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# COMPLEMENTARITY OF SCIENCE AND THEOLOGY

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(Received 12 September 2015, revised 19 November 2015)

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## Abstract

Understanding Theology as a science meets with difficulties in the current culture. The contemporary plausibility seriously affects the perception of the relationship between Science and Theology. The article argues for the independence of Theology in the area of transcendence. Our discussion of complementarity begins with definitions of what we mean by 'theology' and 'science'. The notion of complementarity is then explained in its classical meaning. In the areas of seemingly incompatible explanations the notion of Bohr's complementarity can be used. The article gives some examples of both classical and Bohr's complementarity.

*Keywords:* theology, natural science, complementarity, revelation, determinism

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## 1. Introduction

First, it is important to take into account the fact that the title of this article already suggests several implicit ideas: (1) Theology is not a science; (2) knowledge is not unified; (3) the human mind is able to have a perspective from above over Theology and Science (the so called 'God's-eye view') [1]. Hilary Putnam uses the expression 'God's eye View' to refer to the Newtonian Weltanschauung. He also says: "...only a small minority – an extremely small minority of physicists – feels any discomfort with the Copenhagen Interpretation to the present day. But there is and always has been a small minority – which included Einstein and Schroedinger, ...which does feel discomfort, and which tried and still tries to find a 'God's-Eye View' to replace the 'cut between the system and the observer'." [1, p. 8.] In this article we use this expression in its philosophical meaning ('knowing the mind of God') based on its meaning in Physics ('knowing the world in a deterministic way'). All of these statements can be challenged and I hope to answer them in the course of this article.

Before we start talking about the complementarity of Science and Theology, it is useful to define the terms and, we could say, to create for Theology 'a place where it could exist'. Contemporary thinking, if it remembers Theology at all, places Theology according to the assumptions of the so-called 'scientific worldview'. In this worldview, the data and methods of the Natural sciences are decisive. Under this view Theology is expected to give answers to

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the questions which these sciences cannot answer. However, the way these questions are formulated already predetermines content and possibilities of the theological thinking. If we speak of a need for a 'place' for Theology, the place we talk about cannot be determined or limited by questions and methods of other (usually natural) sciences. Theology must be allowed to answer those questions that arise from its own source of knowledge and object of investigation, also using methods appropriate for it.

The issue of the relationship between Theology and Science is strongly influenced by how the contemporary man/woman perceives these terms. To think about the problem independently, we have to begin by trying to change this common understanding of Theology so that it is not forced to conform to the implicit worldview defined almost exclusively by Natural science. Therefore, the problem in the Theology–Science relationship begins with the definition of Theology we are going to use. In fact, this is the problem of finding an answer to some of the basic philosophical problems at the same time: problems of Ontology, Epistemology and Axiology. Let us define more closely how these words are used in this article:

- (1) Ontology answers the questions about the structure of reality – is it monistic, dualistic or pluralistic? The definition of Theology greatly depends on the answer to this question. (If monism is true, Theology has to 'fit in one room' with all other forms of knowledge.)
- (2) Epistemology, among other problems, is trying to answer the question of whether knowledge is a seamless part of physical (neurons) processes, or is it possible to consider human knowledge to be at least partially a 'mirror of nature' and the so called 'God's-eye view' – i.e. objective? Theology which works with the traditional concept of revelation assumes the partial possibility of such knowledge.
- (3) Axiology deals also with the problem of the existence of values and whether it is possible to determine the hierarchy of values. Theology, more than any other science, is concerned with the question of significance and the meaning of things. If it is not possible to know what/who has the highest value (e.g. God), Theology loses its most distinctive reason for existence.

If we concede that Theology should have its own answers to these problems, we can create a 'place for Theology'. Then we are able to begin an independent discussion with what is considered to be the scientific knowledge. Only from this position is it possible to think about the genuine complementarity of Science and Theology, since now Theology has its own independent field of knowledge and its own methods of argumentation that can complement those of other sciences.

