

THE PRINCIPLES OF BERTRAND RUSSELL'S SCIENTIFIC REALISM

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Abstract. This paper is an approach of Russell's **scientific realism**, aiming to provide a detailed presentation of certain ideas that he develops during the last period of his philosophic activity. We are going to use the discussion on the topic of his scientific realism as a pretext for creating a coherent outlook that includes **his opinions on human knowledge**, on **the degree of certainty that the latter may achieve**, and, indirectly, on **the limits of his empiricism** within the context of an image of the world that we are provided with by his common sense, and which is refined by science.

In an attempt to define scientific realism, we may say that it consists of a general outlook according to which the goal of science is the knowledge of the observable and non-observable aspects related to an objective reality, which does not depend on the human mind. As we mentioned in the previous chapter, such a vision is generated by the opposition to the anthropocentric outlook regarding our place and the part that we play in the universe, and it is based on the knowledge that our common sense provides us with. If the fundament is offered by common sense, the subsequent evolution of our knowledge will be supported by the scientific achievements, most of which, as we will see, are in accordance with this common sense, while our knowledge and our more or less vicinity to the truth will be facilitated by the methods of science.

The world, as it is presented to us by common sense, is made of material objects of various dimensions and shapes, of which we have more or less adequate knowledge, achieved only by means of our senses. It is a concrete world, made of objects that do not depend on our mind, with which we interact, a world where misleading perceptions and illusions have their place and part, but also a world where the robust sense of reality, that Russell was speaking about, encourages us to have the *practical* certainty regarding the fact that things, in general, are what they seem to be.

Broadly, common sense and scientific realism co-exist quite well. However, as we have already seen, there are certain tensions between them; because common sense may lead us into misleading opinions on the outside world. For instance, it leaves the impression that the Earth is flat, while science proves to us that it is round. If Russell himself discredits such opinions on common sense, he does not do it in order to *completely* discredit common sense, but to show how useful a scientific approach may be, in order to *amend* the opinions of common sense when it leads to mistaken perceptions. But, if we admit the fact that common sense may sometimes

be misleading, this must not encourage us to *abandon* it because, if we do abandon this starting point in knowledge, we remain suspended in an extreme skepticism.

Nor should we infer, based on such examples, a *complete incompatibility* between common sense and science. And the arguments that science generally provides *do not aim to eliminate the opinions of common sense*, as a whole, but to *correct* them. What science actually does is to offer a *better explanation*, applying their own methods, *for things as they seem to be for common sense*. The Earth seems to be flat and the Sun seems to move in the sky. The role of science is to place these appearances within the context of a theoretic system that corrects the opinion of common sense, explaining how the rotation of a spherical Earth results in the apparent transition of the Sun in the sky. Thus one gives up the opinion of common sense in favour of a better theory, which keeps, but, at the same time, explains the appearance within the observation of common sense.

Such observations entitle us to say that, *broadly*, and *at first glance*, common sense opinions are plausible. We may also accept, again *broadly*, that they are justified. The idea is *not to prove that our common opinions are beyond doubt*, but that they have an *epistemic priority*. Simply by being based on these ideas, scientific realism manages to announce the existence of an external world made of material objects, with which we daily interact, and to which we have *epistemic access* by means of our senses.

The basic assumption of scientific realism is that *scientific theories, which are realistically built, are the best explanation for the phenomena noticed at the level of common sense*. Here is a good example for this idea: we know that, at the level of common sense, material objects are not indestructible, but that they are made of smaller parts and that, theoretically, they may be divided into component elements, which we cannot see with naked eyes. Science says that the matter is made of fundamental particles, atoms and molecules, which are observable at a microscopic level. What is this if not a more sophisticated and more refined explanation of the above-mentioned common sense opinion? If we must make use of the Kuhnian outlook on science¹, we may say that all that the various theories elaborated in various paradigms can do is to offer different (better or worse) scientific explanations for certain common elements: *our opinions on the external common world*.

