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THESES

The dualities of theology in a complementarity realist perspective

The application of Bohr's complementarity principle in some areas of theology
(A complementarity realist reading of early church dogmas and Lutheran theology)

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Research background and objectives

The double qualification of a physicist and theologian forms also a kind of duality in one's consciousness. It accepts almost as a matter of course the dual nature of the material world and the dual nature of Christ, and the duality of science and theology. It is somewhat exotic to have these two disciplines, often seen as distant from each other, represented in a single person. The author is often asked about the compatibility of the two — however, this harmony poses problem only for outsiders, not for our own thinking, since both constitute essential parts of ourselves. This is why we have written our former systematic theological thesis on physics and theology. As Lutheran, LUTHER'S theological vision is also important to us, so it was natural for us to submit a church district project on the theology of the cross — in which we pointed out, already then, that complementarity provides assistance in understanding of Luther's paradoxes could be understood by means of complementarity.¹ Moreover, we were invited to give presentations in various fora on the basis of our dual qualifications. This is another sign that the Church (including theology) is confronted daily with a wide range of challenges from the modern world view and, more specifically, from the sciences. The interdisciplinary discussion of sciences and theology has become a fashionable topic in our times.

After BOHR presented his philosophical principle of interpreting quantum mechanics, almost within a decade, the parallel between complementarity and the dual nature of Christ appeared. For example, KARL HEIM considered complementarity as a world-view-forming factor as early as the 1950s, and in Hungary was JÁNOS BOLYKI the first to make the parallel between complementarity and Christology a topic. While complementarity has technically '*disappeared*' from physics (in PETRUCCIOLI'S terms, the paradox has been transferred into language), philosophers have finally started to deal with it, some of them deeply understand it (most notably in the case of FOLSE), and nowadays they are actively engaged in the philosophy of quantum mechanics. The above-mentioned examples demonstrate the actuality of addressing the emergence of complementarity in theology. At the same time, the literature on the subject suggests that there is much confusion, imprecision and lack of definition, not only among theologians but also among physicists.

Together with the ancient church fathers and LUTHER, we can say that the dual nature is the foundation of all theology, since the doctrine of justification is nothing other than the unfolding of the mystery of Christ, and in this sense it is also a theological topic that is always relevant. And because

¹ Szakács: A theologia crucis és a lelkgondozó szolgálata, 65-68. o. In: Percze-Szakács-Tubán: A kereszt teológiája és a lelkgondozó szolgálata.

of its relation to the dual nature, the possibilities for the theological exploitation of complementarity are also topical.

However, in order to apply complementarity, it is essential to clarify the concept and then strive to establish some kind of model in relation to theology: both in relation to issues within theology and in regarding the relationship between theology and the sciences. It was this intention that led us to research and to write our dissertation. If successfully carried out, the processing of the topic and its results could be translated into a form suitable for use in the church or congregation (e.g. lectures, Bible lessons) or could also serve a missionary purpose (either in dialogue with atheists or simply to demonstrate the possibilities of rationality of faith and theology to a contemporary scientific-minded audience). A number of concrete examples can be found in the list of publications.

Method

In order to better define the topic, we have tried to develop our system along the lines of two questions (one primary and one secondary):

A) **How can the dualities of theology (contradictions, paradoxes) be illustrated and dealt with in the scientific world view of the 20th and 21st centuries, especially in the light of the recognition of the dual nature of matter, i.e. the principle of complementarity?**

B) *Do the dualities of theology condemn us to question the rationality of theological statements, and therefore to conclude that faith and science are opposed, or at least separate (i.e. to see these dualities as contradictions in the scientific world view), or is there a bridge, a parallel between them?* How can the modern physics, specifically the principle of complementarity introduced by BOHR as a general philosophical framework, help in the current, contemporary formulation of the contents of the creeds, or in a possible bridge-building?