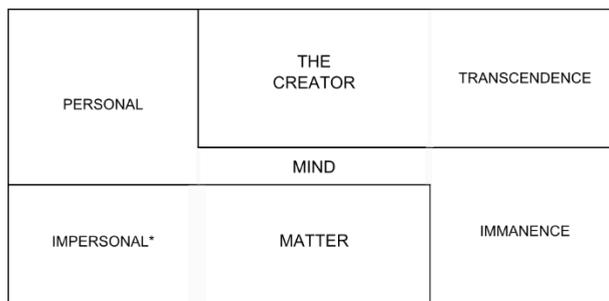
Of course, we have to consider the danger that this process of creating the place for Theology could be taken too far so that Theology largely ignores other forms of knowledge and avoids critical discussion with other sciences (as was often the case in the past). Theology then not only loses control over itself and the ability to critically self-reflect, but also finds itself in some sort of epistemological ghetto where it lacks the ability to communicate with the

contemporary world. Instead, theologians should “...recover the conviction that the most important human decisions, both public and private, benefit from informative dialogue across the disciplines of human, social, and natural sciences, including theology and economics. The church itself should, in fresh and relevant ways, identify its core beliefs and articulate them as a result of its task to critically engage the secular society” [2]. It is important, therefore, to remember that to gain an independent place for Theology is not meant to isolate Theology from other sciences, or to discourage critical discussion or to declare war on other forms of knowledge. The person who engages in theological thinking must as well be able to think in terms of the exact sciences and vice versa. This is one of the first axioms of Christian monotheistic epistemology.

The structure of reality/being (ontology) used in this article is schematically drawn in three ‘storeys’ (it is impossible to avoid axiological thinking here). Theology begins with God (the highest ‘degree’ of reality). He is the originator/Creator of existence and his being is fundamentally different from all other existence as we know it, since his being is the necessary being – uncreated, eternal. In the diagram the word ‘Creator’ is used, but more exact is the Hebrew term YHWH, with a possible interpretation of the Hebrew: ‘He causes existence’.

The lower ‘storey’ of reality is all of the created existence that shares the Creator’s attribute of personality but not his infinity. This would include invisible spiritual beings and humans. Personality is a mixture of several things, but for our discussion it is sufficient to mention just one: rationality. According to Aristotelian understanding, the most typical attribute of human existence is reason and to understand complementarity is the most important trait of this ‘storey’ of reality.

The lowest ontological ‘storey’ is what we call ‘matter’. This term is loaded with non-Christian meaning because it comes from the Greek understanding of matter as reality that has its own independent existence. Biblical theology, however, claims that matter is at each moment of its existence dependent on the power of God’s word that ‘upholds’ the matter in its existence.



**Figure 1.** The structure of reality.

This schematic and very simplified illustration (Figure 1) of the structure of all reality creates ‘a place for Theology’ and results in a number of consequences:

In the area of Ontology it denies monism. According to Craig [3], “monism is a very broad term, applicable to any doctrine which maintains either that there is ultimately only one thing, or only one kind of thing; it has also been used of the view that there is only one set of true beliefs. In these senses it is opposed to the equally broad term pluralism”. E.g. Sagan used monistic argument when he started his book on the Cosmos with words appropriate to materialistic monism: “The Cosmos is all that is or ever was or ever will be” [4]. In other words, it contradicts the idea that all reality is of one type and thus equally accessible or inaccessible to knowledge. For the existence of God and for created existence the same word ‘existence’ is used, because human language is unable to describe what is outside our human experience. However, it can be claimed that God’s being is outside of existence as we know it, even though our way of being is included in the existence of God.

In theological epistemology mental events are not of the same kind as physical events and to claim that mental events always supervene on physical events is incorrect. (From this it naturally follows that e.g. after the death of the body the mind of a person still ‘operates’.) This, of course, means that the methods of knowing which are applicable in the world of exact sciences are applicable in Theology only to a certain extent. Man can be in charge of experiments in the field of Natural sciences, whereas in Theology no such experiments are possible. That means that Theology denies epistemological monism as well.

From what has been said is also clear that the so called ‘Theory of Everything’ is impossible. (‘Theory of Everything’ usually means the scientific theory, “...which will unite all the laws of Nature into a single statement that reveals the inevitability of everything that was, is, and is to come in the physical world” [5]. Obviously, ‘everything’ in this definition is identical with, and limited to, the ‘physical world’. But for the materialist philosophers, who believe that physicalism is the correct interpretation of reality, there is nothing beyond ‘everything’ thus understood.) That which Theology calls transcendence (uncreated reality) cannot be accounted for by scientific experiments and mathematical equations. Typically the monistic faith is expressed by Hawking: “However, if we do discover a complete theory, it should in time be understandable in broad principle by everyone, not just a few scientists. Then we shall all, philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist. If we find the answer to that, it would be the ultimate triumph of human reason—for then we would know the mind of God.” [6] For the lack of better words, the reality that is accessible in common experience and by controlled experiments theology calls ‘immanence’, while the reality that is not accessible in this way is called ‘transcendence’.

