The intention of this paper is to provide an analysis of the relationship between science and theology (S and T) which will be beneficial and useful to the evangelical Christian community. In order to accomplish this objective the structure of the paper will be threefold: (1) to provide an assessment of the major theories regarding the relationship between S and T (2) to propose a more satisfying model of the relationship and (3) to pursue an examination of controversial scientific and theological test cases for the model proposed. This subject is becoming an increasingly difficult and pertinent issue that needs to be sorted out, especially among the Christian community. As always, clarity will be necessary to advance the discussion.

In the first part of the paper I will attempt such clarity by offering definitions for theology and science and examining some of their similarities and differences. I will then move on to give a concise exposition of the basic patterns which I will label the hostility model, the harmless model, the haggle model and the harmony model. Ultimately, I will suggest that these models come up short and will advocate what I refer to as the hermeneutical model. I will suggest reasons why this model is to be preferred and will discuss the means of conflict adjudication. Finally, perhaps one of the best ways to support a model is to show how useful and able it is in handling a wide range of controversial test cases. I have chosen three such cases: (1) cosmology, (2) human nature, and (3) God’s relation to the world. The first is clearly regarded as a scientific enterprise; the second is within the domain of both science and theology, while the third case is primarily regarded as theological. Moreover, (1) is at the level of nature (2) is at the level of man and (3) is at the level of God. The diverse range of these controversial issues will help to assess whether the proposed hermeneutical model will be sufficient for the task of relating science and theology on a thoroughly committed Christian worldview. I suggest that it will.

1 In this paper I will assume the truth and validity of orthodox Christianity. I have no pretentions; I am attempting to understand the relation of S and T solely from a conservative evangelical Christian perspective. Thus, I will also assume the inspiration and inerrancy of scripture.
PART I: Assessing the Theories

Defining the Terms

1. Prolegomena

First, I suggest the acceptance of a critical theological and scientific realism rather than a naïve realism or some form of anti-realism. Critical realism maintains that the terms used actually refer to things in the real world, but it does not accept every description as necessarily being completely accurate or literal. Instead, theological/scientific concepts and models should be viewed as partial and incomplete but necessary ways of referring to God and to the world. Therefore, the descriptions given in either field are always in principle up for revision or even replacement. Critical realism does attempt to discover an accurate and literal picture of the world, but is hesitant in naively accepting something as a complete picture or description without sufficient warrant for doing so. Moreover, critical realism accepts epistemic foundationalism as well as the correspondence theory of truth.

One other prefatory issue is that this debate should be framed as the relation between science and “theology” rather than science and “religion,” science and “faith” or science and the “Bible.” This is because religion is much too vague a term and is used variously by authors without any explicit Christian content. It usually reduces to morality, value or some inner experience. Likewise, faith is a misleading term since it is often viewed as being opposite of reason. Also, there is a general realization that there is a faith component in science as well; faith is too broad a term. The Bible is also the wrong place to seek the relation because the Bible is simply a text that is not a result of interpretation, where S and T are human enterprises which seek to interpret nature and the Bible respectively.

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2 The model I will suggest corresponds more with critical realism, while a major difference between the similar harmony model is that the harmony model corresponds more with naïve realism.

2. Science and Theology

It is essential to have as accurate a definition as possible of S and T for precision and to aid in making useful distinctions. I offer these definitions: \(^4\)  

*Science* is a human interpretational enterprise employing empirical methods for obtaining an accurate picture of the physical world. Moreover, science is a way of knowing based on publically accessible empirical data. Likewise, *Theology* is a human interpretational enterprise employing biblical methods for obtaining an accurate picture of God and His relation to the world. Moreover, theology is a way of knowing based on publically accessible biblical data. S and T share several metaphysical, epistemological and methodological aspects in common; because of this they can be given a similar exposition.

For one, both S and T are each a way of knowing and not *the* only way of knowing. Neither can be reduced to subjectivity. Primarily, science answers “how” questions while theology answers “why” questions. However, both S and T have their distinct domains and their limitations. Science cannot deal with ultimate meaning, purpose or morality. Likewise, theology cannot deal with physics or the mechanisms that operate within science. It is important to note that both science and theology are based on a corporate human enterprise of interpreting data, either empirical or biblical. As a result, it has been widely recognized that all facts presented to us, whether in science or theology, must be “theory laden.” \(^5\) One crucial difference is that science utilizes a technical language involving natural categories \(^6\) while the Biblical language is “nonscientific” and “nontechnical.” \(^7\) Finally, each discipline interacts with hypotheses and observations, whether scientific theory and experimental data or theological doctrine and biblical statements. \(^8\)

\(^4\) My definitions of S and T were influenced by the definitions offered by DeWeese (In Class) and Richard Bube, “Seven Patterns for Relating Science and Theology,” in *Man and Creation: Perspectives on Science and Theology*, ed. Michael Bauman and Lissa Roche (Hillsdale, MI: Hillsdale College Press, 1993), 76-79.

