

**THE CONTROVERSY OVER SCIENTIFIC COGNITION  
AND COMMUNICATION**

*The Methodological Sense of Scientific Cognition*

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**Abstract.** *This text deals with old, but always current problems of scientific cognition and communication by the mediation of scientific and common symbols.*

*The author's point of view is critically directed at the results of empiric and rational scientific cognition. It is reproached to empirical approach that it is basically incorrect because it is based on elusive sensuality and relative illusionism. The rational direction of cognition would be ideal in its pure form, but for many thinkers it is mediated by experience, i.e. a rational dimension. The author has the stand point of pure scientific rationalism and, according to his opinion, science is, even in its simplest form, on the highest possible level of abstractedness. It can be applied to the so-called particular-conceptual and general-conceptual, i.e. abstract-speculative sciences. The difference is gradual, i.e. quantitative, while their essence is the same.*

*The character and sense of scientific communication represent the outcome of such a comprehension of science. The author is critical of the functional, behavioristic, pragmatic and logical-empirical, but also dialectical theory of meaning. He takes his own standpoint, which may be defined as the communication of an a priori form by the mediation of objective existence of scientific idealities.*

*The text as a whole is set on premises of the logical methodology of science and the logical sense of objective existence of a scientific structure and scientific models. The text is abstract and it can be applied to the concept of science and its methodological sense in the widest meaning of the world.*

**Key words:** *Scientific cognition, value of cognition, limits of cognition, apriorism and axiomatics, scientific dialogue, spiritual existence, sense of symbolism, linguistic symbolism, logic and language.*

Besides the logical and methodological aspect of the subject of the science of science, i.e. Logic in both aspects, it is very important to discuss one more significant question<sup>1</sup>.

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<sup>1</sup> Compare: Vgl. II, *Die Wissenschaft und die Fehlbarkeit der Vernunft*, Tübingen 1982, S.9 ff.35-38; So erklärt der kritische Rationalist A. Musgrave, daß man an Stelle von "kritischem Rationalismus" auch von "Kritischem Empirismus" sprechen könne; s. A. Musgrave, *Alltagwissen, Wissenschaft und Skeptizismus*, übers., v. II. u. G.

The so-called gnosiologic question is in the conceptual sense, is involved in the scope of philosophical problematic subject matter. However, since, according to the author, the cognitive question can be conceived in two ways:

- a) Scientific and philosophical;
- b) Therefore, the problem of the cognition of the science of science will be discussed here. However, in its essence, it is gnosiologic problem of the criterion of human cognition, in the first place, i.e. in philosophy. Of course, the author will here discuss the epistemological aspect, which is relevant on the methodological level<sup>2</sup>.

Epistemology, or the theory of scientific cognition, is the critical discipline, which conceives the logical value of man's scientific cognition. It is not, like pure gnosiology, the cognition of the very cognition, but, rather, it is the logical examination of the rational possibility of proving of man's rational cognition<sup>3</sup>. The theory of cognition examines all possibilities and impossibilities of man's cognition, while Epistemology, without any dramatization of the complexity and relativity of man's cognition, establishes only and just the rational possibilities of the coherent cognitive act. The theory of cognition, as Gnosiology examines the values of man's cognition<sup>4</sup>. The theory of cognition, as Epistemology, does not doubt this value. In that sense, Gnosiology would be the theory of metaphysical, super-experiential cognition, while Epistemology would be the theory of scientific, experiential cognition. It represents the essential difference. Gnosiology, at least, examines the very experience and in that way, the scope of its examination is exhausted. However, Epistemology passes over the question of the experiential examination and takes it as non-refutable in principle, so, in that sense, it establishes the character of the concept of experience in relation to the will, or objective existence<sup>5</sup>. In other words, the former, in principle, doubts the possibility of the cognition of "the thing by itself", i.e. experience, while the latter discusses "things by themselves" as the object of cognition in an uncritical way. The former examines the logical value of thinking, while the latter examines only the form and the material contents of scientific cognition, accepting the undoubted certainty of logical cognition<sup>6</sup>.

Therefore, in this aspect of conceiving, one must take into consideration Epistemology of scientific cognition, i.e. the scientific cognition of science. Therefore, its concept and characteristics must be the object of consideration.

#### THE SENSE OF THE METHODOLOGICAL OBTAINING OF COGNITION

What is meant by the spiritual function by which the procedure of obtaining knowledge is conducted is implicitly implied as the source of cognition, the subject of scientific

Albert, Tübingen 1993 (UTB 1740), p. 100-101.

<sup>2</sup> Compare: W. Stegmüller, *Metaphysik, Skepsis, Wissenschaft* (1954), 2. verb. Aufl. Berlin/Heidelberg 1969. p. 17-18.

<sup>3</sup> Compare: K.R. Popper, *Objektive Erkenntnis. Ein evolutionärer Entwurf* (1972, dt. 2. Aufl., Hamburg 1974. p. 25-26.

<sup>4</sup> Compare: Vgl. Dazu etwa den Aufsatz von A. Bohnen, *Zur Kritik des modernen Empirismus* (1969), abgedr. in II. Albert (Hg.), *Theorie und Realität*, 2., veränd. Aufl. Tübingen 1971. S. 171 ff.

<sup>5</sup> Compare: Ayer, *The Foundation of Empirical Knowledge*, London, 1947. Chapter II, p. 83-84.

<sup>6</sup> Compare: Hempel, *Problems and Changes in the Empiricist Criterion of Meaning*, "Revue internationale de philosophie", No11, 1956.

research<sup>7</sup>. The source of cognition is man's spiritual human function, because people in their spirit have some particular characteristics, which they use in the process of obtaining knowledge about the object of cognition. Of course, as it has already been observed, people do not examine the very possibility of cognition, but rather it can be said that they imply the cognitive ability of spiritual cognition<sup>8</sup>. The undoubted nature of the logical form of human cognition in the concept, judgment, and conclusion is not refuted, because human cognition, being of the conceiving nature, represents logical thinking. People use that quality to understand, comprehend, and explain what comes to be the object of cognition. However, Gnosiology examines precisely the value of these cases of logical cognition, as it could have been seen.

However, if the value of logical thinking, i.e. cognition, is not examined, the possibility of any other human cognition is the object of examination. In that way, some principal gnosologic problems are the object of discussion, if it cannot be avoided in this aspect of examination<sup>9</sup>.

#### THE SUBJECT OF THE METHODOLOGICAL REACH OF SCIENCE

The theory of scientific cognition, as epistemology, takes as its subject two problems:

- a) The source of scientific cognition<sup>10</sup>
- b) The limits of scientific cognition<sup>11</sup>

Of course, since the subject of this discussion is defined using the methodological cognition of science, it is relevant to establish:

- a) The source of scientific cognition of science<sup>12</sup>
- b) The limits of scientific cognition of science<sup>13</sup>

However, the theory of scientific cognition is not some special super-science of each particular science, although each science can be set in the focus of the scientific theory of cognition. Rather, it could be said that it is the general, universal theory of the character and the logical type of scientific cognition in abstracto<sup>14</sup>. When the concept of the source and the limit of scientific cognition are established, it is easy for this theory to operate on cognitive characteristics of each science, because it must establish the principle, the general concept of the character of scientific cognition. In that sense, it is the principal and universal super-science and meta-science.

In other words, the Introduction takes as its subject the source and the limit of scientific cognition and the particular source and limit of cognition for science as science.

From what has been observed so far, the inferred conclusion should not be that the theory of scientific cognition is equal to Logic (in both dimensions)<sup>15</sup>. Namely, Logic, as

<sup>7</sup> Compare: Husserl, *Logische Untersuchungen*, 1900-1901. p. 30-32.

<sup>8</sup> Compare: Husserl, *Ibid*, p. 33-40.

<sup>9</sup> Compare: Bridgman, *The Logic of Modern Physics*, New York, 1927. Chapter I, p. 35-36.

<sup>10</sup> Compare: Ayer, *The Problem of Knowledge*, London, 1956. p. 30-32.

<sup>11</sup> Compare: *Ibid*, p. 33-37.

<sup>12</sup> Compare: Piaget, *Introduction a l'epistemologie genetique*, T. I-III, Paris 1950. p. 70-73.

<sup>13</sup> Compare: *Ibid*, p. 74-80.

<sup>14</sup> Compare: Schlick, *Allgemeine Erkenntnislehre*, Berlin 1918. p. 18-20.

<sup>15</sup> Compare: Lotze, *Logik*, II Aufl. Leipzig 1880. p. 25-26.

it could have been seen, examines the forms of thinking in the static and dynamic way, while Epistemology examines the relationship of logical cognition versus scientific cognition in general. Logic is the science of proper (and truthful) thinking, while Epistemology is the science of the source and the limit of scientific cognition. If both source and limit are logical, again there is the case of conceiving the difference of the sense of the logical science and the epistemological science<sup>16</sup>. However, there is the opinion according to which the source of scientific cognition (but also philosophical, as it will be seen in philosophy) is experience, so that the limit of scientific cognition is an experiential reality by itself<sup>17</sup>. Of course, this is also the subject of the theory of scientific cognition, i.e. a part of its conceptual contents.