Since we aim to treat theology and science in parallel, we have chosen three methodical starting pillars that are interrelated but, above all, can be used as a common methodology for the two disciplines. Our threefold methodics can be seen as three coordinate axes starting from an origin: critical realism, Lindbeckian linguistic-cultural understanding and Polginghornean *bottom-up* thinking.²

² Critical realism can be considered the main and most detailed method, as it partially covers the others, but the other two have their own individual features.

In line with IAN BARBOUR, we find critical realism just as suitable for scientific research as it is for the study of theology. Its critical nature ensures that any result we produce is open to revision. The nature of realism shows that what we attain through knowledge acquisition is, while acknowledging its limitations, real, reflecting reality. (JOHN POLKINGHORNE's slogan sums it up succinctly: "*epistemology models ontology*".) According to critical realism, there is no universally suitable *a priori* method, it must always be developed-refined by adapting it to the subject, adjusted *a posteriori* to our expanding knowledge. FOLSE rightly points out that BOHR's thinking fits within the framework of critical realism.³

Critical realism is also aware that our experimental facts are dependent on our theoretical system and that different paradigms/professional matrices cannot be compared (KUHN). In the ecumenical dialogue, GEORGE ARTHUR LINDBECK concluded in the context of the doctrines of the denominations that neither can be evaluated from the perspective of another system; it only makes sense to examine their self-consistency. In this context he developed his linguistic-cultural model.⁴ Religions are similar to languages and hence to their associated cultures, that is why he called the way of religious interpretation represented by him a linguistic-cultural approach, in which dogmas are interpreted as rules (in the case of science, in fact, as theories), so that they can be unproblematically juxtaposed on the basis of their historical context and other factors without the need to change them. A kind of complementarity emerges.⁵

The Anglican physicist-clergyman POLKINGHORNE calls his own approach *bottom-up* thinking, which requires not only that all theories be consistent with and based on experiments, but also that they be built primarily from the bottom up, from the phenomena, and not vice versa, respectively he considers the structure of reality itself to be constructed from below (starting from physical levels — elementary particles — through biological levels to mental, social, spiritual, transcendental levels), while emergent properties

³ In fact, critical realism emerged to replace naive realism precisely because of the emergence of quantum mechanics, the principle of complementarity. It is therefore not surprising, for example, that the features of Bohr complementarity and critical realism overlap to a large extent.

⁴ He is aware that observation can change the meaning of the concepts of observation themselves. Therefore, there is no higher view that can be used to compare theories — especially in the field of religions.

⁵ In addition to the demand for non-contradiction, there is also the demand for correspondence to truth, leading to the use of the term *correspondence* as employed by BOHR — ultimately linking epistemology and ontology in a similar way to critical realism.

appear also at higher levels.⁶ In accordance with *bottom-up* thinking, he draws parallels between laboratory records and protocols in the sciences and the records of the *New Testament*. So in science everything is based on experiments, in theology on Scripture.⁷

Armed with our threefold methodics, we set out to draw parallels between the emergence of the early Church dogmas and of the modern physics (twin parallel in dogma history), demonstrating that they indeed constitute a common methodology of theology and science. The fathers of Chalcedon spoke in the language of theology, the father of the Copenhagen school in the language of physics, to express (the same) complementarity. We have therefore built up a characterisation of complementarity, structured in a table-matrix, by processing the *Chalcedonian Creed* and BOHR'S *Como Lecture* in parallel. For this reason, and also because for its author the principle of complementarity is an "epistemological lesson", {Others have formulated it as "an epistemological framework with ontological consequences" (FOLSE), "a logical ontological system with epistemological consequences" (KAISER).} which in turn models ontology on the basis of critical realism, we ourselves have coined the term "*general (philosophical) reality modelling professional matrix*". On this basis, complementing the triple methodics by taking the realism of complementarity seriously, we have called the combined methodology [*critical*] *complementarity realism*. It has been used to explore various theological areas related to the dual nature of Christ. Although it does not lead to independent or new theological statements, but it does shed new light on familiar doctrines. What is more, we have come to the conclusion, following BOLYKI, that in some topics [*critical*] *complementarity realism* can also fulfil a kind of critical function, as it were, by evaluating the parallelism of theological statements with the dual nature of Christ and thus with complementarity. This is in line with the fact that for BOHR the principle of complementarity is a philosophical principle that applies to human thought as a whole, to the acquisition of knowledge in general.