\(^5\) More will be discussed on the interpretational aspects of S and T in the discussion of the hermeneutical model.

\(^6\) Ibid, 77.


\(^8\) Ibid., 258.
Describing the Theories

1. Hostility Model

The first model claims that S and T are inherently hostile to each other. They constantly have incompatible descriptions or understandings of the same event. This is also called a warfare or conflict model. According to this view, the modern view of science is incommensurable with the data of the scriptures; especially with regard to evolution and the age of the earth. When there is conflict, only one group is right. Those who say science is always right hold that no modern, educated and informed person can accept the mythological claims of Christianity. This is because science has supposedly shown belief in God and the supernatural to be impossible and unnecessary. On the other side of the issue are the Christians with no interest or competence in science who say that the Bible always has the authority over science. These two conflicting viewpoints, scientific materialism and Biblical literalism, are on opposite extreme ends of the spectrum. This is probably the most common view and is certainly the most commonly covered in the media for its drama.

2. Harmless Model

The second model claims that S and T are not hostile to each other, in fact they are completely harmless to each other. On this view, S and T cannot even harm each other in principle since they are totally unrelated. This is also called a two-language, independence or compartmentalization model. Gould has referred to it as “NOMA” (non-overlapping magesteria). This is judged to be the safest and most peaceful way to resolve the relation between S and T. Science cannot speak to theology nor can theology speak to science; they are two different kinds of languages that answer contrasting questions. Science deals with how things work and

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9 Bube, Seven Patterns, 84-85.
objective facts, religion deals with values and ultimate meaning. Their areas of investigation are non-overlapping. Each has their own methods and domains of inquiry which are important. They can both peacefully co-exist if they just keep a safe distance.\footnote{Barbour, 2.}

3. Haggle Model

The third model is in between the first two; S and T are not in total conflict or in total peace, but they just haggle with each other to get what they want out of the relationship. There are still disagreements between the two disciplines, but they are seeking common ground or anything illuminating or useful from the other discipline. Other models that would be included in this category include dialogue, conversation and conversion. Some proponents of this model seek a synthesis of S and T where they merge into one coherent discipline. Theology is constantly being redefined to fit the categories of modern science. It is taught that theology should come through science; in fact, some have gone so far as to say that theology should become a branch of physics.\footnote{Peters, 17.} On this model, S and T can suggest or borrow certain models, metaphors or methods from one another which would be useful. It also attempts to draw out new theological insights based on modern science. I suggest the term “haggle” because it seems that S and T try to conform each other to a certain mold in whatever way they can and the results are usually an unwarranted or illegitimate combination of the two disciplines.

4. Harmony Model

The fourth model does not attempt to achieve an apparent concord through haggling but instead affirms a genuine harmony between S and T. On this model, both S and T are legitimate disciplines which inform us on the nature of the real world and have the ability to inform each other on the areas in which they overlap. This model seeks to integrate the two disciplines into an
overall worldview with the conviction that they do no conflict or contradict each other. This is also called the integration or complementary model. Moreland states “Science and theology involve two different, complementary approaches to and descriptions of the same reality from different perspectives,” where each description is only a partial description of the whole reality but is complete on its own level. Theology can provide answers to the meta-questions that arise from science while science can tell theology what the physical world is actually like. Describing an event by either S or T does not nullify the insights from the other field which could speak to the same issue in different categories. Both S and T have their own particular domain, but can mutually benefit one another. Also, “each has its own decent degree of autonomy” and “inescapable degree of interaction.” Finally, on this view there is no conflict between science and the Bible; in fact, the Bible can be defended, confirmed and harmonized by science.

PART II: Accepting a Theory

The Hermeneutical Model

The model I am advocating I refer to as the hermeneutical model (HM). HM agrees with the harmony model on several accounts: Both hold that each discipline is able to provide us with descriptions of the world in their own domain as well as the ability to overlap and inform the other discipline for a harmonious picture of reality. However, this model is primarily distinct by its use of critical realism and its emphasis on the need for a solid hermeneutical methodology in each field to achieve this coherent and complimentary picture of the real world. As a realist

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15 Bube, Seven Patterns, 99.
16 Polkinghorne, 74-75.
model, theology itself is evidentially grounded in scripture and can be the evidential ground of other beliefs; as a critical model, theology will seek to respect the findings about reality in other disciplines such as science and vice versa. Unlike, the harmony model, HM is not as naïve and easily accepting of any particular description given in S and T; HM is much more critical and does not accept anything proposed in either S or T without serious investigation, reflection and an attempt to be as objective as possible. Too many people claim hostility between the Bible and science without even knowing an example of this phenomena; likewise, too many Christians claim harmony between science and their understanding of the Bible without a critical examination of modern science. This model attempts to be a satisfying intellectual attempt at realizing the difficulty inherent in the nature of theology and science and proceeds in the discussion with caution and humility.