Finally, the theory of scientific cognition is not, as it has been said, Psychology. As well as the other, it deals with thinking in the aspect of being, while the theory of scientific cognition deals with the source and the limit of scientific cognition. It should be established that Psychology, like the natural-experiential science of sensuality and notional possibility, is something very different in comparison to the scientific theory of cognition. It can be said that it is so, because this theory examines precisely the possibilities of scientific cognition, so, in that sense, the possibilities of observational-notional cognition<sup>18</sup>. The criterion for the establishment of the limit is, of course, logical, because the value of such cognition is examined by thinking. Therefore, in this case the theory of cognition uses logical laws in, order to establish the measure and the limit (but also the value) of the so-called psychological cognition.

Of course, philosophy is present in the theory of scientific cognition, because the philosophical base represents the condition without which science cannot be established and scientifically founded<sup>19</sup>. However, it is of the primary importance for the very metaphysical Ontology in the aspect of the so-called Gnosiology, i.e. the theory of everything, so (primarily) of philosophical cognition, too. All rational metaphysical constructions, i.e. philosophy, depend on the gnosiological point<sup>20</sup>.

According to many scholars and also, according to the author, it is the gnosiological problem, i.e. the cognitive-philosophical problem, but also the basic and complete problem of philosophy<sup>21</sup>. It means that the whole of philosophy is exhausted by this problem.

In that sense, the theory of scientific cognition is the science of sciences and it can be said that it is, according to everything, the highest science. Abstractedly determined, it surpasses Logic, although, in the aspect of the theory of scientific cognition, their position must be characterized as a logically coordinated one. However, like Gnosiology, i.e. the theory of knowledge in abstracto, in the widest sense, it is above all sciences and it is the only one, which takes the place on the throne of sciences. It is the highest science of sciences, because it examines the scientific and philosophical values and limits of all cases of human rational-irrational cognition<sup>22</sup>.

<sup>16</sup> Compare: Wittgenstein, L., *Philosophical Investigations*, Oxford 1953. Chapter I, p. 31-32.

<sup>17</sup> Compare: Dewey, *Logic, The Theory of Inquiry*, 1938. Chapter I, p. 11-12.

<sup>18</sup> Compare: Ayer, *Thinking and Meaning*, London, 1947. Chapter II, p. 37-38.

<sup>19</sup> Compare: Марковић, М., *Филозофски Основи Науке*, САНУ, Београд, 1981. Chapter III, p. 96-97.

<sup>20</sup> Compare: Stace, *Metaphysics and Meaning*, Mind, No44, 1935. p. 35-42.

<sup>21</sup> Compare: Kant, *Kritik der reinen Vernunft*, Akademie - Ausgabe Band III (2 Auf) p. 77-78.

<sup>22</sup> Compare: Carnap, *Überwindung der Metaphysik durch logische Analyse der Sprache*, "Erkenntnis". 1942. p. 33-34.

However, the theory of cognition, as Gnosiology, is in the cognitive aspect the only philosophical discipline, since, as it will be shown, it establishes the principal and apodictic certainty of the impossibility of the cognition of "things by themselves". Therefore, it represents the limit of philosophy, the limit of human cognitive power. That limit is established by the gnosiologic theory of cognition<sup>23</sup>.

Therefore, like Epistemology and Gnosiology, the theory of cognition represents the highest level of the possible scientific achievement together with methodological Logic, they make the top of scientific knowledge of scientific, i.e. human (scientific) knowledge. The same can be applied to Gnosiology in relation to philosophical knowledge and also implicitly in relation to the scientific knowledge. It represents the top of tops of scientific achievements, everything else remains below<sup>24</sup>.

#### THE CONCEPT OF SCIENTIFIC COGNITION

After the introductory remarks, it is easy to establish what is cognition, i.e. scientific cognition.

In the usual sense, cognition represents thought of thinking. Cognition means to have a concept of something. If one does not know, then one does not have a concept. Therefore, cognition represents conceiving, or thinking. The theory of scientific cognition is the theory of the source and the limit of cognition. It could be said that the science about the value of thinking about thinking, since it is cognition, represents cognition in the concept and the conceptual hierarchy<sup>25</sup>.

This sense of cognition is contained in every human, rational being, i.e. man and, it is used unconsciously. However, since man's cognition contains also the illusion that the object of cognition represents what actually is known, i.e. "the thing by itself", cognition is called naïve-realistic cognition. Accordingly, there is an opinion that there is a pencil even when it is not used for writing by anybody, that light is bright even when nobody sees it, etc. In other words, it seems that the object of the observation and representation in consciousness exists in the external world beyond man's consciousness. It represents the sense of experiential, sensual, rational cognition<sup>26</sup>.

The sense of the notional cognition is the same, because, more, or less, "something by itself" is vaguely "observed" (by senses, with the dosage of rational thinking). In any case, there is no concept in the sense of the determination of the concept in formal logic. At least, cognition is usually reduced to the observational-notional and elementary conceiving relation. However, there is the difference between sensuality and notional possibility, on one hand and elementary conceptuality, on the other. It is presumed that cognition is the same as observational, notional cognition and that the object of notional cognition is new consciousness, i.e. conceptual consciousness<sup>27</sup>.

<sup>23</sup> Compare: Ryle, *Theory of Meaning* (Mace, "British Philosophy in the Mid-Century", 1957. Chapter I, p. 13-14.

<sup>24</sup> Compare: Weissman, *Analyse der Wahrscheinlichkeitsbegriffs*, "Erkenntnis", B. 1. Heft 2-4.

<sup>25</sup> Compare: Carnap, *La science et la métaphysique devant l'analyse logique*, Paris, 1934. Chapter III, p. 112-113.

<sup>26</sup> Compare: Mises, *Positivism*, Cambridge, Massachusetts, 1951. Chapter IV, p. 178-180.

<sup>27</sup> Compare: Russell, B., *Human Knowledge*, London, 1948. Chapter II, p. 83-84.

To conceive, i.e. to come to know does not mean to sub-classify the observed under the notional and infer the sub-concept. Rather, it can be said that it means to sub-classify the general under the general, the particular under the general and the particular with the particular. Conceiving implies the reflective synthesis going from the abstract towards the concrete and all possible relations of abstract-concrete relationships<sup>28</sup>. Conceiving, i.e. cognition represents operating on concepts of any degree of conceptuality and rational arrangement of conceptual relations. It is a strictly mental procedure of the a priori mental form. Reason represents the material sense of mind. It contains disposition. The disposition creates elements from itself. These particular concepts will be constructed by mind using its inexplicable ability of building the hierarchical-conceptual hierarchy and the coherently balanced unity<sup>29</sup>.

Of course, everything is mysterious and inexplicable in the sphere of spirit, i.e. in the sphere of mind and reason. Therefore, it must be treated as the theoretical hypothesis with minimal certainty. It is beyond any doubt that cognition can be only conceptual. Conceptual-systematic cognition is aware of conceiving concept relations in the spirit of the created relation established by reason. Experience remains in the sphere of instincts, notional possibility in vague nonsense and "subconscious memories"<sup>30</sup>.

Therefore, to come to know in the abstract sense means to conceive the particularity of the concept in reason and to establish the conceptual relation in mind. In that way, the concept is sub-classified under the higher concept, its genus and its similar concepts. Finally, that basic idea of sense will unite all genus concepts of the basic system of the conceptual hierarchy. It is the characteristic of all kinds of knowledge and it represents cognition<sup>31</sup>.

However, true scientific cognition represents the conceptual construction and systematization and the judging activity of asserting and concluding up to the degree of the top and perfect conceptual system. If the sense of cognition, in the common sense of the word, in relation to scientific cognition is in question, then it is characterized by the unconscious rational production of knowledge. The consciousness of the conceptual character of scientific cognition is implied in the scientific cognition. Of course, together with the basic identicalness and differentiation of the consciousness of consciousness of the conceptual, there is the imaginative and heuristic nature of scientific knowledge, just like the production, which become objective as generality. Therefore, it is analogous to the conceptual a priori character from which it results<sup>32</sup>.

It should be emphasized that the consciousness of the conceptual character of human knowledge is very little present in the common and scientific knowledge of knowledge. Firstly, scientists treat the problem of cognition superficially. It is very rare for a scientist, even for a thinker, to conceive the elementary thing-concept characteristic of human cognition as the substantial and deciding determination in the consequent and conscious way. In it, there is a true chaos of thoughts and reasoning without concepts.

<sup>28</sup> Compare: Kant, *Kritik der reinen Vernunft*, Akademie - Ausgabe Band III (2. Aufl.) p. 99-100.

<sup>29</sup> Compare: Т. Живановић, *Систем синтетичке правне филозофије*, I Том, Београд, 1921. str. 35-36.

<sup>30</sup> Compare: Ayer, *The Problems of Knowledge*, Bergson, *Creative Evolution*, New York, Random house, 1944. p. 104;

<sup>31</sup> Opposite to: Ayer, *The Foundations of Empirical Knowledge*, London, 1947. Chapter I, p. 20-21.

<sup>32</sup> Compare: Wild, *The Return to Reason*, Chicago, 1953. Chapter III, p. 111-112.

Generally, the scientific approach to the problem, except the case of exceptions, is reduced to the naïve-realistic non-conceiving theoretical position. There are two classical examples of such position:

- a) Those who claim "the psychological foundation of human thinking";
- b) Those who claim "the experiential character of human memory", i.e. cognition as the cognition of the world "by itself"<sup>33</sup>.

