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Re-examining Metaphorical Theology in Light of Complementarity

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CONTENTS

INTRODUCTION

The twentieth century witnessed a dramatic increase of the use of theoretical models in many fields, and the subsequent recognition of this trend. This transformation coincided with the shift from a mechanical, deterministic world view where it was believed that events could be adequately described in a single way to a less certain, probability based world view of the twentieth century, where it was accepted that multiple models, images or symbols are necessary to conceive of any phenomena. An example of this is the change from Newtonian to modern physics. Newtonian physics claims that light must be understood as either a wave or particle, and that eventually only one of these descriptions will be understood as true. On the other hand, modern physics holds that some experiments using light require a wave description while others insist upon a particle description, but that both are necessary to grasp the nature of light. This shift, as well as the changing conception of light itself, will be addressed in greater detail in Chapters 1 and 2 respectively.

Although the example of multiple models of light came from physics, other disciplines have recognized that models are useful for their fields. The realization that models are used in theological and religious studies, particularly those that are Christian-centered, has been accompanied by both a greater awareness that some traditional models of God may not be adequate, and an increased acceptance of many models of God. The adoption of alternative models of God may alleviate some problems attributed to a long

history of dominant patriarchal, hierarchical models of God such as the oppression of women, minorities, and the earth. However, those who encourage a multitude of models encounter three major potential challenges or criticisms with severe consequences: first, relativism, the idea that all models of God are equally functional; second, the challenge of synthesizing various models into a coherent concept; and third, reluctance among many to consider alternate models of God. Although there may be other challenges to or problems with the use of multiple models of God, these three must be resolved before a theology based upon multiple models can be adopted.

At first glance, relativism may not seem to be much of a problem. One might think that using various models for Christianity could make it accessible to more people. Indeed, increasing the relevance of Christianity is precisely what many proponents of multiple models of God desire. However, critics of multiple models claim that a theology based on multiple models could include the idea that all models are appropriate even though no proponents of multiple models in Christian theology embraces this approach. Furthermore, critics claim that since relativism maintains that all models are equally important, and that it does not matter what model is chosen as representative of Christianity, it can allow Christianity to be distorted into a destructive, oppressive, and horrifying theology. For example, from a relativistic point of view, a murderous, prejudiced dictator such as Adolf Hitler and a benevolent, compassionate ruler would be equally valid models of God. Certainly, these models do not equally express the idea of God formed in Christian scripture and tradition. Consequently, complete relativism cannot be a part of Christianity and no proponent of multiple models in Christian theology embraces this approach. Furthermore, as relativism asserts that unsuitable

models of God are valid, it enables people to act destructively since their belief system is not based upon a sense of right or wrong. For these reasons, every theology encouraging multiple models of God must explicitly combat relativism. A case could be made that since theologians proposing multiple models have not claimed that all models are valid, relativism is not a challenge to theologies of multiple models. However, since relativism could be a logical outcome of the encouragement of multiple models, and critics still fear it, a stronger case must be made against relativism.

The second and third challenges to theologies based upon multiple models relate to the struggle between new and old theological ideas. This conflict can be manifested in individuals when a person is unable to conceive of God coherently. For example, some people who appreciate the relevance of various models of God are troubled by the lack of a dominant model, or cannot synthesize the various models into a coherent world view. This second problem is a major issue because a person's concept of God must be coherent enough that it can relate to the person's life. If a person's understanding of God is not coherent enough to relate to his or her life, God does not affect them, and a God without some affect on people is not God. It is obvious that an understanding of God must be coherent enough for it to be meaningful. Consequently, every theology that advocates the use of multiple models of God must provide a way to synthesize these models into a coherent concept.

The third challenge to accepting multiple models of God is based on a classical realist point of view a defined by Ian Barbour and includes the belief that there has to be one right answer to any question.[1] It is also a struggle between new and old theological

[1] Ian Barbour, *Religion and Science* (San Francisco: Harper Collins, 1997), 168.

ideas because classical realists dismiss alternative models of God without consideration solely because these new models are different from the traditional ones. Whether applied to religious beliefs, or other issues, classical realism is dangerous since it can cause a great deal of animosity between families, communities, and nations and has encouraged arguments, battles, and wars. The root of these conflicts may be fundamentally opposing views of reality, namely the belief that only one idea can be right versus the view that more than one model can be used to described a particular entity (classical realists versus critical realists). Critical realism is "the view that models and theories inadequately and selectively represent particular aspects of the world for specific purposes."[2] In order to face the challenge to the acceptance of multiple models proposed by classical realists, and the resulting consequences for society, theologians proposing new models of God must be prepared to relate their models and the concept of a multiplicity of models to the concept of reality held by classical realists.

When faced with these three challenges to the acceptance of multiple models of God, and the severe consequences they may cause, one may wonder why it is necessary to use more than one model to describe God. The acceptance of multiple models of God is extremely important since to do otherwise implies that God can be completely known and understood, an impossible task from my point of view. A fuller discussion of the incomprehensibility of God's entirety will be found in Chapter 1, especially in the section focusing on the work of Elizabeth Johnson and Sallie McFague. To summarize their arguments: the acceptance of multiple models allows one to be connected to the Christian tradition while limiting the idolatry resulting from worshipping our images of God more

[2] Barbour, *Science,* 359.

than Godself and the disastrous consequences for our societal relations that may result from more restrictive conceptions of God.

Since I find multiple models of God to be the most adequate way to attempt to conceive of God while remaining faithful to the Christian tradition and limiting oppressive and inadequate concepts of God, I seek a way to resolve or limit the problems related to theologies based upon multiple models of God. Specifically, I look for a set of criteria to determine the validity of a model of God, and a new conceptual framework based upon the limited pluralism of models. These two concepts will alleviate the problems connected with multiple models of God in two ways. Such a set of criteria will discourage relativism, since some models will be pronounced more valid or appropriate than others. It will also convince those wary of accepting new models of God that there are valid reasons to accept particular models.

The concept of "limited pluralism" is central to this new conceptual framework. "Limited pluralism" means accepting a variety of opinions on an issue, with the understanding that some are more relevant than others. Note that this relevance may change with particular circumstances. A conceptual framework based upon limited pluralism will not be based on the assumption that every question has one right answer, although this may be the case in certain situations. Neither does this framework support the idea that every answer is equally right. Rather, limited pluralism suggests that there are often a variety of appropriate answers to a question, and that several may be needed to understand the phenomena in question. (I will primarily use the term "limited pluralism" to indicate a plurality of models of God, particularly in the Christian tradition, not the multitude of gods often implied by the word pluralism in religious studies.)

In order to develop the concept of limited pluralism, to understand what its use in everyday life entails, and to construct a set of criteria to evaluate models of God, I look to complementarity, an interpretative principle developed for use in modern physics that involves the acceptance of contradictory models depending on circumstances. Parallels between complementarity and the acceptance of many models of God will be developed by tracing the history of this idea as developed by Neils Bohr and his associates for use in the field of physics as well as in other fields. The details of complementarity will also be examined to ascertain their relevance to the religious discussion of models of God. This background will clarify a conceptual framework of limited pluralism, and how it can help one to comprehend multiple models of God, and clarify criteria for examining models of God.

When examining the use of models in the twentieth century, I will focus on the work of Ian Barbour, Sallie McFague, Paul Tillich, and Elizabeth Johnson as these authors have written extensively on the use of models or symbols to speak of God. The problems with traditional models of God and the need for new models will be examined primarily from the viewpoint of feminist writers including Mary Daly, McFague and Johnson while the subsequent rise of pluralism will be investigated with the work of John Cobb. A variety of physics textbooks will form the basis for the scientific portion of Chapter 2. Raymond Serway's *Physics for Scientists and Engineers*, an introductory text, will provide the elementary material while Eugene Hecht's *Optics* and Kenneth Crane's *Modern Physics* will be used as resources to explain the wave and particle nature of light. Crane's book will also give the technical details of complementarity. The philosophical and historical background of Niels Bohr and complementarity will be gathered from

several sources, primarily Henry J. Folse's *The Philosophy of Neils Bohr*. Various journal articles will be referenced to examine the parallels between complementarity and religion, especially D.M. MacKay's clarification of the applications of complementarity in "Complementarity in Scientific and Theological Thinking."

CHAPTER 1

The Use of Models

In this chapter, I will demonstrate the expansion of number of models of God during the twentieth century and the subsequent perceived threats of this expansion. This expansion had two major causes, which will be examined in turn, the first being the increased acceptance of the use of the words "model" and "symbol" as valid ways to describe God as explained by Ian Barbour, Sallie McFague, Paul Tillich, and Elizabeth Johnson. Secondly, feminist, liberation, and ecological theologians including McFague, Johnson, and Mary Daly have realized that oppression and idolatry can result from the acceptance of one model to the exclusion of other models and thus they have proposed the acceptance of multiple models of God.[1]

Although the use of multiple models has a historical basis, and can be used to alleviate some contemporary problems resulting from other theologies, the use of multiple models does not adequately satisfy a person's need for a clear picture of God describable in one image. One example of this inadequacy is the difficulty a person who believes in various models will have when trying to summarize or explain his or her religion to a child, member of another religion, or to his or her self in times of doubt. It will be shown that a need for one comprehensive concept of God is based on classical realism, a form of realism that is not adequate in the twentieth century paradigm outlined by Barbour. Consequently, examples of critical realism, Barbour's preferred form of

[1] It is true that several of these revolutionary theologians including Mary Daly focused on the critique of the oppressive nature of a particular model, without focusing on the problems of only using one model. However, other writers, particularly Elizabeth Johnson, stress the limitations of using only one model as well as the atrocities that can arise from an oppressive model.

realism, will be explored and encouraged so that a theology based on multiple models of God will be able to speak to people's experiences of reality.

Acceptance of "Model" or "Symbol" as Applying to God

Barbour's use of paradigm

In *Religion and Science: Historical and Contemporary Issues*, Ian Barbour develops a picture of the twentieth century view of nature and God's role in nature. This paradigm, or "cluster of conceptual, methodological and metaphysical presuppositions embodied in a tradition of scientific research,"[2] is contrasted with the earlier medieval and Newtonian paradigms. Since the twentieth century and Newtonian paradigms illustrate the changing idea of reality and consequently the increased acceptance of models as descriptors of reality, they will be examined.