Scientific realism has six fundamental principles², all of them being fully included in the theory of knowledge elaborated by Bertrand Russell:

¹ See Thomas Kuhn, *Structure of Scientific Revolutions*, Scientific and Encyclopedic Publishing House, Bucharest, 1976

² In his paper *Scientific Realism: An Elaboration and a Defense*, Howard Sankey offers a detailed presentation of these principles. We will use the six principles as a framework in order to particularize and argument the general aspects of Russell's scientific realism. At the same time, we will not use the hierarchy provided by the Australian professor, but we will present these principles in

1. *The principle that postulates the existence of an external world that may be known;*
2. *The principle according to which the purpose of science is to discover an image of the world that is as accurate as possible, while the scientific progress consists in going forward in the direction of truth;*
3. *The correspondence theory of truth;*
4. *The thesis on the objective nature of truth;*
5. *The principle according to which the theoretic speech of science must be literally interpreted as focusing on real entities, and, finally,*
6. *The principle according to which the scientific search of truth eventually provides us with authentic knowledge regarding the outside world.*

Perhaps the most important principle of scientific realism is *the one that postulates the existence of an external world that may be known*. The world that science investigates has an *objective reality*, which does not depend on human thought, and whose existence is limited *neither* to the way we think of it, *nor* to how we perceive it, that is exclusively to experience. All Russell's efforts of fighting against idealism, and against the solipsism associated with it, prove that this principle is included in his philosophy. This world that exists independently from us includes us too, but it is not created by us, and its existence does not depend on us by any means whatsoever. We may have some knowledge related to this world, a partial, corrigible knowledge, which is far from being certain. This actually gives us the formulation of another principle related to scientific realism, according to which *the purpose of science is to discover an image of the world that is as accurate as possible, and the scientific progress consists in going forward in the direction of truth*.

We hereby face an optimistic attitude regarding human knowledge, doubled by the (realistic) acceptance of the fact that this progress in the direction of truth is far from being achieved. Therefore, scientific realism does not sustain the idea that the current results of science offers us the absolute truth, but rather the idea that, being focused on this goal, there is a more rapid progress, and we thus manage to get closer to truth, while scientific achievements are nothing but increasingly correct approximations of this truth.

Thus, in the last pages of *Human Knowledge*, Russell clearly says that the term "knowledge" is "incapable of precision"³, since our entire knowledge is more or less susceptible of being put to doubt, which means that "the presumably

a different order, depending on what we believe to be important in the theory of knowledge elaborated by Russell.

See: Howard Sankey, *Scientific Realism: An Elaboration and a Defense*, available at: philsci-archive.pitt.edu/archive

³ Bertrand Russell, *Human Knowledge. Its Scope and Limits*, London, George Allen & Unwin, 1956, p. 516

absolute concept of «knowledge» should be replaced by the concept of «knowledge having a certitude degree p », where p is measured by mathematical probability.”⁴ In *My Mental Development*, he says that, where absolute knowledge may not be achieved, “it is possible, at least, to formulate a variety of exact hypotheses, all of them being compatible with the existing evidence”⁵, and, in *Logical Atomism*, he manifests his trust in science: “I believe that science is generally more susceptible to get closer to truth than any previously advanced philosophy (...). Therefore, even if any statement of science may be false, and even if it is practically certain that some of them may be false, it is wise, nevertheless, to build our philosophy starting from science, because the risk of error is definitely diminished in science.”⁶

As we return to the principle regarding the existence of the external world, we focus again on the issue of skepticism to see how, during the last period of his creation, he fights against its assumptions from the privileged position that this time science provides it with. At this stage of his thinking, which is more science-oriented, Russell realizes that philosophy must not try anymore to find *heroic remedies* for intellectual difficulties, but precisely to find *modest solutions*, based on the data provided by science. He believes that science gathers a number of issues on which people come to an agreement, and that, in philosophy, there is no issue that may lead to an agreement. Moreover, science helps us build opinions that are less susceptible of being false than philosophy. Thus, we believe that this stage of his thinking is correctly described by Ronald Jager when he writes: “at first he was inspired by the possible contributions of philosophy to science; eventually, he was inspired by the forecast of the important contributions that science brings to philosophy.”⁷

The same author describes Russell’s entire philosophy as a permanent attempt to “escape subjectivity”.⁸ Beside common sense, science would offer Russell the means to settle this constant issue of his philosophy. The permanent provocation that solipsism offers him receives new answers and arguments from Russell at this stage. In *Human Knowledge*, Russell talks about solipsism, which he defines as “the doctrine according to which only I exist”. But, if this doctrine were true, it would mean that all the aspects that we discussed in the previous chapter of our paper, and which we presented as belonging to the subject of knowledge are strictly mental and private, an observation to which we should also add the fact that any interference that we would make starting from these aspects would not entitle us to say anything about the external world.

