RELIGIOUS KNOWLEDGE IN THE LIGHT OF KUHN'S AND LAKATOS' METHODOLOGICAL CONCEPTIONS

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ABSTRACT: The article based on Kuhn's paradigmatic approach and Lakatos' methodology of scientific research programmes, analyses certain aspects of selected cognitive functions of religous beliefs. Our approach is based on the search for angalogy between scientific theories on one hand and systems of religious beliefs on the other hand. Contemporary philosophy of science demonstrates that scientific models are the products of creative analogous immagination, data are theory-laden, theories as a whole are resistent to falsification and it is hard (if at all) to find reliable criterions for the selection of a paradigm. These «subjective features» are more evident within religion, since a wider range of models, greater impact of interpretations on data, greater arduousness in regard to the commitment to a paradigm and more ambiguity in the process of the selection of a paradigm, exist in this area. However, with each of these features, I see the difference between science and religion in their degree and not in absolute contrast.

KEY WORDS: Scientific methodologies; Religious beliefs; Thomas Kuhn; Imre Lakatos; Nancey Murphy.

El conocimiento religioso a la luz de las concepciones metodológicas de Kuhn y Lakatos

RESUMEN: El artículo analiza algunos aspectos de las funciones cognitivas seleccionadas de las convicciones religiosas en base a la teoría paradigmática de Kuhn y a la metodología de Lakatos. Nuestro proceso se fundamenta en la búsqueda de analogía entre las teorías científicas por una parte y los sistemas de las convicciones religiosas por la otra. La filosofía contemporánea de la ciencia muestra que los modelos científicos son productos de la imaginación análoga y creativa, los datos son influidos por la teoría y las teorías en su globalidad son resistentes a la falsificación y muy difícilmente (si es que se puede) es posible encontrar los criterios de confianza para la selección de un paradigma. Estas características subjetivas son más visibles en la religión, donde existe una mayor diversidad de modelos, mayor influencia en la interpretación de los datos, mayor empeño en la fidelidad al paradigma y mayor imprecisión en la selección del paradigma. Sin embargo en cada una de las características mencionadas se ve la diferencia entre la ciencia y la religión en su grado, pero no en su oposición absoluta.

PALABRAS CLAVES: las metodologías científicas; las convicciones religiosas; Kuhn; Lakatos; Murphy.

Introduction

In certain philosophical schools of the twentieth century, we can find inclination towards statements that religion cannot produce justified congnitive statements. These tendencies originated mainly in the philosophy of science connected with logical positivism, which presented scientific understanding of the world accessible through the inquiry of science, trying to find a type of philosophy that would be firmly rooted among the scientific disciplines at the same time. Although positivism has been pushed out from the main philosophical stream since the beginning of the fifties of the twentieth century,

doi: 10.14422/pen.v78.i298.y2022.022

some of its assumptions keep appearing also today, mostly in the debate on mutual relationship between science and religion[1]. This tendency has rised mainly from oversimplifying view of science as a model of true knowledge, particularly under the influence of the philosophy of science, which glorified its objectivity. Such a simplification has led to the conviction that religion can only serve by its non-cognitive functions[2]. Our effort in this article is to demonstrate that science is as objective, nor religion as subjective as it was described e. g. in logical positivism. Our method is based on the search for the analogy between scientific theories on the one hand and systems of religious beliefs on the other hand. By systems of religious beliefs, we mean two fundamental facts in this article. In the process of work with Lakatos' methodology of research programmes, theological programmes are primarily offered as a basic analogue. Slightly different is the situation in relation to Kuhn's methodological conception, where the analogue of scientific theories is embodied by religious paradigm; i. e., something broader and more complex than a mere theological programme itself.

Despite profilation of the philosophy of science as an independent discipline, some theologians and philosophers of religion show an intense interest in its positive and negative consequences for theology. Before we get to the topic of application of Kuhn's and Lakatos' methodology to theology or theological programmes, we can use several examples of various applications of scientific methodologies to the problem of religious knowledge as a basis. The acceptance of logical positivism must seem destructive to anyone who is interested in a congnitive content of religious and theological discourses. A. J. Ayer assumes that «it is generally admitted, at any rate by philosophers, that the existence of a being having the attributes which define the god of any non-animistic religion cannot be demonstratively proved»[3]. God cannot be recognized as existing on the base of deductive thinking, because every empirical statement can be at the utmost probable and the deductive conclusion will share this probability. If we wanted to be sure, we would have to build upon a priori statements. The cause of certainty of such statements is hidden in fact that they are tautologies. However, no existential statement can be relevantly deduced from the group of tautologies, only another tautology can emerge from it. Moreover, according to Ayers, neither the existence of God can be demonstrated as something probable, since e. g. Christian statements about God as a transcendent Being are not supported by any empirical data. Every such concept is metaphysical and according to verificationist theory of meaning it is without any meaning. «For if the existence of such a god were probable, then the proposition that he existed would be an empirical hypothesis. And in that case, it would be possible to deduce from it, and other empirical hypotheses, certain experiential

[1] Cf. Dennett, D. C., *Breaking the Spell: Religion as a Natural Phenomenon,* New York, Penguin Books, 2007.

[2] By «cognitive area» we understand the area in which various processes of getting to know the world are under way, including the formation of visions and convictions about the world and our position in its system, as well as many differentiated ways of verification and justification of such convictions.

[3] Cf. Ayer, A. J., *Language, Truth, and Logic,* London, Penguin Books, 1971, p. 119.

propositions which were not deducible from those other hypotheses alone. But in fact, this is not possible»[4].