For theological axiology it is true that the highest value from which all other values are derived is the inaccessible (but also self-revealing and self-giving) God. The hierarchy of the rest of the values is not unchanging, but is dependent on the free will of God.

## **2. Cultural plausibility and Theology**

In what has been said above, Theology stands over and against the currently popular plausibility that generally takes a very negative view of motivated by secularism and scientism. The unscientific assumptions of scientism, however, “are really nothing but unfounded, metaphysical presuppositions at variance with the legitimate methodological naturalism of Science. What we are thus dealing with here under the disguise of Science, is a distinct, materialistic philosophy of reality, promoted dangerously as the only viable - that is, ‘objective, scientific’ - account of reality. A hidden ideology is thereby portrayed as respectable science, causing people to lay down their defences and to readily accept everything such ‘science’ has to offer.” [7] Successful scientific explanations, experimenting and the mastery of natural processes have resulted in an attitude of mastery over Nature according to which humans only need some more time to be able to know and manage literally everything. The idea of unknowable reality, or even its interference with the laws of nature, has become outrageous. Theologian Emil Brunner explains: “Since the Renaissance, at first only in individual brave minds and then in increasingly broader popular circles, a new mentality has been created, radical secularism (*Diesseitigkeit*) and radical awareness of immanence (*Immanenzbewusstsein*). For the first time in the history of the world, we have mass atheism and a religionless culture which goes hand in hand with certain kinds of secular religion (*Diesseitsreligion*) in which the term revelation has no place. It arises from the belief that this Universe, accessible through senses and reason, is the only reality. If there is anything divine it is there only as a mystery of this world. One is perhaps willing to admit that to those who are deeper thinking and feeling human beings it is granted for a moment to remove the veil of the world secret, but no revelation is to be admitted, neither in the sense of ancient religions, nor in the sense of Christianity.” [8] This assertion of Brunner may appear obsolete, considering the present interest in spirituality, but if we study the character of contemporary popular spirituality more closely, we will find out that it is a spirituality which is always only a mystery of this world, just as Brunner said.

Together with the rejection of the possibility of transcendent events in our world (e.g. revelation, miracles, divine providence), religion has become not only unreliable, but also it has come to be suspected of criminally hindering the human search for truth. Let us just mention the trial of Galileo. Anger at ‘the fraud of religion’ was not limited to the East-European Marxist attempt to liberate mankind from this opium as it might seem to those of us from Eastern Europe. A few sentences from the book by an American publicist Chester Dolan will suffice. Dolan angrily insists: “religion... is humbug ... deceitfully planned and insidious fraud” ... “the word ‘truth’ does not have any foundation when talking about religion” [9]. His rejection of religion is based on the conviction that there is absolutely no evidence for religious faith and experience: “Science, religion (and all disciplines) can justify their existence only if their assertions

can be proved ... We want facts, empirical evidence, and we reject words which do not lead to anything but other words.” [9, p. 5, 11] A similar attitude was expressed by an American literary critic Kenneth Burke when he said “...one should study Theology for the light that ‘words about God’ throw upon ‘words about words’” [10]. We can object that these are extremes. However, if Theology is there to communicate meaningfully with man, it cannot ignore such attitudes and must reckon with this possibility.

### **3. Key concepts**

Despite this negative attitude of the contemporary culture if we are to successfully discuss the topic of complementarity, we have to accept, or at least presuppose, that a place (or space) for Theology does in fact exist. Having done that we can begin with definitions of what we mean here by ‘science’ and ‘theology’.

