

BERTRAND RUSSELL'S CRITICISM OF BERGSON'S VIEWS ABOUT CONTINUITY AND DISCRETENESS

VESELIN PETROV, Institute for the Study of Societies and Knowledge, Bulgarian Academy of Sciences, Sofia, Bulgaria

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This paper is devoted to Bertrand Russell's criticism of Henri Bergson's philosophy. It traces out the origins of that criticism and analyzes its essence, reasons and development in Russell's works. Because of the importance of the concepts of space and time for Bergson's philosophy and, in turn, the importance of continuity and discreteness for the understanding of space and time, the central part of the analysis concerns the views of both philosophers on continuity and discreteness, including Zeno's paradoxes. The main thesis of the paper is that Russell's criticism of Bergson's philosophy comes, to a great extent, from Russell's misunderstanding of Bergson.

Keywords: Bertrand Russell' philosophy – Bergson's philosophy – Continuity – Discreteness – Zeno's paradoxes

1. Introduction. In 1911 Henri Bergson visited Great Britain to deliver several lectures on his philosophy. His first meeting with Bertrand Russell happened on October 28th at one of these lectures. Two days after this initial meeting Bergson attended Russell's lecture. However these meetings between them did not stimulate a kind of cooperation. Just the opposite, shortly after their meeting Russell initiated a severe criticism of Bergson's philosophy. In fact Russell's criticism of Bergson is a reaction against the penetration of Bergsonism into Great Britain that influenced British thinkers such as Wildon Carr, Thomas Eliot and Alfred North Whitehead. Bergson never responded to Russell's criticism although Carr did offer his own defense of Bergson, while the best argued objections against Russell's criticism of Bergson are expressed by Milic Capek¹, a contemporary Bergsonian philosopher who has special interest in the problem of continuity and discreteness.² The main part of Russell's criticism concerns Bergson's views of continuity

¹ Capek, Milic (1971). *Bergson and Modern Physics. A Re-interpretation and Re-evaluation*. Boston Studies in the Philosophy of Science. Vol. 7. Dordrecht – Boston.

² Russell, Bertrand (1914). *The Philosophy of Bergson. With a Reply by Mr. H. Wildon Carr*. Published for "The Heretics" by Bowes and Bowes, Cambridge. London: Macmillan and Co., Ltd. I shall make quotations of this work according to this edition. See also the interpretation of Andreas Vrahimis in "Russell's critique of Bergson and the divide between 'analytic' and 'continental' philosophy," in *Balkan Journal of Philosophy*, 2011, Vol.3, Issue 1, p. 123.

and discreteness which are closely connected to the concepts of space and time that have important place in Bergson's philosophy. Because of the importance of the concepts of space and time for Bergson's philosophy and, in turn, the importance of continuity and discreteness for the understanding of space and time, the central part of the following analysis concerns Bergson's views of continuity and discreteness and Russell's critique of these views.

Today most Western philosophers are caught up in a great debate between analytic and continental philosophy, with many attempting to overcome that contrast. In the realization of such attempts at overcoming it is necessary to trace back to the origin of the conflict, and in this regard philosophers sometimes remember Russell's criticism of Bergson³. Now, one hundred years after that criticism, it is necessary to evaluate impartially the essence and the reasons for Russell's criticism, and on the basis of that evaluation to decide if it was already and always caught up in a divide between analytic and continental philosophy or if it arose from some other reason, such as a general misunderstanding of Bergson's philosophy, a misunderstanding which in some way then contributed to the analytic/continental divide.

In the present paper I shall argue the thesis that Russell misunderstood Bergson to a great extent. The argumentation will be realized step by step, considering, first, the beginning and the essence of Russell's criticism of Bergson, then Russell's criticism of Bergson's views on continuity and discreteness, and finally, concluding in favour of the thesis for Russell's misunderstanding of Bergson. These tasks determine the structure of the paper.

2. The beginning and the essence of Russell's criticism of Bergson. To begin, it must be stated that Russell's criticisms of Bergson are not a result of the then being established division between analytic and continental philosophy. Rather, Russell's criticisms are a result of his reaction against the penetration of Bergsonism into Great Britain, which culminated in the years 1911 – 1912. Russell's reaction to this Bergsonian penetration should also be seen against the background of a more general movement in European philosophy that witnessed a mingling of analytic and continental traditions, as seen for example, in the influence of Brentano and his school on a thinker such as James Ward who was also later influenced by the newly generated analytic philosophy developed by Russell and others.⁴

Though Russell considers Bergson as a representative of the "old" philosophy, in fact Bergson is a modernizer in philosophy who suggests an alternative to the neo-Kantianism that had already come to dominance in France.⁵ Russell's criticism of Bergson is not prompted by personal hostility. In a letter to Morrell sent shortly after the be-

³ Vrahimis, Andreas (2011). Russell's critique of Bergson and the divide between 'analytic' and 'continental' philosophy. – in: *Balkan Journal of Philosophy*, 2011, Vol.3, Issue 1.