Several characteristics of a paradigm outlined by Barbour include a conception of how change occurs, degree of predictability, the nature and substance of the world, and the preferred form of realism. The Newtonian paradigm included the idea that basic reality was formed of indivisible objects, atoms.[3] Classical realism, the dominant form of realism in the Newtonian paradigm, holds that models are "descriptions of nature as it is in itself apart from the observer,"[4] and reality can be described "objectively and unambiguously."[5] Since reality as viewed by classical realism can be described using one model, this view of reality contributes to the idea that there must be one dominant model of God. In this paradigm, change was a reordering of these basic components, and events were determined by mechanical causes. Because objects were thought to have properties

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[2] Barbour, *Science,* 359. Barbour has based his conception of paradigm on Thomas Kuhn's definition as discussed extensively in *The Structure of Scientific Revolutions.*
[3] Barbour, *Science,* 282-283.
[4] Barbour, *Science,* 168.
[5] Barbour, *Science,* 168.

independent of our knowledge of them, while a mechanical system of laws described the world, it seemed reasonable to those in the Newtonian paradigm that a model or theory would be able to directly and exactly describe the world,

On the other hand, the twentieth century paradigm is not reductionistic since this paradigm is based upon the idea that the whole is more than the sum of the parts. In this paradigm, change is viewed as occurring by evolution, while a combination of law and chance lead to an inherent unpredictability of the world, the observation of which necessarily influences the results of observation.[6] Barbour suggests that while many people in the twentieth century paradigm continue to uphold classical realism, instrumentalism,[7] the most appropriate view of reality in this paradigm is critical realism.

This thesis is based upon the twentieth century paradigm favored by Barbour for several reasons. First, this paradigm is the dominant one of the present day, and theological ideas should connect to the paradigm of the day in order to be meaningful.[8] Secondly, it identifies people who refuse to consider alternate models of God as living in the twentieth century paradigm while adhering to classical realism, an inadequate concept of reality for this paradigm. Finally, this paradigm accepts concepts from modern physics that will be presented in Chapter 2 in order to look for a method to resolve the problems connected with the acceptance of multiple models of God.

To summarize, the Newtonian paradigm, dominant until the early twentieth century, viewed models and theories as actual representations of reality. This view implied that there was one right answer to describe the world. Meanwhile, the twentieth century paradigm conceived of models as representations of specific aspects of reality, implying that no one model could be an adequate description of all of reality. From this

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[6] Barbour, *Science,* 283-284.

[7] Instrumentalism is the belief that ideas can only be judged by their usefulness, not by their inherent truth or falseness. Barbour, *Science,* 358.

[8] Although the shift to the twentieth century paradigm began in physics, this outlook has spread to other disciplines as well. Despite the fact that this paradigm is named after a certain time period, it is not limited to the twentieth century, but will be in place until another paradigm shift occurs.

discussion of the change from the Newtonian to twentieth century paradigm, it is clear that the use of models has become more accepted in recent years since it is now believed that the use of models is the only way that things can be discussed. Various definitions of models will now be examined to explicate the problems associated with the use of multiple models and to suggest what is necessary for their resolution.

Barbour's use of models

Several twentieth century theologians including Ian Barbour, Sallie McFague, Paul Tillich, and Elizabeth Johnson have studied the role of models, symbols, or images to speak of God. Since this thesis is an investigation of how multiple models of God may be made more comprehensible, a logical starting point is an exposition of various treatments of models in religious studies. Ian Barbour bases his use of models in religion or theology upon the use of models in science. He defines several types of scientific models, including experimental, logical, mathematical and theoretical, but concentrates on the theoretical models as they are most useful for theology.[9] Theoretical models are "imaginative mental constructs invented to account for observed phenomena,"[10] and are used to understand, not to predict events. Since they must relate to observed phenomena, theoretical models are only validly used when they can be tested against the available data.[11] Barbour further characterizes theoretical models as analogical, since they explain unfamiliar situations by utilizing similarities with phenomenon that are better understood.[12] Furthermore, models are understandable as a unit, and when they are

[9] Experimental models, including scale and working models, are useful for their ability to be constructed in the laboratory. Logical models are particular entities that satisfy the axioms and theorems of deductive systems. Finally, mathematical models are symbolic representations of aspects of physical systems and are used to predict behaviors of these systems. Barbour, Myths, *Models, and Paradigms* (New York: Harper & Row Publishers, 1976), 29-30.
[10] Barbour, *Myths,* 29-30.
[11] Barbour, *Myths,* 34.
[12] Barbour, *Myths,* 32.

grasped in their entirety, can summarize several complex relationships.[13] Because theoretical models are used to develop a theory to explain a certain phenomena, and can summarize complex relationships and unfamiliar phenomena, they are able to encourage the extension of theories to diverse phenomena.

Finally, Barbour holds models to be mental constructs that enable us to represent limited aspects of a world that is not comprehensible to us as a whole. This suggests the critical realist view of models should be adopted since models should be taken "seriously but not literally," as they are "limited and inadequate ways of imagining what is not observable."[14] This connection between models and reality will be an essential element of the identification of problems with the use of multiple models in religious studies, as well as the search for a resolution to these problems and will be examined in greater detail once the various views of models have been explained.

After his definition of models based upon their use in science, Barbour extends this definition to religious models, finding that religious models analogical, applicable to new situations, and comprehensible as units, as are models in science. Since Barbour maintains that God cannot be adequately represented visually, he finds models to be particularly useful for describing God.[15] Additionally, models in religion, and in science are "partial and inadequate ways of imagining what is not observable"[16] that should be taken not literally, but seriously as they are symbolic representations of what we cannot observe.[17] Since Barbour's definition of a theoretical model can be applied to religious

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[13] Barbour, *Myths,* 33.
[14] Barbour, *Myths,* 38.
[15] Barbour, Myths, 60.
[16] Barbour, Myths, 69.
[17] Barbour also discusses several more similarities and differences between models in science and religion. For example, both types of models are used to order observations, whether this is in the laboratory, or in the experiences of individuals and communities. Differences between the models include the non-cognitive functions of religion that have no parallel in science. Religious models also encourage a more personal and involvement with the model. Finally, religious models may be more influential than the doctrines from which they were derived while scientific theories dominate its models. Barbour, *Myths* 69.

studies, for the remainder of this thesis the term "model" will imply Barbour's "theoretical model."

McFague's use of models

Sallie McFague adds the idea that models of God are not pictures of God to the discussion of models. She states that Christians are often obsessed with words of and about God despite the fact that God cannot be fully known.[18] McFague develops the idea of a *metaphorical theology*, or a theology in which God is described as simultaneously being similar and dissimilar to the object being used as model.[19] She suggests that religion and scientific models may have a common purpose to "discover a set of relations or structure in an unfamiliar area which is believed to be a genuine but partial reflection of its reality. " This implies that models of God should not be seen as pictures of God, but as indicators of the type of activities, processes and relationships of which God is a part.[20] Because no one model of God actually is God, McFague finds it necessary to use multiple models.[21] One of many models McFague proposes for God is a friend. This model indicates God's commitment to relationships with humans,[22] and sustaining activity through these relationships.[23] McFague hopes that theologians employing these models of God will reflect the biblical concern of relations between God and the world, while avoiding the idolatry and irrelevance that may come from viewing models in other ways. Although McFague's theology was here discussed for introductory purposes, later in this

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[18] Sallie McFague, *Metaphorical Theology: Models of God in Religious Language* (Philadelphia: Fortress Press, 1982), 1.
[19] McFague, *Metaphorical Theology,* 14-17.
[20] McFague, *Metaphorical Theology,* 98.
[21] McFague, *Metaphorical Theology,* 127.
[22] McFague, *Models of God: Theology for an Ecological, Nuclear Age* (Philadelphia: Fortress Press, 1987), 62.
[23] McFague, *Models,* 169.

chapter there will be a more detailed examination of her models of God, as well as her standpoint on what can be known about God.

Tillich's use of symbols

Another theologian who worked extensively to develop appropriate methods and terms for describing God was Paul Tillich, a predecessor of Barbour and McFague. Since Tillich uses the word "symbol" instead of "model," it will be helpful to examine his characteristics of symbols as well as how they are applied to God, in order to compare his ideas to the use of models. Tillich finds that symbols have six characteristics. First, they "point beyond themselves to something else,"[24] one example of which is a word pointing toward a meaning. Secondly, symbols participate in that to which they point. Third, a symbol cannot be changed unless that to which it points is dramatically changed.

Fourth, symbols are valuable because they allow us to grasp parts of reality and our soul that are otherwise inaccessible. Since symbols participate in the entity they represent, the fifth characteristic is that the creation of symbols is not intentional, but occurs through the collective unconscious of the group in which they are used. Finally, symbols cannot be invented, but grow and die as they are useful.[25]

There are many similarities between Barbour and McFague's description of how models are used and Tillich's use of symbol.[26] First, while symbols participate in that to which they point, models help to develop the theories on which they are based. Secondly, while Barbour and McFague did not use the words "participate in that to which they point", the analogical characteristic of models indicates that both symbols and models

[24] Paul Tillich, *Dynamics of Faith* (New York: Harper & Row, 1957), 41.
[25] Tillich, *Dynamics,* 42-43.
[26] Along with these similarities there is a major difference between symbols and models. Namely, symbols arise from the unconscious of those that use them, while models come from the conscious effort to make sense of the world. Tillich was quite suspicious of contrived symbols, a critique of the deliberate composition of new models. However, Barbour's claim that theoretical models must relate to experience demonstrates that models are not completely artificial representations of reality.

point beyond themselves to something else. Both symbols and models allow us to comprehend something that cannot be fully understood. Since both symbols and models are intimately connected to reality, they cannot be discarded without radically changing the reality or theory to which they are related.

The Inability to Completely Comprehend God

Tillich maintains that symbols are the only way one can speak of God. In his system, God is defined as being-itself, not a being, since God "cannot be understood as the existence of a being alongside or above others. If God is a being, he is subject to the categories of finitude, especially to space and substance".[27] God is understood to be the ground of the structure of being without being subject to this structure.[28] "God must be approached cognitively through the structural elements of being-itself. These elements make God a living God who can be man's concrete concern. They enable us to use symbols which we are certain point to the ground of reality."[29] Anything beyond the statement "God is the structure of being" is taken by Tillich to be an indirect statement, no longer a concept, but a symbol that points beyond itself to God. Therefore, discussions of God must be conducted with symbolic language.[30] Tillich also states that concrete assertions about God must be symbolic since these assertions use finite experiences to speak of the infinite God. Finite experiences can assert something about the infinite because the infinite is being-itself in which everything participates.[31]

Tillich's application of symbols to God is very similar to the use of models by Barbour, Johnson and McFague. All of these theologians recognize that God is in some

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[27] Paul Tillich, *Systematic Theology,* vol.1 (Chicago: The University of Chicago Press, 1951), 235.
[28] Tillich, *Systematic Theology,* 239.
[29] Tillich, *Systematic Theology,* 238.
[30] Tillich, *Systematic Theology,* 239.
[31] Tillich, *Systematic Theology,* 239.

way incomprehensible, unable to be fully grasped by humans, and that the use of symbols or models is the only appropriate way to speak of God to avoid the blasphemy or idolatry of limiting thoughts of God to a particular image. Sallie McFague presents a dramatic example of the limited ability for humans to understand God in her examination of Exodus 33:20-23. In this passage, Moses asks to see the glory of God and is only allowed a glimpse of God's back. This passage illustrates that while some aspects of God can be seen and known, other aspects that cannot.[32] McFague draws upon these ideas to suggest that all models can be representations of God since they only represent God's back and no one model actually is God.[33] This argument adds further support to her claim that many models of God are appropriate. Although I support using multiple models, I find that the main importance of this passage is that there is a reality of God, only part of which can be described.