#### **3.1. Science**

Even so called exact sciences are not easy to define. Let us document it in some philosophers’ work who say that “...what is to be called a ‘science’ and who is to be called a ‘scientist’ must always remain a matter of convention or decision” [11]. According to Michael Polanyi, “...the act of knowing includes an appraisal; and this personal coefficient, which shapes all factual knowledge, bridges in doing so the disjunction between subjectivity and objectivity” [12]. In Thomas Kuhn’s words, “an apparently arbitrary element, compounded of personal and historical accident, is always a formative ingredient of the beliefs espoused by a given scientific community at a given time” [13]. In Paul Feyerabend’s view, “...events, procedures and results which cause sciences to be sciences, have no common structure” [14]. Nevertheless, it is much easier to give a working definition of it than for Theology: “Science is the ordered arrangement of ascertained knowledge, including the methods by which such knowledge is extended and the criteria by which its truth is tested” [15]. The fact that Science is still generally understood in a positivistic way (rejecting metaphysics), is a result of historical processes. Philosopher Edmund Husserl stressed that “the positivistic notion of science of our times, from the historical point of view, is a residual term since all questions contained in the narrower or broader term of Metaphysics were left out, and among those also are all questions which are so unclearly designated ‘the highest and last questions’ ” [16]. For us this includes Theology.

It may be important to note that until recently many scientists were expecting that Science would be able to predict the behaviour of any complex system where the necessary data are available. Classically this notion was formulated by Pierre-Simon Laplace in the following way: “Intelligence, which at a certain point would come to know all powers by the moving of nature and the situation of existence from which it is composed, would, besides that, have

sufficient capacity for analysing data in one formula which would include the motion of the biggest bodies of the universe as well as the lightest atom: for such intelligence there would exist nothing uncertain and the future as well as the past would be there in front of its eyes” [17].

It seems that the theory of chaos and synergetics cast serious doubt on this conviction as “...chaos made an end to Laplacian fantasy of deterministic predictability” [18] and “synergy means behaviour of whole systems unpredicted by the behaviour of their parts taken separately” [19].

### **3.2. Theology**

Defining theology is more difficult. Not only because its most important subject-matter is reality which is not directly accessible to human senses, but also because we have almost an innumerable amount of theologies that use mutually incommensurable foundational axioms and are very often completely incompatible with each other. In spite of this, or maybe because of this, we need a definition that will enable us to answer the questions that arise in connection with the problem of the complementarity of Science and Theology. They are especially the following questions: (1) Is Theology a science? (2) Where and how does it obtain its data? (3) What are the theological methods? Right at the beginning it must be understood that the definition of Theology is already an inseparable part of that Theology – it is impossible to create a definition as if from the ‘outside’ – such a definition would be already negating Theology.

First, it will be useful to describe the way by which we arrive at the final definition. Theology can belong to one of two basic types: (1) it can be derived from the observation and study of nature (seen as God’s creation) - *theologia naturalis*, or (2) from the study of the revelation of God (especially written revelation in the Bible) - *theologia revelata*. For example, to Natural theology belong the five proofs of the existence of God given by Aquinas or the argument for God’s existence from ethics as Kant proposed. At present, Natural theology is being studied and defended especially by scientists who believe in God and argue for the immanence of God in nature. If with the deists we do not accept the possibility of supernatural revelation or of a God-human encounter, we will probably have to agree that Theology is “...a science about God which can consider the object of its study only indirectly, through the study of religions” [20].

For Protestant theology, the belief that the most important revelation of God is the Bible is foundational. (Discussion of the proposition ‘The Bible is God’s revelation’ goes beyond the scope of this article. However, it is important to remember that it should not be understood in a positivistic identification of revelation with the written biblical text.) Such a view of the Bible results in the following definition of theology: “Systematic theology is any study that answers the question: ‘What does the whole Bible teach us today, about any given topic?’” [21]. But the Bible says explicitly that the letters of revelation are not sufficient: “For the letter kills, but the Spirit gives life” (2 Corinthians 3.6).

Therefore, we will add that Theology does not mean just speaking about God, Theology allows God himself to speak. In the words of a Catholic theologian: “In Theology, the speaker is God” [22].

From what has been outlined I propose the following definition of theology: Theology is systematically arranged knowledge of the entire reality. Its proper subject-matter are realities and events which are generally not accessible through the five human senses and cannot be controlled at will. Communication is realized mostly in the form of testimony. This definition is best studied in the historical person of Jesus Christ. Contrary to Philosophy which may say “Whereof one cannot speak, thereof one must be silent (Wovon man nicht sprechen kann, darüber muß man schweigen)” [23], Theology considers human words as fitting carriers of transcendent revelation.