Popper's falsificationism also provoked an agile discussion among the philosophers of religion, although his own aim was the acceptance of falsification as the criterion of demarcation between science and metaphysical ideas. In 1950, Anthony Flew during his debate with Basil Mitchell and Richard Hare questioned the assumption that theological statements like «almighty and loving God exists» are meaningful statements that describe the world by using real terms. The debate became widely known after its processing and publication in *New Essays in Philosophical Theology*. Flew's argumentation was based on the fact that typical theological statements are actually no statements at all, which means that they are not a type of statements that describe the world, or which can be recognized as true or false. He argued that believers usually respond to any evidence of potential falsification by continuous justifying expression given to their faith; i. e., the way directed to evacuation of their faith from any meaningful content[5]. This statement is true in a sense that theology really focuses on exploration of potentially falsifying arguments in its effort to find trustworthy answers. However, equally important is the presence of the effort to implement the instruments of historical, philosophical and literary analysis to matters of faith in the spirit of constant criticism, even in cases when it may lead to their potential destruction[6].

Philosophical-methodological conception of Thomas Kuhn attracted a great deal of attention of theologians and philosophers of religion, too. For example, Basil Mitchel compared the arguments in favour of theistic interpretation of experience with the concept of a new paradigm in science[7]. Ian Barbour finds a parallel between scientific paradigm and religious traditions that can be seen as paradigms shared by communities. Similarly, Hans Küng used Kuhn's theory of paradigmatic change as a tool for the reconstruction of the history of theology, affirming that the works of Augustine, Thomas Aquinas, Luther and Calvin initiated the arrival of new paradigms in Christian theology[8]. These

[4] *Ibid.*, p. 120.

[5] «Now it often seems to people who are not religious as if there was no conceivable event or series of events the occurrence of which would be admitted by sophisticated religious people to be a sufficient reason for conceding "There wasn't a God after all" or "God does not really love us then". Someone tells us that God loves us as a father loves his children. We are reassured. But then we see a child dying of inoperable cancer of the throat. His earthly father is driven frantic in his efforts to help, but his Heavenly Father reveals no obvious sign of concern. Some qualification is made – God's love is "not a merely human love" or it is "an inscrutable love". [...] But then perhaps we ask: what is this assurance of God's (appropriately qualified) love worth, what is this apparent guarantee really a guarantee against? Just what would have to happen not merely (morally and wrongly) to tempt but also (logically and rightly) to entitle us to say "God does not love us" or even "God does not exists?" Flew, A. and Macintyre, A., *New Essays in Philosophical Theology*, London, SCM Press, 1955, pp. 98-99.

[6] Cp. Southgate, CH., *God, Humanity, and the Cosmos,* London, New York, T&T Clark International, 2005, pp. 95-96.

[7] Cp. Mitchell, B., *The Justification of Religious Belief,* London, Macmillan, 1973.

[8] Cp. Küng, H. and Tracy, D. (eds.), *Paradigm Change in Theology: A Symposium for the Future.* New York, NY, Crossroad, 1991.

several examples clearly demonstrate that along with the works of historizing philosophers of science, many positive analogies between theology and science have appeared. We can say that since the philosophy of science has become more sophisticated and better reflecting the actual state of the development of science, more opportunities to demonstrate a positive relationship between the philosophy of science on the one hand and the philosophy of religion or theology on the other hand, have appeared.

Two already mentioned systems of the philosophy of science will be used as the basis of our argumentation: Kuhn's paradigmatic approach and Lakatos' methodology of scientific research programmes. From these two conceptions follows that scientific models are the products of creative analogous imagination, data are theory-laden, theories as a whole are resistent to falsification and it is hard (if at all) to find reliable criterions for the selection of a paradigm. Without any doubt, these «subjective features» are more evident within religion, since a wider range of models, greater impact of interpretations on data, greater arduousness in regard to the commitment to a paradigm and more ambiguity in the process of the selection of a paradigm, exist in this area. However, in each of these features, I see the difference between science and religion in their degree, not in their absolute contradiction. Moreover, this comparison can be done without having to deny characteristic non-cognitive functions of religion that have no parallel in science.

1. Kuhn's paradigmatic approach

Historizing approach in the philosophy of science is fundamentally associated with pubblication *The Structure of Scientific revolutions* (1962), in which Thomas Kuhn rejects two fundamental until then dominating theories of scientific rationality (confirmationism and falsificationsim). Kuhn's work introduced several crucial changes in the philosophy of science, mainly through historical understanding of the development of science, scientific paradigm and scientific revolution understood as a source of progress in science[9]. According to Kuhn, the development of science is not a balanced process running continuosly and more-or-less analogously. Quite on the contrary, he distinguishes between the periods of so-called «normal science» and «scientific revolution», whereby these periods are not only quantitatively different phases of scientific research but represent also different qualities. Paradigm is a key term for the historical approach of Kuhn. He affirmed that both thinking and activity of a scientific community are guided by its paradigm defined by him as «universally recognized scientific achievements that for a time provide model problems and

[9] In his work *The Essential Tension* (1977), Kuhn understands scientific progress as one of two traditioons —mathematical tradition implemented e. g. in astronomy, optics or statics; and experimantal tradition implemented in the disciplines like electrostatics, magnetism, theory of gases etc. By contrast, in *The Structure of Scientific Revolutions* (1962) he deals with the analysis of several individual revolutions with an emphasis put on Copernicus, Newton, Einstein and the revolutions in chemistry.