⁴ Vrahimis, Andreas (2011). Op. cit., p. 124.

⁵ Vrahimis, Andreas (2011). Op. cit., pp. 125-126.

gining of his critique of Bergson Russell writes that he does not hate Bergson, but finds him attentive, delicate and intelligent, and that if he had not read Bergson's works, he would be tempted by him.⁶ Although British Bergsonism as a fashion faded after the beginning of World War I, this was due more to the war and not to Russell's criticism.⁷

One of the strong though disputable points in Russell's criticism of Bergson is the accusation that Bergson does not understand what a number is. In fact, with this accusation Russell wants to undermine Bergson's idea of the priority of geometry against logic. This is why he attacks the claim that number is first of all something spatial.⁸ In this way Russell attempts to defend the position and priority of logicism. This attack has something thematically in common with the debates between Russell and Poincaré where Russell again unsuccessfully attempts a defense of logicism.

I shall follow step by step the development of Russell's criticism of Bergson which, in large measure, is directly connected to the attempt at a correct understanding of the problems of continuity and discreteness, a topic that Russell had already begun explore in a paper published in *The Monist* in 1912.⁹ This paper was later published as a separate edition together with a set of objections by Wildon Carr and Russell's own answers to Carr's objections.¹⁰

In his paper against Bergson Russell analyzes three of Bergson's works: *The Creative Evolution*, *Matter and Memory*, and *Time and Free Will*. To begin, Russell acknowledges that any attempt to classify Bergson's philosophy in some of the usual ways, either as empirical or a priori – if we begin from the method – or as realist or idealist – if we begin from the results of the philosophizing – will not be successful, as his philosophy crosses these traditional differentiations. That is why, Russell argues, it would be better to rely on another way of classifying philosophy, one that begins from the predominant will that has led a given philosopher to her philosophizing. For example, the philosophy of feeling is inspired by the love of happiness, theoretical philosophy by the love of knowledge, and practical philosophy by the love of action, i.e. practical philosophers consider action as a high good, and they consider happiness and knowledge as instruments for successful activity. Within this classification of philosophy Russell numbers Bergson among the lovers of action.¹¹

According to Russell Bergson's philosophy is dualistic: the world is divided into two incomparable parts – on the one hand, life, and on the other hand, matter.¹² Bergson claims that evolution is creative, "like the work of an artist"; "evolution is unpredictable, and determinism cannot refute the advocates of free will," to which Russell adds ironi-

⁶ Vrahimis, Andreas (2011). Op. cit., p. 127.

⁷ Vrahimis, Andreas (2011). Op. cit., p. 131.

⁸ Vrahimis, Andreas (2011). Op. cit., p. 130.

⁹ Russell, Bertrand (1912). The Philosophy of Bergson. – in: *The Monist*, Vol. 22 (1912), pp. 321-347.

¹⁰ Russell, Bertrand (1914). *The Philosophy of Bergson. With a Reply by Mr. H. Wildon Carr*. Published for "The Heretics" by Bowes and Bowes, Cambridge. London: Macmillan and Co., Ltd.

¹¹ Russell, Bertrand (1914). *The Philosophy of Bergson. With a Reply by Mr. H. Wildon Carr*, pp. 1-2.

¹² Russell, Bertrand (1914), p. 2.

cally that “among animals, at a later stage, a new bifurcation appeared: *instinct* and *intellect* became more or less separated. They are never wholly without each other, but in the main intellect is the misfortune of man, while instinct is seen at its best in ants, bees, and Bergson. The division between intellect and instinct is fundamental in his philosophy... Instinct at its best is called *intuition*.”¹³ Russell observes that for Bergson “Intellect is the power of seeing things as separate one from another, and matter is that which is separated into distinct things. In reality there are no separate solid things, only an endless stream of becoming ...”¹⁴

According to Russell with Bergson logic and mathematics are not a positive spiritual effort, but are pure somnambulism, in which reason has no active role. Intelligence is connected with space, and instinct or intuition with time. Thus Bergson considers time and space as dissimilar: space is a characteristic of matter, and time is a characteristic of life. Russell argues that time for Bergson is not mathematical time, i.e. the homogeneous aggregate of the outer one joined to other moments. According to Bergson mathematical time is a form of space, and time in the sense of the essence of life is what he calls duration. Russell accepts this conception of duration as fundamental for Bergson’s philosophy and confesses that he does not understand it entirely.¹⁵

Duration manifests itself first of all in memory, because it is memory in which the past becomes alive in the present. That is why the theory of memory, explored most directly in *Matter and Memory*, has great importance in Bergson’s philosophy.¹⁶ Bergson places pure perception at the opposite end from pure memory in respect to which he has, according to Russell, an ultrarealist position in which he entirely identifies perception with its object.¹⁷ Coming back to the problem of intuition Russell says that for Bergson the essential characteristic of intuition is that it does not divide the world into separate entities as intelligence does. On the occasion of time Russell argues that for Bergson it is memory that makes the past and the future real and consequently it creates true duration and true time. As he argues, “Intuition alone can understand this mingling of past and future: to the intellect they remain external, spatially external as it were, to one another.”¹⁸

Russell understands Bergson’s view of time as duration in the following way: “Partly the determinist depends, we are told, upon a confusion between true duration and mathematical time, which Bergson regards as really a form of space.”¹⁹ Essentially, Russell sharply reacts to the pragmatic and processual side of Bergson’s philosophy. He says that when he reads in Bergson the words “thought is a mere means of action”²⁰, he has the feeling that such a view is supported by a cavalry officer and not by a philosopher whose

¹³ Russell, Bertrand (1914). Op. cit., p. 3. Italics are Russell’s.