⁶ However, he also acknowledges the need for top-down character.

⁷ Yet, he also sees the parallel as valid one level further down: the religious experiences recorded in the *New Testament* are also related to experimental experiences. For bottom-up thinking, then, the *Bible* has evidentiary power, but the evidence must be weighed, and is not independent of the hermeneutical circle.

Theses

Summarizing the experiences of the thesis, the following theses can be formulated as answers, statements and definitions, as well as theologically applicable implications:

Introduction:

Thesis 1:

The twin parallel in dogma history confirm that theology and science have methodical similarities, share critical realism, a linguistic-cultural approach and *bottom-up* thinking. The five-point developmental mechanism-phenomenology is shown as a general developmental parallel.

In addition to methodical commonality, there is also a content similarity between the disciplines, which links the dualities of theology and science in the principle of complementarity. Accordingly, the new dogmas or theories were not born on the basis of compromise, but interpreted the paradoxes without resolving, yet with a new logical structure, attaining a higher level of unity.

Definitions:

Thesis 2:

The Bohrian complementarity principle is a *general (philosophical) professional matrix for modelling reality*, which, due to its generality, can also be applied to epistemological domains beyond physics. Following in BOHR's footsteps, it is inevitable to examine the possible areas of application of complementarity in theology and the relationship between complementarity and theology.

Three contexts in particular justify this:

1. The *Chalcedonian Creed* testifies to the fact that, instead of a synthesis, a decision was made in which opposing views are united in a complementary way.

2. In the roots and revealed properties of complementarity, there is in fact the Christological paradox through KIERKEGAARD's philosophy.

3. There are logical parallels between ANSELM and BOHR. (According to the abbot, we must state both a property and a negation of a property to characterize God. And the physicist thought it possible that in some cases the law of contradiction could not be enforced.)

Providing the characterization of complementarity, some have already examined its parallels with *Chalcedonian creed* as well as with Christology. **Our own procedure for comparing complementarity and Christology is also unique in that we have looked for common, yet general, features of both dual natures in parallel.**

Thesis 3:

The characteristics of Bohrian complementarity (as a *general [philosophical] professional matrix for modelling reality*) can be summarized in a structured table (in a concise form, the complementarity matrix), which gives us a good tool to decide whether or not a complementarity relation exists in individual cases:

	Irreducibility	Non-interchangeability	Acausality
'Subject'	relationality	phenomenal completeness	aspect dependence
Generalisation	indispensability	correspondence	indivisibility
Orthogonality	duality	non-interminglability	undecidability

Because of we formulated common features based on the *Chalcedonian Creed* and the *Como Lecture*, going beyond the earlier authors, we can no longer speak of a mere similarity, but of the fact that **the dual nature of Christ and the Bohrian principle of complementarity stem from the same root of modelling reality, which justifies their close parallelism.**

Because of the modelling character of complementarity, we have also sketched the possible construction of a complementarity realist metaphysics.

Not only have we added another description of complementarity to those of others, but we have also gone further on several points and corrected some ideas. As a correction, in contrast to WEIZÄCKER'S concept of a circular, hierarchical relation, which many have adopted, we have taken a position in agreement with BOHR: the properties in the complementarity relation are in a parallel of equal opposites, not in a subordinate and superior relationship.

Thesis 4:

We have called the method based on the complementarity matrix analysis [critical] complementarity realism, a methodical element common to theology and natural science. The basis of the parallelism between complementarity and certain topics is to find what corresponds to Christ and microphysical objects, as well as what corresponds to the claims of the *Chalcedonian Creed* and the results of experiments. The complementarity matrix is then used for the analysis: the existence of the characteristics listed in the table is examined in the specific cases, and the numbers -1, 0, 1 in the corresponding matrix positions indicate whether the features of the object under examination are opposite, indifferent or coincident with the given characteristic. The minimum condition for the existence of a complementarity relation is that there is no -1 anywhere and that at least one element in each row and in each column has a value of 1.