The idea that God cannot be completely understood has been present in theology for centuries, as is detailed in Elizabeth Johnson's history of God's incomprehensibility. Johnson cites the Torah's use of "YHWH" to signify the divine presence but not essence as an early example of the limits of human understanding of God. This word reminded the Israelites that our knowledge of God is limited so much that people are not able to pronounce the name of God. An additional example of the limits of human knowledge of God is found in Acts 17:29 where the human imagination is unable to represent the God who raised Jesus. Clemet of Alexandria and Irenaeus concluded that God is beyond time, place and description, unknowable by any category, continuing the idea that God is only partially understandable. Augustine supported this idea, as did Aquinas, with the notion that it is easier to describe what God is *not* than what God is.[34]

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[32] McFague, *The Body of God: An Ecological Theology* (Minneapolis: Fortress Press, 1993), 131-132.
[33] McFague, *Body,* 134.
[34] Elizabeth A. Johnson, *She Who Is: The Mystery of God in Feminist Theological Discourse* (New York: Crossroads, 1997), 106-110.

After establishing that no image or model of God ever achieves the goal of fully describing God, Johnson promotes the acceptance of many names, images, and concepts of God. She writes:

> Each symbol has a unique intelligibility that adds its own significance to the small store of collected human wisdom about the divine... each (symbol) operates as a corrective to any other that would pretend to completeness. The tradition of many names of God results from the genuine experience of divine mystery, and acts as a safeguard for it.[35]

Johnson cites a rich background of symbols of God from the Bible, Christian, and non-Christian traditions such as mother, father, friend, various professionals, images from nature, and animals. Despite the abundance of images of God, she finds that in "recent centuries... Western language has focused on male symbols to the virtual exclusion of female and cosmic ones."[36] In fact, images of God have been further limited to focus on ruling men and fathers. From the Christian and world tradition of using many names to speak of God, as well as the understanding that no image can be a full description of God, it is clear that using only a few images to describe God is not adequate. Consequently, the use of multiple, diverse images is "not only legitimate but religiously necessary for proper discourse about the mystery of God."[37] This brief background of theological history demonstrates that the incomplete understanding of God is not an idea unique to the twentieth century. What is unique about this period of time is the way in which the limited possible knowledge of God, and subsequent writings on models or symbols, has contributed to an explosion of accepted models of God.

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[35]Johnson, 118.
[36] Johnson, 120.
[37] Johnson, 120.

Consequences of Accepting one Model of God

The increased use of multiple models of God occurred at the same time as the rise of feminist, liberation and ecological theologies that recognize that when one model of God becomes dominant over all others, many negative consequences result. For example, feminist theologians often cite the exclusive use of male images of God as a cause of the male dominated society in which women may be treated as inferior through discrimination or abuse. Similarly, ecological theologians find that a focus on powerful images of God removes responsibility for the care of the earth from humans. If humans are not held accountable for their relationship with the environment, it may easily be harmed. Since these feminist and ecological theologians recognize that problems result when models are not acknowledged as such, but as complete descriptions of God, they have encouraged the idea that God can only be described using models, and the subsequent adoption of various models of God.[38] For an example of this trend including the recognition of problems resulting from a hierarchical model, the demolition of the old model, the admission that many models are needed, and construction of new models, I look to feminist theology. I choose this example instead of the liberation or ecological theologies because the work of several feminist theologians has already been used in this thesis.

[38] For further evidence of this, see Elizabeth Johnson's *She Who Is* as well as Sallie McFague's *Models of God*, and *Metaphorical Theology*.

Feminist theologians

Early feminist theologians spent much energy establishing the negative consequences of accepting patriarchal or male images of God, particularly when other images were excluded. A feminist theologian[39] who has developed an extensive exposition of the problems with a patriarchal model of God is Mary Daly. To establish her position that the popularity of a father model of God has permeated society to the point in which it seems natural that society is male dominated, Daly writes the following in *Beyond God the Father:*

> The biblical and popular image of God as a great patriarch in heaven, rewarding and punishing according to his mysterious and seemingly arbitrary will, has dominated the imagination of millions over thousands of years. The symbol of the Father God, spawned in the human imagination and sustained as plausible by patriarchy, has in turn rendered service to this type of society by making its mechanisms for the oppression of women appear right and fitting. If God in 'his' heaven is a father ruling 'his' people, then it is in the 'nature' of things and according to divine plan and the order of the universe that society be male dominated.[40]

Daly finds that a male dominated society is problematic since it encourages a sexual caste system. This system has three major characteristics: sex role segregation, derivative status in which the status of women depends upon a woman's relationships to men, and ideologies that give false identities to women and men.[41] Since Daly believes that the sexual caste system resulting from the patriarchal model of God is morally reprehensible, she demands the demolition of this model of God.

Similarly, Sallie McFague recognizes the negative aspects of the prevailing patriarchal and imperialistic metaphors of God. She writes:

> ... I have come to see patriarchal as well as imperialistic, triumphalist metaphors for God in an increasingly grim light: this language is not only idolatrous and irrelevant - besides being oppressive to many who do not identify with it - but it may also work against the continuation of life on our planet.[42]

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[39] Early in her career Mary Daly was described as a feminist theologian, but later ceased to use this label as she felt it was too connected to patriarchy. However, I will continue to use "feminist theologian" to describe those who focus on theology from a feminist perspective for lack of a better word. This process of transformation is founding her "Original Reintroduction" to *Beyond God the Father.* Mary Daly, *Beyond God the Father: Toward a Philosophy of Women's Liberation* (Boston: Beacon Press, 1985).

[40] Daly, 13.

[41] Daly, 2-3.

[42] McFague, *Models,* ix.

McFague recognizes these metaphors of God as against life of all forms since they shift the focus of care of the earth from humans to God by focusing on divine power. This shift of focus may lead people to believe that they are not responsible for the degradation of relationships whether between people, or between people and the earth. For this reason, McFague is compelled to look for and develop alternative models of God that are sensitive to ecological issues, particularly emphasizing the interdependence of all beings, and our responsibility for all forms of life.

As demonstrated by the work of McFague and Daly, many theologians agree that the focus on patriarchal models of God has caused problems for women and men throughout the world. Some, such as Daly, argue for a demolition of the patriarchal models while others, including McFague and Johnson, move away from patriarchal models as they strive to promote alternate models. Most theologians take this less revolutionary approach since they see that male images may not be patriarchal while recognizing that non-male and, in fact, non-gendered models are necessary. Among the multitude of models are new models that have been developed for use in the context of the twentieth century, as well as traditional models reexamined for this context.

McFague's alternative models

In order to provide concrete examples of models of God appropriate for a Christian perspective in the twentieth century paradigm I look to Sallie McFague.[43] These models will also illustrate that theologies based on many models may not adequately connect the models for people who expect a coherent picture of God. Based upon her view of the patriarchal model of God as described above, and her discussion of

[43] McFague, *Models,* xi.

the backside of God, McFague focuses on the necessary development of alternative models of God. She suggests the models of God as Mother, Lover, and Friend. The idea of God as Mother[44] characterizes God as the life-giver of all, striving to unify all.[45] This image stresses the continuity between God and the world, and consequently affirms both the spirit and body without hierarchy.[46] The ethic of this model of God is justice, a God who creates, with our help, a "just ecological economy" for all beings.[47]

McFague's model of God as Lover enables passion to be included in the concept of God, something not often done in the Christian tradition. This model implies that the world is valuable to God and in fact, needed by God. That no mater what, God will continue to find the beloved world valuable beyond all reasons.[48] Sin in this model is operating against God, refusing to be God's beloved, and turning away from interdependence with others,[49] while salvation is the reunification of the beloved world with the God the Lover. The model of Lover indicates that God changes, grows, and needs us, as lovers need a response from their beloved.[50] Furthermore, an ethic of healing is incorporated into the concept of God in order to bring about the salvation of reunification.[51]

Finally, the model of God as Friend proposed by McFague offers a type of relationship with God in which both God and the person involved choose to be in a reciprocal relationship.[52] This reciprocal nature of friendship implies to McFague that it

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[44] It is important to note that McFague stresses the importance of developing female, but not feminine images of God since male images are often used and she does not want to stereotype masculine and feminine characteristics. Secondly, she believes female metaphors of God should not be restricted to the maternal, even though this is the model that she chooses to develop in some detail. She justifies her choice of model as Mother because "although mothering is a female activity it is not feminine; that is, to give birth to and feed the young is simply what females do - some may do it in a so-called feminine fashion while others may not." McFague, *Models,* 98-100.

[45] McFague, *Models,* 101-102.

[46] McFague, *Models,* 111-112.

[47] McFague, *Models,* 117.

[48] McFague, *Models,* 131-133.

[49] McFague, *Models,* 139.

[50] McFague, *Models,* 135.

[51] McFague, *Models,* 146.

[52] McFague, *Models,* 159-160.

must be adult so that neither party is overly dependent on the other.[53] McFague offers that the bond of friendship is commitment, and the sin is betrayal.[54] The activity within this model of God is that of sustaining, as God sustains us and we sustain God through our commitment.[55] Therefore, humans have a deep responsibility for each other and the greater world, since God is involved in all.[56] The companionship aspect of the model of God as Friend also encourages us to take responsibility for our actions in relation to the world, since it is our companion in relation to God.[57]

Problems connected to the use of multiple models

Although McFague provides detailed descriptions of these models, she does not adequately address how they might fit together. McFague does intentionally describe three models of God that fit the traditional Trinitarian pattern of creator, savior and sustainer in order to consider how new models of God could perform the same functions as the traditional Trinity.[58] However, she relies on the Trinitarian concept, while neglecting to address how the additional models alluded to in the course of *Models of God*, such as non-motherly female images, could be incorporated into a concept of God. Since McFague does not adequately link multiple models or provide adequate criteria to evaluate models of God, her theology encourages multiple models without addressing the problems that may result from this type of theology. Specifically, she does not address relativism or a method to comprehend multiple models for those who cling to a specific

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[53] McFague, *Models,* 165. I would argue that friendship could happen among children as well, for between two children there is the same opportunity for mutuality as there is between adults. Similarly, since the friendship relationship is characterized by equality of race, economic class and gender it should also ideally be based upon equality of age.
[54] McFague, *Models,* 162.
[55] McFague, *Models,* 169.
[56] McFague, *Models,* 170-171.
[57] McFague, *Models,* 178-180.
[58] McFague, *Models,* 181-182.

model, or wish to reconcile several models but cannot. Consequently, Johnson's approach may be more helpful.