¹⁴ Russell, Bertrand (1914). Op. cit., p. 4.

¹⁵ Russell, Bertrand (1914). Op. cit., p. 6.

¹⁶ Russell, Bertrand (1914). Op. cit., p. 7.

¹⁷ Russell, Bertrand (1914). Op. cit., p. 8.

¹⁸ Russell, Bertrand (1914). Op. cit., p. 10.

¹⁹ Russell, Bertrand (1914). Op. cit., pp. 10-11.

²⁰ Ibid, p. 12.

job is to deal with thought. Russell puts to Bergson the rhetorical question of whether there are some reasons for the acceptance of such a “restless” view of the world, providing his own answer that “there is no reason whatever for accepting this view, either in the universe or in the writings of M. Bergson”.²¹

In the second part of his paper Russell directs the edge of his criticism against Bergson’s theory of space and time, which is basic for the whole of Bergson’s philosophy. Here Russell argues that Bergson’s doctrine of space is necessary for the reproach of intelligence, and Bergson’s doctrine of time is necessary for the defense of freedom, and in support of the doctrine of perpetual flux and for the entire explanation of the relations between mind and matter. As Russell observes, if these two doctrines are true, then “such minor errors and inconsistencies as no philosopher escapes would not greatly matter, while if they are false, nothing remains except an imaginative epic”.²²

Russell points out that Bergson’s theory of space is fully expressed in his work *Time and Free Will*, and belongs to the oldest part of his philosophy. There Bergson claims that “greater and less imply space, since he regards the greatest as essentially that which contains the less. He offers no arguments whatever, either good or bad, in favour of this view”.²³ In regard to Bergson’s view of number Russell explicitly says: “Bergson does not know what number is, and has himself no clear idea of it.”²⁴ Further Russell continues his biting criticism: “There are three entirely different things which are confused by Bergson ... namely: (1) number, the general concept applicable to the various particular numbers; (2) the various particular numbers; (3) the various collections to which the various particular numbers are applicable. It is this last that is defined by Bergson when he says that number is a collection of units.”²⁵ And still further he continues: “Bergson only succeeds in making his theory of number plausible by confusing a particular collection with the number of its terms, and this again with number in general.”²⁶

Russell puts the critical question as follows: “But apart from the question of numbers, shall we admit Bergson’s contention that every plurality of separate units involves space? ... No reason is alleged by Bergson for the view that space is necessary. He assumes this as obvious, and proceeds at once to apply it to the case of times.”²⁷ And Russell continues: “The view that all separateness implies space is now supposed established, and is used deductively to prove that space is involved wherever there is obviously separateness, however little other reason there may be for suspecting such a thing. ... all abstract ideas involve space; and therefore logic, which uses abstract ideas, is an offshoot of geometry, and the whole of the intellect depends upon a supposed habit of picturing

²¹ Ibid.

²² Russell, Bertrand (1914). Op. cit., p. 13.

²³ Ibid.

²⁴ Ibid.

²⁵ Russell, Bertrand (1914). *The Philosophy of Bergson. With a Reply by Mr. H. Wildon Carr*, p. 14.

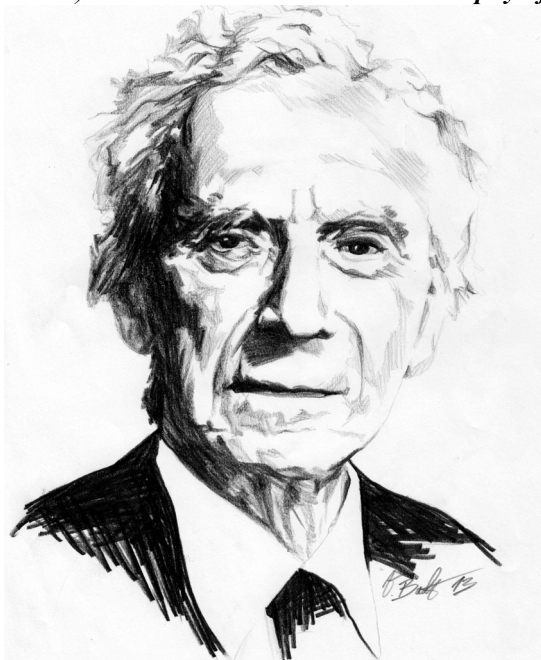
²⁶ Ibid.