However, science is supported by these illusions of consciousness, because the sense of cognition, inevitably following the nature of things, is conducted by conceiving a priori function of reason and mind. Therefore, scientific explications are reflective and impressive even without the support of its conceptual-logical sense and the sense of the generic, conceptual (but not sensual-psychological) character of human knowledge. The same can be applied to the basic, common human knowledge<sup>34</sup>. Using it, in relation to the medium, man communicates with his analogue rational-mental beings. The sense of communication is reduced to the logical-conceptual cognitive dimension of meaning and it is conducted by it. That has been and will be the case with the species called man.

In that sense, one can take into account the logical dimension of the intended mental form applied to the rational conceptual contents. Cognition is identical with the reduction of the known to the unknown, i.e. the known to the relation of, by then, unknown, or, even more certainly, something known to the concrete realization resulting from the known<sup>35</sup>. Undoubtedly, it is the reduction of the general to the particular, because the particular can never be reduced to the general. However, it is precisely in the case of the claim of the experiential or psychological character of man's knowledge, i.e. the logical concept, that such impossibility is implied<sup>36</sup>. The general, the relation, the, order, the relationship can be explained from the particular. It means that man comes to have observations or notions in the experiential-psychological way. The object is the general in man's activity of watching, sensual perception, or notional "comparison".

The conceptual sense of man's conceptual function is equal to his conceptual cognition. At the same time, man's consciousness comes to know the conceptual function of conceptual reality<sup>37</sup>.

However, the conceptual conceiving of conceptual reality is scientific in a higher degree. Therefore, scientific conceptual reality represents the reflective, order, which is accessible for the rational mind as the objective existence. It means that it is accessible for logical judging and concluding as the known "field" of objective-logical existence<sup>38</sup>. When the ideal of scientifically accessible cognition is in question, then it refers to the ideal of conceptual relations of the conceptual-structural nature, as the objective existence<sup>39</sup>. When the cognition of this existence is in question, then it refers to subjective-logical-mental concluding about the character of the conceptual structure and sense of the

<sup>33</sup> Compare: Марковић, М., *Филозофски основи науке*, САНУ, Београд, 1981. Chapter I, p. 20-21. and Urmson, *Philosophical Analysis*, Oxford, 1956. Chapter II, p. 84-85.

<sup>34</sup> Compare: Ogden and Richards, *The Meaning of Meaning*, 5th edition, New York, 1938. Chapter I, p. 11-12.

<sup>35</sup> Compare: Tarski, *Introduction to Logic*, New York, Oxford University Press, 1941. Chapter I, p. 72.

<sup>36</sup> *Ibid*, p. 74-79.

<sup>37</sup> Russell, B., *The Analysis of Mind*, London 1921. Chapter I, p. 16-17.

<sup>38</sup> Compare: Kant, *Kritik der reinen Vernunft*, Band III, p. 33-34.

<sup>39</sup> Compare: Husserl, *Logische Untersuchungen*, 1900-1901. p. 100-101.

general deciding element, as the substance of the conceptual element<sup>40</sup>. Achieving conclusions using Logic represents the rationalistic act of scientific cognition. In it, mind takes itself as its object of cognition, because the mental power is contained within the unity of the objective existence of the scientific-conceptual system. In that sense, scientific cognition is the same as the mental self-identification, because mind finds it itself in the unity of complete conceptual relationship<sup>41</sup>.

However, all this can be applied to the cognition of the common character. The difference is only in the character of binding the conceptual structure. In it, mind comes to know only the basic relationships between the general and the particular. In that sense, the minimum of mental function mediates in the reflective construction of rational conceptuality. The minimum of reflectivity is sufficient for mind to be used in self-cognition in, order to obtain the, order and the relationship of concepts. It means that one can say that he has the concept of a tree, an animal, music etc. However, it is important that thinking of thinking represents the essential characteristic of knowledge. It is the characteristic, which helps man to live, to find the, orientation, to achieve basic communication and to sustain his existence<sup>42</sup>.

It is essential to say that the theory of scientific cognition should contain the statement. All human cognition is conceptual cognition, i.e. the conceiving of thinking. The world of thoughts is the whole human world, while the cognition of the world of thoughts represents both scientific and common human cognition<sup>43</sup>.

If it can be applied to common human cognition, than it can be applied to every case of scientific cognition, from the least conceptual to the spectacular reflective-logical and "philosophical". The difference is in the limit, but not in the principle and the logical species.

Scientific cognition always represents conceiving of the world of thoughts. It never represents anything, which does not refer to thoughts<sup>44</sup>.

#### COGNITION IS THINKING - THE COGNITION OF THE CONCLUSION

From what has been observed so far, it is easy to conclude that every instance of cognition represents mental cognition. In that sense, scientific cognition is a higher degree of mental cognition<sup>45</sup>.

However, in the history of spirit, the problem of scientific (as well as common) human cognition was comprehended in the wrong way. It was thought that it was easy to accept the mentality of scientific cognition of pure reflective disciplines, but that it was impossible in the case of the so-called "real, experiential" scientific disciplines<sup>46</sup>. The explanation was that, make-believe, the subject of science was not thought, but rather the object, something that exists "by itself", something that is real. In that case, knowledge is

<sup>40</sup> Compare: Carnap, *Die logische Syntax der Sprache*, Wien, 1934. p. 93-94.

<sup>41</sup> Compare: Hilbert, Ackermann, *Grundzüge der theoretischen Logik*, Berlin, 1928. p. 103-104.

<sup>42</sup> Compare: Mead, *Mind, Self and Society*, Chicago, 1955. Chapter I, p. 21-22.

<sup>43</sup> Compare: Nagel, *Verifiability, Truth and Verification*, Journal of Philosophy, 1934. p. 31.

<sup>44</sup> Compare: Weinberg, *An Examination of Logical Positivism*, London 1936. Chapter I, p. 9-10.

<sup>45</sup> Compare: Nagel, *Ibid*, p. 32.

<sup>46</sup> Compare: Feibleman, *The Revival of Realism*, Chappel Hill, 1946. Chapter II, p. 83-84.



not reduced to thought, which is conceived in the subjective way, using the objective a priori rational disposition in relation to the scientific conceptual construction, using the objective existent mentality. Rather, it can be said that knowledge is reduced to the cognition of something by itself, as reality, beyond man's consciousness. This prejudice is widely present, even in the case of all rationalists, which, in any way, flirt with it, but also conceive the psycho-experiential sense of cognition<sup>47</sup>.

Thought and reality, according to the author, are in the scientific aspect equal, because thought represents the form of reality and the appropriate sensitive of human cognitive power. There is no duality between them, neither in common, nor in scientific cognition. However, it does not result only from the fact that all kinds of human cognition represent cognition of human consciousness, but it also results from the fact that cognition is equal to cognition when it is the object of cognition. There is no discrepancy between what is the object of cognition and what is cognition. What is the object of cognition in the concept represents the aspect of existence of reality that is achieved using human cognition<sup>48</sup>. From the aspect of pure conceptual knowledge, there is no dilemma of the relationship of objectivity, or inadequacy of the object of cognition versus reality. This dilemma is implied by thinkers who infer thought from experience (or the notion), or by those who infer thought from mind relying on the close, or distant experience. This dilemma results from the implied connotation of the sensual-notional structure of human cognition.

Of course, in the truly gnosiologic sense, the problem is set in a different way. In it, the very logical nature of human cognition and the object of cognition are a priori in question. The problem is reduced to the problem of super-experiential, i.e. transcendental cognition. However, it will be discussed in detail in philosophy.

Therefore, it could be said that conceptual cognition as the object of cognition represents the concept. However, that concept is equal to human experience. Hence, it is not the experience of making observations and notions, but rather it is the rational-mental experience that represents man's immanent logical forms and the matter of cognition<sup>49</sup>. On one hand, there is the creator of cognition and the object of cognition, on the other hand, there is the interpreter of the spiritual creation. The object of cognition represents the achievement of such conceiving experience that is objectively accepted, beyond the subjective logical conceiving function, it is the objective thought. It is accepted and it exists as the objective-existent thought, or sense. As such, it is accessible to the mental, rationally reflective ability and it is the basis of the objective inter-subjective communication. If the rational mentally disposition is used in the appropriate way, the character of

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<sup>47</sup> Compare: Albert, *Kritik der reinen Erkenntnislehre*, Tübingen, 1987. p. 33-34.

<sup>48</sup> Compare: Dazu die Popper- Kritik bei A. Schramm, *Vermutungswissen: Keine Lösung des Induktionsproblems*, in: V. Gadenne (Hg.), *Kritischer Rationalismus und Pragmatismus*, Amsterdam-Atlanta 1998. p. 13-14.

