

## Dialogue: Article

*Prospects for Theistic Science*

# Prospects for Theistic Science

Roy Clouser



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*I [think that] religious belief engages science in a way that is not merely thick, but pervasive; yet at the same time, [I deny] that the engagement consists primarily in Scripture (or theology) supplying content to theories.*

*This article first tackles the issue of defining what counts as a religious belief, and shows why obtaining such a definition opens the way to discovering a deeper level of interaction between divinity beliefs and the scientific enterprise than the prevailing views of the science/religion relation allow for. This deeper level of interaction is illustrated by applying it to twentieth-century atomic physics. It is then shown why this level of interaction implies a distinctive anti-reductionist perspective from which theists should do science, a perspective in which belief in God acts as a regulative presupposition. Finally, reduction as a strategy for explanation is critiqued and found bankrupt.*

**A**mong theists, the most popular view of the engagement between science and religion (henceforth the S/R relation) is a minimalist one. They see the role of religious belief to science as primarily negative such that any theory can be acceptable to a theist so long as it does not outright contradict any revealed truth of Faith. On this view, conflict between science and religion is not only possible but is the only (or the most important) relation between them: if a theory outright contradicts revealed truth it is false; otherwise, it is theistically unobjectionable. There is, therefore, no such thing as theistic science; there is at most theistically compatible science.

A lesser number of theists take religious belief to have a thicker engagement with science than merely acting as a negative, external check for falsehood. For them, religious belief can supply content to theories as well. The majority of this “thicker-engagement” party hold the position that although theistic belief has little to contribute to the natural sciences, it can provide content to theories of the social sciences such as the teaching that humans are morally responsible for their actions. Fundamentalists extend this by insisting that revealed truths can yield posi-

tive content for virtually every science. And some theists have proposed still other ideas of thicker engagement. For example, recent writers have claimed that theism’s positive contribution to science is not so much that of providing actual content to theories as it is that religious ideas inspire scientific ideas. There are permutations on these views, of course, and a number of mix-and-match combinations of them are possible.

In what follows, I write as a theist who agrees with the thicker-engagement position, but who finds all of its presently popular versions to be deficient. What I offer here is a distinctive interpretation of the S/R relation according to which religious belief engages science in a way that is not merely thick, but pervasive; yet at the same time, it denies that the engagement consists primarily in Scripture (or theology) supplying content to theories. Because the position is complex, I will not have the space to critique the other views in detail. Their relative weaknesses will be exposed only indirectly by defending my view. There is room for only the following preliminary comment on them.

It seems clear to me that each of the theistic versions of the S/R relation is able to point to cases which instantiate it. Surely, it cannot be wrong for a theist to say that a theory must be false if it outright contradicts a tenet of Theism, and it seems equally certain that there are theistic teachings that should be included in theories. The fundamentalist goes too far, in my opinion, by regarding Scripture as a sort of encyclopedia of inspired information on virtually every topic. How-

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ever, despite the Scriptures' distinctly religious focus, they do occasionally speak on issues that can bear even on natural sciences—as when they teach that the universe is not eternal, or speak of laws, space, and time as created by God. And, finally, there seem to be clear cases of scientific theories having been inspired by religious or theological ideas. But even if each of these ideas of the S/R relation is at times true, it seems equally plain that merely citing such instances is not sufficient to justify the claim that any of them is the right way to think of the S/R relation *generally*, or even that it is the most important part of that relation. Instead, advocates of each view simply apply their favored idea to various issues while ignoring the other positions (except for fundamentalism which attacks, and is attacked by, all the others). The discussions therefore strike me as both one-sided and dogmatic. They lack the sort of analysis that could uncover any deeper metaphysical underpinnings to the S/R relation.

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The main reason for this sorry state of affairs, I suggest, is that in all views of the S/R relation, a crucial element is missing from the discussion. That missing element is nothing less than *a clear definition of the nature of religious belief*. There are, by contrast, many attempts to account for the nature of scientific theorizing. So it is troubling that present discussions of the S/R relation are deafeningly silent about the general nature of religious belief and seem to assume that it is unnecessary to be precise about what religious belief is in order to gain clarity about its relation to science. In fact, abstracts of some papers for recent S/R conferences provided on the Templeton listserv have asserted that there is nothing to be learned in this direction! "We all know what religion is," one of them said, "so let's concentrate on science." But is it not implausible that we can explain the relation between two enterprises without a clear definition of *both* of them? And is it not just possible that discovering what counts as a religious belief might go a long way toward also discovering the correct idea of the general S/R relation?