²⁷ Russell, Bertrand (1914). Op. cit., p. 15.

things side by side in space.”²⁸ Another Russell’s reproach to Bergson is that “There are in Bergson’s works many allusions to mathematics and science, and to a careless reader these allusions may seem to strengthen his philosophy greatly. ... But as regards mathematics, he has deliberately preferred traditional errors in interpretation to the more modern views which have prevailed among mathematicians for the last half century.”²⁹

3. Russell’s criticism of Bergson’s views on continuity and discreteness

A) Russell’s criticism in *The Philosophy of Bergson* (1912)



Bertrand Russell

An essential part of Russell’s criticism of Bergson concerns Bergson’s views on continuity and discreteness. Concerning Bergson’s view of continuity Russell says: “Apart from the question of number which we have already considered, the chief point at which Bergson touches mathematics is his rejection of what he calls the cinematographic representation of the world. Mathematics conceives change, even continuous change, as constituted by a series of states; Bergson, on the contrary, contends that no series of states can represent what is continuous, and that in change a thing is never in any state at all. ... True change can only be explained by true duration; it involves an interpenetration of past and present, not a mathematical succession of static states. This is what is called a dynamic instead of a static view of the world.”³⁰

Russell continues his criticism with an analysis of Bergson’s position concerning Zeno’s paradoxes. He says: “Bergson’s position is illustrated ... by Zeno’s argument of the arrow. Zeno argues that, since the arrow at each moment simply is where it is, therefore the arrow in its flight is always at rest. At first sight, this argument may not appear a very powerful one. Of course, it will be said, the arrow is where it is at one moment, but at another moment it is somewhere else, and this is just what constitutes motion. Certain difficulties, it is true, arise out of the continuity of motion, if we insist upon assuming that motion is also discontinuous. ... But if,

²⁸ Russell, Bertrand (1914). Op. cit., pp. 15-16.

²⁹ Russell, Bertrand (1914). Op. cit., p. 16.

³⁰ Russell, Bertrand (1914). Op. cit., p. 17.

with the mathematicians, we avoid the assumption that motion is also discontinuous, we shall not fall into the philosopher's difficulties."³¹ Russell explains that "Zeno belonged to the Eleatic school, whose object was to prove that there could be no such thing as change. ... The Eleatics said that there were things but no changes; Heraclitus and Bergson said that there were changes but no things."³²

Russell describes the power or the essence of Zeno's paradox in the following way: "Zeno assumes ... that when a thing is in a process of continuous change, even if it is only change of position, there must be in the thing some internal *state* of change. The thing must, at each instant, be intrinsically different from what it would be if it were not changing. He then points out that at each instant the arrow simply is where it is, just as it would be if it were at rest. Hence he concludes that there can be no such thing as a *state* of motion, and therefore, adhering to the view that a state of motion is essential to motion, he infers that there can be no motion and that the arrow is always at rest."³³ And Russell continues: "Zeno's argument, therefore, though it does not touch the mathematical account of change, does, *prima facie*, refute a view of change which is not unlike M. Bergson's. How, then, does M. Bergson meet Zeno's argument? ... Bergson's view [in all his three books], plainly, is paradoxical; whether it is *possible*, is a question which demands a discussion of his view of duration. His only argument in its favour is the statement that the mathematical view of change 'implies the absurd proposition that movement is made of immobilities' (*C. E.*, p. 325). But the apparent absurdity of this view is merely due to the verbal form in which he has stated it, and vanishes as soon as we realize that motion implies relations. ... a motion is made out of what is moving, but not out of motions. It expresses the fact that a thing may be in different places at different times, and that the places may still be different, however near together the times may be. Bergson's argument against the mathematical view of motion, therefore, reduces itself, in the last analysis, to a mere play upon words."³⁴

After that Russell goes on to his criticism of Bergson's theory of duration. He begins his criticism by arguing that "Bergson's theory of duration is bound up with his theory of memory. According to this theory, things remembered survive in memory, and thus interpenetrate present things: past and present are not mutually external, but are mingled in the unity of consciousness. Action, he says, is what constitutes being; but mathematical time is a mere passive receptacle, which does nothing and therefore is nothing (*C. E.*, p. 41). ... But in ... his account of duration, Bergson is unconsciously assuming the ordinary mathematical time; without this, his statements are unmeaning."³⁵ Russell criticizes Bergson's view of the past as "*that which acts no longer*", saying that this definition is a vicious circle, because it means in fact that "the past is that of which the action is in the

³¹ Russell, Bertrand (1914). *Op. cit.*, pp. 17-18.

³² *Ibid.*, p. 18.

³³ Russell, Bertrand (1914). *Op. cit.*, pp. 18-19. Italics are Russell's.

³⁴ *Ibid.*, p. 19. Italics are Russell's.