<sup>49</sup> Compare: *Die Wissenschaft und die Tat* (1934), wiederabgedruckt bei II, Albert und E. Topitsch (Hg.), *Werturteilsstreit*, Darmstadt 1971, S. 383ff., wo ein fallibilistischer Vorläufigkeits-Standpunkt verbunden mit Induktions-Skepsis vertreten wird, dazu vgl. II, Rutte, *Zu Heinrich Gomperz: Die Wissenschaft und die Tat*, in: M. Sciler, F. Stadler (Hg.), *Heinrich Gomperz, Karl Popper und die österreichische Philosophie*, Amsterdam/Atlanta GA 1994, S. 119ff.; vgl. ferner R. v. Mises, *Kleines Lehrbuch des Positivismus* (1939), neu hg. v. F. Stadler, Frankfurt/M. 1990, wo im Kap.21 (wie auch bei H. Gomperz) der wissenschaftsantizipatorische Charakter der Metaphysik betont und auf S. 234 eine grundsätzliche Verwandtschaft mit Popperschen Auffassungen in Sinne eines "gemäßigten Positivismus".

scientific cognition will result in the same cognitive sense. It means that the object of cognition will be the concept and the conceptual hierarchy of the sensible scientific structure, just like in the case of the creator of the objective scientific existence. It is, firstly, the subjective element of it and later, in the form of the reflective-scientific system it alienates from it, making the objective-sensible unit<sup>50</sup>.

Therefore, the sense of scientific cognition is reduced to the sense of the conceptual relationship of human cognition with the conceptual sense of the objectively accepted ideal that is the object of cognition. The sense of scientific cognition cannot be reduced to adequacy or inadequacy in relation to reality by itself<sup>51</sup>. However, as it has been said, it is not only the sense of the scientific cognition in the mentioned conceiving relation said that is the concept of the particular object of cognition. Rather, it can be said that it is the general human, experiential, and inter-subjective - conceiving the object of cognition. In the former sense, the object of cognition is the scientific system. In the latter sense, it is an everyday conceptual process of conceiving. It means that everything that man's comes to know represents the conceived, if it is taken as the object of cognition. It is the concept, but not any reality by itself and, also, it is not any experience, psychological sensation, or a picture of memory. Man comes to know using his thinking and the object of cognition is thought. The object of the cognitive process is thought and the object of cognition is the reflective element<sup>52</sup>.

Therefore, it is more appropriate to say that cognition represents the thinking of thinking. The object of cognition represents the conceived reflective element. Cognition represents the conceiving of the concept, while the object of cognition is the conceived concept. Concepts and conceiving are neither indirect, nor direct relation to the sensual "experience" and notional possibility. Experience and notional possibility are the disparities of the form and the contents of human cognition and the object of cognition. Cognition is thinking, the object of cognition is the concept, while these are instincts.

#### THE SOURCES OF COGNITION

According to the author, mind is therefore the only source of human objective cognition of the experiential in the mentioned sense<sup>53</sup>. Reason is its condition, because reason offers the basic conceptual element, i.e. the conceptual matter, which mind, using its constructive-imaginative heuristic power, arranges on the level of the logos-conceptual reflective system<sup>54</sup>. According to the author, mind is that sense, both in the common and in the scientific sense, the source of complete human cognition. However, the condition is the non-sensual reason. Reason in this sense represents cognition, the set of concepts, which are non-mentally structured, i.e. reason is the conceptual coordinated coexistence<sup>55</sup>.

<sup>50</sup> Compare: Husserl, *Logische Untersuchungen*, 1900-1901. p. 23-24.

<sup>51</sup> Compare: Perelman, *Logique, language et communication*, "Atti del XII Congresso", Firenze, 1958, vol. I, p. 123-135.

<sup>52</sup> Compare: Russell, B., *Human Knowledge, its Scope and Limits*, New York, 1948. Chapter I, p. 27-28.

<sup>53</sup> Compare: Kant, *Kritik der reinen Vernunft*, Akademie - Ausgabe Band III (2 Auf), p. 200-201.

<sup>54</sup> Compare: Т. Живановић, *Систем синтетичке правне филозофије*, III Том, Београд, 1959. str. 520-525.

<sup>55</sup> Compare: Kant, *Kritik der reinen Vernunft*, Ibid, notice the difference of non-sensual reason.

From what has been observed, it can be concluded that man in no sense takes as implicit the cognitive competence of sensual and notional human function. Man does that because the sensual and notional human function is animal-biological and, as such, it is irrelevant for the spirit and the sense of man's generic power. In that way, man does not assert the judgment of value. Rather, man only states the logical nature of his human characteristics and the conceptual-conceiving sense of his self-knowledge in the subjective-objective sense<sup>56</sup>.

However, in the theory of cognition there is no such strict determination of the source of cognition. It asserts something completely different, which cannot pass the test of logical criticism. There are two general answers:

a) The first is empiricism<sup>57</sup>;

b) The second is rationalism<sup>58</sup>.

a-1) The first asserts that everything that is the object of cognition has the experiential character, while the experiential sense represents sensuality of the external consciousness and the observational and notional nature of the internal consciousness<sup>59</sup>.

a-2) The second asserts that the source, or the, origin of our cognition is a special psychological power, which is in primary relation to experience and sensuality and notional nature, i.e. external and internal experience, lack cognitive relevance. The cognitive sense is a priori mental<sup>60</sup>.

a-3) Of course, the first sense does not have the cognitive relevance, because it is reduced to non-proven relationship between the sensual and the mental, the unconscious and the conscious, the observation and the concept and the material and the spiritual. Empiricism at least contains such implications, or consequences<sup>61</sup>.

b) The second sense contains the authentic scientific sense of human cognition. However, classical and true rationalism did not see the absolute and the only conceptual sense of all human cognition. In other words, it did not consider the basic ontological-gnosiological characteristic of human cognition as conceptual, so the sense of the concept and the character of the a priori mental cognition is bound to the scientific, but not to the general cognitive experiential-conceptual human sense. On the other hand, it did not see the material character of reason as the concept and the relationship between mind and reason, as the source and the condition in the pure logical sense. In certain sense, it did not see the relation to the constitutive function of reasonable construction of the concept and the constructive function of the mental structuring of the conceptual hierarchy<sup>62</sup>.

Finally, the conceptual sense of human cognition is not of psychological nature, but rather it is of logical nature. On the other hand, rationalism in the uncritical way assigns psychological existence to concepts, although it is taken as generality. However,

<sup>56</sup> Compare: Bergson, *Creative Evolution*, New York, Random house, 1944. p. 29.

<sup>57</sup> Compare: Berlin, *Empirical Propositions and Hypothetical Statements*, "Mind", July 1950. p. 13.

<sup>58</sup> Compare: Nagel, *Logic without Ontology*, "Logic without Metaphysics", Glencoe: The Free Press, 1956. p. 37-38.

<sup>59</sup> Compare: Wittgenstein, L., *Philosophical Investigations*, Oxford 1953. p. 44-45.

<sup>60</sup> Compare: Kant, *Kritik der reinen Vernunft*, Akademie - Ausgabe Band III (2 Auf) 233-234.

<sup>61</sup> Compare: Lotze, *Logik*, II Aufl. Leipzig 1880. p. 10-11.

<sup>62</sup> Berlin, *Empirical Propositions and Hypothetical Statements*, "Mind", July 1950. p. 25-26.

psychological existence is not logical existence, so rationalism from this "non-consciousness" is closer to the notions of empiricism. In fact, conceiving must be reduced to the conceiving of logical existence, if it is in the process to become objective. The notion of the general is always the concept, but not the psychological existence<sup>63</sup>.

It should be emphasized that the logical sense of cognition exhausts the sense of scientific cognition. Of course, it is not so because scientific cognition is some particular transcendental cognition, but precisely because scientific cognition is experiential cognition of conceiving. Basically, as it could have been seen, it is based on common conceiving, so, as such, it shares the destiny of the basic experiential conceptual cognition. However, it, being scientific, is necessarily the objective existent conceptual cognition. The sensible thought of complex structure, which is the characteristic of science, must be comprehended as the objective-existent and inter-subjectively approachable<sup>64</sup>.

The theory of scientific cognition must accept the possibility of such objective existence on the basis of the experiential source of cognition and the character of objective scientific existence. In the former sense, mind is the source, i.e. the particular logical power of a priori constructing and conceiving of abstraction, i.e. sensible assertions of the highest degree of logical character<sup>65</sup>. In the latter sense, the objective scientific existence implies and searches for the particular logical power of the concrete thinking being, who is to come to know objective existence. If the possibility of the equal dispositive power of mind is not accepted, the objective sense of thinkability cannot be presumed neither in the common communication, nor in its scientific aspect. Even less, the objective logical character of the scientific creation as an open book can be presumed referring to the reflective dialogue and the critical interpretation<sup>66</sup>.

However, what results from it is not the conclusion that mind is competent to establish that scientific cognition is cognition of reality "by itself". It refers not only to the realistic version of the naïve optimism of the cognition, i.e. the material truth, but it also refers to the version of metaphysical or mathematical rationalism<sup>67</sup>. It is not advisable to claim anything beyond the basic gnosiological criterion of the subjective conceptual self-cognition as the a priori premise. The world of thoughts does not include implicitly the thinkability of the world by itself. The world of thoughts, i.e. of human subjective conceiving taken as the objective existent sensible relativities, is not the reality by itself, which would be thought, as the Elathians, Plato, or Hegel put it<sup>68</sup>. Rather, it is the logical world implanted in people, who have naturally inherited capacity and the variety of conceptual self-cognition. It represents the sense of human cognitive reality, but not the very reality<sup>69</sup>.