The rest of this paper is dedicated to the proposition that the answer to these questions is "yes." I will argue

that an essential definition of religious belief is possible, actual, and important. It allows us to uncover an otherwise hidden level of interaction between religion and science which is in fact their most general and pervasive relation.

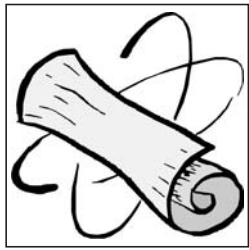
## Some Remarks on Definitions Narrowing the Scope of the Term "Religious"

The first thing that must be avoided is ambiguity in the adjective "religious." The term could be used to connote the subjective manner in which a belief is held or used. In that case, it might include such features as being held consciously and fervently, being given great (or even supreme) importance, being used to inspire worship and/or to enforce a moral code, or being accompanied by emotions such as awe, penitence, humility, and gratitude. Important as these subjective accompaniments are in many cultic religious traditions, they do not get at the meaning of the adjective "religious" as a modifier for "belief" that can distinguish religious belief from nonreligious belief. Every party to the discussion appears to agree with this point since all of the specific relations they have proposed as prototypes of the general S/R relation concern the *content* of religious beliefs vis à vis science rather than the subjective manner in which those beliefs are held or used. I think they are right to do that for two reasons. First, the components of these subjective attitudes can just as well apply to the game of golf as to belief in a divinity. Someone can regard golf with fervor, awe, and value it above all else although golf is no more a religion than religion is a sport. Second, there are actual religious beliefs lacking in every one of those components. Clearly, then, what is needed is to define religious belief by finding what they have in common. Then we could look for the most general sort of relation between their common component(s) and the scientific enterprise.

## Essential Definitions

Any essential definition has two requirements that are notoriously difficult to meet. On the one hand, it must pick out characteristics true of everything that is a member of the class being defined or it will be too narrow; on the other hand, what it picks out may not apply to anything that is clearly not a member of that class or it will be too broad. Since these difficulties can baffle the best attempts to formulate such definitions, we often settle for something less precise. In the past thirty years, a number of influential scholars have concluded that settling for less is exactly what must be done for "religion."<sup>1</sup> But whether that is true for religion as a whole is beyond my concern here. My claim is that we can get such a definition for the nature of religious *belief*, whether or not it can be done for religion as a whole.

Even when an essential definition can be formulated for a class of things, there are often difficulties that plague



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its acceptance. There is something disturbing about paring back the characteristics of a type of things until we are left with just the features shared by all and only that type. Such definitions can be surprising or disappointing, and can be rejected for those reasons. Take the case of defining what counts as a tree. Everyone easily recognizes many things as trees, and yet it is hard to state exactly what features are shared by all but only trees. Once formulated, however, the definition can be disappointing since so much that is obvious or valuable about trees is not included—their beautiful foliage, shade, or uses as wood, for example. And surely we can expect similar disappointments from defining “religious belief.” Restricting ourselves to its essentials all but guarantees that much of what people usually associate with the religion(s) they know best will not appear in the definition. Moreover, some people even think that religion is distorted by the very project of definition. So it needs to be kept in mind that the sort of definition I am seeking does not *do* anything to religious belief as practiced. It is not to be a definition of the whole of “religion,” nor has it anything to do with over-intellectualizing actual religious experience and life. What I am seeking is no more an over-intellectualization of religion than defining marriage is an over-intellectualization of love.

We need to recognize, too, that the more initial imprecision there is about a type of things the more likely it is that formulating its clear definition will produce surprises. For example, many years ago whales were classed as fish. They had bodies shaped like fish; they lived in oceans and swam like fish. But in time they were reclassified as mammals. There were good reasons for this. Whales have four-chambered hearts and are warm blooded; they lack gills and breathe air with lungs, and they both bear their young alive and nurse them. So despite their very fish-like tails and fins, and despite the fact that they cannot live on land but spend their lives in oceans, whales are defined as mammals. Perhaps this redefinition was surprising to some people when it was first put forward, and perhaps it was even offensive since it means that whale bodies have more in common with human bodies than with fish bodies! But it was not wrong for those reasons.

## Misunderstandings of Religious Belief

Because the most widespread understandings of “religious belief” are both seriously mistaken and deeply entrenched, I cannot simply ignore them. So before proceeding to the defining element(s) of religious belief, let us briefly consider why three popular ideas will not do. In criticizing these ideas, I will make use of an undefended assumption, namely, that although belief in a god is not the only sort of religious belief, it is indeed one sort. Therefore any definition entailing that belief in a god is not a religious belief will be rejected as absurd. I will call this the “god rule.”