Since, according to the POLKINGHORNE's slogan of critical realism, epistemology models ontology, **complementarity functions as a model of reality, and in this light there is a closer than parallel, ontology-oriented (albeit requiring a relational ontology) connection between complementarity and certain theological dichotomies.** As in the case of the double complementarity for Christ, **a triple complementarity, pairwise complementarity, has been used to model the Trinity using a simplified quark model of nucleons.**

The parallel with complementarity (because of its dynamic-relational nature) can help theology to understand the doctrine of the dual nature of Christ and the statements of the *Chalcedonian Creed* not in a static way, but to see the fundamental dynamism in them.

Corollary:

Thesis 5:

As a common methodology of theology and natural science, and as a general (philosophical) professional matrix for modelling reality, the principle of complementarity is suitable for interpreting the dualities and paradoxes of theology, for showing their rationality within the framework of the modern physical world view (without undermining their status as matters of faith-mystery).

The paradoxes and pairs of opposites of *theologia crucis* are made clearer and rational by complementarity. The close relationship between Luther's theology and complementarity is indicated by the fact that in some theological questions the Luther's conception corresponds to complementarity (e.g. the concepts *genus maiestaticum*, *ter-*

tius usus legis, extra Calvinisticum conflict with both LUTHER's position and complementarity).

Regarding the LUTHER–KIERKEGAARD–BOHR line of influence, we can say that paradox, including complementarity, links the three thinkers, and we can see an example of how LUTHER's *theologia crucis* influenced KIERKEGAARD's theology and philosophy, and how this further influenced BOHR's philosophical understanding and his approach to physical problems. Ultimately, then, we see here a case of how theology has had a fruitful impact on physics, on science.

Answers:

Thesis 6:

Answer A: The modern scientific world view, if we use the possibilities and parallels offered by Bohrian complementarity, provides an example of a rational, non-contradictory interpretation of the dualities of theology, most notably the Christological and Trinitarian statements, through complementarity realism.

The principle of Bohrian complementarity can thus be of help either in apologetics to the outside of the Church, in demonstrating the reasonableness of Church doctrines, or in affirmation and illustration to the inside of the Church.

Thesis 7:

Answer B: Consideration of the (relational) ontological implications of the principle of complementarity in theology, as a *general (philosophical) professional matrix for modelling reality*, also points to the possibility of a closer than parallel relationship between theology and science. The main direction of the parallelism of this complementary theology-science relationship is that it is not theology and natural science but the expansion of knowledge that is to be considered as the object, and that theological and scientific knowledge acquisition, respectively, constitute the two characteristics of this one object. Such an approach not only points to the rational features of theological statements, but also bridges the principle of complementarity in the relationship between theology and natural science, and even between their contradictory statements, it can point to a unity that corresponds to complementarity. Indeed, through complementarity realism, we have concluded, on the basis of the cosmic Christ of *Col 1,15-20* as the head of the cosmos and the Church, that the relationship between the two disciplines is characterised by complementarity.

In the case of a particular topic, we therefore propose three basic categories of complementarity realistically between the claims of theology and science: a) **Contrast**: when the claims of theology and science are in sharp contrast with each other in BOHR'S simple truth, and only one can be true. b) **Correspondence**: when the claims of theology and natural science are consistent with each other, can be correlated, or at least can be brought into agreement with each other by clarifying the interpretation of the claims of both fields, and can be given the same meaning. c) **Complementarity**: when the claims of theology and science, although are in opposition to each other in the sense of BOHR'S profound truth, are nevertheless both true, namely because they are in a complementarity relation.

Selected literature used in the dissertation

(Unless an individual work is of major importance on its own, in the case of collected volumes, for the sake of brevity, only the containing work is included, not the works of individual authors. Of course, all are listed separately in the dissertation.)

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