However, since that capacity and model is a priori identical in the aspect of the disposition of man's mental aspect, it represents the basis of the identical cognitive power. It is the objective sense of the subjective disposition and it represents the sense of the objec-

<sup>63</sup> Compare: Frege, *Über Sinn und Bedeutung*, "Zeitschrift für Philosophie und philosophische Kritik", 1892, pp. 25-50.

<sup>64</sup> Ibid, p. 33-37.

<sup>65</sup> Lotze, *Logik*, II Aufl. Leipzig 1880. p. 35-36.

<sup>66</sup> Kant, *Kritik der reinen Vernunft*, Akademie - Ausgabe Band III (2 Auf) p. 97-98.

<sup>67</sup> Compare: Hegel, *Die Phänomenologie des Geistes*, Werke. Band II. p. 43-44.

<sup>68</sup> Compare: Husserl, *Logische Untersuchungen*, 1900-1901. p. 19-20.

<sup>69</sup> Compare: Ibid, p. 23-24.

tive character of objective scientific sensibility. At least, it represents the possibility of the existing objective sense of the scientific creation<sup>70</sup>.

The inferior states of scientific theories of the empirical, orientation are eliminated by the natural tendency of mental domination. However, since the empiricism, using the conceptual reason function, "impoverishes" the a priori character of mental constructivism, it is reduced to the scientific cognition of descriptive-elementary conceptuality. In that sense, empirical science is:

- a) Without the spiritual and notional a priori principle;
- b) Without the reflective conceptual hierarchy of the highest level<sup>71</sup>.

In this "irrational" system, all knowledge is reduced to intuition as the last unconscious instance, while intuition, which "by the way is the experiential-transcendental human characteristic", is comprehended as the immediate observational ability, i.e. sensuality<sup>72</sup>. Of course, unconscious sensuality becomes conscious using a priori characteristic, mind, so a kind of scientific cognition is obtained. However, empiricism is in the sensual sense certainly the weakest possible variant of scientific cognition<sup>73</sup>. It is characterized by the absence of the conceptual sense and dialectic judgment. It is reduced to reasonable execution of contingent relations of the conceptual coordination. Therefore, it can be established that empirical scientific cognition is no cognition. What is called empirical science represents rational-conceptual logical conceiving. It reaches the cognitive characteristic of spirit using the specific convention of experience. All results and outcomes of the so-called empirical science represent an a priori mental constructive reflective construction<sup>74</sup>.

The theory of scientific cognition should establish:

- a) Empirical scientific cognition, which would be sensual, is contradictio in adjecto<sup>75</sup>.
- b) All scientific achievements of the so-called empiricism are the achievements of the a priori mental heuristics.
- c) Empirical scientific cognition is possible only as conceiving, thought, or the conscious conceptual-judging sensibility, i.e. rationalistic conceiving thinking.
- d) All sciences are, from the cognitive point of view, rationalistic. Scientific cognition implies sensibility, i.e. a complex reflective structure. Science is spirit, while spirit is consciousness. Empirical spirit is unconscious and, as such, it is in the dimension of instincts. Empirical "science" is "instinctive and unconscious" science.
- e) Since it is consciousness, science is thought, so thought of subjective consciousness of logically objective sciences is the objective thought. The sense of objectivity of science implies objectivity of consciousness. Objective consciousness, however, is the a priori logical characteristic of the mental power<sup>76</sup>.

<sup>70</sup> Compare: Horkheimer, M., *Traditionelle und kritische Theorie*, Zeitschrift für Sozialforschung, 1935. p. 31-32.

<sup>71</sup> Neokants considered that thinking is contained already in observation, but they did not notice that observation is thinking.

<sup>72</sup> Let alone empiricism. Compare: Mach, E, *Ibid*, p. 19-20.

<sup>73</sup> Compare: Horkheimer, M., *Traditionelle und kritische Theorie*, Zeitschrift für Sozialforschung, 1935. p. 34-35.

<sup>74</sup> Compare: Adorno, T., *Metakritik der Erkenntnistheorie*, Frankfurt, 1955. p. 13-14.

<sup>75</sup> Compare: Ayer, *Foundation of Empirical Knowledge*, 1940. Chapter I, p. 31-32.

<sup>76</sup> Compare: Ayer, *The Problem of Knowledge*, 1956. Chapter I, p. 15-16.

## THE LIMITS OF SCIENTIFIC COGNITION

The limits of scientific cognition are dispositions of logical judging. Taking into account the fact that dispositions of logical judging are a priori, the limits of scientific cognition are the objective limits of logical judging<sup>77</sup>.

Since the capacity of scientific cognition is reduced to the general idea and the principle of the conceptual hierarchy of the scientific system, the limits of scientific cognition are the limits of general principles and necessary logical conclusions. The objective and borderline sense of scientific cognition is there<sup>78</sup>.

However, in the formal sense, the limits of scientific cognition are the dispositions of the logical power of conceiving. The degree of abstraction constructing is the limit of the abstract mental power. The initial measure is particular conceptuality, while the final measure is the notional axiom, the basic concept, which is contained and substantive, determining in the scope of the systematic model<sup>79</sup>. For all that, particular conceptuality represents the competence of reasonable part of spirituality. It is the elementary consciousness, which recognizes only the particular; it is the identity without any difference<sup>80</sup>. However, since the initiating concept contains determinateness and uncertainty, i.e. identicalness and oppositeness, even in the first particularity there is the mental heuristic character. It is, in the same principal, the difference, in nowhere, it is, something; in the being, it is nothing; in the affirmation, it is the negation<sup>81</sup>. It is the foundation of all human mental skill and therefore, the identity is the basic and determining substance of human spirit (reason and mind) and all human cognition. Particular abstraction is the basis of human existence and the most abstract determinateness of humans<sup>82</sup>.

The system of conceiving is different going from the elementary consciousness up to the consciousness of itself. However, one thing remains the same - both common and scientific human knowledge is always the conceiving of the concept<sup>83</sup>. The limits of the human knowledge are the limits of human conceptual power<sup>84</sup>.

## THE METHODOLOGICAL ASPECT OF SCIENTIFIC COMMUNICATION

The problem of communication represents only a part of a wider, more fundamental problem. The fundamental problem is reduced to the problem of thought and the problem of its existence. Thought, which contains thought in the widest sense of the word, makes up the world of thoughts<sup>85</sup>. The world of thoughts is the complete human world, while the cognition of human world is the cognition of the world of thoughts. Human consciousness of the reflective character of human existence brings about the state of

<sup>77</sup> Compare: Russell, B., *Human Knowledge, its Scope and Limits*, New York, 1948. Chapter I, p. 31-32.

<sup>78</sup> Compare: Blanshard, B., *Reason and Analysis*, Yale, 1961. p. 22-26.

<sup>79</sup> Compare: Blanshard, B., *The Nature of Thought*, 2 Volumes, New York, 1939, p. 29-31

<sup>80</sup> Compare: Hegel, *Die Phänomenologie des Geistes*, Werke. Band II., p. 15-16.

<sup>81</sup> *Ibid*, p. 33-39.

<sup>82</sup> *Ibid*, p. 15-18.

<sup>83</sup> Dewey, *Experience and Nature*, Chicago-London, 1926, p. 16.

<sup>84</sup> *Ibid*, p. 17-23.

<sup>85</sup> Compare: Cherry, O., *Human Communication*, New York, 1957. p. 22-25.

some kind of certainty about own human nature. In the objective sense, human nature might be determined as the reflective world<sup>86</sup>.

The following problem is almost inherent in the problem. It is logical, second class, but, in the formal sense, it is even primary to its being as existence. The existential sense of the essential thinkability refers to language, i.e. "organon", the instrument of the complete human reflective relation<sup>87</sup>. Human reflective communication is formed through the medium aspect of human formulation. Instead of the world of thoughts, there is the world of language - a particular world and, seemingly, the only recognizable world of the ideal side of human being. That world, the world of language, makes the form of the truth world of thoughts<sup>88</sup>. However, its "objective meaning" seems to aim at the tendentious independence in relation to the world of thoughts and to search for its own essential status. The sense of language gets the first class meaning, when thought is directed to its form, but not to the truthful and the only basis of "emotional involvement"<sup>89</sup>.

Absolutely, the relationship between thought and language is reduced to the following dimensions:

- a) In the objective sense, the analogy, or disparity between thoughts and expressions of thoughts, the formulation of thought and language<sup>90</sup>.
- b) In the subjective sense, the criterion of knowledge of the same thought in the same, or different formulation<sup>91</sup>.

If the objectivity of sense is given in spiritual creations using specific existence (spirituality in the widest sense, the complete conceptual world, i.e. the unity of man's knowledge is not implied here), the aspect of relations between thoughts and words is particularly expressed. That way of observation makes the essence and the existence of that world, unlike the natural world, in which the relationship of reflective human communication is necessarily identical, but the medium is the form of the incorporated thought<sup>92</sup>. Forms are identical, according to the uniqueness of the existence of the concept. In it, both words and things are in "the intimate natural relationship". Language, in its structure, contains the very reality (universals). Such illusory conceiving is contained in our pragmatic existence and human non-scientific knowledge is based on it. In the uncritical sense, this determinant is contained in the sense of science without concepts<sup>93</sup>.

There are realities, as it will be seen, which have objective - ideal existence. All reflective forms exist in this way. In the widest sense, the world is represented by the object of thoughts.