The key to this model is the understanding that theology and science are both fundamentally hermeneutical enterprises which can either be poorly or properly interpreted as to what they are telling us about the real world. The findings of either S or T are only valid insofar as they have been properly interpreted through the rigorous methods of their discipline. As Polkinghorne states, “Both science and theology involve the acceptance of a broad interpretive framework.” As the medieval theologians taught, God and reality as a whole can be read from both the books of nature and the book of scripture. Since they are both “books” they each need their own hermeneutic to interpret the relevant data. Though it has already been noted that both science and theology are “theory-laden,” the critical realist approach affirms that there is a determinate truth value to all the phenomena within the books of nature and scripture. Just as there is a truth of the matter whether the universe is billions of years old, so there is a truth of the

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17 Polkinghorne, 69.
18 Peters, 19.
matter whether Jesus is the only way to God. Both are a matter of interpretation, but neither are merely matters of interpretation. As we critically reflect on the data of both S and T we are continuously journeying on an upward hermeneutical spiral toward a common goal: the truth.

The HM is the best fit within an intellectually satisfying and God-glorifying Evangelical Christian worldview. The reason for this is that it takes seriously the inerrancy of scripture as well as the legitimacy of science in revealing truths about God and our world. One Evangelical Christian conviction is that nature reveals truths about God and His creation which can and should be discovered by us. Another conviction is that since scripture is inerrant and scripture contains statements that are either explicitly scientific or related to science, then these statements are also inerrant. All of the other views either give too little weight to either scripture or science, while the harmony view gives too much weight and unexamined acceptance of different truths in either science or theology. The HM has just the right intellectual and Christian balance between the two. HM takes seriously that “all truth is God’s truth,” but it also takes seriously the fact that we are fallen and finite individuals with presuppositions and biases and so we need to be as critical and objective as possible. Therefore, HM, or something very near it, is the best model for evangelicals who want to take seriously the relationship and legitimacy of both S and T.

Conflict adjudication on this model is pretty straightforward in theory, but in practice requires much hard work and patience. Simply put, science cannot conflict with theology or vice versa, only certain interpretations of S or T can cause conflict. Science can be committed to a methodology (naturalism) but they cannot commit themselves to metaphysical naturalism or they are no longer science per se. This being the case, science could never even in principle be a threat to the rationality of the Christian faith, only a particular interpretation of science which is usually guided by anti-theistic biases in the first place. According to HM, conflict can only occur
as a result of improper hermeneutics or uncritical examination of the empirical or biblical data. Thus there is really no such thing as genuine conflict, only apparent conflict. When an apparent conflict arises between S and T, one must evaluate where one went wrong in the process: either poor science or poor theology is the culprit every time. This results in what Richard Bube calls “pseudo-science” and “pseudo-theology” which are a product of uncritically examining the data based on one’s presuppositions. To adjudicate apparent conflict, one must exam whether one was proper employing a critical hermeneutic for science and theology. Helpful questions include: was the science done objectively with the right method? Is there unwarranted conclusions being drawn from the scientific data? Should the particular data of science or theology be considered anti-realist in this instance? Was a proper grammatico-historical method used on the text? Was the genre considered? Was the authorial intent properly sought? One cannot naively assume a scientific interpretation or that the biblical author was intending to affirm a scientific truth. Hopefully, these will be helpful guidelines to resolve apparent discrepancies according to HM.

PART III: Applying the Theory

Case Study #1: Cosmology

Cosmology is clearly a scientific field of study concerned with the physical universe. This area of science has made valuable contributions to Biblical understanding by drastically altering: (1) previously accepted geocentric models (2) three level cosmologies with the earth between heaven and hell, and (3) age of the universe affecting our understanding of Genesis 1. The following are three areas of controversy where S and T intersect and can be mutually informing when properly placed within HM.