Elizabeth Johnson examines traditional models or symbols of God and names them Spirit-Sophia, Jesus-Sophia, and Mother-Sophia in order to learn how these models can hint toward the mystery of God. She intentionally studies these models of God in a Trinitarian way and finds that the Trinity is also a symbol, in this case a symbol that points to the relationality of God to the world and in God's own mystery.[59] Although Johnson proposes that a multitude of models of God are needed to correct each other and to emphasize that no model or group of models is adequate, in practice she limits herself to discussing models in groups of three. This method is quite appropriate since the Christian tradition has focused on the Trinitarian nature of God, and appeals to an established, although confusing concept explaining the relationship of various models. However, her focus on the Trinity is also limiting since a Trinitarian concept does not describe how more than three models, or various conceptions of the Trinity can relate to each other.

The use of many models encouraged by Johnson and McFague may lead to relativism or a refusal to accept multiple models. Relativism results when people recognize the need for multiple models of God, but refuse to limit what models can be used, as they assert that all models are equally valid. The refusal to accept multiple models can occur when people think that only one model correctly describes God (classical realism) or when a person recognizes the usefulness of multiple models, but cannot accept them due to the lack of a convincing system to organize the models. As noted earlier, these problems can prohibit the acceptance of multiple models and have disastrous consequences for society. Although McFague proposes criteria for models of God, and Johnson identifies the basis of models of God, they do not focus on these

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[59] Johnson, 187, 204.

criteria enough to dispel fear of relativism.[60] Johnson and McFague ignore the potential of relativism but begin to address the refusal to accept multiple models with their idea that many models of God can be conceived of simultaneously in order to hint toward a description of God. However, without a more detailed description of how these models fit together, and larger emphasis on their criteria to evaluate models, their theologies will not speak to the experience of those who believe that one model is all that is necessary to describe God or to those who need an organizational system to comprehend the variety of models. Since Johnson and McFague only begin to address the potential problems related to the use of many models, I look to another theologian for insight into these problems.

John B. Cobb examines the implications of moving beyond a concept of a single true religion in *Christ in a Pluralistic Age*. I will examine his work to determine if these implications are similar to the problems of moving beyond one model of God. Cobb uses the term "pluralism" to refer to a multitude of gods or religions as he writes:

> The fact that Christianity is one way in the midst of other ways has always been apparent, but the common response has been that Christianity is the one right or true way.... Pluralism was not recognized at a level significant for Christology.[61]

He acknowledges that this condescending method of thought is no longer acceptable since other religions have been recognized as "having their own integrity and impressive achievements but also as offering much that Christians find sorely lacking in themselves."[62] I suggest that just as he finds condescending thought patterns of theology no longer acceptable among various religions, it has also ceased to be an acceptable way to conceive of models of God. In other words, the dominant image of God in recent history cannot be accepted as the only image of God.

Cobb suggests that

> Christ, as the image of creative transformation, can provide a unity within which the many centers of meaning and existence can be appreciated and encouraged and through which openness to the other great Ways of mankind can lead to a deepening of Christian existence.[63]

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[60] McFague, *Metaphorical Theology,* 137-144. Johnson, 57.
[61] John B. Cobb Jr., *Christ in a Pluralistic Age* (Eugene, Or: Wipf and Stock Publishers, 1998), 18.
[62] Cobb, 18.
[63] Cobb, 21.

Creative transformation can help resolve the problems of multiple models of God by asserting that Christ provides unification among the many models of God. Although Cobb's idea of creative transformation may solve the problem of "pluralism" of religions, an idea that could be extended to multiple models, it does not relate these ideas to concepts of reality. For this reason, I look for a new way to simultaneously conceive of many images of God that are limited by criteria.

I propose that complementarity, an interpretive principle developed for use in modern physics to promote the acceptance of contradictory models depending on circumstances, can be a helpful example of how more than one model can be deemed valid. I will devote Chapter 2 to the history of complementarity in order to understand how it may be applicable to metaphorical theology. Chapter 3 will focus on the parallels between complementarity and metaphorical theology, how complementarity can be used in the study of models in non-science and interdisciplinary fields, and a discussion of what complementarity can add to theology.

CHAPTER 2

Complementarity

When Niels Bohr defined his idea of complementarity in 1927 for use in quantum physics,[1] it was a result of years of work trying to develop a new epistemology pertinent for all descriptions of nature and a way to resolve quantum mechanical paradoxes.[2] Since Bohr strove to extend complementarity from a way to resolve problems of quantum mechanics to a general conceptual framework, and because this extension suggests the application of complementarity to problems in metaphorical theology, the philosophical extension of complementarity will be the focus of this chapter. However, before complementarity is extended to other issues, its original uses must be understood. One of the first uses of complementarity was to reconcile the difference between classical and quantum mechanics. Another was to resolve the paradox between the wave and particle natures of light that had become more pronounced during the beginning of the twentieth century. Since example of the wave and particle natures of illustrates the use of complementarity in a way more accessible to the non-scientist it will be examined in greater detail.

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[1] Henry J. Folse, *The Philosophy of Niels Bohr* (New York: Levier Science Publishing Co. Inc., 1985), 37.
[2] Folse, 1.

History of Complementarity

The description of light

Throughout history, the accepted model of light frequently changed. One of the first to study light in modern times was Sir Isaac Newton (1642-1727). His work focused on the refraction of light through a prism, recognizing that white light was a mixture of all colors.[3] He also proposed that corpuscles of light were associated with various colors and excited the aether into characteristic vibrations.[4] Although Newton's original findings included a wave and particle nature of light (the corpuscular concept of light and the corresponding wave movement of aether) he increasingly supported the particle description throughout his life. Because Newton was held in such high esteem, ideas of the wave nature of light developed over the next 150 years were not as highly regarded as particle theories, even though Newton's proposition of a particle description of light was only a speculation on the edge of his optical study.[5]

Christian Huygens (1629-1695) was one scientist who developed a wave model that was frequently overshadowed by Newton's work. Using his wave theory of light, Huygens derived the laws of reflection and refraction.[6] Other scientists, including Leonhard Euler (1707-1783) also worked with wave theories, but none were truly regarded as important until the work of Thomas Young (1773-1829). In 1801-1803 Young presented papers supporting the wave theory through its explanation of

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[3] Eugene Hecht, *Optics,* 3d ed. (New York: Addison-Wesley Longman Inc., 1998), 3-4. Refraction occurs when light waves are bent as they pass through the interface between two materials. Hecht, 100.

[4] The "aether" or "ether" was considered to be the medium that enabled light waves to propagate since all waves were thought to require a medium. Light was thought to only move at *c* when viewed from a specific reference frame at rest with respect to the either, but in other reference frames, light could have different velocities. For instance, moving toward a light source would allow one to record it as moving faster than c while moving away from the source would allow one to observe a slower speed. Raymond A. Serway, *Physics for Scientists and Engineers* (Chicago: Saunders College Publishing, 1996), 1151. Michaelson and Morley proved that ether did not exist in 1897. Later it was understood that light is an electromagnetic wave that does not require a medium to propagate. Hecht, 7.

[5] Hecht, 3-4.

[6] Reflection is the change in light's direction after bouncing off a surface while refraction is light's change in direction after passing through a surface.

interference.[7] In Young's experiment, sunlight passed through a pinhole, creating a beam of light that illuminated two pinholes placed very close together. By placing a screen behind the pinholes, Young observed patterns of bright and dark bands on the screen, the trademark of interference, the addition or canceling of two or more superpositioned waves due to their relationship to each other (phase difference). Today the experiment is often performed with a laser beam illuminating two small slits.

If light were made of particles, one would expect the screen to be illuminated as in Fig. 1, with bright spots directly behind the slits. However, when this experiment is performed, a series of bright and dark regions are observed on the screen as shown in Fig. 2. This characteristic fringe pattern is due to the interference of the waves coming through each slit, as shown in Fig. 3. Since interference is explained by wave theory as explained in Fig. 3, Young concluded that light is made of waves.[8] Eventually, when Augustin J. Fresnel (1788-1827) calculated the form of diffraction patterns of light resulting from various apertures and obstacles, using the wave theory, Newton's main objection to the wave theory was disproven and Young's wave model of light was accepted in Europe.[9]

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[7] Hecht, 4.
[8] Hecht, 385.
[9] Hecht, 4-5. Diffraction is the "deviation of light from a rectilinear propagation." Hecht, 432. This phenomenon is observed in the complex shadows that can result from placing an opaque object between a point source of light and a screen. To observe this property, one can place a piece of paper with a small hole in it below a strong lamp. Hold your hand, or another object under this hole and you should see a shadow that is more complex than a simple outline of the object.

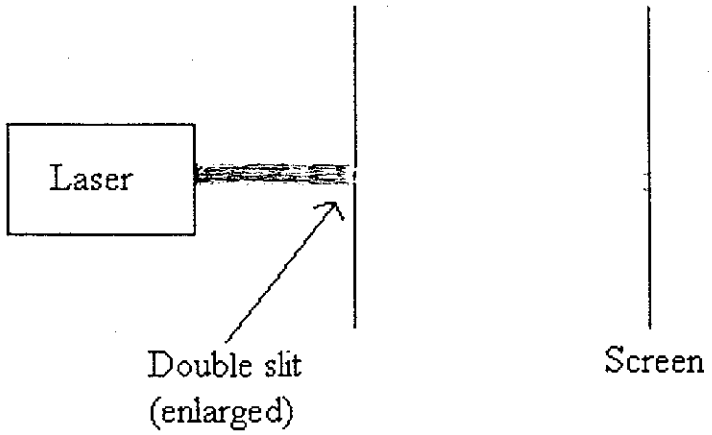

Fig 1. What Young's double slit experiment would show if light was always observed to be particles.