solutions to a community of practitioners»[10], or as «the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community»[11]. Thereby, the paradigm is a determining factor for the selection and formulation of problems in given period of time, containing the criterions on the base of which the decision about acceptability of proposed solutions of given problems is made. According to Kuhn, observation data and criterions of evaluation of particular theories depend on mutually incommensurable paradigms. Cumulation of anomalies may lead in certain cases to a scientific revolution, the essence of which is the change of a paradigm, which implies a radical change of the worldview. The result of such a revolution includes a different view of the world, contradictory attitudes towards the question what scientific problem is and how to solve it, the appearance of new relations regarding experimental results, and the birth of radically new knowledge at the end. The shift of paradigm in the course of scientific revolution is not a matter of logical argument, but more likely a matter of «conversion». Kuhn, according to his critics, described the selection of a paradigm as something irrational, subjective and associated with a concrete scientific community. Briefly, the development of science is not homogeneous and linear. Quite on the contrary, it is fragmentary and episodic, which means that various scientific approaches are implemented in various periods of time. The most significant episodes in the development of science are normal science and revolution, whereby the change of these phases is cyclical. Kuhn's scheme adopts three crucial theses of «subjectivity» (in a sense mentioned above); i. e., the theory-laden data, high level of resistence of theories to falsification, and non-existence of strict rules for the selection of a theory.

1.1. The impact of interpretation on experience

Let us implement the scheme of Kuhn to the system of religious beliefs. Positivist tradition beginning with Hume held an opinion that the experience starts with a passive acceptance of short-term, unconnected and uninterpreted data. Thus, the experience represents a private, subjective realization of sensory qualities provoked by physical stimulus emerging from the external world. There are, however, alternative approaches that emphasize the active role of a «subject having the experience», making him more than just a mere passive data recipient[12]. Contributions of the subject and the object in this type of approach are complex and never completely separable. Hence, our experiences are neither purely objective, since they are conditioned by our memories, feelings and conceptions, nor purely subjective, as we are not able to change them arbitrarily and they appear to be at least partially «given». There is not any uninterpreted experience in a sense assumed by positivists.

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[10] Kuhn, T. S., *The Structure of Scientific Revolutions,* (3rd ed.) Chicago and London, The University of Chicago Press, 1996, p. 10.

[11] *Ibid*., p. 175.

[12] We are talking about the theories of experience associated mainly with pragmatism, *gestalt* psychology and procesual philosophy. Cf. Dewey, J., *Experince and Nature,* Chicago, Open Court, 1925; Smith, J. E., *Experience and God,* New York, Oxford University Press, 1968.

Our experience is not only structured in the light of concrete interests, but the language itself organizes it in a particular way. Variety of dimensions of the experience grows along with the ability of things to maintain variety of relations and purposes that appear in confrontation with them. Thus, the positivist effort to ensure certainty of uncorrectable fundament of knowledge could not be satisfied.

But is religious experience definite enough to be even remotely comparable to scientific data? Observations in science, though never free from interpretation, are reproducible and publicly accessible. Religious experience, by contrast, seems variable, elusive and often private. And while there may be greater agreement among «lower-level» description of religious experience than among doctrinal interpretations, there remains abysmal diversity even among the former. It is true that in religious area, interpretative beliefs take precedence over religious experience, however it is also true that they are deduced from it. In regard to religion, there is greater influence in the top-down direction; i. e., from paradigms through interpretative models and beliefs towards experience[13]. But neither the bottom-up influence starting with the experience in religion lacks completely. Anders Jeffner has pointed out that human nature, the history of mankind and events in the world offer to us «ambiguous patterns» and «uncertain gestalts» which can be experienced in more than just one way[14]. But does not this very ambiguity of the evidence count against theism? Why not expect a personal God to have revealed himself more clearly? John Hick maintains that a God who respects human freedom would not «overwhelm» the man with indubitable evidence[15]. If God wants man's voluntary response, he must safeguard his autonomy and allow for a variety of interpretations of the world. Thus, we reject the image of God as immediate and uninterpreted data emerging from the experience, as affirmed by certain mystical schools. However, we equally reject the opposite extreme, according to which God is deducible without any experience, as affirmed by certain supporters of teleological and cosmological argument. To reduce God to some hypothesis determined for testing or to the conclusion of some argument means to lose the experiential basis of religion. Our knowledge of God is actually very similar to the knowledge of other person hence it is not a direct data, nor the conclusion based primarily on logic.

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[13] General tendency of any group of fundamental beliefs is to create experiences that can be used for the support of these beliefs. Interpretative ideas influence the expectations of a believer and the more he is influenceable, the more valid is this theory. Interests and commitments have a deep impact on religious life of individuals and communities. Similarly to art or literature, the ability of participants to react influences the range and depth of their experience.

[14] Cp. Jeffner, A., *The Study of Religious Language,* London, SCM Press, 1972, pp. 45, 116, 125.

[15] Hick talks about the epistemic distance" of God that enables people to choose their own goal to follow, to try to find the truth (God), and to demonstrate their maturity this way. This justification represents a part of his theodicea of the gradual formation of human soul. Cf. Hick, J., *Faith and Knowledge,* Eugene, Wipf and Stock Publishers, 2009, pp. 120-150.

1.2. Possibility of the falsification of religious beliefs

There was a wide range of possible solutions to this problem elaborated within the framework of already mentioned debate touched off by Anthony Flew. He can be taken to assert that a sentence is factual only if it is incompatible with some possible empirically identifiable state of affairs[16]. Hence, if it is not in principle falsifiable by observations, it asserts nothing factually. According to Flew, theistic statements about God (God exists. God is good.) are not falsifiable and thus, they are not factual statements. One of possible answers to this objection is to refuse the implementation of a criterion of falsification to religious statements. Dewi Z. Philips construes theology as a conceptually autonomous language-game and no external evidence is necessary, nor possible in this regard. Religion is a practical «form of life» with its own independent language and logic[17]. All criterions are bounded with the language used by the respective community and diverse conceptions of rationality are determined by diverse linguistic frameworks. But if religion was such an independent language-game, it would be isolated from all other intellectual efforts, closed to any philosophical criticism and irrelevant for all other areas of human life. In addition, no communication among various religious communities would be possible. The price for such an immunity against falsification would be high —impossibility of the discussion among the supporters of diverse paradigms.