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19 Bube, Seven Patterns, 82.
The first controversial area within cosmology is Creation ex Nihilo. Modern cosmology teaches that the universe is in a state of expansion. This was confirmed by the red shift found by Edwin Hubble as well as the discovery of the microwave background radiation of the universe discovered by Penzias and Wilson. More importantly, when one goes back in time the entire universe goes back to an initial singularity where the laws of physics break down. It is from this singularity that the universe, space and time themselves, began approximately 15 billion years ago in a large explosion called the “big bang.” The implications between science and Christian theology are obvious. In fact, big bang cosmology has raised the reasonableness of discussing the Christian doctrine of Creation ex Nihilo.\(^{21}\) This is one particular issue where science and theology seem to be in substantial agreement. Both science and theology have been properly interpreted in this case. Theology has long held to the creation of the universe and informed science of the matter; now science has filled in more of the details and confirmed theology as well.

The second controversial area within cosmology is the Anthropic Principle. This principle states that there are several fundamental constants and initial conditions within the universe that are so finely-tuned it seems as if they were designed that way for the sake of man and life on earth. One example is the expansion rate of the universe: If slower by one part in a thousand billion the universe would have collapsed back onto itself; if faster by one part in a million the universe would have expanded too rapidly for stars to form.\(^{22}\) In either case life would be rendered impossible. Another example is the strong nuclear force: If slightly weaker we would only have hydrogen in the universe; if slightly stronger all hydrogen would have

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\(^{21}\) Peters, 42.

\(^{22}\) Peters, 43.
turned into helium. In either case stars or water could not form which would preclude life.\textsuperscript{23} Many more examples of these phenomena could be enumerated. All that is necessary for our discussion is to note that many feel “the meta-question of the unreasonable effectiveness of mathematics insists on being answered.”\textsuperscript{24} This has led many to believe that Cosmologists and physicists are seeking a grand unified theory which will unite all the forces at work in our universe. This search is motivated in part by the conviction that the cosmos is orderly and rationally intelligible.\textsuperscript{25} Science could never answer why this is the case, but theology is on hand with a ready answer: The theological explanation is the rationality and freedom of the creator who designed the universe with order and beauty. In this case, science provides us with the raw data while theology provides us with a satisfactory interpretation of the data. The place of humanity in this vast cosmos is also informed by theology. Humans are not simply insignificant beings on a speck of dust, but are valuable to God who has a concern and love for us beyond all creation.

One final controversial area is the eschatological future predicted by modern cosmology. According to cosmologists, there are two possible final scenarios dependent upon the critical threshold of the density of all the matter in the universe. If expansion wins, the galaxies will continue to fly apart forever, the galaxies themselves will condense themselves into black holes and the universe will decay into a state of low radiation, also called a heat death. However, if gravity wins, the expansion rate will eventually come to a halt and then be reversed. The universe which began with a big bang will end with a big crunch and collapse back onto itself.\textsuperscript{26} I suggest that this is one area in which science is making an accurate interpretation on what

\begin{itemize}
\item \textsuperscript{23} Ibid.
\item \textsuperscript{24} Polkinghorne, 76.
\item \textsuperscript{25} Barbour, 52.
\item \textsuperscript{26} Polkinghorne, 81.
\end{itemize}
would happen, however, theology can inform science on this area regarding what will happen. The bible is very clear that Christ is coming back soon to renew heaven and earth and to set up his kingdom on earth from which he will reign forever. Theologically there is a promise for a transformation of nature and even possibly new laws of nature. As Polkinghorne aptly states, “hope can only lie with God, not physics.”

Case Study #2: Human Nature

Human nature is both a scientific and theological field of study. One controversial area involved in human nature is neuroscience. Contemporary neuroscience claims that mental events can be exhaustively explained by brain events and the firing of neurons. These reductive materialists believe everything, including human nature, is ultimately describable in terms of chemistry and physics. Some also claim that the brain is merely an information-processing system that functions like a computer. It is argued that the dependence of mental states on biochemical processes is shown by the effect of hormones and drugs. This however, is based off a wrong interpretation of conscious states and a dismissal of the Biblical teaching of the immaterial nature of man. The Bible affirms a substance dualism (Matt. 10:28; Luke 23:46; 2 Cor. 12:2-4) just as one could arrive at with proper metaphysical reflection. Science itself cannot prove or disprove the existence of the soul; the problem is that scientists are making illegitimate conclusions from the data available to them. Nothing in science precludes the possibility of a soul, so we should stick to a proper hermeneutic of the Bible which clearly indicates the dual nature of man.