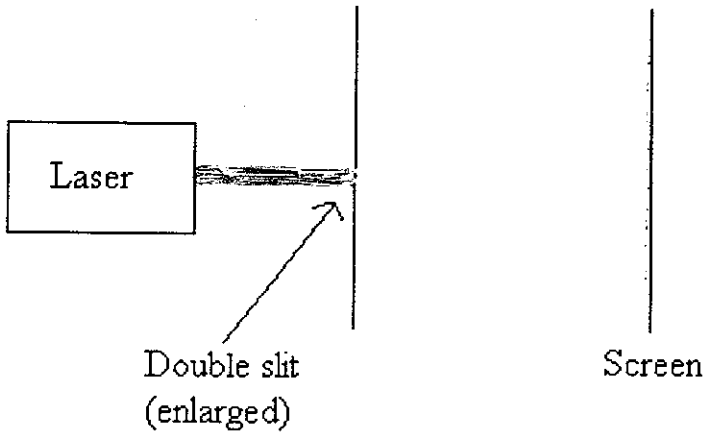

Fig 2. Young's double slit experiment showing interference, an indication that light is wavelike.[10]

[10] Hecht, 385-386.

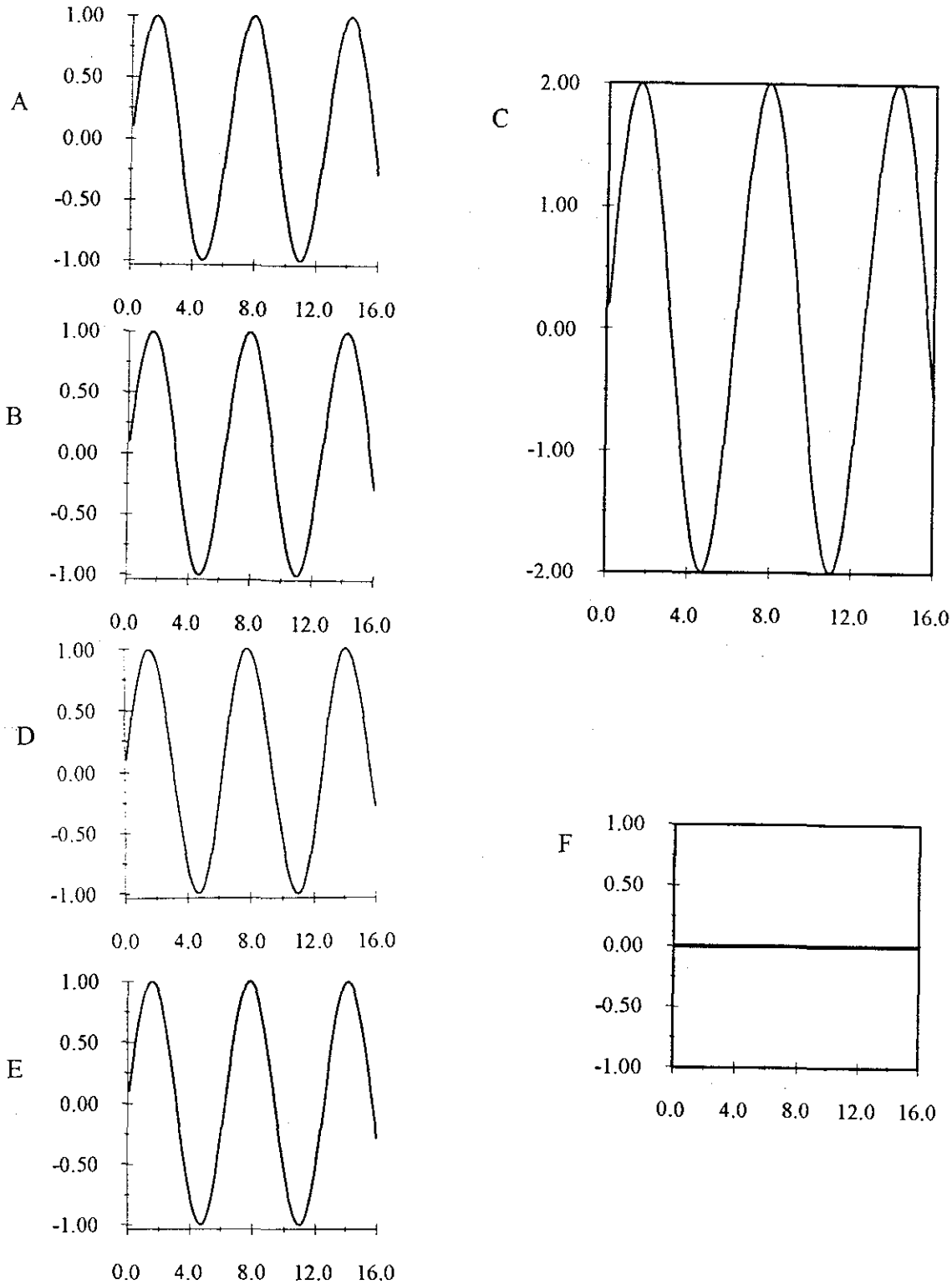

Fig. 3. In Young's double slit experiment, illuminated regions of the screen are due to constructive interference, when waves from each slit (A and B) add to each other to make a bright spot, indicated b the larger amplitude of the wave in C. In Young's, dark regions of the screen are due to destructive interference, when waves from each slit (D and E) are completely out of phase and cancel each other, as shown in F. [11]

[11] Serway, 459-461.

The next development in the study of light supported the particle nature of light and was based upon Heinrich Hertz's 1887 investigation of the photoelectric effect.[12] The photoelectric effect, or the process by which a metal surface illuminated with light emits electrons, contradicts the predictions of the classical wave explanation of light in several fundamental ways including the independence of the kinetic energy of electrons on the intensity of the light source, the presence of a cutoff frequency of the light source below which the photoelectric effect does not occur, and the almost instantaneous nature of the photoelectric effect.[13] These discrepancies were not resolved until 1905 when Einstein proposed that light rays are made of a stream of tiny particles called photons.[14] His work was based upon Max Planck's 1900 study of the relationship of intensity and frequency of radiation given off by a black body, an object that is an ideal absorber of energy.[15] Planck discovered that the best explanation for the pattern of radiation required that hot matter emitted bits of energy of a set size called quanta. Einstein used this idea of quantized energy units when he proposed that light is not continuously distributed over a wave, but concentrated in packets called photons.

During the 1920s, two advances supported the necessity of the wave and particle descriptions of light without revealing how both of these contradictory descriptions could be used. In 1923, Louis de Broglie combined the wave and particle theories of light by

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[12]Kenneth Krane, *Modern Physics,* 2nd ed. (New York: John Wiley & Sons Inc., 1996), 70.

[13] The experimental results of the photoelectric effect disprove classical wave theory in three distinct ways. First, the maximum kinetic energy of the emitted electrons was found to be independent of the intensity of the light source, while wave theory suggests that the maximum kinetic energy should be proportional to the radiation intensity. Secondly, the photoelectric effect only occurs if the frequency of the light source is above a certain value, while the wave theory predicts that the photoelectric effect will occur for any frequency. Finally, the first photoelectrons are emitted almost instantaneously after the light source is turned on, instead of a considerable time after the light is turned on as predicted by the wave theory. Krane, 72-73.

[14]Hecht, 8.

[15] Serway, 574.

equating Planck's equation relating energy and frequency, [16] $E = h\nu = hc/\lambda$, that demonstrates the wavelike nature of light due to the frequency or wavelength terms, to $p = E/c$ that suggests the particle like nature of light with its momentum term.[17] Although this description mathematically reconciled the wave-particle duality, it did not provide an understanding of how this equation could be connected with reality since wave and particle are mutually exclusive concepts.[18] Finally, during the development of quantum mechanics, two mathematically equivalent mechanics were developed, Werner Heisenberg's matrix mechanics and Schrodinger's wave mechanics.[19] Once again, the equivalence of these systems combined the wave and particle natures of light without revealing how these descriptions related to the physical reality of light.

Although there were many advances in the study of light from the 1600s to the 1920s, by the early 1900s there was still no consensus regarding its nature. Interference experiments by Young, as well as Huygen's derivation of reflection and refraction laws supported the wave nature of light. On the other hand, the photoelectric effect emphasized the particle nature of light. Finally, the work of de Broglie, Heisenberg and Schrodinger supported both the wave and particle natures of light, but did not reconcile this paradox with reality. Consequently, scientists were left with two completely contradictory descriptions of light, the wave and particle. They wondered how one phenomena could be explained or described by two contradictory descriptions when the Newtonian paradigm's classical realism still prevalent at this time required one correct answer. A new paradigm would be required in order to advance the understanding of

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[16] Where E is the energy of the particle or wave, c is the speed of light, h is Planck's constant indicating quantization, ν is the frequency of the wave or how many times it oscillates per second, and λ is the wavelength or length of one wave. Krane, 74, 101.

[17] Where p is the particle's momentum. (Momentum is mass times velocity nonrelativistically. Non-relativistic particles are those whose speed is so much less than the speed of light that the effects of relativity are negligible.) Krane, 74.

[18] John Honner, *The Description of Nature: Niels Bohr and the Philosophy of Quantum Physics* (Oxford: Clarendon Press, 1987), 40-41.

[19] Folse 88-89.

light, and the one to provoke this shift was Niels Bohr with his notion of complementarity.

Complementarity

Niels Bohr proposed a revolutionary resolution of the wave-particle dual description of light in a presentation on his theory of complementarity in Como, Italy in September of 1927. One scientist at the conference, Wolfgang Pauli, recognized the implications of Bohr's idea, and the two of them worked on this idea until the paper was ready for publication by Easter 1928.[20] In his original paper, Bohr intended complementarity to resolve the contradiction between quantum and classical mechanics as well as between the wave and particle natures of light.[21] The wave and particle model application of complementarity will be examined in this thesis since it illustrates the use of complementarity as a general conceptual framework in a way more accessible to the non-scientist.[22]

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[20] Folse, 37.

[21] Folse, 114.

[22] This is a brief explanation of Bohr's attempt to unify the contradictions between classical and quantum mechanics. Please note that "space-time description" is the description obtained by observation, and the "claims of causality" are those things which allow one to study a system that is not observed. Folse 67. Conservation laws must be present in order to make claims of causality, for if quantities are not conserved, one cannot predict what has happened or will happen.

The relationship between classical and quantum mechanics follows complementarity in that it resolves the fact that "Bohr and Heisenberg had not been able to discover any physical interaction which permitted *both* forming a space-time picture of the system *and* applying the conservation principles to determine causal change through time," (Folse, 114) in the quantum mechanical system although these two modes of description were united classically. This classical unification was possible since ordinary perceptions are on such a large scale that the discontinuity of actions is not noticeable. Therefore, the distinction between casual and space-time descriptions is only noticeable in quantum mechanics when the discontinuity of actions is discernible.