#### 4. Science and Theology

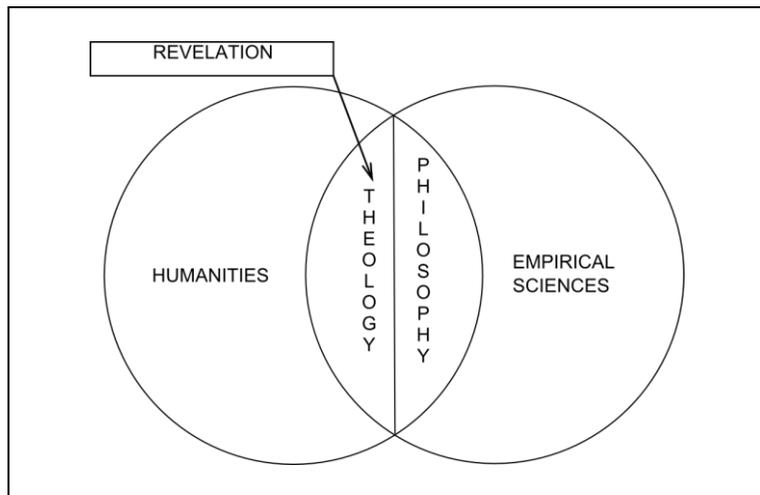
As mentioned above, by speaking of the complementarity of Science and Theology we may be giving the impression that we do not include Theology among the sciences. From the point of view of the contemporary cultural plausibility, which nearly automatically under the term ‘science’ understands mathematically oriented natural sciences, it may be better not to identify Theology with science. It is useful to keep in mind that the designation of Theology as ‘science’ is challenged in an analogical way to other humanities (Geisteswissenschaften), because like in Theology their experimentation possibilities are limited. I will start therefore, with this very issue.

- Theology is not a science, if by science we mean: (1) exact and controlled experimentation, (2) prediction of future events, (3) generally accessible knowledge.
- Theology is a science, if by science we mean: (1) critical thinking, (2) justification of knowledge by experience, (3) logical system of knowledge.

The problem of general accessibility and communicability of theological knowledge was commented on by protestant theologians, and they introduced the notion of *theologia regeneritorum* (‘theology of the born again’). Lutheran theologian Hollazius (David Hollaz, in 1707) differentiates between two kinds of theological knowledge: “The theological knowledge of a truly regenerated and renewed man ...spiritual knowledge, by which the literal sense of the Biblical language is applied according to the use designed by the Holy Spirit and produces spiritual and godly emotions of the heart; the knowledge of an unregenerate Theologian”, on the other hand as “a merely literal knowledge, which is applied to the investigation, development, and apprehension of the sense of Scripture, and not to the use designed by the Holy Spirit” [24].

The following diagram of the relationship of the exact sciences, Humanities, Philosophy and Theology visually illustrates the fact that Theology and Philosophy use to some extent analogical methods of exact sciences, as well as methods of the Humanities, while Theology gathers knowledge also from

revelation. Figure 2 illustrates the relation of Theology to the Humanities and the empirical sciences.



**Figure 2.** Theology among the sciences.

## **5. The ambiguity of scientific theology**

The great number of mutually excluding theological theories, theological opinions or ‘theologies’, is probably the most serious cause of denying the status of ‘science’ to Theology. A large part of the scientific community rejects even the remote possibility that Theology could have any unambiguous research results.

However, if we look closer at the ambiguity of the results of theological science we find that very often it is quite understandable. First, we have to take into account the initial epistemological framework by which such results will be evaluated. If the evaluative framework is defined by the Natural sciences, questions will be posed that Theology cannot answer just because of the nature of its subject matter. Further, although Christian experience is real for a large segment of humanity, such experience cannot be repeated or communicated using formalized and controlled experiments. Repetition by definition depends on the will of God and the problem of communication is related to the limits of human language that cannot describe or grasp transcendent reality in any exact terms. According to C.S. Lewis, “all language, except about objects of sense, is metaphorical through and through” [25]. Besides, if the initial requirement of Christian theology is correct (faith) then Theology has to acquire its data by believing the revelation of God. Only secondarily can it critically compare those data to other scientific knowledge and human experience. The requirement of faith, at the same time, creates the possibility of disbelief, which is an inevitable option if faith is to be an ethical decision of free human beings.

