirect relation to reality, we can assume that both the rules of inference and statements are applicable to reality solely as a kind of an alien multi-level system—language, which provides for both the rules of inference (as a metalinguistic level) and statements.

I should also note that Popper assigns a large role in the appearance of facts of new types to new linguistic means. He argues that this way we acquire new knowledge, although some or other states of affairs existed even before we discovered these new facts. This suggests that facts as fundamental elements of epistemological fields can only become relevant if new rules of procedure are used: the existing state of affairs remains hidden from the individual consciousness until this consciousness applies a specific rule of procedure, as a result of which this consciousness will receive a definite statement. And yet, this course of reasoning does not overcome the paradoxicality of reality and view on it by the subject of cognition. Obviously, the attempt to bridge the gap between World 1 (reality) and World 2 (consciousness)

[19] Naturally, this process leads to a further transformation of an epistemological field.

[20] I believe it is hardly possible to formulate comments of this kind.

by giving World 1 objectivity and World 2 (Popper 1994) subjectivity did not lead Popper to the desired result, which is perfectly understandable. The point is that objectivity, according to Popper, acquires the character of an external physical world (an empirical fact), which is described by language (which in some way relates the objects of the external world to specific signs that have a meaning in the form of these physical objects) that excludes metaphors, unlike language (metaphors) that describes the world of our consciousness (Popper 2002a:288–289).[21]

Thus, Popper, at least implicitly comes to a conclusion that excluding metaphors is a guarantee of a correct conclusion. This conclusion is possible due to the statement that the physical world is described in a non-metaphorical language. This may be the reason for Popper's assumption about facts of a new type that can be described with the help of new linguistic means. In other words, Popper admits that linguistic reality creates epistemological worlds as a result of the constellation of facts of an exclusively physical world, but this in no way can extend to social, psychological and other facts. I believe, this assumption is hard to explain since it is quite obvious that many so-called psychological and social facts create the reality of the physical world.[22] This Popper's view raises many questions and leads to a result opposite to the desired. As Zuzana Parusniková (Parusniková 2016) shows, the autonomy of World 3 (theories, etc.) from World 2 (subjective factors) makes the further growth of knowledge, which is ensured by the activities of the subject of cognition, impossible. However, this situation is complicated by the fact that, in my opinion, the ontology of Popper's three worlds is directly connected with his theory of falsifiability. If World 3 hosts theoretical systems, critical reasoning, etc. as elements of objective knowledge, their historical transformation under the influence of World 2 demonstrates the theory of falsifiability: $P1 \rightarrow TT \rightarrow EE \rightarrow P2$.[23] (Popper 1979).

Why does Popper deprive such concepts as "mass", "force", "movement", "volume", "height", etc. of metaphors? There are two points to mention here. Firstly, language is metaphorical in principle: the substance of physical reality that we call a "cell" has nothing to do with this name, except in our natural-science language. Second, Popper's assumption that new linguistic means create facts of a new type adds to the contrareity of Popper's approach, because the philosopher does not formulate arguments that would explain why socio-psychological discourse is not an element of reality. Is it not the permanent renewal of the structure of the world in individual consciousness that produces facts of a new type in natural-science discourse? If we

[21] According to Popper, psychological, social, artistic and other worlds are related to the world of our consciousness.

[22] Here I will only give a rather illustrative example from the biography of Popper himself. After the National Socialists came to power, because of the ideology that they preached (the Jewish question) Popper was forced to emigrate to New Zealand. It follows that the fact of the physical world (Popper's relocation in space) was caused by the European social reality of the 1930s, and by the psychological reaction of Popper himself, as a result of which he decided to emigrate. Thus, we see the interaction of three factors: physical, social and psychological; they created a new fact of the physical world: Popper's position as lecturer in philosophy at Canterbury University College in New Zealand.

[23] P1 is a problem from which the knowing subject starts and which he tries to solve by means of tentative theories (TT) and error elimination (EE), thus getting a new problem (P2).

use Wittgenstein's idea about the forms of life here, it will become more or less obvious: language is built into our practical experience and does not exist outside society. The intersubjectivity of the linguistic phenomenon testifies not only to the conventional nature of the rules of interpretation, but also to the fact that these rules (as logically coherent schemes of inference) constitute the empirical structure of the world that is relevant to the subject of cognition at a certain historical stage, which causes the next transformation of a certain epistemological field.

In view of the above, Popper's approach to the linguistic factor seems unreasonable and contradictory even in the context of his own falsifiability theory. Logico-empirical structures are schemes of reality that are relevant to individual consciousness, as Popper repeatedly mentions in his *Conjectures and Refutations*; therefore, it is not possible to exclude the role of the linguistic factor in this connection.[24]

Thus, following the logic of Popper's reasoning that the measure of the reality of a scientific theory is the recognition of its refutation, the question arises: is the statement about reality part of reality itself, and if not, what is this statement part of? The latter question refers us to the problem of logical and empirical facts (facts in the logical and empirical world).[25] I believe, in the context of the above-mentioned Popper's theses, the rules of procedure, like statements (facts) themselves, are not always an element of reality, since their refutation is sometimes impossible. Although this is contradictory in terms of empirical confirmation (from the standpoint of the fact that each new day starts at sunrise, and each new jump off the top of a tower ends with a fall in the usual way).