Bohr and Heisenberg were unable to find an interaction which permitted both of these descriptions because of the intrinsic properties of quantum mechanics. Specifically, when a quantum mechanical observation is made, the observed system is in an interaction and so there cannot be definite distinction between the observing system and observed object. Since there cannot be a definite description of the observed object (meaning a complete classical description of the object's position in time) this object cannot be thought of as an isolated system to which conservation principles can apply. Without the application of conservation principles, there can be no causal description of the temporal development of the state. However, "The mode of space-time coordination is necessary to describe what is determined by

According to Bohr's final idea, reality can only be described using models. Additionally, the limits of language cause one model to be inadequate to describe the various characteristics of some entities. Therefore, several models, often contradictory in nature, must be used together to describe reality. However, only one of these descriptions is appropriate at a time depending on the experiment performed.[23] In the case of light, the contradictory models are that of the wave and particle as described in classical physics. Light is observed as a wave or particle depending on the experiment performed, for instance, a wave-experiment, such as Young's double-slit, yields wave-like results and vice versa. Bohr concluded that to completely describe light, both the wave and particle descriptions of light are necessary even though the two natures cannot be observed simultaneously.

From this summary of complementarity, it is clear that there are several parallels between it and metaphorical theology as outlined in Chapter 1. For example, both complementarity and metaphorical theology conclude that reality, whether this is the physical world or the reality of God, can only be described using models. Indeed, in the lecture that introduced complementarity, Bohr used the term 'symbolic' to categorize the wave and particle natures of light.[24] Additionally, both interpretative devices

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observation, and it has also been empirically determined that the conservation principles do apply to each atomic process. Hence although the two classical modes of description cannot be applied at the same time to the same physical system, neither can they be abandoned." Folse, 113. Consequently, Bohr sought to reconcile the disassociation of causal descriptions and space-time coordinates in quantum mechanics that had been united in classical mechanics with his description of complementarity. Folse 113-114.

For an example of where this unification can be applied, consider the contradictions of various mathematical systems of quantum mechanics. During the development of quantum mechanics, Werner Heisenberg developed a system of matrix mechanics that was found to be equivalent to Schrodinger's wave mechanics. Folse, 88-89. Both mathematical systems of quantum mechanics revealed little of the physical processes occurring when an atom changes states. To understand these processes, physicists had to employ classical pictures of continuous change rather than the quantum mechanical pictures of discontinuous changes. Folse, 11. In other words, Bohr provided a way to understand how physicists could move between the quantum and classical views of nature when they were based on the fundamentally opposing principles of discontinuity and continuity.

[23] Kalervo V. Laurikainen, *The Message of the Atoms: Essays on Wolfgang Pauli and the Unspeakable* (New York: Springer - Verlay, 1997), 43.

[24] Paul Feyerabend, "Quantum Theory and Our View of the World," in *Physics and Our View of the World*, ed. Jan Hilgevoord (New York: Press Syndicate of the University of Cambridge, 1994), 161.

acknowledge the limits of a model to describe reality and consequently require that multiple models are used to describe reality. These parallels indicate that there may be enough similarities between complementarity and metaphorical theology to investigate what complementarity might add to metaphorical theology. Particularly, complementarity may offer criteria that could be applied to models of God as well as a world view that will allow people to synthesize many models. These improvements to metaphorical theology could help resolve the problems of relativism, the refusal to accept multiple models of God, and the difficulty understanding how various models coherently relate that can arise from the encouragement of multiple models. Despite the promise of these parallels, it will be valuable to examine how Bohr intended complementarity to be a general conceptual framework extended to other disciplines, as well as how other people have attempted this, before attempting to improve metaphorical theology with complementarity. This process will allow the full range of connections between the two to be understood and the most helpful improvements made to metaphorical theology.

Philosophical Aspect of Complementarity

The development of Niels Bohr's philosophical concept of complementarity parallels the history of use of models in religion in three main ways. First, Bohr maintained that the atoms and light he studied were real entities, but that theories about these entities are only partial representations of aspects of the world.[25] This concept of reality is quite similar to McFague's concept of God - that there is a reality of God, but that this reality can only be partially known. Since Bohr's notion of reality recognizes that real entities cannot be fully described by a theory or model, Barbour categorizes Bohr

[25] Barbour, *Science,* 168-169.

as a critical realist.[26] Bohr advocated the use of critical realism, even if he does not use this term, when he encouraged the extension of complementarity to a general conceptual framework. It is this connection between views of realism, complementarity as a general framework, and models themselves that will be the most fruitful addition to metaphorical theology from complementarity. Before this addition is analyzed further, it will be helpful to return to the parallels between Bohr's philosophical concept of complementarity and the history of the use of models in religious studies.

The second parallel is Bohr's realization that the use of only one model to describe reality could lead to problems. At the time of Bohr, these types of problems in the scientific community included conflicts about which description of light was correct and the difficult task of switching back and forth between the classical and quantum mechanics. The admission that the acceptance of one model to the exclusion of others can be harmful is paralleled in the work of feminist, ecological and liberation theologians who acknowledge the problems resulting from a hierarchical, and thus dominating model of God.

Finally, Bohr understood that a new model of light or new type of mechanics would not solve these problems, much as Elizabeth Johnson asserted that a new model of God simply replacing the patriarchal one would not be an adequate solution. Johnson and others proposed using multiple models, but Bohr realized that a new mode of thought would be necessary to resolve the issues. Although the mature concept of complementarity stated that complementarity is the most characteristic feature of quantum mechanics,[27] the application of complementarity to quantum mechanics was very difficult for many people to grasp because the classical concept of reality stated that there must be a single truth.[28] The modification of old theories as new experiments were

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[26] Barbour, *Science,* 168-169.
[27] Laurikainen, 22.
[28] Bryan Appleyard, *Understanding the Present Science and the Soul of Modern Man* (New York: Bantam Doubleday Dell Publishing Group Inc., 1993), 49.

performed was common, but Bohr's proposal to combine ideas while keeping their original integrity by presuming that they were valid at different times was revolutionary. Bohr realized that complementarity provided the necessary revolution of thought to resolve the problems between classical and quantum mechanics, and consequently advocated the extension of complementarity from an interpretative principle used in specific cases of physics to a conceptual framework that could be used throughout physics, other natural sciences, and in other disciplines.

> According to Henry J. Folse,
>
> Throughout the development of quantum theory Bohr repeatedly stressed that venturing into this new domain of human knowledge requires 'a constant extension of the frame of concepts appropriate for the classification of new experiences'. In turn, this 'leads to a general epistemological attitude which might help us to avoid apparent conceptual difficulties in other fields of science as well'.[29] Consequently, it is clear that Bohr intended to establish complementarity as a contribution 'to the general philosophical clarification of the presuppositions underlying human knowledge'.[30] Thus in no way should complementarity be restricted to the analysis of only the specific paradoxes which arise in the quantum mechanical description of atomic systems.[31]

As this passage indicates, Bohr recognized that the application of basic concepts essential for describing experience through physics is based on assumptions underlying human knowledge. Additionally, the development of physics has done much to reveal these presuppositions.[32] Since the basic concepts used by physics are intimately connected to the assumptions underlying human knowledge, the world view held by physicists is often also held by non-scientists. For instance, when physics presupposed that there was one right way to view the world, in terms of the classical realism common to the Newtonian paradigm as described by Barbour, non-scientists also held this idea of realism. Consequently, as Bohr led physicists to an alternate form of realism, so he led the rest of the culture, the result of which was a paradigm shift into the twentieth century paradigm where critical realism is most appropriate.

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[29] Niels Bohr, "Causality and Complementarity," *Philosophy of Science* 4 (1937): 289.
[30] Bohr, 290.
[31] Folse, 12.
[32] Bohr, 289-290.

While initiating this paradigm shift, Bohr recognized that the dominant world view needed to change, in many fields, not just in physics, and that this world view should change to what Barbour later termed "critical realism." In this world view or conceptual framework, theories, models, or symbols can only partially represent the real entities of the world. Additionally, knowledge claims of this framework must be restricted to experience. Finally, complementarity is an "exhaustive and complete description in so far as it embraces mutually exclusive descriptive concepts drawn from theoretical framework."[33]

The extension of complementary to a conceptual framework is important for theology since this framework allows a more complete understanding of how multiple models can work together than has been provided by theologians. Elizabeth Johnson's work illustrates the inadequate connection between the broader conceptual framework or paradigm of the day and a metaphorical theology. She proposes the use of many models of God to solve the problems of only using one model and to align current theology with the tradition of using many names for God. While she eloquently employs the history of Christianity to offer a solution to problems of today, she does not adequately explain how one can conceive of many models in a world where classical realism is so prevalent. Johnson attempts to connect various models using a classical Trinitarian format, but includes multiple models of God within each section of the Trinity without explaining how several models can respect one aspect of the Trinity. Consequently, her theology sounds very good when it is discussed, but when someone actually tries to put it to use, he or she may very well be too confused by the multiple models to relate to this concept of God. When a theology holds as much promise as Johnson's and yet is not quite applicable to real life, other methods should be investigated to increase the usefulness of

[33] Honner, 54. The use of framework in this quote indicates a framework of a description of a certain physical phenomenon, while my use of framework has been to the conceptual framework described by Bohr which is much closer to the idea of a paradigm or world view. The difference between these two applications of the term is that the conceptual framework can be applied to much more than a description of certain physical phenomena.

the theology. Consequently, Bohr's philosophical concept of complementarity is quite relevant to the discussion of models as it will offer a pattern of a conceptual framework from which theologians can develop a framework to base the acceptance of many models of God. Since the applicability of complementarity to other fields is a critical example of its extension to a conceptual framework, several of these extensions will be examined in the final section of this chapter before proceeding to Chapter 3 in which it will be shown in detail what complementarity can add to metaphorical theology.

Applications of Complementarity

As noted above, the applicability of complementarity to other fields is an important testament of the ability to extend it to a conceptual framework. As further evidence that these applications are important, Folse writes:

> Examining Bohr's writings from 1935 to his death in 1962, one cannot help concluding that his overriding philosophical goal was to bring the lesson of complementarity to fields other than atomic physics. His articles from this period are often very repetitious, but that should only serve to deepen our *prima facie* conviction that he did not consider these applications of his epistemological lesson to biology, psychology and anthropology to be merely instructive parallels. Instead, he was fully convinced that the generalization of the classical framework, which he called complementarity, would teach the lesson for revising our understanding of the description of nature in these fields as it had in physics.[34]

Therefore, this section is devoted to two major applications of complementarity to areas outside physics: to biology, and to the study of the intersection between science and religion, a major use of complementarity outside physics by scholars other than Bohr. [35]

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[34] Folse, 169.