Communication of Christian theological knowledge, therefore, does not take place by the method of deterministic and controlled experimental demonstration, but by specific methods of giving witness to experiences of faith. If the communication is to really take place, the receiving side has to be getting data not only from the human source ('the witness') but from God as well.

## **6. The idea of complementarity – introductory remarks**

The term complementarity may be understood traditionally as a word derived from Latin *complementum* (complement, complementation). The adjective complementary (supplementary, additional) is used in phrases complementary colours (together they create white light), complementary angles (together they make a 90° angle), and complementary intervals (together they make an octave). The idea which is conveyed in this way through the term complementarity represents the whole composed of the parts.

Let us also briefly mention other possibilities in the relationship between Science and Theology. Slovak physicist Július Krempaský asks: "How shall we generally describe the nature of this relationship? Is it a relationship of indifference, mutual rivalry, antagonism or of complementarity?" [26] From this it looks like he sees four possibilities for the relationship between Science and religion.

Ian Barbour's typology, called "ways of relating science and religion", was first published in 1988, expanded slightly in 1990 and in 1997, and used to restructure the material from his 1990 Gifford lectures for a wider audience in 2000. It remains the most widely used typology in the field. Barbour also lists four types of relations, each with subtypes: (1) conflict (scientific materialism, biblical literalism); (2) independence (contrasting methods, differing languages); (3) dialogue (boundary questions, methodological parallels); and (4) integration (natural theology, theology of nature, systematic synthesis) [27].

If we could take the so called God's-eye view (term used by Hilary Putnam [28]) on the whole of reality, Barbour's type No.4 would be true. But because of the limitations of our knowledge I think that Barbour's best alternative is the relation No. 3 – dialogue. In those areas where we have God's revelation, we can 'see' the reality that is spoken about, through 'God's-eye' although we cannot demonstrate or prove it through scientific methods. In the areas of history and physical reality for which we have no written (biblical) revelation we cannot claim such knowledge – it follows we must keep open dialogue and expect the conflict of Science and Theology as an inevitable consequence of the nature and limits of our knowledge. The Universe as described by the exact sciences almost always presupposes the uniform character of all reality in time and space. The presupposition is that the laws of nature today can be extrapolated in time to the past and to the future, and in space to an unlimited distance. Theological (Christian) dualism does not mean a fragmentation of being into unrelated worlds in which different and incommensurable laws are at work. Despite the fact that in Theology the whole

of reality is described as dualism of the eternal uncreated God and the created world, monotheism sees it is one totality under one omnipotent God. Sometimes this dualism is simplified and we speak of the natural and the supernatural realm, but in that case the whole of the spiritual realm is considered as 'supernatural'. (Among other things it means that it is not true that "in reaction to the Enlightenment, evangelical Christianity invented the 'supernatural' realm" [29].)

We can say that the idea of complementarity implies epistemological limits. It goes together with the view that both Science and Theology, each offers only partial knowledge of reality. As far as Science is concerned, reason on its own already shows the limits of this kind of knowledge. As Blaise Pascal said: "Reason's final step (démarche) is to recognize that there is an infinity of things beyond it. It is merely feeble if it does not go as far as realizing this. But if natural things are beyond it, what will we say of supernatural ones?" [30] It is not difficult to find similar statements in the Bible: "For we know in part and we prophesy in part" (1 Corinthians 13.9). Human failure to recognize these limits has dire consequences, as Michal Valčo and Katarína Valčová rightly point out in their recent study on the implications of Kierkegaard's epistemology: "The proud pursuit of objectivity without a recognition of human limitations, and the dimension of subjectivity in the process, has proved to be a dead end that emits the stench of manipulation, loss of human dignity, and finally nihilism" [7].