What are the possible ways of responding to the problem of potential falsification of religious beliefs? First, it is necessary to say that the request for the exact determination of falsifying conditions appears to be exorbitant, since it cannot be fulfilled within the framework of scientific theories, mainly the most universal ones. That is to say, it is not possible to set in advance such a key experiment that would lead to a definite decision between two complete theories. Discordant data can always be accomodated by modification of auxiliary hypotheses or *ad hoc* adjustments, or they can be set to one side as anomalies. If we accepted Flew's opinion, all statements would be divisible to empirical statements, the falsifying conditions of which could be precisely defined, and non-empirical statements, for which the empirical evidence would be irrelevant. But when we have a closer look at science, we can see that most of its components fall somewhere between these two extremes. There is an increasing resistance to falsification as one moves from simple laws to particular theories, comprehensive theories, paradigm and finally metaphysical assumptions. Yet at none of these levels can an accumulation of counterexamples be completely ignored. So, if a religious paradigm is thought of as analogous to a scientific paradigm, the cumulative weight of evidence cannot be dismissed. Secondly, universal systems of beliefs are not falsifiable by discordant data, but they are more probably replaced by promising alternatives. In case suitable alternatives are absent, modification of accepted

[16] Cf. Flew, A., «Theology and Falsification», in: Flew, A. and MacIntyre, A. (eds.), *New Essays in Philosophical Theology,* London, SCM Press, 1955, p. 98.

[17] Cf. Phillips, D. Z., *Faith and Philosophical Enquiry,* New York, Routledge, 2013, pp. 77-110.

interpretive frames usually occurs. In the case of religious beliefs, certain forms of atheism begin as purely negative protest against theism, instead of being a positive support of the alternative position. However, immediately after the attempt to perform systematic reflection occurs, atheism develops its own naturalistic beliefs and its own interpretation of religious experience. Thus, the abandonement of one group of fundamental beliefs includes at least the implicit acknowledgement of possible alternatives, even though the person in question has not made any judgement in this regard, yet. Thirdly, past research traditions and future research programs are not verified or falsified but assessed by variety of criterions which are at least partially paradigm independent. Yet the application of the criteria is not unambiguous and is a mater of individual judgement. There are likewise criterions (but not rules) for the assessment of religious paradigms, so the reason for or against abandoning a tradition can be given[18].

Religious beliefs, in short, are generally highly resistant to falsification. The cumulative weight of counterexamples does not count decisively for or against them, but individuals (or communities) sometimes modify or even abandon their fundamental beliefs in the light of their experience. Thus, we affirm that theistic belief would be unreasonable in the absence of certain kinds of experience associated with mystery, reconciliation, key historical events, order and creativity in the world. The theist must be prepared to provide some kind of list of the counterexample in regard to his fundamental beliefs, such as the existence of evil and suffering in the world. If counterexamples were irrelevant, there would be no way of detecting illusion, and beliefs would be totally incorrigible. The main problem emerges from understanding of falsifiability and non-falsifiability as two absolutely contradictory categories, whereby one of them excludes the other. As we have already demonstrated, there are various levels of resistance to falsification, but none of the structures is invulnerable on a long-term scale in the light of increasing empirical counterexamples.

1.3. Paradigm commitment

Let us now examine more closely some parallels between commitment to religious and scientific paradigms understood as reseach traditions transmitted by key historical examples. First, we can recall the importance of community in both religious and scientific environment. Neither religion nor science is an individual affair and even the contemplative mystic is influenced by a historical tradition. Second, crucial historical events are central in the transmission of a tradition. Newton's works in mechanics served as patterns for classical physics. Kuhn seems to hold that these patterns are edited and mostly also idealized versions of historical achievements which appear in textbooks. Events in the lives of Moses, Buddha or Jesus play somewhat similar roles in the self-definition of religious communities, giving rise to edited narratives serving as the basis for the constitution of these communities. Furthermore, religious traditions,

[18] Cf. Barbour, I. G., *Myths, Models and Paradigm: A comparative Study in Science and Religion,* New York, Hagerstown, San Francisco, London, Harper & Row Publishers, 1976, pp. 129-130.

unlike scientific ones, are often totally and explicitly organized around the memory of their historical patterns centered on one or few persons[19]. Third, many philosophers of religion (N. Smart, R. Hepburn, P. Munz) agree that there is no uninterpreted revelation. This means that the place of God's action is not the dictation of an inerrant book but is set by the lives of individuals and communities. This practice enables us to discern the events which illuminate our present experience. The past provides clues for the interpretation of the present and particular moments in history reveal the action of God throughout history. The patterns of religious communities are thus more determinative than those of scientific communities.

Of course, in religious systems we can find typical attitudes which are not present in commitment to a scientific paradigm. In the biblical view, faith is personal trust and loyalty. But neither this faith is a blind faith, for it is closely tied to experience. However, it does entail risk and vulnerability in the absence of logical evidence. The example of the relation of faith is marriage, which is also a «venture of faith», not simply because its result is not predictable, but because it involves trust and and selfcommitment. Another difference is based on the extent of one's personal involvement in a religious or scientific tradition. Religious questions are oriented towards fundamental and ultimate affairs. Thus, they may lead to reorientation and transformation of life-pattern, which subsequently influence not only an intellectual aspect of a man, but also all other features of his personality.