³⁵ Russell, Bertrand (1914). *Op. cit.*, pp. 19-20.

past”.³⁶ The same vicious circle is valid also for the present, because in Bergson’s expression “*that which is acting*” the word “is” introduces secretly the idea of the present. In a word, “when Bergson speaks of the past, he does not mean the past, but our present memory of the past.”³⁷

Beyond this, in the remainder of his paper Russell develops criticisms of Bergson’s views about the act of knowledge, the confusion of object and subject, and some other problems that have no direct connection with the theme of continuity and discreteness, which is why I will not consider these.

*B) The roots of the differences in Bergson’s and Russell’s views on continuity and discreteness: Russell’s **The Principles of Mathematics** (1903)*

The roots of the differences in Bergson’s and Russell’s treatment of continuity and discreteness are to be found in their earlier works. Bergson constantly supports in all his books one and the same interpretation of Zeno’s paradoxes, namely, that the paradoxes appear from the erroneous presupposition that movement and time are infinitely divisible, i.e. that their indivisible parts are geometrical points and the non-durational instances. This presupposition is based on a confusion of the movement itself with its unmoved trace in space; namely the unmoved trace rather than the act of movement is infinitely divisible. Bergson says: “At bottom, the illusion arises from this, that the movement, *once effected*, has laid along its course a motionless trajectory on which we can count as many immobilities as we will. From this we conclude that the movement, whilst *being effected*, lays at each instant beneath it a position with which it coincides. We do not see that the trajectory is created in one stroke, although a certain time is required for it; and that though we can divide at will the trajectory once created, we cannot divide its creation, which is an act in progress and not a thing.”³⁸

Russell’s comments on Zeno’s paradoxes in his earlier book *The Principles of Mathematics* (1903) are rather different: “After two thousand years of continual refutation, these sophisms were reinstated, and made the foundation of a mathematical renaissance, by a German professor, who probably never dreamed of any connection between himself and Zeno. Weierstrass, by strictly banishing all infinitesimals, has at last shown that we live in an unchanging world, and that the arrow, at every moment of its flight, is truly at rest. The only point where Zeno probably erred was in inferring (if he did infer) that, because there is no change, therefore the world must be in the same state at one time as at another. This consequence by no means follows...”³⁹.

In other words, Russell agrees with Zeno that we live in an unchanging world, but

³⁶ Ibid, p. 20.

³⁷ Russell, Bertrand (1914). Op. cit., pp. 20-21.

³⁸ Bergson, Henry (1911). *Creative Evolution*, translated by Arthur Mitchell, Ph.D. New York: Henry Holt and Company, p. 309. Italics are Bergson’s.

³⁹ Russell, Bertrand (1903). *The Principles of Mathematics*. Vol. 1. Cambridge: Cambridge Univ. Press, p. 347.

contrary to Zeno he claims that the world is not in one and the same state in every moment. He does not explain how an unchanging world can be different in different successive moments. The only probable explanation of what seems a crying contradiction is that by “change” Russell has in mind dynamic transition, the gradation of one moment into the next one; he rejects “change” as understood in that sense, because it is incompatible with the mutual externality of moments in mathematically continuous time and because in the mathematical continuum there is no immediate “next” element after the “previous one”.⁴⁰ In any case, in 1903 Russell considered mathematically continuous space and time as real, as the world, in which we live. What we call “change” is for him nothing but diversity in time, and he considered time in a mathematical way as the axis of independent variables, in which the “successive” moments with their corresponding diverse states of the world exist or rather co-exist. According to Capek this reconstruction of Russell’s thought is the only possible way in which his strange view that the world is unchanged but is not identical in its successive moments can become at least psychologically understandable, though not, for that, convincing.⁴¹

*C) Russell’s criticism in **Our Knowledge of the External World** (1914)*

It is not necessary to emphasize that the adjective “successive” loses its meaning in Russell’s scheme, which is a perfect illustration of what Bergson calls “the fallacy of spatialization”. This becomes again a question eleven years later in a strangely ambiguous passage in *Our Knowledge of the External World*, where Russell writes: “The contention that time is unreal and that the world of sense is illusory must, I think, be regarded as based upon fallacious reasoning.”⁴² Was Bergson right? Not entirely, as is seen in the continuation of Russell’s thought: “Nevertheless, there is some sense – easier to feel than to state – in which time is an unimportant and superficial characteristic of reality. Past and future must be acknowledged to be as real as the present, and a certain emancipation from slavery to time is essential to philosophic thought. The importance of time is rather practical than theoretical, rather in relation to our desires than in relation to truth. ... But unimportance is not unreality...”⁴³ We have to agree with Russell: it is easier to feel than to declare how time can be real though unimportant, when past and future are as real as the present. On the other hand, it is an irony to see how a thinker that so severely blames Bergson for his unclarity finally himself refers to so defuse a feeling that leads to great confusion and obvious contradiction.⁴⁴

However, in 1914, when *Our Knowledge of the External World* is published, his views about Zeno are modified to some extent. While in 1903 Russell agrees with Zeno

⁴⁰ Capek, M. (1971). *Bergson and Modern Physics. A Re-interpretation and Re-evaluation*. Boston Studies in the Philosophy of Science. Vol. 7. Dordrecht - Boston, p. 338.