The recognition of the epistemological limits of reason cannot be related only to the momentary state of knowledge (as if they could be overcome in the future) but it means accepting of the permanent and principal impossibility of the complete knowledge of the whole of reality by methods of either natural Science or of Theology. Believers often try "...to claim room for God only in the areas where man's knowledge had not yet reached. This 'God of the gaps' is a pathetic travesty of the dynamic, infinite, all-pervasive God of the Bible, who is both immanent in every part of his Universe ...and also immeasurably transcends our every conception." [31] Although God cannot be studied by the means of natural science he certainly is not in the gaps that will be filled in by our scientific knowledge in the future. On the other hand, if theological knowledge is based on revelation and this revelation speaks on the subject matter of exact sciences only to a very limited extent, it follows that Theology has to carefully analyse the results of Natural science and then to compare them with interpretations of the Bible.

The relationship between Science and Theology also has to cope with the problem of offence. The experimental methods of Natural sciences and mathematical calculations cannot be reconciled with the existence of miracles. But the foundational presupposition of Theology, as has been said, is revelation which belongs to the category of a miracle: "To believe in revelation means to believe in a miracle, in something which comes from outside of the world and breaks into the world. ...However, a miracle for contemporary man is an offense (Ärgernis). The gospel is infinite foolishness and an offense for 'natural man'." [32]

On the other hand, militant scientific attacks against the Bible are a permanent source of trouble for Theology. Theology based on biblical revelation cannot simply ignore Science – if it did, it would go against its own dualist interpretation of reality. The infamous trial against Galileo could have never happened had the Church admitted that its exegesis of the Bible was not infallible: “The Church could have avoided this black eye if it had allowed the Bible to speak in phenomenological language, which is a legitimate description of things as they appear” [33].

These arguments lead us to what can be called classical complementarity. The following table gives some examples that illustrate the idea. It must be stressed that the pairs given in the table do not eliminate or exclude each other, and there is no strictly defined boundary separating the exact sciences from Theology. Tables 1-3 present some instances of comparison between Science and Theology in their respective fields, goals and methods.

**Table 1.** Science and Theology: fields.

| <b>Science (fields of study)</b>        | <b>Theology (fields of study)</b>     |
|---|---------------------------------------|
| the present, history, the future        | creation, eschatology, eternity       |
| partial reality (individual existences) | reality as a whole (being)            |
| nature (matter)                         | the supernatural                      |
| things, events                          | the Word of God (Bible)               |
| what is (factual)                       | what ought to be (ethics)             |
| the laws of mind (logic, mathematics)   | the laws of the spirit (spirituality) |
| events determined by laws               | free will events                      |
| causality                               | teleology                             |
| energy of matter                        | the power of God                      |

**Table 2.** Science and Theology: goals.

| <b>Science (goals of study)</b> | <b>Theology (goals of study)</b> |
|---------------------------------|----------------------------------|
| to explain                      | to understand                    |
| to control                      | to adore                         |
| to use                          | to worship                       |

**Table 3.** Science and Theology: methods.

| <b>Science (methods of study)</b>            | <b>Theology (methods of study)</b>          |
|--|---|
| search for laws (in a maze of events)        | postulation of principles (God is rational) |
| observation and description of objects       | observation and description of the subject  |
| criticism (rationality)                      | dependence (faith)                          |
| experiment (control)                         | experience (submission)                     |
| induction                                    | deduction                                   |
| explanation (mathematics, logics, causality) | understanding (hermeneutics, intuition)     |

Experience as a personal, subjective reality needs a carefully demarcated epistemological status. “The turn to the subject in epistemology, cultural life, and ethics avoids the seemingly inescapable detrimental consequences of the multidimensional fragmentation of our postmodern world only if the individual subject is anchored horizontally (in the social fabric of his community) and vertically (in the transcendent and yet fiercely immanent narrative of divine self-revelation in the acts of creation, redemption, and sanctification)” [34].

From the examples given above it should be clear that classical complementarity assumes Christian dualist ontology (or Metaphysics).

