

**SOME POINTS OF VIEW REGARDING THE DEFINITIONS OF THE  
CONCEPTS OF EXPLANATION, UNDERSTANDING AND  
CAUSALITY IN THE SOCIAL SCIENCES**

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***Abstract***

Not every description of our subjective representations of the reality necessarily generates knowledge about the truths of the moment. Our paper presents the conditions a description of the representations of the social reality should meet to be regarded as scientific from a logical perspective.

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**1. Introduction**

An objective image is not desirable in science, as if the reality could be described with a 100% reliability what we would get would be a perfect reproduction, a replica of it, without any utility. In the light of the principle of appearance, briefly described below, such an approach is not even possible (Țăran-Moroșan, 2013).

As we have mentioned in the past (Țăran-Moroșan, 2012) “analyzing the issues of defining the science, undoubtedly linked with the concept of reality, we reach the area of metaphysics, where, considering the array of well-founded approaches, but often contradictory, we must find our place. Such an endeavor is necessary we say, paraphrasing Popper, in order to shed light within the ”marsh” of philosophical theories which form the foundation of the

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establishment of scientific research. We thus believe that the Kantian approach represents the path to follow. Our study will thus be founded by using as a starting point several of Kant's philosophical ideas concerning rational knowledge accurately described in "The critique of pure reason", which creates the philosophical grounds for the methodological principle which we follow ourselves – the principle of appearance."

In a few words, we will present Kant's (2009) most important - for our article - philosophical ideas, as we summarized them in one of our studies (Țăran-Moroșan, 2012): "Kant does not deny the existence of an objective reality, quite the opposite, he supports it, but he states at the same time that it is outside of our possibilities of rational knowledge. We know, from a rational point of view, through our senses, thus objective reality is filtered and subjective. What we come to know about reality refers to those perceivable forms of manifestation of reality, so, to appearance, to a phenomenon and thus not to the reality per se, to its essence, which remains unknown. Any primary observation created as a result of the study of the world around us implies our perception on this world. For this reason, we believe that any empirical assertion must be tested by its confrontation with the primary observations which fundament it. Because these primary observations are at the core of assertions concerning the surrounding world, they should meet, at the same time, the following prerequisites: to be synthetic sentences about the world we live in and to be non-debatable. A consequence of the principle of appearance is however the logical impossibility of meeting both conditions at the same time. Either the primary observation talks about what we believe about the world and not the world as it is, but then it does not meet the first condition, being, in fact, a statement about the watcher and not the watched object, or it presents a part of the external world and involves our perception about belonging to this world, being, in this situation, debatable. To put it differently, any primary synthetic observation about the world is debatable because it surprises its appearance, while any personal perception is undebatable, but it is not a synthetic affirmation about the surrounding world."

## **2. Explanation, understanding and causality**

In this context, in which the description of what happens in reality is not possible, resulting in a violation of the methodological principle assumed, nor a complete description of our representations of what is happening is not useful as well. According to logical positivists such a purpose for the science

seems sufficient, in the first phase of their existence. According to their approach science should describe, being "a system of rules for predicting the patterns of experience" (Godfrey-Smith, 2012). But a perfect and complete presentation of our own subjective representation of the reality is not, in fact, more than a perfect replica of the reality that we see, meaning the description of all the perceptible manifestations of this reality. To say that what we perceive is happening is a goal which implemented would only expose our own representations of the reality outside of us. Science includes, according to the logical positivists view which support the approach outlined before, those representations supported by the patterns of experience, while failure to comply with these patterns generate exclusion from the science field. From the logical positivists perspective, science has been, in a first phase, an organized description of the people's representations about the reality, that does not necessarily involves a causal explanation. However, framing some representations in certain patterns generated by experience appeals to history, and choosing a model (pattern) from an infinity of possibilities implies, as a rational ground, some explanation of the choice in response to the question "why this?".

Noting the shortcomings of eliminating the need for the existence of explanation in science, Hempel and Oppenheim (1948) develop a positivist theory of explanation which, in essence, states that to explain a thing is the same as to show you how to get it, within a logical argument. According to this theory an explanation presupposes the existence of the explanans - the conclusion or what needs to be explained - and the explanandum, or what explains, e.g. the premises, which must contain at least the formulation of a law of nature (a factual support) to make a real contribution to the argument (ie not just attached by means of logical operations, for reasons of form). This kind of explanation presumes the demonstration of the fact that the explanans's appearance was expected, given the premises already known in the form of a law of nature. The difference between explanation and prediction is minor in this approach. The explanation refers to what was expected and has already happened, while prediction is what is expected and has not yet happened.

Godfrey-Smith (2012) highlights an issue of the explanation theory developed by Hempel and Oppenheim, namely the asymmetry, showing the famous example of the mast and its shadow, evoked for the first time in 1966 by Sylvain Bromberger. The shadow length of a flagpole can be calculated knowing its height, the position of the sun, the laws of optics and some

elements of trigonometry, just as the mast length can be determined by knowing the length of the shadow and the other items already mentioned. However, an explanation of the size of the shadow using as a premise the mast length makes sense, while an explanation of the length of the mast using as a the premise the shadow length is not an explanation in the true sense of the word. Both approaches determine the understanding, but only the first of them generates the emergence of plausible explanations, and this happens because, as in the example above, the explanation assumes a certain directionality that can not be reversed, with the same direction as the time's arrow. The explanations, as they were defined by Hempel and Oppenheim, fail because they don't always follow the same direction, meaning the direction of the laws is changed according to the logical argument in which they are used.