Thus, the question of an absolute commitment to religious tradition that would make every experience practically irrelevant, becomes crucial. True faith is presented as complete trust even in adverse circumstances[20]. According to biblical texts, even the personal experience of evil is not incompatible with religious faith. But does this imply that beliefs have no experiential basis or that they are absolutely immune to any criticism? I would like to point to the fact that religious commitment can indeed be combined with critical reflection. Commitment to tradition alone without enquiry tends to become fanaticism and narrow dogmatism. Personal involvement must alternate with critical reflection, since worship and critical enquiry do not usually occur simultaneously[21]. It is by no means easy to hold beliefs for which you would be willing to sacrifice your life in an extreme case, and yet to remain open to its critical enquiry. However, it is precisely such a combination of commitment and critical enquiry that represents the condition and expression of religious maturity. If faith were simply the acceptance of revealed propositions, it would be incompatible with any doubt. But if faith means trust and commitment, it is compatible with doubts about concrete and particular interpretations. Faith does not automatically turn dubiousness into certainty, nor it gives us wisdom or strength to transcend the limitations of human existence. But what it can do,

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[19] Cf. *Ibid.*, p. 134.

[20] Job could say, «Though he slay me, yet will I trust in him. I will defend my conduct before him. This shall be my salvation...» (Job 13,15-16a) and apostle Paul could proclaim that «neither death nor life [...] nor height, nor depth, nor any other creature, shall be able to separate us from the love of God, which is in Christ Jesus our Lord», (Rom 8, 39).

[21] Cf. Barbour, I. G., *Religion and Science: Historical and Contemporary Issues,* p. 167.

is make us live and act amidst our life uncertainties without sinking into the vanity of our believed intellectual or moral infallibility. Doubts protect us from encaging God into certain particular confession.

2. Lakatos' methodology of scientific research programmes

Rational reconstruction of scientific progress was the most discussed topic in the philosophy of science in the sixties of the twentieth century. Popper and Kuhn provided fundamental texts for discussion, followed by the period of interpretations and mutual comparisons. In this situation, Imre Lakatos introduced his conception, according to which the history of science is a series of consecutive scientific research programmes. In the course of the development of science, research programmes are subject to changes while preserving their so-called «hard core», which is considered to be principally inviolable and represents a complex of fundamental presumptions determining the direction of the research. This core is surrounded by a «protective belt» consisting of auxiliary hypotheses and heuristic. The latter represents a complex of guidelines and proposals recommending certain procedures in scientific research. The negative heuristic means the prohibition of certain procedures and the permission to characterize the hard core of every programme. «The negative heuristic of the programme forbids us to direct the *modus tollens* at this "hard core"»[22]. Positive heuristic recommends —from the point of view of the given programme— a method of effective procedure in the scientific research. This results in its important role to protect the research programme from a destructive impact of empirical facts that could violate it. «... the positive heuristic consists of a partially articulated set of suggestions or hints on how to change, develop the "refutable variants" of the research programme, how to modify, sophisticate, the "refutable" protective belt. The positive heuristic of the programme saves the scientist from becoming confused by the ocean of anomalies»[23].

In the development of scientific knowledge, Lakatos distinguishes two different phases. The first one means the transition from one theory to another, while the course of this process is characterized by certain research programme with preservation of its hard core. In the process of transition from one theory to other, we talk about sequentiality of theories $T_1, T_2 \ldots T_n$, where each subsequent theory results from adding new assumptions to (or from semantical reinterpretations of) the previous theory. Lakatos rejects Kuhn's understanding of this process as a religious change or a social revolution and tries to rationalize it. According to Lakatos, in the process of the replacement of a theory T_1 by a new theory T_2 within the framework of a scientific programme, the following conditions must be met:

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[22] Lakatos, I., «Falsification and the Methodology of Scientific Research Programmes», in: Lakatos, I. and Musgrave, A. (eds.), *Criticism and the Growth of Knowledge,* Cambridge, Cambridge University Press, 1970, p. 133.

[23] *Ibid.*, p. 135.

1. T_2 has extended empirical content over T_1, that is, it predicts novel facts which are improbable in the light of, or even forbidden, by T_1.
2. T_2 explains the previous success of T_1, that is, all the unrefuted content of T_1 is contained (within the limit of observational error) in the content of T_2.
3. Some of the extended content of T_2 is corroborated.

The second phase in the development of scientific knowledge is represented by the transition from one research programme to another, characterized by a change of a hard core and as a result of this also by a change of heuristic. «... we maintain that if and when the programme ceases to anticipate novel facts, its hard core might have to be abandoned»[24]. Research programme reaches so-called «point of saturation», in which it loses its heuristic power and observes a rise of the number of hypotheses *ad hoc* with vanishing progressive character of the programme in general. However, the transition towards new research programme is marked by a problem how to measure the achieved progress in such a situation.

If the scientist is convinced that the new research programme has a potential of development, it is a rational decision to start working on it. But the decision to work on an old programme does not have to be necessarily irrational either, if one hopes that it might become progressive. Thus, the approach of Lakatos shows certain signs of the approval with Kuhn's conception, according to which the change of theory represents rather vague and indistinct phenomenon. However, in Lakatos' opinion, the assessment of future progressivity or degeneration of a research programme must be associated with the assessment of objective facts. But at the same time, the decision of scientists must rely on their subjective predictions of a future direction of science. Unlike Kuhn, Lakatos never admitted that this indistinctness and vagueness in the decision-making of scientists would make their decisions irrational.