Wittgenstein, although leaving this question open, formulates the principle of reality measures, which determines reality paradigmatically (for example, the use of a certain calculus). Accordingly, if a particular fact (mathematical, logical, empirical) corresponds to the measure of reality that determines it, then this measure of reality is an integral part of reality. The fact is that, most likely, the opposition of Wittgenstein's and Popper's approaches to reality is due to their different views on the tasks and possibilities of philosophy. For Popper, contextual conditioning (paradigmatic predetermination) of measures of reality is nonsense, since he finds Wittgenstein's preoccupation with the problems of language, characteristic for both his early and late periods, completely unacceptable, for the task of philosophy is not to

[24] In this connection, Wittgenstein's statement that epistemological problems remain the same at all times because of language, which continues to formulate the same questions (Edmonds and Eidinow 2001), is relevant. Perhaps, it was also due to this Wittgenstein's assertion that Popper believed that facts were the result of language and reality (Popper 2002a:290).

[25] Again, to illustrate the non-identity of the logical and the empirical, I am giving Popper's example connected with the phenomenon of induction (Popper 2002a). Despite David Hume's well-known argument about the sun (that the sun has risen for thousands of years gives us no reason at all to believe it will rise tomorrow), Popper believes that, according to the principle of induction, we cannot be sure that every next time a jump off the top of a tower will end tragically for the jumper. Thus, the fact of logic here is reduced to the state of affairs described by the law of gravitation, and the empirical fact is the jump or falling of the body. From the standpoint of induction, there is no and there cannot be a regularity that would guarantee the possibility of repeating anything. Consequently, the logical fact (like procedure or rules of inference) and the empirical fact (like application or use of inference) do not always interact, according to Popper.

make propositions, but to clarify and refine the existing ones (Edmonds and Eidinow 2001).

However, Wittgenstein holds that the meaning of an utterance (sentence) is determined by the proof, as a result of which the utterance itself appears (Wittgenstein 1978). When Wittgenstein claims that the proof changes the grammar of language, changes our concepts and forms new relations, he is sure that these relations, like concepts, do not exist until they are created by the proof (Wittgenstein 1978); in this case, the epistemological field (and fact is a fundamental element of it) does not change. The definition of meaning and the use of meaning are different things (Wittgenstein 1978), but they are inseparable. A mathematical proposition (as well as natural language) that describes reality does not contain it, but without this proposition reality would be inaccessible to us. Incidentally, it is this implicit (Wittgensteinian) conclusion that Popper's reasoning contains about the chess game and its rules of inference; the game would be impossible outside the context of these rules. If Gordon Baker, based on Wittgenstein's theory of meaning, comes to a conclusion that some state of affairs in reality is relevant for us as a result of applying the rule (Baker and Hacker 2005), Popper insists on the parallelism of World 1 and World 2, challenging the early Wittgenstein's idea in Chapter 9 of his *Conjectures and Refutations* that propositions are projections of facts (Popper 2002a), and again comes to a contradiction with his own falsifiability theory, since in this case new types of facts, like new epistemological fields or their transformation, would be impossible. The neglect of the role of the linguistic factor (problems of language) in cognition, in a sense, allowed Popper to separate the logical and the empirical aspects of reality.

## 4 Conclusion

As a result of the conducted research, I came to the following conclusions. Firstly, Popper's initial rhetoric in the discussion with Wittgenstein aimed to challenge the role and task of language from the standpoint of a possible solution of the basic problems of philosophy. Obviously, this discussion contributed to Popper's formulation of the principle of falsifiability[26] in his philosophy. With the help of this principle he proposed to separate theories into scientific and metaphysical ones. However, the understanding of the meaninglessness of metaphysics (metaphysical propositions, metaphysical problems) in Wittgenstein's and Carnap's works made Popper admit that this understanding of meaninglessness makes meaningless not only metaphysical theories, but also scientific ones. In this connection, Popper turned to the theory of meaning, which makes it possible to separate acceptable propositions from unacceptable ones. Popper's theory of three worlds [the separation of World 1 (the world of physical objects) and World 3 (the world of theories describing them)] allowed him to come to an unexpected conclusion: despite the fact that some

[26] Though much later, in 1982, in his "Postscript", Popper recognized: "My theory of science was not intended to be an historical theory or to be a theory supported by historical or other empirical facts..." (Popper 1996:XXXI).

statements are scientific since they are verifiable and refutable, their negations cannot be verified.[27]

Secondly, Popper's justification of the demarcation criterion with respect to science and metaphysics in no way confirms that constellations of scientific and metaphysical facts have fundamentally different grounds. Unlike Carnap, Popper failed to exclude the similarity factor relevant for the above areas: the factor of the world, in relation to which experience and assertions that constitute an acceptable model of reality are formed. As a result, Popper designated the problem of finding the necessary (contextual) demarcation criterion (in fact, the problem of constellation of fact as a possible epistemological field) as such, but did not solve it in the context of his falsifiability theory.

Thirdly, the fact that Popper was in opposition to both the early and late philosophy of Wittgenstein was taken into account; therefore, arguments for the two periods of Wittgenstein's philosophy (with due regard for the transitivity of Wittgenstein's concept of meaning) were used in the comparative analysis. Thus, after comparing the empirical and logical facts, it was suggested that the conditions for the actualization of the choice of the meaning of contradictory utterances are potentiality and necessity that are determined by the context.

Fourthly, the comparison of Wittgenstein's concept of meaning and Popper's concept of falsifiability showed that different versions of the constellation of fact are the result of the formation of new epistemological fields or their transformation. The creation of a new epistemological field is not possible outside the linguistic factor, which makes it possible to relate the reality of individual consciousness and reality.

**Acknowledgements** The research is carried out at Tomsk Polytechnic University within the framework of Tomsk Polytechnic University Competitiveness Enhancement Program.

### Compliance with Ethical Standards

**Conflict of interest** The author declares that they have no conflict of interest.

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[27] In this connection, John Preston made interesting conclusions in his "The rise of western rationalism: Paul Feyerabend's story" (Preston 2016), according to which Paul Feyerabend's analysis of the principles of Western rationalism makes possible an alternative approach to the argumentation of objective knowledge formulated by Popper.

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