### 1. Religious Belief Is Belief in a Supreme Being

Many people think this is not only a good definition, but even suspect that all religions actually believe in the same Supreme Being under different names. The reason this seems plausible in Europe and North America is that the theistic religions dominant on those continents—Judaism, Christianity, and Islam—do in fact all believe in one God who created the universe. Thus this definition would be quite right if theisms were the only possible religions. But that is far from being the case.

Many religions are polytheistic, and in some of them there is no one supreme god. Thus the definition violates the god rule because it requires that people who believe in many gods but have no Supreme Being have no religious belief whatever. Moreover, there are yet other religions that are literally atheistic and do not believe in any gods! Brahmin Hinduism and Theravada Buddhism are examples.<sup>2</sup> According to the Brahmin theology, the gods of popular Hindu worship and practice are but accommodations of religious truth to the level of the average person. The Divine (Brahman-Atman) is not a person or even an individual but is “Being-itself.” So religious belief cannot be defined as belief in a Supreme Being since that would force us to say that Brahman Hinduism, Theravada Buddhism, and polytheisms with no supreme god are all ruled out as religious beliefs.

### 2. Religious Belief Inspires or Supports Worship

This definition is also defeated by Brahmin Hinduism and Theravada Buddhism, since

neither practices worship.<sup>3</sup> Nor are they the only examples. Aristotle believed in a being he alternately called the “prime mover” and “god.” But since he also held that this god neither knows nor cares about humans, he neither advocated nor engaged in its worship. Similarly, the Epicureans believed in many gods but also never worshiped them for the same reasons as Aristotle’s. Therefore making inducement of worship a defining feature of religious belief fails because there are forms of two major world religions that lack it and because it violates the god rule.

Nor will it help to reply that it is ritual taken broadly, not worship construed narrowly, that is a hallmark of religious belief. No matter how broadly we construe the notion of ritual, it will still be inadequate to distinguish religious beliefs since so many rituals are not religious. Think of the rituals accompanying swearing-in ceremonies, graduations, inductions into clubs, national anniversaries, and even birthday celebrations. Gathering around a cake with candles on it and singing “Happy Birthday” is surely a ritual, but not a religious one.

If there were a specific list of rituals associated with only religious beliefs, this definition might work. However, there is a huge list of activities that are at times religious and at other times not: burning down a house, setting off fireworks, fasting, feasting, having sexual intercourse, singing, chanting, cutting oneself, circumcising an infant, covering oneself with manure, washing, killing an animal, killing a human, eating bread and wine, having one’s head shaved, etc. The only way to know which rituals are religious is to know what those who take part in them *believe* about them. Without that, even an act of prayer can be indistinguishable from fantasizing or talking to oneself. Thus trying to determine which beliefs are religious by looking at the rituals they give rise to does not work since we would need to know whether the beliefs that motivated the rituals were religious to know whether the rituals were.

### 3. Religious Belief Is Belief in Our Highest Value

This definition appears more plausible than it deserves because of the way we sometimes speak of peoples’ obsessions as their “religion”—as when a golf fanatic jokingly calls golf his religion. But even if someone’s love of golf, or career, etc., is like the devotion and fervor of saints or prophets, that will not make it true that religious belief concerns what is valued most. In fact, there are good reasons to think it is *not* true.

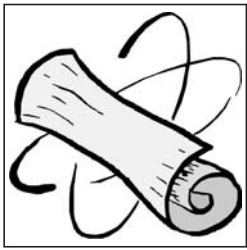
For starters, we can notice that there are polytheistic traditions whose gods are counter-examples to this definition because they are little valued or even hated. So this definition turns out to violate the god rule. Nor are those the only counter-examples; Christianity is one, too! For although what a person values most figures importantly in

Christian teaching, God himself is not the supreme value or a value at all. What a Christian is supposed to value above all else is God’s *favor* (Matt. 6:33). If that is right, then belief in God is neither itself a value nor the belief in a value, but *the basis for the proper ordering of all values*. Unless a person already believed in God’s existence and in the faithfulness of his covenant promises, that person could not possibly value God’s favor and Kingdom above all else (Heb. 11:6). Belief in God, then, is not religious because it is what a Christian values most; rather, what a Christian values most is a result of his or her belief in God. Thus belief in God and the valuing that results from it cannot be identical.