⁴¹ Ibid, pp. 338-339.

⁴² Russell, Bertrand (1993). *Our Knowledge of the External World*. London and New York: Routledge (First published 1914: Allen & Unwin, London), p. 171.

⁴³ Ibid.

⁴⁴ Capek, M. (1971). Op. cit., p. 339.

that the arrow is in any instant of its flight “really at rest”, in 1914 he denies this: “we cannot say that it is at rest at the instant, since the instant does not last for a finite time ... Rest consists in being in the same position at all the instants throughout a certain finite period, however short...”⁴⁵ There is also another modification of Russell’s views: he no longer insists that we live in the unchanging world of Zeno, and explicitly accepts that “the theory of mathematical continuity is an abstract logical theory, not dependent for its validity upon any properties of actual space and time”.⁴⁶ But Russell clearly realizes that the applicability of such continuous sequence to the world of experience is a quite different problem. He admits that the interpenetration, i.e. the transition that is not an issue of discrete items, is a fact of our immediate experience, but he attempts to avoid this awkward fact through an artificial differentiation between “appearance” and “reality”. Such difference is without any meaning at the level of immediate experience, where appearance and reality coincide.⁴⁷ Though insisting that the sense-world can be continuous, he admits that there is not enough reason for that to be the case. In other worlds, though the theory of mathematically continuous sequences is compatible with our experience, it is not demanded by it.

“From what has just been said it follows that the nature of sense-data cannot be validly used to prove that they are not composed of mutually external units. It may be admitted, on the other hand, that nothing in their empirical character specially necessitates the view that they are composed of mutually external units. This view, if it is held, must be held on logical, not on empirical grounds. I believe that the logical grounds are adequate to the conclusion.”⁴⁸ In other words, Russell’s logical atomism still makes him inclined to accept the infinite divisibility of space and time and the real existence of points and instants, though he realizes that they are empirically unverifiable. Although later Russell will move closer to Bergson in the acceptance of the conceptual constructive nature of “instants”, his insistence that any multiplicity should be of an atomic type and built from external units entirely neglects the qualitative multiplicity that constitutes immediate experience.⁴⁹

Further in *Our Knowledge of the External World* Russell returns to Bergson directly, saying that “A typical and recent example of philosophic theories of motion is afforded by Bergson, whose views on this subject I have examined elsewhere⁵⁰.”⁵¹ Here Russell develops an objection against Bergson’s theory which rests on a consideration of the entirety of a movement at once, as, for example, a fast movement. Russell argues that “It is this kind of consideration, I think, which leads Bergson and many others to regard a

⁴⁵ Russell, B. (1993). Op. cit., p. 142.

⁴⁶ Ibid, p. 137.

⁴⁷ Capek, M. (1971). Op. cit., pp. 339-340.

⁴⁸ Russell, B. (1993). *Our Knowledge of the External World*, pp. 151-152.

⁴⁹ Capek, M. (1971). *Bergson and Modern Physics. A Re-interpretation and Re-evaluation*. Boston Studies in the Philosophy of Science. Vol. 7, p. 340.

⁵⁰ *Monist*, July 1912, pp. 337-341. It is Russell’s note.

⁵¹ Russell, Bertrand (1993). *Our Knowledge of the External World*, p. 143.

movement as really one indivisible whole, not the series of separate states imagined by the mathematicians.”⁵² From this Russell points to three supplementary responses to Bergson’s position: physiological, psychological, and logical.

(1) First, Russell argues that “The physiological answer merely shows that, if the physical world is what the mathematician supposes, its sensible appearance may nevertheless be expected to be what it is. The aim of this answer is thus the modest one of showing that the mathematical account is not impossible as applied to the physical world; it does not even attempt to show that this account is necessary, or that an analogous account applies in psychology.”⁵³ And still further on: “A motion is *perceived*, not merely *inferred*... . This answer shows that physiology can account for our perception of motion. But physiology ... is assuming the truth of physics, and is thus only capable of showing the physical account to be possible, not of showing it to be *necessary*.”⁵⁴

(2) Russell next argues that the psychological answer to the difficulty of movement is part of a wider theory that has not yet been elaborated and so can only be sketched vaguely.⁵⁵ Russell refers to Poincaré when he says that in considering sense data it is important to know that two sense data can be different one from the other though we may not be able to percept the difference between them. For example, in a gradual change we may find one sense data as undifferentiated from another sense data, and this other sense data as undifferentiated from a third, while we may be able to differentiate the first one and the third one.⁵⁶ Russell also points out that mathematics accepts an absolute theory of space and time, i.e. it accepts that besides things that are in space and time there are also entities called “points” and “instants” that are occupied by things. This view, though defended by Newton, has been considered by mathematicians for a long time as merely a conventional fiction.⁵⁷