2.1. Application of Lakatos' «research programmes» to theology

The actual group of significant and undoubtedly interesting attitudes appearing in the dialogue between science and religion includes the conception of Nancey Murphy, Professor of Christian philosophy at Fuller Theological Seminary in California. Murphy's theological atttitudes are significantly influenced by her Ph.D. studies in the area of the philosophy of science under the supervision of Paul Feyerabend (1922-1994) at University of California, Berkeley. She later continued with the study of theology concluded with a doctorate, while the result of her dissertation research was her first notable pubblication *Theology in the Age of Scientific Reasoning*. The basic line of Murphy's conception was to observe and evaluate the process of philosophical and theological transition from modernism to postmodernism. More precisely, Murphy has explored the genesis and impact of fundationalism on modern American protestant theology, which resulted in its split to liberal and

[24] *Ibid.*, p. 134.

conservative protestant wing[25]. Murphy's concept of «scientific theology» is constructed as a scientific research programme based on the distinction between modern and postmodern philosophy and theology[26], whereby she completely associates modern philosophy with fundationalism, identifying postmodern philosophy, on the contrary, as «holistic»[27].

In the following lines, we will have a closer look at Murphy's vision of the development of theology focusing on the effort to implement methodology of the scientific research programmes. Although she primarily tries to separate the discussion about theological methods, which is in principle neutral, from the discussion including theological contents, it is not always possible. Since clear and sharp demarcation line between the method and the content sometimes fades out, Murphy's methodological recommendations also include theological propositions. Her theology may seem conservative by nature, considering her evangelical base, but it is only the result of the conviction that traditional theological formulations are more difficult to justify in the light of current knowledge. That is why, according to her own words, Murphy intentionally chooses a «more difficult material»[28].

It is not hard to immagine that theological research programme can be built in the bottom-up direction; i. e., through data induction. Murphy's start point is the conviction that theologians need some organizational idea at the beginning. The hard core could thus contain theological opinions regarding the content of absolutely minimum corpus of relevant beliefs of the respective religious community. For Murphy, the core consists of fundamental convictions about God including the trinitary nature of God, God's holiness and the Divine revelation in Jesus Christ. As we have already mentioned, the role of the negative heuristic is to protect the hard core from possible falsification through amendments and changes in the protective belt. Murphy describes an example of the statements belonging to the hard core, according to which God is holy and he ultimately revealed himself in Jesus Christ. A potential falsifier can be seen in the connection of two conclusions: 1. Sexism is sinful and therefore unacceptable. 2. In the New Testament, we find the proof that Jesus discriminated women, e. g. by choosing only men to be the twelve apostles. On the basis of this, it is possible to demonstrate that if Jesus was a sexist, then God is not holy, or Jesus is not his adequate image. The negative heuristic does not direct theologians towards a change or abandoning of the hard core, but rather towards searching

[25] Although Murphy studied philosophy and theology at the institutes identified with liberal wing of protestant churches (University of California, Berkeley and The Graduate Theological Union, Berkeley), she performs her pedagogical work in very heterogeneous environment, which is both liberal and conservative (Fuller Theological Seminary, Pasadena and International Baptist Theological Seminary, Prague). This fact enables Murphy to present profoundly premeditated and unbiased opinions regarding this dilemma of modern protestant theology.

[26] Murphy sets the beginning of post-modernism to 1951, when Quin's work *Two Dogmas of Empiricism* was published and Ludwig Wittgenstein died.

[27] Cf. Murphy, N., Scientific Realism and Postmodern Philosophy, *British Journal for the Philosophy of Science*. Vol. 41, No. 3, 1990, pp. 292-293.

[28] Murphy, N., *Theology in the Age of Scientific Reasoning,* Ithaca and London, Cornell University Press, 1990, p. 183.

for auxiliary hypotheses to divert a potential falsification. This allows e. g. to adopt an auxiliary hypothesis acording to which it is necessary to consider the character of the Scripture, identifying the cultural streams influencing the writers or editors of the respective part of the Scripture. For example, Elisabeth Fiorenza assumes the presence of the attempts to mask the true role of women in the movement of Jesus and uses certain —from the feministic point of view positive descriptions— as a proof of much more intense real involvement of women[29]. Through this reading strategy we can come to totally different image of Jesus and his relation towards women, hence the hard core has been saved. Adding of such auxiliary hypotheses may be seen as progressive, should it lead to the possibility to predict new facts.

In regard to the content of the research programmes, doctrines[30] of particular communities play the role of positive heuristic of the doctrinal research programme in many cases. It means that in case of the effort of theologians directed to the development of certain programme, all doctrinal passages included in the teaching of the respective community are protected. Any further development of the programme can be realized only the way considering relevant doctrinal formulations. That is why, contemporary theologians can elaborate a new Christology that will not be reduced to mere repeating of the formulations of the Council of Chalcedon, but it still will be regulated by the heuristic rules respecting the limitations given by the Chalcedonian council. Similarly, the architects of the Lundensian programme[31] explain its consistency with the teaching of Martin Luther. In general, for the churches that try to avoid a universal teaching authority, similar role can be played by the principle *Sola Scriptura*. The positive heuristic in this case is represented by the effort to process all traditional places the way consistent with the teaching of the Scripture. The way the Sacred Scripture is used, can be understood as a part of positive heuristic, or can be constructed as an auxiliary methodological hypothesis. The positive heuristic thus plays an important role in the regulation and management of the nature of theology.

In systematic theological research programme, we can find groups of theories dealing with doctrinal topics typical for a given community. (Each such a group may be seen as a small research programme). Its task is to resolve the meaning of the hard core on the one hand, and to secure the connection between rather abstract understanding of God and the respective type of data. In this context, some doctrines can be considered to be closer and other farther

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[29] Cf. Fiorenza, E. S., *In Memory of Her: A Feminist Theological Reconstruction of Christian Origins,* New York, Crossroad, 1983, chap. 4.

[30] Considering rather wide range of meanings of the word «doctrine» and its relatively free application within various religious communities, Murphy defines her use of the word as a normative expression officially adopted by a concrete religious community, e. g. *de fide* statements of the popes in catholicism or the Augsburg confession in lutheranism.