## A Definition of Religious Belief Locating What Religious Beliefs Have in Common

Let us start by observing that every religious tradition regards something or other as divine. That seems true enough, but not very enlightening; it simply shifts the problem to finding something common to every idea of “divine.” Can this be done? It does not take much reflection to see why it may appear hopeless. Even if we confine our search only to a few traditions—say, the theistic idea of God, the Hindu idea of Brahman-Atman, the idea of Dharmakaya in Mahajana Buddhism, and the idea of the Tao of Taoism—isolating a common element would be a daunting task. And if it could be done for them, we would then have to discover the same element(s) in every other idea of divinity: those of ancient Egypt, Babylon, Palestine, and Greece, of China and Japan, of the Pacific islands, of Australia, of the Druids, and of the tribes of Africa and North and South America. So is it not painfully obvious that there is no common feature to the all these divinities?

Tackled in this way, I agree the project is impossible. If an essential definition requires finding a property common to every candidate for divinity, then surely their natures are so diverse as to have no feature in common. However, this is not the only way such beliefs can have a significant common element. We could also look for commonality in the *status* of divinity rather than in the natures of all putative divinities. To illustrate this difference, consider the two ways we can understand the question: “Who is the President of the U.S.?” We could take it to ask for a description of the person holding that office, and answer by describing that person. Or we could take the question to be about the *office*, and answer by stating the duties, powers, and limitations of the Presidency. The difference is important. If an election were in dispute, people could disagree as to the description of the candidate who was now really President, but still agree on the office to which they claim their candidate was elected. Similarly, although people differ widely over the right description of *what* is truly divine, there could still be common agreement among all religions as to *what it means to be divine*.



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*The divine status [is] that of having unconditionally, nondependent reality. ...*

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*Many are about how all that is nondivine depends on the divine, and others are about how humans can acquire the proper relation to the divine.*

Just such an agreement is exactly what I have found to be the case! After more than forty years of study in comparative religion, I have never found a religious tradition that fails to regard the divine status as that of *having unconditionally, nondependent reality*. The divine is whatever is “just there” while all that is nondivine depends for existence on the divine. This is not to say that every myth or body of teaching has been precise about this point, or has used such expressions “nondependence,” “self-existent,” or “absolute,” etc. Some simply trace everything nondivine back to an original something the status of which is neither emphasized nor explained. But in such cases the original something is still spoken of as though it has independent reality; all is traced back to it and there is nothing it is said to depend on. Thus it is tacitly given nondependent status so far as the teaching goes.

It must also be added, however, that religious beliefs are not *confined* to identifying what has divine status. Many are about how all that is nondivine depends on the divine, and others are about how humans can acquire the proper relation to the divine. To cover these additional senses of “religious belief” as well, our definition must have three parts:

- A belief, B, is a religious belief if and only if:
1. B is a belief in something as divine no matter how that is described or
  2. B is a belief about how the nondivine depends upon the divine, or
  3. B is a belief about how humans may stand in proper relation to the divine,
  4. where the meaning of “divine” is (minimally) having the status of utterly unconditional reality.

I find this definition to cover the plethora of religious beliefs while no other does. For openers, it can locate a common element among the God of theism, Brahman-Atman, the Dharmakaya, and the Tao—the list that earlier appeared so daunting. Moreover, it is also true of Nam in Sikhism, Ahura Mazda (Ohrmazd) in early Zoroastrianism or Zurvan in its later development, the soul/matter dualism of the Jains, the high god of the Dieri Aborigines, the Mana of the Trobriand islanders, Kami in the Shinto tradition, the Raluvhimba of Bantu religion, and the idea of Wakan or Orenda found among native

American tribes. It holds as well for the ancient Roman idea of Numen, for Chaos or Okeanos as found in the myths of Hesiod and Homer, and for a host of beliefs found in other ancient myths. I cannot, of course, claim to have investigated every religion that ever existed, or to know that there is no religion yet to be discovered which does not have this idea of divine status. But I can say that neither I nor any of the other thinkers who have endorsed this definition<sup>4</sup> have ever come across a religion that fails to regard as divine whatever they identify as the nondependent reality (or realities) on which all that is nondivine depends.