However, thoughts can become objective and they can be conceived as things by themselves, the realities of self-existent reality. In such case, the world of thoughts is taken in the latter meaning. In that respect, the world of thoughts is equal to the world of objective idealities. That world is called the objective - logical realm. It is made of the

<sup>86</sup> Ibid, p. 27-35.

<sup>87</sup> Compare: Hale, *Origin of Languages and the Antiquity of Speaking Man*, "Proceedings of the American Association for the Advancement of Science", XXXV, 1887. p. 13-14.

<sup>88</sup> Compare: Ayer, *Language, Truth and Logic*, London, 1936. Chapter II, p. 49-51.

<sup>89</sup> Carnap, *Einführung in die symbolische Logik*, Wien, 1954. p. 10-11.

<sup>90</sup> Compare: Bucasse, *Symbols, Signs and Signals*, "The Journal of Symbolic Logic", June 1939. p. 10-13.

<sup>91</sup> Compare: Ibid, p. 14-18.

<sup>92</sup> Compare: Mautner, *Beiträge zu einer Kritik der Sprache*, Stuttgart, 1902. p. 16-17.

<sup>93</sup> Compare: Heintel, *Mensch-Sprache-Welt*, Alpbach, 1960. p. 49-50.

complex forms of spiritual production, from which the essential ones are science, art, and philosophy. All of them can be expressed by one concept of symbolic forms of thinkability<sup>94</sup>.

In other words, a particular symbol must be always present in this objective - existent thoughts. Thought is "dressed" in the medium. Since the symbol appears as the form, the existence in which the objective thought is contained, to understand, to make objective, to conceive, to interpret thought means to conceive the symbol<sup>95</sup>. The symbol contains meanings, which are objectively given to the meaning of thoughts and thinkability, which is expressed by it. If the scientific symbol is in question, to understand means to come to know what the symbol means in the linguistic and logical aspect. If the esthetic symbol is in question, it means to conceive the shape, the geometrical form, to conceive the musical coherence etc. When the philosophical symbol is in question, it means to comprehend the pure - mathematical consequence of the symbol, or the idea - the pure thought expressed by the symbol<sup>96</sup>.

If the ideal of the, normative sense and, normative objective existence are in question, than the symbol that expresses thought of "prescribing" of some intended and functional thought, must have the so-called "prescriptive" sense. The symbol must express the imperative, or permissive thought. This symbol is the closest to the symbolism of common language, but it is congruent to the meaningful structure of scientific spiritual production, too. The symbols of such type are characteristic of symbolism and the process of making, normative systems<sup>97</sup>.

It is important to mention that the symbol is the characteristic mark for the ideal and, normative items as particular ideal - logical existence and the genus of its logical genus - the genus concept. That genus concept is the sign<sup>98</sup>. When the sense is established in relation to thoughts and expressions, the widest sense of this relationship is taken into consideration. The widest sense is contained in the unity of human spiritual communication and relation. The sign is the mark of every thought and, generally, of every human thought. It is the mistake to take the sense of the sign subjectively, just as it is the mistake to comprehend thought psychologically<sup>99</sup>. The sign is the place, in which the objective thought, which is conceived subjectively, leaves its impress. All human (reflective) communication is reduced to communication by the means of signs. The sign is the mediator of human spiritual communication. It is the objective concept, which helps people to think in the subjective-objective-mental-relational human relationships. According to human conceiving, it can refer to the object-thing, but also it can refer to the subject. In fact, it is still "the concept", i.e. the meaningful sense of the sign (rustling in ears is the concept which is thought as indicating danger). It is never the psychological or physical reaction. It is precisely the human thought of the meaningful thought of the sign<sup>100</sup>.

<sup>94</sup> Compare: Husserl, *Logische Untersuchungen*, 1900-1901. p. 70-71.

<sup>95</sup> Compare: Cassirer, E., *Philosophie der symbolischen Formen*, Berlin, Bd. I-III, Berlin 1923-1925. p. 10-12.

<sup>96</sup> Compare: Марковић, М., *Дијалектичка теорија значења*, Бигз, Београд, 1961. str. 125-130.

<sup>97</sup> Ibid, p. 139-145.

<sup>98</sup> Compare: Morris, *Foundations of the Theory of Signs*, "International Encyclopedia of Unified Science", Chicago 1938. Chapter I, p. 9-10.

<sup>99</sup> Compare: Sigwart, *Logik*, II, Aufl., Freiburg, 1889-93. p. 33-34.

<sup>100</sup> Compare: Frege, *Über Sinn und Bedeutung*, "Zeitschrift für Philosophie und philosophische Kritik", 1892, p. 9-12.



Finally, taken as a unity, nature is in the human sense the meaningful and symbolic-conceptual logical form<sup>101</sup>. The human, orientation is of the symbolic nature in its widest sense. It is the way of human pragmatic existence. However, that pragmatic communication system is in its essence reflective, while it is meaningful in the aspect of science by which people coexist. It is inherent to people as logical beings. It is the essential basis of human distinction in relation to other forms of the, organic and inorganic world. If, organic beings exist in the aspect of the elementary meaningful coexistent communication, than the competent beings are the closest to people. They even communicate even signs<sup>102</sup>.

### The Methodology of Scientific Communication

In the widest sense of the word, the intellectual dialog means the complete scope of human communication and contained interpretation of communication. Therefore, the problem of interpretation is equal to the unity of man's communication and cognition. What is in question, is not only the rational component, but also the irrational communicative relationship between myths, religions, ritual meanings etc. At least, all naïve-realistic and borne empiric reality in the version of human assignation of sense and meaning is in question. In such a case, the sign is equal to human reflective communication in general<sup>103</sup>.

In the narrow sense of the word, the sign is everything conceived by the rational-mental function. In fact, signs have more complex meaningful sense. The objective ideals, pure either logical, or emotional-esthetic, have the meaningful sense of this kind. There are signs called symbols<sup>104</sup>. The symbol characterizes the scientific, artistic, but also, normative-prescriptive spiritual production. These symbols, at the same time, gain the specific feature of there own existence, so, according to the inevitable consequence, they refer to the association of independent existence. There alienation beyond the essence, thanks to which they exist, implies the solving of the following type of problem: what is contained in the symbol in the meaningful sense and what is the relationship between symbols and thoughts like.

It is the question of whether the symbol means many things "by itself". At least, the essential leads towards the question of thoughts and expressions, or thinking and language<sup>105</sup>.

Finally, the narrowest sense of the word is reduced to the interpretation of the very sign, or symbolism as the objective existent object. That "object" is, therefore, beyond particular consciousness. It is, in fact, the linguistically expressed thought formulated in the mental sense. In this situation, in fact, the latter sense is taken into account. If the object of cognition is the sign, then the problem is in the domain of language. However, if it is thought, than it is in the domain of logic. In fact, it will be seen that the process of in-

<sup>101</sup> Compare: Cassirer, E., *Philosophie der symbolischen Formen*, Berlin, Bd. I-III, Berlin 1923-1925. p. 18-23.

<sup>102</sup> Ibid, p. 25-28

<sup>103</sup> Compare: Марковић, М., *Дијалектичка теорија значења*, Бигз, Београд, 1961. p. 111-116.

<sup>104</sup> Compare: Cassirer, E., *Philosophie der symbolischen Formen*, Berlin, Bd. I-III, Berlin 1923-1925. p. 27-32.

<sup>105</sup> Compare: Frege, *Über Sinn und Bedeutung*, "Zeitschrift für Philosophie und philosophische Kritik", 1892, p. 28-31.

terpretation is always logical, because thought is found in the sign. Meaning is the name of thought, which "dwells" as objective-existent in the sign, i.e. the symbol<sup>106</sup>.

### Language as the Medium of Communication

The most important sign in which thought is contained is undoubtedly language. At the same time, language is the certain and evident sign for the establishment of objective-existent "thinking"<sup>107</sup>.

Language has the material sense. It represents the sound, if it is the product of human speech, or it represents the written item, if the expression is written by the human hand. In both senses, inter-subjectively there is the clear fact of being (of course, this is scientific - vulgar naïve realism, because subjectively everything exists only in the subject of knowledge, in its conceiving). The objective existence of language is of the realistic-natural character. However, meaning, i.e. thought, which is expressed by language, is ideal-logical according to objective existence. In the former case, it has real existence, while in the latter case it has ideal existence. The sign is real, while meaning is ideal. The former is inter-subjective, while the latter is inter-objective<sup>108</sup>.

Language influences thought by the structure of its sentence. Mostly, a sentence contains the assignation of the predication; the predicate of the subject or the predication is implied as the activity of the subject<sup>109</sup>. Of course, the structure of the sentence is rather the form, which is born by thought, than it is the fact that thought is born out of this form. It is precisely the position of the subject that refers to the primary status of the relation. The logical is in front of the linguistic. It has nothing to do with the conventional tendency to aim at the opposite arrangement, i.e. aims at the objective treatment for the sake of communication. Then language is taken as the paradigm of the determinant and the sign of the objective reflective existence<sup>110</sup>.