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27 Ibid., 82.
28 Barbour, 121.
29 Ibid.
30 Ibid., 136.
Another controversial area involving human nature is genetics and bioethics. Similar to the previous issue, some claim that humans are determined by their genes and that this is incompatible with freedom.\textsuperscript{31} Once again, this is poor interpretation of both science and theology. Scientists are beginning to realize that genes do not determine everything; they merely “establish a range of potentials and predispositions.”\textsuperscript{32} Likewise, theology also makes clear that humans have genuine libertarian freedom. Deuteronomy states “choose this day whom you will serve…” Any discoveries of science about human nature do not necessarily conflict with theology. Claiming that humans are only physical and produced by genes is not a scientific claim, science cannot know this; even if a complete and satisfactory explanation could be given scientifically, this would not preclude a theological aspect to human nature. To speak of humans as product of genes is a scientific description; to speak of the same humans as being a living soul is a theological description. Both are valid. If only the first, then humans are reduced to organic machines; if only the second, humans become a non-Biblical kind of “ghost in a machine.”\textsuperscript{33}

Another related issue is genetic engineering and the many controversial issues in bioethics. How should theology inform these scientific endeavors such as somatic nuclear cell transfer or end of life issues? Once again biblical revelation provides insights into human nature. The bible declares we have been made in the image of God which “Provides the basis for human dignity and worth which is essential in determine how humans are to be treated scientifically.”\textsuperscript{34} Only science can inform of the safety of such procedures, but theology can inform science on certain ethical cautions. Anything that results in an unnecessary human death or defect must be

\begin{footnotes}
\item[31] Ibid., 121.
\item[32] Ibid., 127.
\item[33] Bube, \textit{Putting it All Together}, 182.
\item[34] Ibid., 85.
\end{footnotes}
avoided. These areas have great implications and so we must move with caution and demand a precise scientific and theological understanding before proceeding.

*Case Study #3: God’s Relation to the World*

God’s relation to the world is primarily a theological topic. One major controversial issue is that of miracles. How can God act in this world governed by natural laws and processes? Miracles are widely regarded as violations of the laws of nature. Laws are general descriptions of regularities in nature; they are not necessary, immutable or infallible. Thus, laws of nature cannot be violated. Something irregular can happen, sure, but this is not necessarily a violation of something immutable. It must be noted that just because laws are not violated, this doesn’t place miracles within the realm of science. Those who advocate that miracles can and should be considered part of science claim that “unless God is admitted as a direct agent in scientific theories, then this is equivalent of saying that God cannot act as a primary cause directly,” but as Bube states “This is not true. If there were a case where God acted directly as a primary cause, the pursuit of authentic science would lead [only] to the conclusion that no scientific description was possible.” The other possibilities could be examined such as a theological explanation (this informs science but is not itself science).

In regards to miracles I think there are at least two distinct kinds: (1) weak miracle-*would not* have happened without God (Peter catching a fish for temple tax- Mt. 17:27) and (2) strong miracle- *could not* have happened without God (Moses stick turns into a snake, the resurrection, etc). The latter is clearly impossible to explain according to natural law. It is clear that theology is needed to explain some of the gaps presented to us by miracles. The bible pictures a God who occasionally acts through primary causation, but normally through secondary

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35 Moreland, 566.
36 Bube, *Putting it All Together*, 87.
causation. According to the bible, God does not intervene on an independent universe in a god of the gaps fashion between small rocks and crevices; God is active in all events either through sustaining, guiding or in a more overt and unprecedented miraculous fashion.\textsuperscript{37} God is not limited to gaps; He is constantly running and sustaining the whole universe. Science, for the most part, does not deal with miracles. Theology must tell science when a miracle has occurred. When science is able to describe something that was purportedly a miracle, this does not preclude that fact that God was active in the event even if it is fully explainable in terms of science.

One final controversial issue is the relationship of God to space and time. The former is not as difficult, God is the transcendent creator of the entire material world in which He acts and unfolds his plan. The latter is much more difficult to understand. Is God timeless or temporal? Interestingly, scripture cannot inform us much on this issue because the terms used for God’s relationship to time could either be taken as meaning temporally everlasting or timelessly eternal; though God’s dynamic actions in the OT and the divine \textit{perichoresis} within the trinity would seem to suggest his temporality. On this issue, one must seek an answer from the findings of science and the correct philosophical interpretation of these finding. I submit that a proper interpretation will yield the conclusion that an A-theory of time is true which most plausibly would regard God as temporal because of His real relations with the physical world as well as His knowledge of tensed facts. A poor hermeneutic may leave one with a B theory of time which would lead to some odd views of God’s relation to the world and on science and theology in general. Once again, it all comes down to what a \textit{proper} interpretation of both science and theology yields upon critical evaluation. When done with a proper hermeneutical methodology, both S and T will work together toward a full and accurate picture of all of God’s revealed truth.

\textsuperscript{37} Hummel, 195.
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