Russell also explores the possibility that in actual empirical fact there may be good reason to consider the perceptual world as continuous. He concludes this exploration with a negative finding: though the hypothesis of continuity is quite compatible with the facts and with logic, and though it is simpler than any other reasonable hypothesis, our capabilities to differentiate amongst many similar sense objects are not absolutely exact. And even if the movement that we see consists like a cinematograph of a great number of successive positions, there is nothing empirical to show that the perceptual objects are not continuous. There is a negative element in so called “experienced continuity”: “absence of perception of difference occurs in cases which are *thought* to give perception of absence of difference. ... the indistinguishability is a purely negative fact...”⁵⁸ And further: “... it follows that there can never be any empirical evidence to demonstrate that the sen-

⁵² Russell, Bertrand (1993). Op. cit., p. 145.

⁵³ Ibid.

⁵⁴ Russell, Bertrand (1993). Op. cit., p. 146.

⁵⁵ Ibid.

⁵⁶ Russell, Bertrand (1993). Op. cit., p. 148.

⁵⁷ Russell, Bertrand (1993). *Our Knowledge of the External World*, p. 153.

⁵⁸ Russell, Bertrand (1993). Op. cit., p. 155.

sible world is continuous, and not a collection of a very large finite number of elements of which each differs from its neighbor in a finite though very small degree. The continuity of space and time ...are all in the nature of unverifiable hypotheses...”⁵⁹

Russell ends this exploration by arguing that “we are apparently forced to conclude that the space of sense-data is not continuous; but that does not prevent us from admitting that sense-data have parts which are not sense-data, and that the space of these parts may be continuous. The logical analysis ... provides the apparatus for dealing with the various hypotheses, and the empirical decision between them is a problem for the psychologist.”⁶⁰

(3) In regard to the logical answer Russell provides for in response to the apparent difficulties of the mathematical theory of movement, he begins by noting that Bergson’s view, and the view of many philosophers, is that movement is something indivisible, incomposable in a sequence of states and that this position is part of a more general doctrine that composition always falsifies, because the parts of a complex whole are different, when they are combined in that whole, from what they would be out of the whole.⁶¹

Later Russell provides an argument against this more general theory. What is interesting here is that in the chapter “The problem of infinity considered historically” of *Our Knowledge of the External World* Russell considers the first two of Kant’s antinomies of infinity. “In the first, the thesis states: “The world has a beginning in time, and as regards space is enclosed within limits”; the antithesis states: “The world has no beginning and no limits in space, but is infinite in respect to both time and space”.”⁶² “The second antinomy illustrates the dependence of the problem of continuity upon that of infinity.”⁶³ Russell first considers Kant’s statement that “space does not consist of simple parts, but of spaces” and points to its similarity with Bergson’s objection that movement cannot be composed of immobilities; he then criticizes Kant by arguing that he does not explain why space must consist of spaces and not of simple parts.⁶⁴ Russell says in addition: “I wish ... to show the irrelevance of all the solutions proposed by philosophers... I shall try to explain the true solution, which has been discovered by the mathematicians, but nevertheless belongs essentially to philosophy.”⁶⁵ Russell observes that “A long line of philosophers, from Zeno to M. Bergson, have based much of their metaphysics upon the supposed impossibility of infinite collections. Broadly speaking, the difficulties were stated by Zeno, and nothing material was added until we reach Bolzano’s *Paradoxien des Unendlichen*, a little work written in 1847-8, and published posthumously in 1851. Intervening attempts to deal with the problem are futile and negligible. The definitive solution of the difficulties is due, not to Bolzano, but Georg Cantor, whose work on this subject first

⁵⁹ Ibid.

⁶⁰ Russell, Bertrand (1993). Op. cit., p. 156.

⁶¹ Russell, Bertrand (1993). Op. cit., pp. 156-157.

⁶² Russell, B. (1993). *Our Knowledge of the External World*, pp. 159-160.

⁶³ Ibid, p. 161.

⁶⁴ Russell, B. (1993). Op. cit., p. 162.

⁶⁵ Russell, B. (1993). Op. cit., p. 164.

appeared in 1882.”⁶⁶ At the end of this chapter Russell says: “Many others, like M. Bergson, have preferred to deny that space and time consist of points and instants. Either of these solutions will meet the difficulties in the form in which Zeno raised them. ... if we are to solve the whole class of difficulties derivable from Zeno’s by analogy, we must discover some tenable theory of infinite numbers.”⁶⁷

Bergson’s treatment of Zeno’s paradoxes is subjected by Russell to an extended commentary, some approving and some critical. From what has already been considered of Russell’s criticism of Bergson the question arises concerning the concrete reasons for that criticism. In this regard one of the best interpreters of Bergson’s philosophy, Milic Capek, points out that Russell’s thinking can be characterized by two features: his tendency to prefer the metaphysics of being to becoming, and his radical skepticism.⁶⁸ The comparison of Bergson’s and Russell’s interpretation of Zeno’s paradoxes displays the differences in their philosophical views, which are due primarily to the two features of Russell’s thinking Capek notes.⁶⁹