The third relationship ensues from the latter. Namely, language provides the approximate balance of particular thinkability to the range of the objective one. It is usually said that it is inter-subjective communication and verification. Language can be comprehended abstractedly - as generality in the particular "objective thought", into "subjective". Language is the form in which there is the conventional ban of the subjective use of language. Language narrows the richness of spirituality in the name of communication of spirit. Language is the mediator for entering "subjective-objective" thought even before "time and eternity"<sup>111</sup>. Language provides the calling of spirits in the past and the present (Nietzsche). This is a practical relationship between thoughts and language. Language is the means for the conveying of thought in, order to say that it does not surpass the way of the stale and the objective-existent structure of the symbol - language and still it has its new richness. The objective logical status of thinkability has the linguistic or symbolic sense<sup>112</sup>.

<sup>106</sup> Compare: Moriss, *Ibid*, p. 73-74.

<sup>107</sup> Compare: Donovan, *The Festal, origin of Human Speech*, "Mind", 1891-92. p. 21-22.

<sup>108</sup> Compare: Jespersen, *Language, Its Nature, Development and Origin*, London, 1954. p. 26-33.

<sup>109</sup> Compare: *Ibid*, p. 35-38.

<sup>110</sup> Compare: Carnap, *Die logische Syntax der Sprache*, Wien, 1934. p. 73-74.

<sup>111</sup> Compare: Linsky, *Logic and Language* ed by Flew, Oxford, 1955. p. 30-33.

<sup>112</sup> Compare: *Ibid*, 33-38.

The objective existence of thought can have the objective sense if language, by which it is expressed in the objective existential way, is understandable. In other words, if one's thought is to be comprehended as objective-existent through the form in which it is given, i.e. language, it must have its grammatical structure. It means that their relationship in the sentential sense can be expressed in the clear and understandable sense. Language is a valid medium and the adequate conveyer of thoughts only when the average (or particularly educated in the particular sphere of spirit) intellect can interpret thought impressed in language<sup>113</sup>.

If the condition of pragmatic communication is not fulfilled, interpretation is not possible, neither on the basis of the statements of proving, nor on the basis of the statements of checking. The surest way of the non-consequent relationship between thoughts and language can be reduced to:

- a) Multi-reflective words and sentences
- b) Subjective meaning, "objectively accepted" words and sentences
- c) Context of words beyond context of thoughts<sup>114</sup>.

It should be emphasized that the sign and its meaning are not in the sphere of grammar, lexicology, syntax and semantics, but rather they are the first and the starting level of the logical judgment. There is the aspect of the relation between thoughts and language that is reduced to the level of the possible "objective" communication, sense and nonsense and, finally, analytic relationships between linguistic attitude in relation to logical coherence. That aspect represents a part of human cognition in general<sup>115</sup>. From the point of view of the true conceptual processing, it is involved in the scope of the logical-methodological science. The theory of the relationship between thought and the sign, or the theory of the symbolic thought is the prolegomenous logical discipline, or, at least, the verification of the fruitful relationship between thought and its mark<sup>116</sup>.

### The Logical Basis of the Methodological Scientific Dialogue

The logical basis is the logical foundation of the concept of meaning in general. If it is taken beyond Logic as the scientific discipline, then it is the logical, unconscious way of human thinking, which deals with everything that can be known and that can be expressed. Therefore, the logical is the basis, because nothing can be known, so meaning too, unless it is comprehended that people can know everything only with the mediation of the concept, both in the vulgar and in the scientific sense. Since people think in the form of the concept and the judgment, they use concept and judgments to communicate among themselves. The so-called *Logica utenus* is the anthological substance of a human being. Human formal sense is in this logical substantiality. Consciousness or unconsciousness of human logical substance is not important<sup>117</sup>.

<sup>113</sup> Compare: Linsky, *Semantic and the Philosophy of Language*, The University of Illinois Press at Urbana, 1952. Chapter I, p. 19-20.

<sup>114</sup> Compare: Sapir, *Language, An Introduction into the Study of Speech*, New York, London, 1921. Chapter I, p. 37-38.

<sup>115</sup> Compare: Carnap, *Introduction to Semantics*, Cambridge, Harvard University Press, 1942. Chapter I, p. 26-27.

<sup>116</sup> Compare: Humboldt, *Über das vergleichende Sprachstudium*, Verlag Meiner, Leipzig, "Philosophische Bibliothek", H, 17.

<sup>117</sup> Compare: Popper, K., *Conjectures and Refutations* Routledge and Kegan Paul, London, 1963. Chapter I, p. 31-32.

Therefore, the a priori form of mentality is the basis of the human communicative model, because it is the substance of the human generic species. If people did not have this a priori form, they would not be able to communicate as reasonable-mental beings. Everybody would have his/her own thought and objective sensibility could not be ever established. The concept of matter is also the concept produced by the human a priori logical form, as much as it is the most abstract and spectacularly imaginative concept of human thinking<sup>118</sup>. There is no qualitative difference between them, but rather only a gradual and quantitative one. Therefore, it is appropriate to say that the a priori character of mind is the basis of all human concepts and meanings<sup>119</sup>. Thinkable entities either exist by themselves, or they are virtually existent in the a priori mind. In any case<sup>120</sup>, the a priori character of their virtual existence in mind must be presumed in, order to conceive them in the objective way. The so-called experience, or matter by themselves can exist as much as they want. Only the intended nature of the a priori form of mind and sensuality can provide them with sense. However, sense is meaning, while meaning is the subjective ideal entity used in human communication.

In the case of pure thinking beings, there is the same principle. The difference is only in the character of the entity to which meaning refers<sup>121</sup>.

The objective sense of meaning is possible, not on the subjective basis of conceiving, but rather on the objective existence of sense. Objective sensibility is the concept, i.e. the logical being, which can exist accepted, or exist as any other being. To be accepted or to exist is not congruent. The objectivity of sense and meaning provides the objectivity of the sign and the symbol. In that sense, symbolism and structure of signs represent the objective medium, i.e. the objective existence of meaning. It is the objective form, which "contains" the objectivity of meaning<sup>122</sup>. Of course, objectivity is sense produced by the system of a priori reflective form of the same logical being - the formalistic objective law set in people. The forms of spirit are different; the logical law and the law of logical existence and semantic structure and all of them have the essence - spirituality - in common<sup>123</sup>. The world of spirit is the whole of the human world. It is the realm of shadows; everything is the realm of human sense. (Of course, the essential sense - spirit - is abstracted, as freedom).

The objective sense of objective human cognition makes the sense of human objective communication. Human communication is not the materialistic relation. It is the objective-existent symbolic being of all mental and reasonable relations<sup>124</sup>. The immediate existence of human communication is not the observational and empirical fact, but rather it is the reflective-objective-semantic system of communication. Physical processes and materialistic phenomena only in their symbolic mediation obtain the human-objective-semantic sense. Contemplation is not sensuality. Sensuality is contemplation if the mental-reasonable contemplation is in question. People observe only

<sup>118</sup> Compare: Kant, *Kritik der reinen Vernunft*, Band III, p. 222.

<sup>119</sup> Ibid, p. 232-235

<sup>120</sup> Compare: Husserl, *Logische Untersuchungen*, 1900-1901. p. 73-74.

<sup>121</sup> Compare: Carnap, *Einführung in die symbolische Logik*, Wien, 1954. p. 20.

<sup>122</sup> Ibid, p. 23-28.

<sup>123</sup> Ibid, p. 47-51.

<sup>124</sup> Compare:., *Origin of Languages and the Antiquity of Speaking Man*, "Proced American Association for the Advancement of Science, LXXX, 1887. p. 37-40.

in the form of the concept, judgment, and conclusion. People can observe when they watch, listen, and conceive. The logical is the name and the picture of human sensuality, so all human interactions are of the conceiving-logical character, as all human activities represent the conceptual-judging operation. Among people, there are no practical relations; all their relations are the mediation through the logical sense. It can be applied even to those that refer to the relationships, which are seemingly of the pure physical nature<sup>125</sup>.

Sense results from two bases:

- a) Firstly, human cognition is always in the form of the concept<sup>126</sup>,
- b) Secondly, sense is always, normative, either cognitive, or axiological<sup>127</sup>.

However, the former element is essential. The human way of life is indirect. The intelligent being is characterized by mediated communication. The instinctive being lives in the direct way<sup>128</sup>. Man, as the intelligent being, has sensuality, but it is mediated by the concept. The concept brought into sensuality results in sensuality. Sensibility, sensuality is by itself senseless. Sensibility of sensuality is the objective basis, but also it is the basic communicative model of human interaction. Sociability, in its basic aspect, is intellectual sensuality, the sensuality of intelligence. As such, it is given by the mediation of the a priori form of the human mind. In the aspect of sensuality, all elements of the sensual being must be kept together. The sense of sensuality is the first level of sensuality as sense<sup>129</sup>.

The meaning of certain signs is possible in the process of mental communication by the mediation of the form. A child does not learn language by learning letters, because language is the form of thinking. The child can learn language because it thinks. Language is the form in which the child brings his own a priori form of thinking. Immediate self-cognition is intended at the communicative model, i.e. the mother tongue. The child does not think in the form of language, but rather in the form of Logic<sup>130</sup>. Because the child can think in any language, he can have the access to the form of any language; all languages are his mother tongues. The fact that he learns the mother tongue results from the application of his logic to the imposed symbolic model, not because that symbolic model is his mother tongue. Mind teaches language and not vice versa.