[35] Bohr generally applied complementarity only to empirical sciences but did occasionally mention its extension to art, music, or religion. Folse, 170. Bohr also commented on the use of complementarity in psychology, but did not put these ideas in writing, and was rather obscure when he discussed them during interviews and speeches. Since these examples are only to demonstrate how Bohr intended complementarity to be extended to areas outside of physics as broad conceptual framework, its use in psychology and Bohr's brief mentions of its connection to non-science fields is not included in this thesis. Instead, Chapter 3 will be devoted to an original extension of complementarity to religious studies, particularly metaphorical theology based upon its extension to other fields discussed here. For a compilation of the connections to psychology, see Folse 175-183.

Complementarity can be extended to biology since the whole of an organism cannot be described simply by examining its parts. Therefore, there are two distinct modes of description that cannot be reduced to one: that of the individual parts of an organism, and that of the whole organism. The individual parts cannot function without the rest of the organism, and the entire organism cannot function without the parts. Consequently, although there are two distinct modes of description of an organism, these modes are also intimately connected and cannot be separated. Bohr believed that complementarity has been applied to biology for a long time rather intuitively to understand this balance between distinction and connection.[36]

On the other hand, scholars have debated about whether the relationship between science and religion could also be described using complementarity since the 1970s. Not surprisingly, the conclusions to this debate have varied widely and depended heavily on how one defined complementarity, science, religion, and what aspects of these disciplines was claimed to be complementary.[37] In order to fully describe this debate, hundreds of pages could easily be written. To avoid a long discourse on this subject, I will focus on how the term "complementarity" has been clarified through this debate.

Ian Barbour asserts that Bohr "proposed that the idea of complementarity be extended to other phenomena susceptible to analysis by two kinds of models..."[38] but does not think that complementarity should be extended to science and religion. The details of Barbour's critique of extending complementarity to other circumstances are not essential for this thesis, but the three conditions he develops to explain his point of view

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[36] Folse 184-185.

[37] To read more about the use of complementarity to relate science and religion see the following articles for a representative sample of viewpoints. Max Rudolf Lemberg, "The Complementarity of Religion and Science: A Trialogue," *Zygon* 14, no.4 (Dec. 1979):349-375. Harold H. Oliver, "The Complementarity of Theology and Cosmology," *Zygon* 13, no. 1 (Mar. 1978): 19-33. James L. Park, "Complementarity Without Paradox: a Physicist's Reply to Professor Austin," *Zygon* 2, no. 4 (Dec. 1967): 365-381. K. Helmut. Reich, "The Relation Between Science and Theology: The Case for Complementarity Revisited," *Zygon* 25, no. 4 (Dec. 1990): 369-390. Kevin J. Sharpe, "Relating Science and Theology with Complementarity: A Caution," *Zygon* 26, no. 2 (June 1991): 309-315.

[38] Barbour, *Science,* 170.

may be relevant to the use of complementarity, so these conditions will be examined. Furthermore, a conceptual framework for metaphorical theology will be developed using these conditions in Chapter 3. Barbour's first condition for applying the concept of complementarity requires that models refer to the same entity and are of the same type. The second condition involves the realization that the use of complementarity outside of physics should be by analogy only. In other words, both models must be valued in their own field, and it cannot be assumed that methods that are useful for physicists will be useful in other fields. Finally, Barbour asserts that complementarity should not be used to avoid resolving unclear theories since conflicts will not be resolvable with complementarity in all circumstances.[39]

Another writer who clarifies the application of complementarity through analysis of its application to science and religion is D. M. MacKay. MacKay emphasizes that complementarity is not a physical theory, but a particular kind of logical relation that should only be applied after all mutually exclusive descriptions of an event are verified to be a description of the same subject. The benefit of complementarity is its ability to allow additional information about an entity or event to be gathered.[40] Another valuable insight of MacKay's is that complementarity can be extended to more than two descriptions of the same object.[41] In Chapter 3, this understanding will provide a background for the extension of complementarity to the many models of God encouraged by metaphorical theology.

The work of Ian Barbour and D. M. MacKay to clarify the use of complementarity in non-physics fields grew out of their response to applying complementarity to science and religion. This application of complementarity, as well as its use in biology and epistemology offers further credibility to the use of complementarity as a conceptual

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[39] Barbour, *Science,* 170.
[40] D.M. MacKay, "Complementarity in Scientific and Theological Thinking," *Zygon* 9, no.3 (Sep. 1974): 226-231.
[41] MacKay, 239-241.

framework. Meanwhile, the clarification of the appropriateness of extending complementarity to other disciplines by Barbour and MacKay will support its use as a method to solve the limitations of metaphorical theology.

CHAPTER 3

Strengthening Metaphorical Theology with Complementarity

In Chapter 1, the outline of the history of use of models of God concluded with the necessary use of many models to speak of God. Several problems resulting from this conclusion were identified including the refusal to recognize new models because of the belief that an older model completely describes God or the belief that only one model can be valid. A second problem is the a difficulty synthesizing various models into a coherent concept due to the lack of connection between multiple models of God and the paradigm of today. The final problem is relativism, the belief that all models are equally valid. These problems must be addressed since they can lead to the misrepresentation of Christianity, wars, and a theology inapplicable to people's lives.

I examined complementarity in Chapter 2 in hopes that it may be a solution to these problems. Although Niels Bohr developed complementarity to resolve the discrepancy between classical and quantum mechanics, as well as the wave and particle natures of light, he also intended it to be a conceptual framework applicable to many fields. Several qualifications of complementary models were developed through the application of complementarity to science and religion.

This final chapter unites problems resulting from the use of multiple models to speak of God with complementarity in order to offer solutions to these problems and to present additional ways that complementarity can clarify theology. To begin, parallels between complementarity and metaphorical theology suggest that characteristics of complementarity can inform discussion of models of God. These characteristics will be

used to establish criteria to evaluate models of God, partially resolving the problems of relativism and refusal to recognize new models. Characteristics of complementarity will also enable people to conceive of multiple models of God by developing connections between metaphorical theology and the twentieth century. Consequently, the difficult task of synthesizing various models into a coherent concept will be resolved. Finally, limited pluralism will connect metaphorical theology and the twentieth century paradigm to further resolve relativism and the refusal to recognize new models. Throughout this process, it will be also shown that complementarity can clarify our conception of God by asserting that models point to something real, and by enabling us to embrace mutually exclusive characteristics of God that may be a part of various models.

Parallels between metaphorical theology and complementarity

Two distinct yet related parallels exist between metaphorical theology and complementarity. The first involves the *inability to understand all of reality*. In metaphorical theology this is described by McFague as the ability to only glimpse the backside of God. Her understanding presumes the inadequacy of all models or descriptions of God, while admitting that these concepts can point to a part of the reality of God. Likewise, complementarity concedes that neither the wave nor particle (or classical or quantum mechanical system) is a full picture of reality although both describe a characteristic of light.

Whether the reality in question is God in theology, or light and objects described by classical and quantum mechanics, *the admission that no one description can adequately describe reality* is the second parallel between metaphorical theology and complementarity. In physics, this implies that one must conceive of light as a particle or

wave depending on the type of observation performed while understanding that light is by nature unable to be successfully described by a single model. In metaphorical theology the second parallel is manifested in the necessity of recognition of multiple models supported by feminist. liberation, ecological and other theologians, due to the fact that regarding one model of God as greater than all others has many detrimental repercussions.

The importance of these parallels between metaphorical theology and complementarity is much greater than an interesting coincidence of the two interpretive principles since these parallel features form the basis of both metaphorical theology and complementarity. This shared background can be summarized as follows: precise literal descriptions of reality are not valid unless they are understood to be a model of reality that points to certain aspects of reality. The common foundation of these two interpretative principles suggests that the characteristics of one interpretative principle may be used to better understand the other. For example, characteristics of complementary models could be used as criteria for evaluating the validity of multiple models of God. For these reasons, I will examine the characteristics of complementarity in hopes of finding a method to conceive of multiple models of God as well as criteria to evaluate models of God.[1]

In Chapter 2, it was shown that those debating whether complementarity could relate science and religion refined the characteristics of complementarity. To review, complementarity requires that its models are of the same type and describe the same entity, and are valued by the community that uses them. Additionally, the claims of models must be based upon experience of real entities. Finally, complementarity is the embrace of at least two mutually exclusive models. In order to resolve several of the

[1] Indeed, this common foundation was what compelled me to investigate complementarity for solutions[1] to the problems raised by metaphorical theology.

problems defined in Chapter 1, these characteristics will be examined to see if they could be useful to construct criteria to evaluate models of God.

Applying criteria of complementary models to models of God

When evaluating models of God, it is obvious that the first criterion that must be met is if the model under consideration does, in fact, describe God. In order to meet this criteria, one must answer the questions of what is God, and how can God be described? As Tillich suggests, I agree that a person's god is whatever he or she is ultimately concerned with.[2] He argues that a person does not have true faith in a god unless the faith "adequately expresses an ultimate concern"[3] and expresses the ultimate.[4] I use the word "God" to specifically refer to the deity described in the Christian scripture, tradition, and in the experience of our lives, what I believe to be the ultimate, and capable of being an ultimate concern. Only if a model describes this God, shall it be considered further. Otherwise, there is no use to continue to evaluate the model. Therefore, the characteristic that complementary models must describe the same entity necessarily applies to models of God.

The second characteristic of complementary models is that all considered models must be valued by those who use them. It is clear that this principle will also be applicable as a criterion of models of God. If a model of God is not needed to help anyone conceive of his or her ultimate concern, it is not no longer useful, and consequently should not be further considered. For models of God, there is an additional implication of the value of a model beyond usefulness that does not occur in the scientific

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[2] Tillich, *Dynamics,* 2-3.
[3] Tillich, *Dynamics,* 96.
[4] Tillich, *Dynamics,* 97.

models first described by complementarity. This implication is that the value of a model of God to one group of people will not cause it to be used in to the exclusion of other acceptable models, and thereby initiate a process resulting in the degradation or abuse of another group of people or other beings. Consequently, as in complementarity, models of God must be valued by their users, with the additional qualification that the model is not detrimental to any part of the world.