⁴ *Ibidem*, p. 517

⁵ Bertrand Russell, *My Mental Development*, in P.A. Schilpp, *The philosophy of Bertrand Russell*, Tudor Publishing Company, 1951, p. 20

⁶ Bertrand Russell, *Logical Atomism*, in vol. *Logic and Knowledge: Essays 1901–1950*, Robert Ch. Marsh Publishing House, London, George Allen and Unwin, 1956, p. 339

⁷ Ronald Jager, *The Development of Bertrand Russell’s Philosophy*, London: George Allen & Unwin Ltd, 1972, p. 40

⁸ *Ibidem*, p. 40

Therefore, it seems perfectly rational to doubt the existence of everything that does not belong to our private experience, such as, for instance, other people's thoughts or the existence of material objects when we do not perceive them. But only by a linguistic analysis of the skepticism postulate do we have an argument against it. For, "if the world is truly the one of common sense, with people and things, we may choose from it a person who believes that the entire universe is limited to this person alone (...). But, if the others, and if things do not exist, the phrase «this person alone» loses its meaning, because it is an exclusive and limitative phrase."⁹ But why should that person limit himself if there were no one else in this world beside him?

Russell's answer is an indirect one and it suggests the fact that, in this form, solipsism may not be accepted. He says that the expression "I alone am the entire universe" must be replaced by "my data make the universe"; then we may proceed to a complete enumeration of these data, but, at the end of this enumeration, one must not say: "the list is complete, there is nothing else left", but "as far as I know, there is nothing else left." What Russell does here is to set a limit between the "dogmatic solipsism" and the "skeptical solipsism", which he accepts as a pretext for discussion, but he does this only to be able to develop arguments against it.

The entire discussion about solipsism included in *Human Knowledge* has *another goal than a simple rejection of solipsism*. Russell notices that, if we reduce the fundament of knowledge *exclusively* to the data provided by our perception, we embrace empiricism in its classical form: if we enumerate all the data that are available to us and we say that we do not know others to exist, we reach an empiricism that is not only *based* on experience, but also *limited* to it.

Russell will amend classical empiricism, trying to discover certain synthetic principles of inference which are capable to "broadly justify our beliefs derived from common sense and science"¹⁰, and which actually represent our knowledge. This adoption of a differently amended empiricism "masks an important change in Russell's philosophy". If, before *Human Knowledge*, he claims that the fundament of knowledge is experience, beside the necessary *a priori* cognoscible truths, in *Human Knowledge*, he says that, beside experience, we need *a priori* cognoscible synthetic truths: the empirical postulates."¹¹

But before going into the issue of the empirical postulates, we will return to the second principle of scientific realism, in order to see how it correlates with the other two fundamental theories: *the correspondence theory of truth* (according to which our opinions of the world are true as long as they correspond to reality) and *the theory of the objective nature of truth* (according to which, if there is something that may justify our knowledge claims, then this may be found in the world outside us).

⁹ Bertrand Russell, *Human Knowledge. Its Scope and Limits*, cited edition, p. 191

¹⁰ *Ibidem*, p. 197

¹¹ R.M. Sainsbury, *Russell*, Routledge & Kegan Paul, London, 1979, p. 193

The vision that gets gradually closer to truth, which Russell embraces, is connected to the criterion of truth, or, in other words, we must analyze what entitles our claim of having true opinions.

As far as Russell is concerned, he firmly adheres to the correspondence theory of truth. However, he believes that there are *two manners* of understanding the correspondence of truth. *According to the first one, basic sentences must be derived from experience*, and thus sentences that may not be satisfactorily related to experience are neither true, nor false. This is the outlook of logic empiricism. *According to the second manner of understanding truth, basic sentences must not be related to experience, but merely to facts*, although, if they are not related to experience, they may not be known. The two forms of the correspondence theory of truth differ from one another *depending on the way in which we relate truth to knowledge*.