We believe, for the reasons given above, that not every description of our subjective representations of the reality necessarily generates knowledge about the truths of the moment. For this reason, a description of the type mentioned can not be always framed in the category of scientific knowledge even if within it are used premises represented laws of nature. A description of the representations of reality can be regarded as scientific from a logical perspective if its directionality doesn't have an opposite direction to the arrow of time. In other words, a scientific description of the representations of reality involves, in my view, explanation and the explanation implies causality.

There are, also, alternative approaches of the explanation that we don't entirely reject, but we consider those weaker forms of support of the scientific character than the causal explanation. Starting from the idea of identifying patterns, Friedman (1974) and Kitchner (1981) outline an alternative unifying theory of the explanation as an unofficial alternative of the official theory of explanation used by the logical positivists and presented before. According to this theory explanation in science is a variable combination of facts by subsuming them to a set of patterns and fundamental principles. Science constantly strives to reduce the number of things that we should accept as being fundamental (Godfrey-Smith, 2012). The creators of this theory believe that a fundamental principle or a pattern unifying more particular manifestation can be accepted as an explanation of these theories, not because it provides a causal explanation of them, but because it reduces the number of fundamental patterns and principles necessary for the understanding of the representations of reality.

Adapting the positivist theory of explanation, we consider that explaining a thing means to show how to obtain it, within a logical argument using as premises laws of nature born before the conclusion. In our view, science is different from nonscience just by providing causal explanations of the representations of reality. This is the correct way to approach knowledge from a logical perspective. We do not believe that unification is not a useful tool for providing scientific explanation, but we believe that its purpose is to obtain a causal explanation and the finding of the fundamental principles and patterns is sometimes necessary as an intermediate step towards this goal.

We do not argue that a knowledge of the truth of the moment mandatory generates explanation and prediction, but we are supporters of the idea that science, by the causal reflection of the apparent truths necessarily entail explanation and only contingent prediction. If the conditions from the period for which the explanation is provided do not change, the explanation and prediction are possible. But more the premises used in the explanation change, the prediction has less effect, even if the explanation was truthful.

### **3. The source of veracity**

Given the approach taken so far, science differs from nonștiință just by providing causal explanations of the representations of reality. This is the only way to approach knowledge from a logical perspective. In the following pages we intend to find an answer to the question "where do we reach veracity? ". The two possible answers are: individually or at the level of a group.

Since the existence of the methodological principle of appearance does not enables us to determine objectively which of our claims about the world are true, these being in fact statements about its representation at our individual level, we defined veracity as a concordance with apparent truth of the moment. Such a definition, however, instead of generating responses, arises a new important question, namely, what is the truth of the moment?

Returning to the principle of appearance and its consequences we recall that in accordance with its content, objective statements from a logical point of view are the ones we make about our subjective perceptions, but these do not relate to the world around us but to those perceptions. We can say without fail that such statements are pure truths. But the scientific nature of a discipline involves, as I said, the production within the discipline of true statements about the world and not true statements about our perceptions.

These statements reflect our way of communicating individual representations of the reality to the others, involving a group of individuals. The response we receive confirms that the subjective description of the outside world made by our statement developed is similar or different from the group's representation.

The causal explanation is not necessary to obtain confirmation from others for some statements, but is required to give them the quality of truths of the moment or otherwise said, scientific knowledge. By our own adaptation of the positivist theory of explanation explaining a thing means to show how to obtain it, within a logical argument using as premises laws of nature born before the conclusion.. Common beliefs may, in some cases, be sufficient to confirm the statements made by certain people, but can not be used in a logical scientific argument, as they do not involve assumptions, laws of nature. We note in this context that while inter-shared beliefs generate only confirmation of statements, the causal explanation is the one that divides these statements in scientific and nonscientific.

Consequently, in our opinion, the only way to achieve veracity is to intersubjective confirm the truthfulness of the representations of the world and the causal explanations that fundaments them. The truths of the moment should be communicated in an understandable manner to the others, and the only way to do this is, as we said before, the approach through the causal explanation.

The source of veracity is the causal explanation only when it is confirmed by others. The mere statement of a issuer considered causal explanation is not necessarily true. To be truthful, the sentence must be confirmed, ie accepted by others as being true, and to be accepted must that both the premises and the reasoning involving these premises are accepted.

However, a serious problem caused by the adoption of the principle of appearance is that if this principle is governing all the knowledge, than its effects are manifested at the level of our representation of the most fundamental laws of nature, considered prerequisites in a causal explanations. Thus, a veridical causal explanation involves first the acceptance of the premises used therein, which are not pure truths, but truths of the moment.

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