The logical is primary and basic. It is the ontological a priori of all human knowledge, both vulgar and scientific. As it will be seen, philosophical and religious cognition is of the completely different nature in philosophy. It is the source of all varieties of its usage, communicative, interactive, evaluative, social in the widest sense of the word. All of them are the logical forms of the basic logical characteristic - the a priori form of sensual and mental thinking<sup>131</sup>. The wider they are, the more complex and of wider scope, the object of the objective sense is. However, their objective sense represents the constructed

<sup>125</sup> Compare: *Basic Problems of Philosophy*, Selected Readings with Introductions by D. J. Bronstein, Y. H. Krikorian, Ph. P. Wiener, New York, 1947. p. 39-41.

<sup>126</sup> Compare: Петронијевић, *Основи теорије сазнања*, Београд, 1923. Први део, стр. 19-25.

<sup>127</sup> Compare: Ayer, *Language, Truth and Logic*, London, 1936. Chapter I, p. 17-18.

<sup>128</sup> Compare: Bergson, *Creative Evolution*, New York, Random house, 1944. p. 110-111.

<sup>129</sup> Compare: Wittgenstein, L., *Philosophical Investigations*, London, 1957. p. 34-35.

<sup>130</sup> Compare: Ramsey, *The Foundations of Mathematics and Other Logical Essays*, New York, 1931. Chapter I, p. 18-20.

<sup>131</sup> Compare: Langer. S., *The Philosophy in a New Key*, Cambridge, Massachusetts, 1957. Chapter I, p. 19-20.

logical form produced by the a priori constructive mental power - hardly able to be caught conceptual mysteries of the pure mind. From the point of view of the objective existence of meaning and the symbolic form, existence is equal to the practical sense of the pure mind<sup>132</sup>. The practical mind is pure mentality. It is the general characteristic of complex forms of meaning. In spite of that, in the elementary logic of the concept there is the sense referring to the possibility of the reflective involving of the most complex sensible meaning. All knowledge is obtained conceptually and the abstract is immanent in human elementary knowledge<sup>133</sup>.

### **The Sense of Symbolic "Reality"**

Abstractedly determined, marked logical objects are signs, or symbols. If logical objects are comprehended as concepts and logical objects are concepts, then signs are marked concepts. It is the form, in which the concept is expressed as "the objective ideal"<sup>134</sup>. The sign or the symbol represents the external or "significant" aspect of the concept. However, since the concept is the objective sense of human cognition, it means that the mark of the concept or the sign is equal to the form of the sense. It is not sense, but rather it is the "form" in which sense is "formed"<sup>135</sup>.

If relations between signs, i.e. as the pure form, were comprehended as "objects", then signs or "symbolic" reality would represent the form of conceptuality, i.e. sensibility<sup>136</sup>.

In fact, symbolic reality has its wide and narrow sense. In the wide sense, it is the form of human indirect communication. The symbol is the means and medium of indirect human communication. For example, good manners, convention, customs, but also elementary communication always have the indirect form of communication<sup>137</sup>. It is the formalistic, but real sense of human communication. Even in the most intimate sphere of human communication - love, communication is formalized by extreme consequences. The same could be applied to the level of the family, which is the most direct and natural human community<sup>138</sup>.

Of course, this is conditioned by the logical nature of human indirect cognition, i.e. the character of human intellectual generic cognition. The form is not accidental; it is necessary and logically unavoidable. The ontological - gnosiological basis of symbolism is in the essence of the human being, as it has been shown.

In its narrow sense, the symbolic form is up to the degree of extremely formalistic "independence", organized in the systems of complex spiritual relations. Characteristic symbolic forms in this sense are: science, arts, religion, philosophy and, normative reflective productions<sup>139</sup>. All of them have their symbolism, which is developed and by

<sup>132</sup> Compare: Kant, *Kritik der reinen Vernunft*, Akademie - Ausgabe Band III (2 Auf) p. 213-214.

<sup>133</sup> Compare: Hegel, *The Philosophy of Mind*, Oxford: Clarendon Press, 1894, p. 119-121.

<sup>134</sup> Compare: Markovic, M., *Dialectical Theory of Meaning*, Dordrecht; Reidel, 1984, pp. 74-76.

<sup>135</sup> Compare: Frege, *Über Sinn und Bedeutung*, "Zeitschrift für Philosophie und philosophische Kritik", 1892, p. 12-16,

<sup>136</sup> Ibid, p. 17-20.

<sup>137</sup> Cassirer, E., *Philosophie der symbolischen Formen*, Berlin, Bd. I-III, Berlin 1923-1925. p. 22-26.

<sup>138</sup> Ibid, p. 27-32.

<sup>139</sup> Ibid, p. 47-50.

extreme consequences differentiated with many nuances, so that we get the impression that there is true alienated "symbolic reality", as if it has some symbolic sense by itself. Language is typical in that sense, because it is the fundamental symbol. It has been so much glorified that it cannot be separated from thinkability and sometimes it is primarily determined by thinkability<sup>140</sup>. The same can be applied to the symbolism of art. In it, the sense becomes "symbolic" that much that art and even, knowledge of it that represents the esthetic judgment (uncritical absurd), have become symbolic<sup>141</sup>.

Such uncritical conceiving of symbols results from thinkability, which does not understand the sense of thinkability and the character of its form. This confusion should not be allowed, but, unfortunately, it exists even in the case of greatest minds<sup>142</sup>.

For all that, it is appropriate to mention that the glorification of symbolism is conditioned by some, as it seems, (seemingly) imposed reasons<sup>143</sup>. Namely, if it is taken into consideration that abstractedness of knowledge indirectly implies indirect communication of the first, second, etc. level, then it is understandable that more abstract knowledge, e.g. philosophical, or abstractedly theoretical, logical and methodological takes as its object of cognition abstract logical object of a high degree. In other words, its objects are seeming symbols in two senses: a) logical; b) linguistic<sup>144</sup>. Taking into account the abstract sense of the scientific approach this is immanent in every science and is even more present in the theory of the higher level. Namely, in such cases cognition is obtained by concepts and statements of the symbolic form. In other words, the symbol obtains its conceptual, or subjective-objective sense<sup>145</sup>. Philosophy takes as its subject symbols of science, science of the higher degree, symbols of lower level, sciences of lower level, symbols of particular conceptuality etc., normative systems are extremely symbolic. It can be noticed, not only in the ceremonial-festal, normative systems, such as religion, in formalistic-conventional ones, such as customs and moral, or in official-procedural one, such as law, but also in the "contents" of, normative causality<sup>146</sup>.

However, art should not be taken as an example. In it, as it has been said, the form is almost "above" the sense of which one should think.

## **KONTROVERZA O NAUČNOM SAZNANJU I KOMUNIKACIJI** **Metodološki smisao naučnog saznanja**

**Svetislav M. Jarić**

*Tekst obrađuje stare, ali uvek aktuelne probleme naučnog saznanja i komunikacije posredstvom naučnih i običnih simbola.*

*Stanovište pisca kritički je usmereno na rezultate empirističkog i racionalističkog naučnog saznanja. Empirizmu se zamera da je u osnovi netačan jer je zasnovan na varljivoj čulnosti i*

<sup>140</sup> Compare: Frege, *Ibid*, p. 49-52.

<sup>141</sup> *Ibid*, p. 79-82.

<sup>142</sup> See that Wittgenstein, L. as Frege's disciple does not separate this subtle nuance.

<sup>143</sup> Compare: Carnap, *The Foundations of Semantics*, Chicago, 1950. Chapter I, p. 31-35.

<sup>144</sup> Compare: Ayer, *Truth, Logic and Language*, *Ibid*, p. 73-74.

<sup>145</sup> Compare: Markovic, M., *Dialectical Theory of Meaning*, Dordrecht; Reidel, 1984, pp. 74-76.

<sup>146</sup> *Ibid*, p. 73-77.

*relativnom iluzionizmu. Racionalistički smer saznanja bio bi idealan u svojoj čistoj formi, ali i u znatnih mislilaca on je posredovan iskustvom, tj. razumskom dimenzijom. Pisac je na stanovištu čistog naučnog racionalizma i nauka je, po njegovom shvatanju, i u svom najprostijem obliku u najvišem nivou moguće apstraktnosti. To važi i za tzv. pojedinačno-pojmovne i opšte-pojmovne, tj. apstraktno-spekulativne nauke. Razlika je gradualna, odnosno kvantitativna, a pojmovna esencija im je istovetna.*

*Iz takvog shvatanja nauke proizilazi i karakter i smisao naučne komunikacije. Pisac je kritičan prema funkcionalističkoj, biheviorističkoj, pragmatističkoj i logičko-empirističkoj, ali i dijalektičkoj teoriji značenja. Zauzima sopstveno stanovište koje se može označiti kao komunikacija apriorne forme posredstvom objektivne egzistencije naučnih idealiteta.*

*Tekst u celini postavljen je na premisama logičke metodologije nauke i logičkog smisla objektivne egzistencije naučne strukture i naučnih modela. Tekst je apstraktan i upotrebljiv na pojam nauke i metodološki smisao njezin u najopštijem smislu.*

**Ključne reči:** *naučno saznanje, vrednost saznanja, ograničenja saznanja, apriorizam i aksiomatika, naučni dijalog, duhovno postojanje, smisao simbolizma, lingvistički simbolizam, logika i jezik.*