Russell's constant opinion is that truth is a broader concept than knowledge. This conclusion also matches with the distinction that common sense draws between the *truth* of a statement and the *verification* of a statement; it also agrees to the common sense belief, according to which there is a meaning in discussing things for which we have no direct evidence in perceptual experience: "the empirical knowledge analysis that Russell makes shows the fact that the limits of what may be known by means of experience are so narrow that we must go beyond them."¹²

Against logical empiricism, Russell brings about the idea that, indeed, we may only notice what is provided to us in experience; but this does not entitle us not to talk about, for instance, what existed before all the experiences that we recall to have had. It is legitimate to ask whether such inexperienced occurrences really exist or not. "According to Carnap, this is merely a linguistic issue: «reality» is a metaphysical term for which there is no legitimate use. Very well, but let us be consistent. I myself have not noticed what I know from the testimony of history; I have only noticed what is fallen under the incidence of my experience."¹³

If all the hypotheses of history, beside everything that may be expressed related to the facts that we have not personally experienced, are only linguistic conventions, as Carnap believes, then so are "parents, children, fellow mates and friends"¹⁴, since we do not have their immediate experience (according to Russell's outlook).

Russell's observations are hereby connected to another characteristic of scientific realism that derives from the interpretation of the theoretic speech of science. Thus, *scientific realism literally interprets the scientific speech on theoretic entities, considering that it focuses on non-observable real entities and referring to events and regularities that took place at a non-observable level*. This

¹² Elizabeth Ramsden Eames, *Bertrand Russell's Theory of Knowledge*, George Allen & Unwin, Ltd, London, 1969, p. 154

¹³ Bertrand Russell, *An Inquiry into Meaning and Truth*, London, George Allen & Unwin, 1967, pp. 264-265

¹⁴ *Ibidem*, p. 265

means that scientific realism accepts the existence of these entities, and that it does not speak about them as linguistic conventions that help us progress in knowledge, thus also implying a realistic metaphysics of the external world, not a realistic metaphysics in a platonic sense, as it was initially embraced by Russell, under the influence of Meinong, and which Carnap and his fellow mates would have been entitled, to a certain degree, to reject it.¹⁵ In contrast with this aspect, the metaphysics that Bertrand Russell subsequently develops (the logical atomism, n.n. – C.R.) is in accordance with his scientific realism.

Russell will construe a logic theory of truth correspondence as being justified, a theory in which there will not be a relation between truth and experiences, but between truth and what he calls facts, underlining that “facts are broader (at least from the perspective of possibilities) than experiences.”¹⁶ According to this outlook, a “verifiable” statement will be the one that manifests a certain correspondence with an experience; however, a “true” statement is the one which manifests the same type of correspondence with a certain fact. Since all experiences are facts, it results that all verifiable statements are true. But there is no reason whatsoever to assume that all true statements are verifiable. By saying this, Russell abandons pure empiricism, believing that another form of empiricism is needed, a form that that is modified so that it may also include principles of inference that are neither demonstrative, nor derivable from experience.

We will postpone the discussion on these principles of inference elaborated by Russell in order to clarify, as we have already announced, the *statute of truth in relation with knowledge*. We are going to do this by starting from that principle of scientific realism which explains the relation between the external world and the truth of our opinions. *Scientific realism* (which is represented by Bertrand Russell) *claims not only that there is an external world and that truth consists in correspondence*. Scientific realism underlines the fact that *the external world, and the external world alone, renders our opinions true or false*. Our opinions are *made true or false* by the way in which things happen in the objective reality that science investigates. Therefore, *truth is objective*, meaning that the truth value of an opinion is brought about by the way in which things happen in the world, no matter if we believe this opinion to be true or not.