4. Conclusion: Russell’s misunderstanding of Bergson. Up to now I have presented Russell’s criticism of Bergson impartially without expressing my own opinion with the aim of presenting his criticism as authentically as possible. Here, by way of conclusion, I would like to express the groundlessness of this criticism and its great prejudice against Bergson by exploring a number of objections that have been raised in the philosophical literature. I shall consider briefly first of all Milic Capek’s objections to Russell’s criticism of Bergson. Capek argues that there are two basic ideas in Bergson’s philosophy of mathematics. First is the idea of the inseparability of the concept of number from that of space magnitude, and second is the view that the act through which the intuition of spatial magnitude is presented is a durational act, i.e. it is an example of duration.⁷⁰ The most popular criticism of the first of these two views is made by Russell. However, in its basis this criticism, although sarcastic, is groundless. Russell accuses Bergson of confusing numbers with concrete aggregates, entirely neglecting Bergson’s clearly formulated difference between numbering and counting. Russell also states that Bergson does not point to any reason for his connecting of spaces with number, a criticism only possible by

⁶⁶ Russell, B. (1993). Op. cit., p. 169.

⁶⁷ Russell, B. (1993). Op. cit., p. 184.

⁶⁸ Capek, M. (1971). *Bergson and Modern Physics. A Re-interpretation and Re-evaluation*. Boston Studies in the Philosophy of Science. Vol. 7, p. 337.

⁶⁹ Capek considers the difference of Bergson’s and Russell’s understanding of Zeno paradoxes as so important that he has included a vast pieces of their published works in the following book: Capek, M. (1976). *The Concepts of Space and Time. Their Structure and Their Development*. Boston Studies in the Philosophy of Science. Vol. XXII. Dordrecht – Boston. See the papers there: Russell, B. (1976). On Zeno’s Paradoxes, pp. 235-244; and Bergson, H. (1976). On Zeno’s Paradoxes, pp. 245-250. Capek explains in addition the difference between them in the introduction of the book: Capek, M. (1976). Introduction, pp. XXXVIII-XXXIX.

⁷⁰ Capek, Milic (1971). *Bergson and Modern Physics*. Boston Studies for the Philosophy of Science. Vol. 7. Dordrecht – Boston, p. 176.

not taking into account the fact that the whole second chapter of Bergson's work *Time and Free Will* is devoted to that very problem and that Bergson returns, at least five times, to a detailed analysis of the process of counting and of intuition of space that is included in that counting.⁷¹

There is, in short, a serious misunderstanding of Bergson by Russell. This is further evident in his accusation that Bergson has a tendency to visualization. In a subsequent discussion with H. Wildon Carr Russell is disproved by Carr on this point, a point which, furthermore and regardless, has no real bearing on the discussion at hand. The decisive question is more general: whether spatial intuition is a necessary condition for the idea of number or not. Russell misunderstands this question because he confuses spatial intuition with a crude visualization, though Bergson explicitly avoids such confusion. Bergson underlines the homogeneity of space, i.e. the absence of qualitative sensually perceived differences between its parts. To the above formulated crucial question Bergson gives a positive answer, and Russell a negative one.⁷² Historically considered, there is a correlation of the idea of number with the intuition of space, beginning with the Pythagorean monads that are at the same time numbers and points, and the Pythagorean linkage of the simple algebraic formulas with geometrical figures.⁷³

Russell does not notice the presence of much more precise elements even in Bergson's most abstract mathematical and logical thought. Russell does not understand, for example, that the apparently entirely abstract notion of mathematical continuity is based on the firm habit of thought increasing any space interval, even if it is marked as a time interval, so that the intermediate points are to be noticed, even if they are called instances, and that without this mental microscope the doctrine of space-time continuity loses its convincingness.⁷⁴

On the problem of the connection between the number and space many other philosophers and mathematicians side with Bergson. For example, the mathematician Sophus Li formulates as an axiom the statement that any point in a straight line corresponds to some number and vice versa. It is true that the logicians support a view opposing Bergson's claim that the logical concept of an arithmetical sequence is in the basis of a geometrical continuum. According to them this is the sense of the arithmetization of continuum, but it is due to the fact that they – and Russell together with them – are not trained in introspective analysis and that is why they do not succeed in finding the finer visual elements of spacial intuition in the ideas themselves of number and of set (or class) at all.⁷⁵

⁷¹ Capek, Milic (1971). Op. cit., p. 181.

⁷² Ibid.

⁷³ Capek, Milic (1971). Op. cit., pp. 181-182.

⁷⁴ Ibid, p. 182.

⁷⁵ Capek, Milic (1971). Op. cit., p. 183.

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Vesselin Petrov
Institute for the Study of Societies and Knowledge
Bulgarian Academy of Sciences
13a, Moskovska Street
1000 Sofia
Bulgaria
e-mail: petrov.vesselin@gmail.com