### Some Confirming Consequences

In addition to covering the field and avoiding the difficulties found in other definitions, this definition helps clarify some important differences and unique features of certain religious beliefs. For example, it is well known that in theism there is but one God who is the only divine reality, so that God and divinity are identical. In these traditions, everything other than God is creation, and the creation is not divine. By contrast, however, other religions believe there to be a difference between what is divine per se and their gods. That is, they believe in a per se divine reality that is the source of the gods and goddesses as well as of humans and the rest of the nondivine world. The ancient Greek and Roman myths are examples of this. Hesiod and Homer called the divine reality Chaos and Okeanos, while it was called Numen in ancient Roman religion. And there are similar beliefs in other polytheisms both ancient and contemporary. This explains why the individual gods of such religions do not fit the definition just given for “divine.” It is because in those traditions, individual gods do not have unconditional existence but are beings *thought to possess more divine power than humans do*. Their religious importance lies in their superhuman powers and in their being the means by which humans can properly relate to divinity per se.

The definition also sheds light on the fact mentioned earlier that in some polytheisms where the divine and the gods are not identical, there are gods which have no important role in human affairs or are even malevolent.<sup>5</sup> It has puzzled some scholars how belief in such gods could arise despite their

not doing anything good for those who believe in them. This definition makes it clear why this is possible—and is the only one that does so—by making clear why it is not beneficence or usefulness to humans that is the defining characteristic of divinity or of a god, but nondependence which characterizes divinity and greater participation in divine power which characterizes a god.

Yet another feature of the different ideas of the divine which this definition handles is the large variety of ways the nondivine can be thought to depend on the divine.<sup>6</sup> For example, there are religions which believe all nondivine things to be partly divine, while in others there are two or more divine principles and every single nondivine thing is partially dependent on both. Still others hold that a particular range of nondivine things depends on one divinity while another range of nondivine things depends on another. There are also religions that believe in a whole realm of divine beings, thus increasing the number of ways these can be thought to relate to one another and to the nondivine world. This definition covers all these variations.

## Replies to Objections

### The Definition Is Too Broad

The most frequent objection to this definition is that although it seems to cover all religious beliefs, it also seems to make some nonreligious beliefs count as religious because it defines *anything* believed to have unconditional reality as a divinity belief. The rub is that this would include not only the divinities of traditional religions but also the proposals of many metaphysical and scientific theories such as matter, Forms, numbers, monads, substances, sense perceptions (or their “permanent possibility”), logical sets and laws, etc. All these—and more—have been overtly defended or tacitly presupposed by theories as being ultimate explainers because they have independent reality. So, it is objected, is not the definition too broad? Is it not obvious that those are not religious beliefs?

But just why is that obvious? To be sure, these beliefs do not occur in the context of a cultic tradition. Neither are they always accompanied by an elaborate set of beliefs and practices concerned with how humans may stand in proper relation to whatever is divine. That is true—but irrelevant! The question was not whether such beliefs are *employed* for the same purpose in theories as they are in cultic traditions. Surely they are not. In religions they are aimed at obtaining the proper personal relation to the divine, while in theories they guide the construction of explanatory hypotheses. But how can those differences possibly cancel the fact that something is being accorded the status of divinity in both cases? If unconditional nondependence is really the essential characteristic of divinity, merely employing such beliefs differently cannot alter that fact.

*What is shown instead is that beliefs about what has divine status play an important role in theories as well as in cultic traditions.* This happens because whatever serves a theory as its ultimate explainer could only have *that* status if it also had the status of divinity (and the fact that it may be called “metaphysically ultimate” rather than “divine” changes nothing, so long as the status of unconditional reality is ascribed to it). Thus, determining what has divine status turns out to be as crucial for theories as it is for religion. Whatever has that status is the ultimate guarantor of human destiny in a religion, and is the ultimate explainer in a theory.

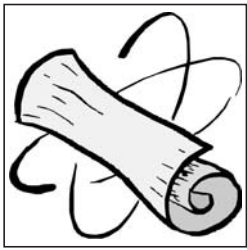
If this sounds strange, recall some of the points made earlier: in many cultic religions, the divine is not personal; in a number of religions, the divine is not worshiped, and in several religions, the divine is matter. Moreover, some religions have no ethic attached to them. For these reasons, the “too-broad” objection strikes me as nothing more than the narrowly culture-bound reaction that it is too different from what the objector is most familiar with. It stems from taking, say, belief in God as the prototype for all religious beliefs, and regarding a belief as religious only to the degree it is like the prototype. So notice that if this objection is allowed to count against the religious nature of the beliefs that guide metaphysics and science, then it must also count against the religious nature of the divinity beliefs of the ancient Greek Mystery religions, Brahman Hinduism, Theravada Buddhism, and a number of other religions.