In fact, this is a constant idea in the theory of knowledge elaborated by Russell. He always underlines the fact that knowledge must not be strictly subsumed to truth, because: “What I know must be true, but truth is larger than knowledge for two reasons. First of all, there are true sentences (if we accept the law of the excluded third) of which we are not convinced; then, there are true sentences in which we believe, but which we do not know yet, as we got to them

¹⁵ See Rudolf Carnap, *Depășirea metafizicii prin analiza logică a limbajului*, in vol. Boboc, Alexandru, Roșca, Ioan N.: *Filosofie contemporană*, Editura Garamond, București, 1998

¹⁶ Bertrand Russell, *op. cit.*, p. 287

by a misleading reasoning.”¹⁷ Last but not least, the definition of “truth” does not offer a definition of “knowledge” by itself. Knowledge consists of certain true convictions, but not of all true convictions. For *there may be true convictions which do not represent knowledge*: “The classical example is the one of a clock which stopped, but which I consider as functional, and which I happen to watch every now and then when it happens to show the exact time. In this case, I have a correct conviction about what time it is, but I have no knowledge.”¹⁸ Moreover, Russell invites us to accept the fact that: “*most of what would usually be construed as knowledge is a more or less probable opinion (s.n. – C.R.)*”¹⁹.

Regarding the sixth principle of scientific realism, which is also the last one in our paper, *the principle according to which the scientific search of truth actually provides us with genuine knowledge about the external world*, we can only say that Russell’s entire effort in elaborating a theory of knowledge consists in seeing how and with what degree of certainty we may achieve knowledge, and this knowledge refers to the external world as it is, *authentic*.

We now come to a point where we analyze the principles about which Russell thinks that they should stay at the basis of our knowledge. We believe that, in the theory of knowledge that he elaborates throughout a half of century, there is an essential and, at the same time, tormenting question, which guides his analyses like a red thread. He returns to this question in *Human Knowledge: How can we suppress the distance between the world of senses and the world of science? Or, more accurately, how do we pass from the sun that we see to the one seen by the astronomer?*

For Russell, this passing implies a long and elaborated process, which starts from the *non-inferred data of perception* to the *inferred conclusions of science*, *passing through the knowledge provided by common sense*, where recalled facts and testimonies occupy a considerable place. Thus, a considerable example would be the one of the discoveries made by, let us say, Magellan: if we come to trust his discovery, we do it because we have read books or because our teachers told us about this in school; then, step by step, I recreate the causal chain, I get to his very perceptions and to those of “the other people who were in that region and who told about what they thought to be sea and land, and who, by systematic inferences, drew maps.”²⁰ But, for me, because I did not participate in Magellan’s voyage, the premises of the participants in this voyage represent a certain type of inferences. This inferential process may be summarized as follows: “A is followed by B in a certain number of situations; then A is related to the expectation of B; then (probably much later), the explicit reasoning intervenes “A is a sign for B”; and science begins only when a multitude of such judgments already exists.”²¹

¹⁷ *Ibidem*, p. 214

¹⁸ Bertrand Russell, *Histoire de mes idées philosophiques*, Gallimard, Paris, 1961, p. 236

¹⁹ Bertrand Russell, *Problemele filosofiei*, Editura ALL, București, 1998, p. 91

²⁰ Bertrand Russell, *An Inquiry into Meaning and Truth*, cited edition, p. 134

²¹ Bertrand Russell, *Human Knowledge. Its Scope and Limits*, cited edition, 1956, p. 202

In this process, the first thing that we must take into account is the *nature of the used inference*. This is not about the *demonstrative inference*, which is valid in logic and in mathematics; but neither is it about *induction*, because it does not have a logical justification, as there is no valid argument that allows us to establish the fact that the things that we do not experience resemble those that we do experience. If unsophisticated common sense, which leads to a naive realism, thinks that it may use inductive argumentation or deductive demonstrations, based on correct logic judgments, the scientific common sense, on which Russell's realism is based, will accept *another type of inferences*, which he calls *non-demonstrative inferences*.

As far as induction is concerned, when he writes *Problems of Philosophy*, Russell believes that this alone allows us to perform the correct, but only probable transition from singular to general statements about certain facts. He justifies his position in accordance with common sense, realizing the fact that: "if they are not limited by common sense, inductive judgments lead us to false conclusions rather than to true conclusions. The limits that are imposed by common sense are easier to infer and more difficult to formulate. As a conclusion, I think that, although scientific inference needs non-demonstrable extra-logic principles, induction is not one of these. It plays its part, but not as premises."²²

This reveals another limit of its empiricism, and, moreover, the strict demarcation from classical empiricism. This is why Ronald Jager's observation is essential: "Although Russell comes to think of himself as an empiricist, his adherence to it has always had reserves. Unlike the generation that follows him, for example the logic positivists, who either claim to be the heirs of empiricism, or invest it with the dignity of being scientific, Russell created his empiricism with his own ingredients."²³ We believe that Russell does not merely want to be an empiricist, but *to fundament human knowledge in the fertile soil of experience*. If his effort results in a form of empiricism, this does not happen because he "inherits" empiricism, as the logic positivists claim, but because he construes some of its ideas as pertinent. However, induction definitely proves not to be one of these in the development of his thinking.