[31] This theological programme is a branch of lutheran theological school which dominated at University of Lund in the twenties and the thirties of the twentieth century. The main representatives of the school were Anders Nygren, Gustaf Aulén and Ragnar Bring. Nels S. F. Ferré described lundesian theology as «resurrection of historical Christianity» and «new biblicism» acknowledging Luther as the ultimate authority in the area of the inquiry of the Scripture.

in regard to these data. For example, the doctrines concerning the presence of the Holy Spirit certainly belong to the first group, since they are very closely associated with life of the churches and can be described to a large extent as inductive generalization of the observed facts. Similarly, the teaching about the original sin is very closely tied with the observation of the behaviour of a man influenced by the sin much earlier than he is actually capable of committing it. On the other had, certain parts of the teaching can be much more distant from Christian experience and these parts can be confirmed only to the extent necessary for the explanation of other more accessible doctrines. However, it is obvious, that this part of the teaching is needed to explain the theories of lower levels. For example, Christians from the very beginning attribute the divinity to both Christ and the Holy Spirity. But this theory had to be put in concordance with monoteism inherent to Israel. Christ and the Holy Spirit must be God in certain sense, they cannot be parts of God or some affiliate deities. The Christian doctrine of the Trinity thus becomes a traditional explanation of how Christ and the Holy Spirit are connected with Israeli JHWH. Therefore, the Nicene Creed represents a formulation specifying the limitations due to be respected by theologians.

An important role in theology, according to Murphy, is played by data, since various theological programmes focus on various types of data. Their selection depends on theological opinions concerning the possibility of knowledge of God in the world. Some researchers focus on the revelation and search for most of the relevant data in the Scripture. Then there is a different approach represented by Pannenberg's concept of God revealing himself throughout the whole history, which leads to the focus on historical data. Others look for the support of their theology in the area of religious experience integrated in general human experience[32]. Murphy points to the fact that every criterion of the selection of data is associated with certain problems. For example, theologians relying primarily on the data obtained from the Scripture should explain why we should believe that sacred texts in question really tell us what God is like, and not only about the way the respective community (e. g. Hebrews and early Christians) immagined Him to be. So, what kind of data should we focus on in theology? According to Murphy, just like in other sciences, it is not possible to narrow the ambit of the relevant data too much. It is logical that data relevant for psychology will not be strictly of psychological character and data interesting for astronomy will not be limited to the information about spectral lines of distant stars. Generally, we can say that scientists use all facts appearing to be relevant for the support of their theory and it is not possible to predict the influence of these facts until the theory in question is developed enough. Something similar happens in theology, too. Facts regarding human behaviour, ancient Middle East cultures, texts and languages, as well as many other topics can play a significant role in the support of a concrete theological theory. Murphy's theological programme thus invites to much greater interest of theologians in fundamental data and to clearer distinction between new data and facts and

[32] Cf. Tracy, D., *Plurality and Ambiguity: Hemeneutics, Religion, Hope,* Chicago, The University of Chicago Press, 1987.

the facts that have already been integrated in actual theories, on the one hand. On the other hand, she emphasizes the need to intensify the effort to find new support for theological programmes. The research of theologians should not be limited only to their study in libraries. Ideally, their own community should become their laboratory, in which they will test the consistency of proposed theological ideas under the guidance of the Holy Spirit.

2.2. Theology as an experimental science

Subsequently, we get to a question of the relation between theological theories and faith of common Christians. Is this relation equal to the relation between a theory of the physicist and a physical knowledge of the layman? The basis for further Murphy's reflections is the conviction that theology is a rational reconstruction of the group of beliefs of certain Christian community. Its role is to verify the system of its beliefs, so that the relations between its individual parts and substantiation of the system are revealed. Hence, theologians can reject certain parts of faith or modify them but considering the commitment to the hard core of the system. In this sense, there is a difference in the relation between theological programme and «common faith» on the one hand, and between physical theory and «lay knowledge» on the other hand. In physics, it is given that almost all knowledge comes from the professionals and is directed towards the «amateurs». In theology, the system works the other way round; i. e., knowing of God starts in the «amateur» environment and only on the base of data taken over from the community it is developed by professional theologians into integrated system. This dependency shows mainly in theological systems, in which the primary source of data is based on the results of common distinction of the community.

One of the mistakes to which the application of Lakatos' methodology of research programmes may lead is the effort to identify divergent Christian traditions with competitive research programmes. Another temptation is a tendency to confuse the conclusions emerging from Christian faith for those emerging from theological inquiry. Actually, the main point of Christianity is not to get to know Christ but to get into relationship with Christ. The aim of theology (similarly to natural science) is —simply said— the knowledge. That is why we cannot think that lakatosian methodology enables us to directly compare various Christian traditions. But what we can do is to compare theological reconstructions of faith of various communities, e. g. Catholic modernism and liberal protestantism. It is even possible to compare Christian research programmes appertaining to other religious traditions, this way.

And it is the possibility of comparison between Christian research programmes and other religious concepts that provokes the question of the mutual relation between theology and science, since contemporary secular worldview is closely associated with science. Nowadays, we can distinguish several basic types of the relation between science and theology. Let us mention an example of liberally-protestant view, according to which science and religion are absolutely different in their essence and that is why they cannot interact (neither positively nor negatively) with each other. An extreme view

is offered by the conflict model developed and popularized in the nineteenth century mainly through the works written by John William Draper and Andrew Dickson White[33]. Both works reflect a strong positivist view of the history and determination to «settle old scores» with organized religion. The image of «conflict» has gradually settled in people's minds and is still strengthened by certain contemporary authors trying to maintain this stereotype. Different kind of approach is represented by the concept trying to demonstrate that science and religion are similar enterprises capable of mutual (positive) interaction. Such a type of the concept is supported by Murphy who sees theology as methodologically undistinguishable from natural science.