A third characteristic of complementary models is that the models must be based upon experience. While it may be clear that the relevant experience on which a model of science consists is experimental data, it may not be evident what experience could be relevant for religious models. Many would argue that only basing a religious model on personal experience, the analogue to experimental data in the sciences, could problematically reduce the influence of scripture and tradition on this model. On the other hand, others may find the basis of religious models entirely on tradition and/or scripture to be just as troublesome. Since Christians have valued scripture, and tradition as important criteria for interpreting experience, I propose that the relevant experience on which a model of God is based should include scriptural, traditional and lived experience.[5]

In addition to these characteristics, I would add that complementarity is not just based on experience, but on the experience of real entities, an assertion that will be shown to be very helpful in criticizing certain positions of metaphorical theology. One critique of McFague's metaphorical theology is her insistence on the use of metaphors so much that if a metaphor is criticized she will simply counter by saying that it is just a metaphor and not to be understood as an actual description. In other words, McFague could be classified as an instrumentalist, only judging models by their usefulness, not on their truth or falseness.[6] While this line of thinking certainly prevents the idolatry associated with

[5] Elizabeth Johnson stresses the use of scripture, tradition and experience in *She Who Is*. In fact she devotes Chapters 4, 5 and 6 to these foundations of her theology.
[6] Barbour, 358.

the dominance of one model or metaphor, it can lead to the assumption that the individual metaphor doesn't really matter since they are just metaphors, and consequently do not intimately connect to reality. This second line of thinking is not consistent with the rest of McFague's work since she acknowledges God's reality and our ability to see part of it but paradoxically is unwilling to recognize that some metaphors might be useful to the point that they are connected to real entities. A more helpful viewpoint of models is that they describe a part of God. This belief allows models to be recognized as valuable, necessary tools in one's discussion of God, while admitting that although the complete God is unknowable there is something real to God that we can point to through our models (critical realism). Consequently, as physical reality must be connected to a complementary model in science, the reality of God must be connected to models of God.

With this analysis of the characteristics of complementary models, several criteria for a model of God have been identified. Models of God must be first of all be a description of God that point to a part, although not all of the reality of God. Models must also be valued by their users while they are restricted to the relevant expressions of scripture, tradition and lived experience of these people without encouraging the oppressive of others.

As suggested earlier, these criteria may help to resolve two of the problems outlined in Chapter 1. First, criteria used to evaluate models of God will be helpful for those who realize that other models might be valuable, but in their concern to avoid relativism, are reluctant to examine alternative models. These criteria could also reassure people reluctant to accept new models that new models are not being proposed willy-nilly, but do have a basis in the religious tradition as well as a use in today's world. It is true that establishing criteria to evaluate new and previously existing models of God may not convince classical realists that more models can be useful. To reach this group of people, the criteria for models of God will need to be combined with a strong case for limited pluralism, an acceptance of many, possibly contradictory models of God that meet

the criteria of models with the realization that some models are more valid than others, as will be outlined in the next section.

Criteria for models may also help to resolve the problem of relativism as they show that proposed models not meeting the criteria are not appropriate. Criteria also indicate that while there are many possible models, some are better than others. The establishment of a gradation of worth of models also combats relativism as it is demonstrated that all models are not equally valid. Although the proposed criteria do not perfectly solve the problem of relativism, they do take one step in that direction. A further step will be made when criteria for models are combined with the concept of limited pluralism as outlined below.

Limited Pluralism

As described above, a series of criteria of models of God useful for partially resolving the problems of metaphorical theology can be derived from the characteristics of complementarity. From these characteristics, and by applying the conceptual framework of complementarity and critical realism to metaphorical theology, limited pluralism, a way to conceive of multiple models of God can be obtained. I understand limited pluralism to include an acceptance of many models of God, even those that are contradictory, as long as the models fit the criteria of a model of God outlined above. Hence *limited pluralism* is a description of a group of models *limited* by criteria, and *pluralistic* in the sense of including a multitude of models. Limited pluralism will further resolve the two problems of metaphorical theology not satisfactorily resolved by the criteria of models of God. It will also provide a way to connect the idea of multiple models of God found in metaphorical theology to the twentieth century paradigm in order

to strengthen the synthesis of various models of God into a coherent concept, one of the major weaknesses of metaphorical theology.

The first characteristic of limited pluralism is its inclusion of any model of God that fits the previously established criteria. This embrace of possibly contradictory models is supported by the only characteristic of complementary models not applicable to individual models of God, the embrace of mutually exclusive ideas. While some models of God such as father and son are mutually exclusive when applied to God's relationship with an individual, it is unclear whether all models of God are mutually exclusive. Consequently, I propose that it is not necessary for models to be mutually exclusive, but only that they are distinct, and fit the criteria, to be included in the limited pluralism.

At this point, it may be hard to distinguish the acceptance of so many models found in limited pluralism from the possible relativism critiqued in this thesis since so many models fit the established criteria. However, the second characteristic of limited pluralism, a scale of value based upon a holistic examination of the criteria for models, sharply distinguishes it from relativism. While these criteria do support the rejection of some models, and the validity of other models, they do not support the idea that all models are equally valid. Instead, it is suggested that models can be placed on a scale of validity where some are more valued than others. The criterion stipulating that a model will not cause discrimination or oppression of other people demonstrates the presence of this gradation or scale of value since the potential for discrimination and oppression must be weighed against positive outcomes of a model. The criteria of complementarity stating that any model must be relevant to experience also illustrates this gradation. Because lived experience is different at different times, and in different places, one can see that some models may be more relevant in certain situations. I suggest that the value of models can be placed on a continuum, from the most beneficial defined as those that are relevant at many times and places for many people, without causing much oppression, to

those that are beneficial in only limited situations, or that have a high probability of causing oppression or other horrific side effects.

This spectrum of value combined with criteria for models of God sets limited pluralism apart from relativism, since these principles demonstrate that, of the valid models of God, some are more appropriate than others. Consequently, limited pluralism solves the problem of relativism since it can no longer be said that all models are equally valid. Although it does contribute to the elimination of relativism, limited pluralism has not yet been shown to help resolve the refusal to accept multiple models of God and the difficulty synthesizing multiple models, the other two problems that can be a result of metaphorical theology. In order to do this, limited pluralism must be connected to the broader conceptual world view that is characteristic of today's paradigm. For these connections to take place, Barbour's concept of critical realism and Bohr's extension of complementarity to a conceptual framework will be utilized.

Connecting limited pluralism to the twentieth century context

In Chapter 1, the concept of paradigm was discussed and the Newtonian and twentieth century paradigms were examined in detail. One feature of these paradigms was their form of realism, classical in the Newtonian paradigm and critical in the twentieth century paradigm. As outlined in Chapter 1, many people today still adhere to a form of classical realism where models are "descriptions of nature as it is in itself apart from the observer,"[7] and reality can be described "objectively and unambiguously."[8] Since reality as viewed by classical realism can is described using one model, this view of reality contributes to the idea that there must be one dominant model of God. Consequently, a shift to the view of critical realism, "partial representations of limited

[7] Barbour, *Science,* 168.
[8] Barbour, *Science,* 168.

aspects of the world as it interacts with us,"[9] will be required for people to realize the necessity of using multiple models while emphasizing that each model has limited relevance.

Through this discussion of types of realism and the change that may be necessary to coherently conceive of multiple models, it is clear that what is needed is a shift in conception of reality, or conceptual framework as termed by Bohr. Since Bohr could be classified as a critical realist according to Barbour, [10] and he proposed the extension of complementarity to a conceptual framework, and because complementarity has been so helpful at resolving other problems in metaphorical theology, it will be examined as a method to connect limited pluralism to the overarching world view of today. The extension of complementarity to a general conceptual framework implies that in many areas of life, one definitive answer or description may not be adequate. Examples of this come from fields as diverse as biology, psychology, epistemology and religion as discussed earlier. Consequently, there is a history, even though it may be brief, of applying complementarity to religion that dates back to Bohr.[11] Complementarity's assertion that each valid description is appropriate in certain circumstances connects the popularly held belief that certain models accurately describe nature to the acceptance of multiple images as demanded by complementarity, and theologians such as McFague and Johnson. Furthermore, complementarity encourages those with a classical realistic point of view to move to a critical realistic view as it shows that particular images are appropriate in certain circumstances, but that more than one image is necessary. This method of conceiving of many models of God in connection to the twentieth century paradigm had been missing from metaphorical theology but can be provided by complementarity.

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[9] Barbour, *Science,* 168.
[10] This form of classical realism is believed by Barbour to be the type that Bohr followed because complementarity involves the acceptance of at least two contradictory descriptions of reality as it is realized that all of these descriptions are needed to adequately describe all events observed. Barbour, *Science* 169.
[11] Folse, 170.

This use of complementarity via limited pluralism to conceive of multiple models of God demonstrates how multiple images can be utilized in certain circumstances to explain more of reality, solving the problem of synthesizing various models of God into a coherent concept. Additionally, the reliance of limited pluralism on Barbour's idea of critical realism, coupled with Elizabeth Johnson's compilation of the history of use of many images of God, should be adequate evidence to show that multiple models are necessary in certain circumstances, defeating the standpoint of people who refuse to recognize new models of God because they believe their old model is absolutely correct or because only one model can be true.

The concept of limited pluralism and the criteria of models of God were both derived from complementarity, further refinements to the application of complementarity to models, and its extension to a conceptual framework. When combined, limited pluralism and criteria for models of God adequately resolve three major challenges to metaphorical theology, those of the refusal to recognize new models because of the belief that an older model completely describes God or the belief that only one model can be valid, a difficulty synthesizing various models into a coherent concept due to the lack of connection between multiple models of God and the twentieth century paradigm, and relativism, the belief that all models are equally valid. Consequently, the value of metaphorical theology can be increased dramatically when reinforced by its parallels with complementarity.

In addition to the resolution of previously identified problems, complementarity can enrich a discussion of the attributes or characteristics of God. For example, theologians have often struggled with the relationship between God's transcendence and immanence. When viewed through the lens of complementarity, one can see that the embrace of mutually exclusive characteristics is possible, and that it may not be necessary, or even possible to choose between two apparently disparate characteristics. Consequently, complementarity suggests that God is both transcendent and immanent,

but that one of these descriptions may be better suited for certain circumstances. For instance, the historical figure of Jesus is a place where immanent is an appropriate description of God. This method of accepting contradictory and yet necessary descriptions of God is just one more way that the examination of complementarity can benefit theology.

The Benefits of Re-examining Metaphorical Theology in Light of Complementarity

The value of metaphorical and other types of theology can be increased dramatically by reexamining them in light of complementarity. Complementarity can be used to benefit broad areas of theology as it can indicate how to embrace mutually exclusive attributes of God such as transcendence and immanence, an issue that exists in many types of theology. From complementarity, further refinements of the application of complementarity to models, and its extension to a conceptual framework, the concept of limited pluralism and the criteria of models of God were derived. Limited pluralism and criteria for models of God adequately resolve three major problems identified as resulting from metaphorical theology, namely the refusal to recognize new models because of the belief that an older model completely describes God or the belief that only one model can be valid; a difficulty synthesizing various models into a coherent concept due to the lack of connection between multiple models of God and the paradigm of today; and relativism, the belief that all models are equally valid. When the resolutions to these three problems are accepted, future conflicts between various groups of people due to differences in theology may be avoided. Even more importantly, the resolution of these problematic implications of metaphorical theology will allow metaphorical theology to fulfill its

purpose: to limit the oppressive use of models of God while remaining faithful to the Christian tradition of applying many names to God.

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