In his maturity paper, *Human Knowledge*, he makes two statements on induction: first of all, *induction may not serve us as a premise*, as a starting point *in the edifice of a theory of knowledge*, but, moreover, induction as such may not serve us as a *principle*, as *fundament of knowledge*.

It may not serve us as a premise because it is only "a means of increasing the probability of generalizations in certain cases".²⁴ Although useful, it leads us to falsity in more cases than it does towards truth, and this is due to the fact that it starts from individual cases, and results in generalizations, which implies that the

²² *Ibidem*, p. 238

²³ Ronald Jager, *op. cit.*, p. 271

²⁴ Bertrand Russell, *Human Knowledge. Its Scope and Limits*, cited edition, p. 415

inductive reasoning itself needs certain postulates in order to be justified. These postulates will have to say something about the general course of things in the world; they will not say “this A is B”, but they will say that generalizations such as “all A’s are B’s” have a certain degree of probability. Only after we have been endowed with such principles, and after they have been applied to a particular generalization, will induction be able to render that particular generalization more and more probable, with a probability that gets closer to certainty, provided that the number of favorable examples increases towards infinite. But this means that “the issue here is represented by premises and not by induction because, in the form of its utilization, it is nothing but an analytic consequence of the theory of probability, which is based on a finite number of frequencies.”²⁵

An authentic premise would be a generalization such as “all A’s are B’s”, whose probability is p_0 , before any observation. The probability of this generalization increases by each observation of a favorable case. Thus, probability will be p_1 for the first favorable case, p_2 for the second favorable case, and p_n for the favorable case no. n . What we want is “to know in what circumstances p_n is inclined to have 1 as its limit when n increases to infinite. For this we must consider the probability in which we have noticed all n favorable cases, and we have not noticed any unfavorable cases that would render generalization false.”²⁶ This statement made by Russell allows us to include favorable cases within a probabilistic approach, and *not to start from them*, as it happens in induction.

Moreover, induction as such “is not fundamental”.²⁷ Going further on with this sentence, Russell says that: “any finite set of observations is compatible with a number of laws that are mutually inconsistent, all of them having the same inductive evidence in their favour. This is why pure induction is not valid, and, most of all, it is not the one that gives us the reasons for which we believe what we believe.”²⁸ Therefore, whenever inductive evidence seems to suggest us the fact that a generalization is very probable, the generalization itself has been suggested to us, more or less independently from the evidence in its favour, and we have thought it to be more or less true, in one way or another.

The class of factual sentences will be the one which we may take as a starting point in building an image of science, but this class *will not include only basic sentences*, referring to immediate experience, but these sentences will represent only a part of factual statements. *Beside empirical sentences focused on experience*, we also need *other sort of premises, which do not limit the statute of research, as it happens in the case of pure empiricism*.

²⁵ *Ibidem*, p. 454

²⁶ *Ibidem*, p. 452

²⁷ *Ibidem*, p. 330

²⁸ *Ibidem*

The first of these postulates is “*the postulate of quasi-permanence*”, and it is formulated as follows: “Considering an event A, it happens very frequently that an event, which resembles A quite well, takes place soon and nearby.”²⁹ Its major utility consists in the fact that it allows us to treat common notions such as “thing” and “person”, in a manner that does not make us use the concept of “substance”. The similarity between the two events will only be explained by the fact that they happen not to be strongly separated from a spatial-temporal point of view, and thus, if we interpret the notion of “thing” as a “sequence of events”, we will no longer have to explain similarity as platonic realism does, by the adherence of those events to the ideal “thing”.

Thus it frequently happens – for instance, in the case of a drop of water in the ocean – that, at a particular moment, there are several neighbouring events that are similar to event A (the drop of water). Russell says that “we may experience gradual transitions, from any drop of water from the ocean to another,”³⁰ and we may explain the similarity between them based on this postulate.