## **7. Bohr’s (Copenhagen) complementarity**

Besides the traditional understanding of the term complementarity (described above as ‘classical’) in connection with Quantum physics arose another interpretation of this word which is called ‘Copenhagen complementarity’, ‘Copenhagen interpretation’ or ‘Bohr’s complementarity’. Physicist Niels Bohr who worked in Copenhagen used this concept to interpret the Heisenberg’s principle of uncertainty. “This radical interpretation renounced the possibility of a unified, observer-independent, deterministic description in the micro domain. Bohr’s principle of complementarity – the heart of the Copenhagen philosophy – implies that quantum phenomena can only be described by pairs of partial, mutually exclusive, or ‘complementary’ perspectives. Though simultaneously inapplicable, both perspectives are necessary for the exhaustive description of phenomena.” [35] Another description of the idea says: Complementarity describes “...the behaviour of such entities that can be completely described with the aid of one of two mutually exclusive ‘classical’ models. One aspect of behaviour can be described through model A, the other aspects through model B; at the same time, there does not exist any aspect of its behaviour which enables or requires both model A and B to be exactly the same, neither are there reasons to claim that the particular entity ‘is’ A or ‘is’ B, or ‘is’ A and B at the same time.” [36]

The principle of complementarity questions the possibility to identify real processes in the micro world with the models coming from the macro world. Werner Heisenberg observed: “...we have to remember that what we observe is not nature in itself but nature exposed to our method of questioning” [37]. All of this opens a significant question about the range and characteristics of agreement between our mind and the so called ‘objective reality’ – not dissimilar to Kant’s question about the Ding an sich (‘a thing in itself’). And even though the principle of Bohr’s complementarity is currently one of the accepted ways to interpret quantum phenomena, it cannot be said that it is accepted without questions and never challenged. Critical attitude towards complementarity is some sort of continuation of the debates between Bohr and Einstein which was described by Karl Popper as the ‘battle of Titans.’

Bohr first lectured about complementarity in 1927 in the small town of Como (Italy). Later in many lectures he tried to generalize it for Biology, Psychology, Neurology, culture, etc. In 1957, in the treatise ‘Physical Science and the Problem of Life’, he wrote that “...the notion of complementarity refers directly to our position as observers in a domain of experience where unambiguous application of the concepts used in the description of phenomena depends essentially on the conditions of observation” [38].

The solution of the problems related to the Copenhagen interpretation is not as important to Theology as the actual existence of these problems. In Theology similar problems of seemingly incompatible interpretations have been known since long ago. Often discussed is for example the problem of Calvinism and Arminianism – Calvinism stressing the predestination of God at the expense of human free will, and Arminianism stressing human free will at the expense of God’s predestination.

### 8. Analogies of Bohr’s complementarity in Theology

Physicist Július Krempaský says “Science and religion – whether you like it or not, are also in a mutually complementary relationship” [26, p. 99]. We are not going to either prove or disprove this assertion. However, it is obvious that many explanations of the same phenomena offered in Science and Theology are incompatible. Nevertheless, the scientific as well as the theological explanations are justified in the respective systems as a whole. In Table 4 are some examples.

**Table 4.** Science and Theology: analogies of complementarity.

| Science                                       | Theology   |
|---|--|
| events in nature follow the laws of Physics   | God carries everything with the word of His power (Hebrew 1.3) |
| word follows reality (description)            | reality follows words (prescription; creation)                 |
| chance (history as a process without purpose) | providence (eschatological purpose in history)                 |
| causality and determinism                     | God’s freedom in history                                       |
| Bible as a literary work of humans            | Bible as the Word of God                                       |
| man as a biological unit                      | man as the image of God  |
| Jesus – a man of history                      | Jesus – the incarnated God                                     |

God’s freedom in history can be described by Kierkegaard’s words: “What has happened has happened as it happened, thus it is immutable, but is this the immutability of necessity? The immutability of the past is that its actual ‘thus’ cannot be otherwise, but does it follow from this that its possible ‘how’ could not have been other than it was? ... The future has not happened yet; but it is not therefore less necessary than the past, because the past did not become necessary by having happened, but on the contrary, by having happened showed that it was not necessary.” [39]

Some of the examples given above of complementary interpretations are similar to the ones I've mentioned in the section about classical complementarity with the difference that here we deal with the confrontation based on common objects of study where the methods mutually exclude each other rather than complement each other we cannot surrender to either one of them.

## 9. Conclusion

As a conclusion, I would like to stress again that the discussion about the relationship between Science and Theology must start by creating a fully-fledged place for Theology as for cognition to which we assign its own source, object and method of study. Only then can we discuss individual complementarities whose details must necessarily change with the increase of knowledge in both areas. In this way some antithetical complementarities can disappear while others can arise. The important thing is not so much the difference of the subject matter but rather the method of work: while Science works *coram hominibus* (before men), Theology must work *coram Deo* (before God).

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