In one of her earlier writings[34], Murphy explains the parallels between theological and naturalistic way of thinking and argumentation. Her theory is based on three fundamental features of science —form and logic of theoretical structures, instruments to obtain facts and objectivity of these facts. Murphy points to the possibility of interpreting the ecclesiastical doctrines as theories explaining facts of Christian life. The status of these facts is not as different from scientific fact as it might appear at the fist sight. Similar practice to verification of scientific theories can also be encountered in regard to theological theories, where verification takes place through ecclesiastical practice and the distinction of the community. Thus, the distinction between «objective» scientific facts and «subjective» religious facts is not correct[35].

Another consequence of such an approach is the postulation of hybrid theological-scientific programmes. Research programmes are the systems of theories with classified and categorized data. According to Murphy, there are no borders among particular scientific disciplines and neither between theology and natural science. Thus, certain theories of optics play a significant instrumental role in astronomy and microbiology. Murphy affirms that there is basically no reason why theories emerging from theology could not be included as auxiliary hypotheses in natural science research programmes and *vice versa*. This way, some scientific methods are used in theology, e. g. in the process of interpretation of biblical texts. Lakatos demonstrated that metaphysical view of reality is often the hard core of a scientific research programme. And since metaphysics and theology are «old friends», some historians point to a fact that the concept of inertia included in the hard core of Newton's theory was motivated by his calvinian theology[36]. Similarly, we can find theological-metaphysical hard core in the programme of W. Pannenberg, to which auxiliary hypotheses from theory of physics and anthropology are attached.

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[33] Cf. Draper, J. W., *History of the Conflict between Religion and Science,* New York, D. Appleton, 1874; White, A. D., *History of the Warfare of Science with Theology in Christendom,* New York, D. Appleton and Company, 1896.

[34] Murphy, N.,«Theology: An Experimental Science?», in: *Perspectives in Religious Studies,* Vol. 3., 1988, pp. 219-234.

[35] *Ibid.*, pp. 219-220.

[36] Cf. Klaaren, E., *Religious Origins of Modern Science: Belief in Creation in Seventeenth-Century Thought,* Grand Rapids, MI, Eerdmans, 1977.

Conclusion

The turn of milleniums is characterized by realization that we live in a period of the transition from modernism to postmodernism. Paraphrasing the words of Carl Raschke, «during the past several decades, while postmodernism has altered the face of academic culture, particularly in the arts and humanities, it has only recently begun to pound at the door of faith»[37]. The implications of this transition are carefully observed by churches. In protestant churches, we witness both the acceptance and the rejection of the term «postmodernism». Despite being rooted in the fifties of the twentieth century, postmodernism has only recently started to be seen in the light of epochal changes that represent it. In regard to this fact, Murphy remarks: «When one is working in the midst of a worldview or philosophical era, the constitutive assumptions of the worldview are [...] like the glasses on one's nose. We who are living through a change in worldview are made aware of the glasses because we see them change before our eyes»[38].

It is obvious that religious language has various functions, out of which many do not have any parallels in science. Religion provokes feelings and emotions, stimulates ethical attitudes, influences behaviour. Worship, prayer and meditation represent its typical expressions. Its primary aim is the personal transformation of a man and realization of the goals like fulfillment, liberation and salvation. All these aspects require much greater personal involvement than the area of science. Religion also fulfills psychological needs like integration of personality and understanding of a wider framework of existing goals and meanings[39]. Therefore, the features that we can describe as «subjective» (the impact of interpretations on data, resistance of complex theories to falsification, absence of strict rules for the selection of a paradigm) are more evident in religious programmes. On the contrary, the features corresponding with greater objectivity (the presence of data on which the parties involved in the discussion agree, cumulative effect of evidence for or against certain theory, existence of criterions independent from a paradigm) are less present in religious programmes. It is obvious that religion is more subjective event in all these aspects. But our effort was to demonstrate that in each of these aspects it is about the difference of level, not about the absolute contradiction between «objective» science and «subjective» religion.

Intersubjective testing of beliefs serving as a protection against arbitrariness and excessive subjectivity also exists in religious communities. Interpretation of initiatory events and subsequent experiences of individuals or communities is subject to a long process of testing, filtration and public validation within the framework of the relevant religious community. Some experiences keep repeating and are accepted as normatives, other experiences are reinterpreted

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[37] Cf. Raschke, C. A., *The Next Reformation: Why Evangelicals must Embrace Postmodernity,* Grand Rapids, Baker Academic, 2004, p. 11.

[38] Murphy, N., *Beyond Liberalism and Fundamentalism: How Modern and Postmodern Philosophy Set the Theological Agenda,* Valley Forge, Trinity Press International, 1996, p. 154.

[39] Cf. Barbour, I. G., *Religion and Science,* San Francisco, HarperCollins Publishers, 2013, pp. 191-196.

or even rejected. The process of testing in religious programmes, however, is much less rigorous than in science. Critical reflection is compatible with commitment to religious programmes, because the center of religion is the worship, not the acceptance of interpretive hypotheses. Self-criticism of one's own fundamental beliefs is possible only if there are criterions absolutely independent from a paradigm. Each person has such fundamental beliefs, so the question is not «whether to have them», but «which of them to have». We have demonstrated that neither the inevitability of personal involvement nor the limitations of metaphysical considerations exclude self-critical questioning from the religious programme. So, the commitment to truly searching for the truth should be superior to the commitment to a particular paradigm, equally in scientific and religious programmes.

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[Artículo aprobado para publicar en enero de 2019]