The second postulate is the one of *separable causal lines*, and it is, perhaps, the most important one from the five postulates. It allows us to draw a probable partial inference starting from partial knowledge. We believe that any particular thing from this universe has, or may have an effect on other things; as we do not know everything, we cannot be certain about what lies ahead of us, but we may say it with a certain degree of approximation, or of probability; this makes it possible for us *to be able to formulate scientific laws*. A postulate is defined as follows: “it is frequently possible for a sequence of events to be created, so that, starting from one or two members of the series, we may infer something regarding all the other members of the series.”³¹ Such a sequence of events is called a “causal line” by Russell, and the law that makes the inference possible is called a “causal law”. An example where this postulate is used would be the one where we take night and the existence of a multitude of stars as the cause for the multiplicity of sensations that we have when we look at the sky at night. Thus, the motion of a photon in the interstellar space may be explained based on our postulate; in the case of the concept of motion, we may explain the fact that a thing remains the same even if it changes its position; the postulate also helps us say something about the unobserved members of the causal line “without being forced to consider anything else from the world.”³²

Taken together, the first and the second postulate allow us to say that “a certain event is very frequent within a sequence of events (which may last a fraction of a second or a million of years) that always share a law or persistence or

²⁹ *Ibidem*, p. 506

³⁰ *Ibidem*, p. 507

³¹ *Ibidem*, p. 508

³² *Ibidem*

of change”³³; for example, according to postulates, a photon will keep its moving direction and speed, a billiards ball will maintain its shape and colour, and, in both cases, *there is a spatial-temporal continuity within the sequences of events that make a causal line.*

We thus get to the *third postulate, the one of spatial-temporal continuity*, whose purpose is to deny remote action. Based on this postulate, we infer that, if there is a causal connection between two remote events, this connection must include intermediate causal chains which justify the occurrence of the event. The goal of the postulate is not to demonstrate the existence of causal connections, but to explain the inference that we make if such a connection is established. Therefore, when we see a person on various occasions, we may infer that this person has had a continuous existence throughout the period when we have not seen her. Thus the postulate allows us *to believe that physical objects exist when they are not perceived*, and, by this, “an overwhelming multitude of inferences that we make starting from unobserved things, both in science, and in the case of common sense, depend on this postulate.”³⁴

The forth postulate, called “the structural postulate”, is the one that allows us to infer the fact that, when several persons have the same perception of an event, this is the cause of their perception, and it has a certain similarity of structure with the image that those people create about that particular event. This postulate is defined as follows: “When a number of complex events, which are structurally similar, are placed in the center, in not very separate regions, they usually belong to certain causal lines that originate in an event that has the same structure, in the center.”³⁵ The vague expression “placed in the center” is intentionally used by Russell, in order to cover a very wide range of phenomena. A relevant example is the one in which a number of people hear the same sound. It is known that the exact time when each of them hears that sound depends on the distance between them and a particular spot from the space where the sound is produced. In this case, that particular point, at that particular moment, is the spatial-temporal center or the cause of the sound.

The last postulate is the one of analogy, and it is defined as follows: “If two classes of events are given, A and B, and we have all the reasons to believe that A is the cause of B, then, in a particular case, if we notice A alone, and we cannot observe whether B takes place or not, we may infer that, probably, B will be generated; and, similarly, if B is observed, and the presence or the absence of A cannot be observed.”³⁶ Not only is this postulate useful, but is also a *necessary one*, because, “if we accept it, it justifies the inference about the existence of other

³³ *Ibidem*, 509

³⁴ *Ibidem*, 510

³⁵ *Ibidem*, 511

³⁶ *Ibidem*, pp. 511-512

people endowed with brains, as well as many other inferences that common sense makes, with no reflection whatsoever.”³⁷