One final point. It cannot be denied that Bible writers regard taking anything other than God as unconditionally real to be idolatry as it is ascribing to something other than God the status that belongs only to God.<sup>7</sup> So if belief in God is the true religious belief, how could believing anything else to have divine status fail to be a contrary *religious* belief? Matter, numbers, sense perceptions, logical sets and classes, etc. are different ideas of *what* is divine from the idea found in the biblical writings, but they have clearly been accorded divine status so far as *what it means to be divine*.<sup>8</sup>

### A Belief Is Religious Only if Taken on Faith

This objection says that even if the status of nondependence correctly picks out what is common to all divinity beliefs, that still does not make every such belief religious because it is also essential that religious beliefs be taken on faith. The difference, then, is in the *ground* of a belief rather than its content. Such beliefs are religious when taken on faith, whereas if they are held on the basis of arguments and reasons they are metaphysics.

The first thing to notice is that this objection violates the god rule, having the utterly implausible consequence that belief in God is nonreligious for anyone who accepts a proof of God’s existence! What is worse, its plausibility



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*Taking [my definition] to be correct, I will now argue that (1) any scientific theory is bound to contain or presuppose some metaphysics and (2) any metaphysical view is bound to contain or presuppose some religious belief. If this is right, then ... understanding the S/R relation as the project of harmonizing two independent sources of information is seriously misguided.*

depends on assuming that “faith” means belief without any evidence or belief beyond the evidence. This is a widespread misconception, but it is still a misconception; it is not a biblical use of “faith.” No Bible writer ever uses “faith” to mean blind trust that God is real. The biblical use of “faith” always means trusting the *promises* of God, while the existence of God is called “knowledge.”<sup>9</sup> This is why Augustine, Aquinas, Luther, Calvin, and Pascal—to name but a few—all held the existence of God to be certain knowledge rather than evidentially deficient belief. The defense of this point is a complex issue that cannot be adequately argued here, so I can only say that a number of recent works in the epistemology of religious belief have offered convincing defenses of it. These show why there are as many good reasons for saying that belief in God can be knowledge without proof as there are for saying that logical and mathematical laws can be knowledge without proof.<sup>10</sup>

I find, therefore, that there simply is no good objection to the definition offered above. Taking it to be correct, I will now argue that (1) any scientific theory is bound to contain or presuppose<sup>11</sup> some metaphysics and (2) any metaphysical view is bound to contain or presuppose some religious belief. If this is right, then an important consequence for the S/R relation follows immediately, namely, that *understanding the S/R relation as the project of harmonizing two independent sources of information is seriously misguided*. No (consistent) metaphysical or scientific theory can fail to be compatible with its own presuppositions, just as it cannot fail to be incompatible with presuppositions contrary to its own. *Thus the project of harmonizing a theory with a divinity belief is either unnecessary or impossible*.

Let me reiterate right away that religious and metaphysical beliefs more often guide a theory by *regulating* it rather than providing *constitutive* content. Such presuppositions set parameters for hypotheses rather than supply the hypotheses themselves; the presuppositions under-determine which particular entities a theorist may postulate. So I am not suggesting that a scientist who holds religious belief A will propose or accept hypothesis X, whereas a scientist who holds religious belief B would propose or accept hypothesis Y instead. My claim is that *one or*

*another divinity belief regulates how any theory conceives the nature of whatever hypothetical entities it proposes*. For example, if matter is regarded as divine, then some form of materialist metaphysics is assumed and the postulates of the scientific theory will be *physical*. By the same token, if sense perceptions are accorded divine status, then a phenomenalist view of reality is assumed and the hypothetical entities will be exclusively *sensory* in nature. For a theory to do otherwise would be for it to postulate entities while at the same time admitting those postulates are not the real explanation of whatever they are being offered to explain. If, say, a materialist postulated a nonphysical entity to explain anything, it could only be as a pro-tem, stopgap measure pending the real explanation. The upshot is that whenever a theory presupposes some kind of properties-and-laws found in creation (physical, sensory, logical, etc.) as qualifying the nature of divinity, that belief requires that *the nature of its postulated entities correspond to the nature of whatever is believed to be divine*. And there is no way to avoid the issue of the *nature* of the entities postulated by a theory. It is never enough just to say, e.g., there are atoms. We have to know what *kind* of a thing an atom is to know what it can explain.

### **Religious Belief, Metaphysics, and Science**

The foregoing description applies equally to the construction of both metaphysical and scientific theories. The central issue in metaphysics is to specify the ultimate nature of reality. Traditionally, the way such theories have been tackled is by picking a particular kind of properties-and-laws exhibited by the objects of our experience as the essential nature of reality because it is supposed to be the nature of whatever is taken to have nondependent existence. The theory then explains all the rest of reality as either identical with, or dependent on, the divine reality. Whatever cannot be understood in those ways is either reduced to the divine or dismissed as illusion. Examples of such theories were mentioned in the list given earlier, which I will now repeat in a more precise way. This time I will use italicized adjectives for the *kinds* of properties (and laws) selected to qualify the nature of the divine, and will use non-italicized nouns to name

the class of entities supposed to possess that nature and thus have nondependent existence. A brief list of samples from the history of metaphysics goes like this: *mathematical* laws, sets, or numbers; *physical* matter/energy; *sensory* perceptions; *logical* sets, laws, or Forms—to name but a few. Combinations of these have also been advocated, claiming that reality is ultimately *logical* Forms and *physical* matter, *sensory* perceptions and *logical* categories, *logical* minds and *physical* bodies, etc. Thus metaphysics plays an intermediary role between divinity beliefs and scientific theories, and it does so by regulating not only the natures of scientific postulates, but also the very notion of “explain.” For once the divine is taken to be part of the universe, what else could an explanation consist of than showing how that which is to be explained is either eliminated in favor of, identical with, or dependent on, the divine? In other words, from a pagan religious outlook, explanation cannot mean anything other than some form of *reduction*.<sup>12</sup>

Let me reiterate that this does not mean that there is no difference between metaphysics and religion. As I said earlier, in cultic religions, a divinity belief is the basis for other beliefs about how to acquire the benefits of a proper personal relation to the divine. By contrast, metaphysics primarily uses a divinity belief as the basis for constructing explanatory theories. That is an important difference in emphasis, but not one that cancels the religious character of a divinity belief. For whatever is taken to have ultimate reality regulates the explanation of *all* the rest of reality—human destiny included. If anyone wants to say that when such a belief occurs in a metaphysical theory it can just as well be called metaphysical as religious, I will not quibble about terms—as long as that is not taken to mean it has been stripped of its religious import. A divinity belief is the point at which religion and metaphysics converge and so can be spoken of, used, or evaluated in either way. However, even in a metaphysical context, it still purports to yield personal benefit by supplying the correct view of human nature and destiny.

### Three Sample Theories from Science

We have now seen the sense in which scientific theories are regulated by some metaphysics, and any theory of reality is regulated, in turn, by some divinity belief. To illustrate this, I will now offer a brief account of how the three major versions of atomic theory held in the twentieth century varied relative to what they presupposed as divine.

Ernst Mach held the view that atomic theory is a “useful fiction” because he took the nature of all reality to be *sensory*. For him, all that we can know to exist are sensations and the feelings that arise from them. So there are no distinctively *physical* properties or laws. He says:

If ordinary matter [is] a ... natural, unconsciously constructed mental symbol for a ... complex of [sen-

sations], much more must this be the case with the artificial hypothetical atoms and molecules of physics and chemistry?<sup>13</sup>

Moreover, Mach is clear about the metaphysical ultimacy (divinity) his view ascribes to the sensory:

The assertion, then, is correct that the world consists only of our sensations. In which case we have knowledge *only* of sensations.<sup>14</sup>

By contrast, Einstein takes physics to be about real, exclusively physical things that exist independently of us and are, in fact, the cause of our sensations. He holds this view despite admitting that we never directly experience anything physical. So whereas Mach starts by taking all we experience to be sensory and claims we cannot get past that, Einstein agrees that all we experience is sensory but denies we cannot discover that there is more. This is because although our perceptions are purely sensory, our concepts have a *logical* nature that is independent of our sensation:

the concepts which arise in our thought ... are all ... the free creations of thought which cannot be gained from sense experiences ...<sup>15</sup>

This is what makes it possible for us to infer the existence of physical objects independent of our sense perception:

... the concept of the “real external world” of everyday thinking rests exclusively on sense perceptions ... what we mean when we attribute to the bodily object a “real existence” ... [is] that, by means of such concepts ... we are able to orient ourselves in the labyrinth of sense perceptions.<sup>16</sup>