Three of these postulates – the first, the second and the fourth one – are of the same type as the ordinary empiric generalizations, and we get to them in a way that resembles quite well with the way in which we get to empiric generalizations. Which makes the former different from the latter is the fact that they say something about the most simple and elementary things and they are confirmed by such a big quantity of evidence from experience that they even seem to be self-evident. Moreover, Russell believes that “once they are assumed, these principles lead us to results in accordance with experience”, and that, in fact, this is what we do in the field of knowledge: *we assume them in all our statements about empirical data*. This also applies to the other two principles – the third and the fifth one – although they may not be regarded as empirical generalizations of the same type as the others. The purpose of these principles is to provide us “the antecedent probabilities that we need in order to justify inductions.”³⁸

The third and the fourth postulate are essential for Russell’s scientific realism because, if combined, they represent *the best justification that we may have in order to say that non-mental things and events do exist*: “If there are events grouped in a center, as described by the fourth postulate, and they are all elements of a causal line oriented towards the center, it is very unlikely that all the events that form these causal lines (and for which the third postulate is valid) might be mental.”³⁹

Actually, what Russell does by means of these two postulates is to implicitly offer a very scientifically formulated rejection, this time, of solipsism, which claims that there are no other events than the mental ones that take place within our spirit. If we add to all these the last postulate, too, then we have a final rejection of solipsism because, although the latter only claims that it is likely for B to happen, even if A is not noticed, “it is sufficient enough for us to be able to draw a conclusion, based on certain observations, that there are at least certain mental events that do not belong to us.”⁴⁰

These postulates make us admit that all the knowledge that we possess, and which is not of a logic nature, must be qualified in terms of degrees of certitude, since postulates are not inferences of a demonstrative nature. Moreover, although postulates explain things and events that are given to us as experiences, they, taken as premises, may not be reduced to experience exclusively: they are principles that guide our knowledge even in the absence of experience, establishing important restrictions for the classic empiricism. They support us in our common sense

³⁷ *Ibidem*, p. 505

³⁸ *Ibidem*, p. 506

³⁹ Erik Gotlind, *Bertrand Russell’s Theories of Causation*, Almqvist & Wiksells Boktryckeri AB, Uppsala, 1952, p. 154

⁴⁰ *Ibidem*, p. 157

opinion, according to which the external world that we try to know has certain characteristics, and that these characteristics justify our inferences from certain events or things, to other events or things. We are sure that there is no logic necessity in the transition from a perceived thing to another perceived thing, from one fact to another, but this certainty must not lead us towards pessimism, as far as our knowledge abilities are concerned: we have these principles that help us say that we may know the world we are accustomed with.

First of all, these final observations say something about Russell as a philosopher. Although a genius logician, his goal is not to limit himself to the abstract world of logic truths, but he is permanently guided by his preoccupation to demonstrate that the ordinary world, in which we all live, is real, and that we may get to know it, even if in a limited measure, with more or less certainty: “Even if he seems to be an analytic philosopher for whom logic is a privilege, Russell tries to include non-demonstrative knowledge, and to recognize an immediate and different fact that escapes logic absorption. The consideration granted to the instinctive beliefs, which are related to the world and which the philosopher must harmonize, shows, among other things, that Russell is preoccupied by the place that man has in the world.”⁴¹

The limited empiricism from *Human Knowledge* is a mature effort to close in the world of experience and the world of science. We were previously talking about his wish to eliminate the distance between these two worlds, and to gather the opinions of common sense with the ones of science, on the one hand, and the information derived from experience, on the other hand. We might say that Russell tries to build a “bridge” between the two, instead of suppressing the distance between them: one end of this bridge begins with the perceptual experience and, by means of various techniques, its most credible elements are analyzed; the other end begins with the inclusive knowledge that common sense and science provides us with, and it goes back to what is supposed to be a justification of this knowledge; in between, there is a gap that separates the two banks, the gap of the data that we may never be sure of, the data of the postulates that are not entirely justified. But this gap is small enough for us to be able to jump without taking to many risks.

The valuable side of this effort is the fact that Russell is capable to use the results of the scientific research of his age (and ours) in order to support the philosophy that he elaborates: “This is a great advantage (...), because there is no doubt that a philosophy that develops itself by ignoring science and by considering it irrelevant may have few claims, and it assumes a significant risk of error, as it is fully demonstrated by the history of the Western philosophy.”⁴²

⁴¹ Ali Benmakhlouf, *Russell*, Les Belles Lettres, Paris, 2004, p. 211

⁴² Elizabeth Ramsden Eames, *op. cit.*, p. 222

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