Anyone familiar with the history of metaphysics will immediately recognize this as virtually the same position made famous by Descartes. For both Descartes and Einstein, the mind contains both sensory percepts and logical concepts while extra-mental reality consists of physical/spatial objects. Though perception never directly acquaints us with anything extra-mental, logical/mathematical thinking enables us to conceive of physical objects and to confirm that they exist. As Descartes summed it up:

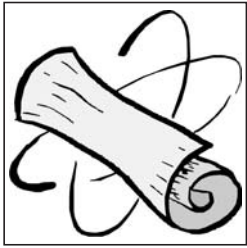
... all things which, generally speaking, are comprehended in the object of pure mathematics, are truly to be recognized as external objects.<sup>17</sup>

Einstein admits this means that we are less than certain there are physical objects, and calls belief in them “the physicist’s faith.” But he adds that the successes of science “give a certain encouragement to this faith.”<sup>18</sup>

Is there a divinity belief regulating this view? Einstein thought so. Besides the independent existence of the physical/spatial world, he also acknowledged the divinity of the logical/mathematical principles which make possible both human thinking and the order of nature.

I cannot conceive of a God who rewards and punishes his creatures, or has a will of the kind we





## Dialogue: Article

### *Prospects for Theistic Science*

experience in ourselves. I am satisfied with ... the awareness and glimpse of the marvelous structure of the existing world ... of the Reason which manifests itself in nature.<sup>19</sup>

The difference between Einstein's and Heisenberg's views of the nature of reality is subtler than the difference between Mach's and Einstein's. Both Einstein and Heisenberg believed in the divinity of the physical world and the principles of rationality, with the latter ordering the world and making human thought possible. But for Einstein, rational principles can be known for certain to govern our thinking minds, whereas it is uncertain to what extent they apply to the purely physical reality outside our minds. That is why he called belief in an external world the physicists' "faith."

Heisenberg, however, takes a more restricted view of rationality than Einstein did. For Heisenberg, it was not logical and mathematical laws that chiefly characterize rationality, but the mathematical alone. So while he—along with Einstein—holds that the extent to which our logical concepts apply to reality is doubtful ("we do not know how far they will help us to find our way in the world"), he maintains that mathematical concepts are immune from that doubt. For him, the mathematical order of reality is universal and certain because it is the very nature of reality; mathematical laws govern everything absolutely. This means that although the extra-mental realities physics deals with are forms of energy, they have an essentially mathematical nature. Thus he affirms the old rationalist motto: "the real is rational and the rational is real" while Einstein holds only to the first part, that the rational is real. So while they all believe that whatever mathematical thinking can calculate is to be taken as real, they disagree on the second part as to whether every real thing is mathematically calculable. That is why whereas Einstein held that real objects might have properties we cannot calculate mathematically, Heisenberg denied it:

... when modern science states that the proton is a certain solution of a fundamental equation of matter it means that we can deduce mathematically *all possible properties of the proton* and can check the correctness of the solution

by experiments *in every detail* (italics mine).<sup>20</sup>

Clearly, the difference of Heisenberg's view of physics from Einstein's was due to the different metaphysics he employed, which in turn rested upon a different religious conviction concerning the nature of divinity. For Einstein, reality has a nonrational side as well as a rationally ordered side, and each side has its own independent (divine) principle. But for Heisenberg all reality is essentially mathematically ordered—a view he admitted to be a religious conviction:

... we may hope that the fundamental law of motion will turn out as a simple mathematically simple law ... It is difficult to give any good argument for this hope ... [It] ... *fits with the Pythagorean religion* and many physicists share their belief in this respect, but no convincing argument has yet been given to show that it must be so (italics mine).<sup>21</sup>

### The General S/R Relation

A similar case can be made for the religious regulation of theories in every other discipline from mathematics to ethics.<sup>22</sup> This provides a powerful case for the view that the most general S/R relation lies at the level of divinity beliefs acting as regulative presuppositions to theory making. That does not mean there is no work to be done dealing with conflicts between specific hypotheses and specific religious beliefs, or with occasions in which a religious teaching may actually be part of a theory. Ditto for cases of specific religious ideas inspiring a specific scientific hypothesis. These have their place. But none of these can be properly evaluated without examining the metaphysical/religious presuppositions that determine the precise meaning of a hypothesis. Without recognizing this underlying relation, trying to understand the specific ways this or that religious belief may relate to this or that hypothesis is like trying to understand the outline of the continents by examining the impact of each wave on their shoreline while ignoring the movement of their tectonic plates. Waves make some difference to a shoreline, just as specific religious concepts occasionally impact scientific theories and vice versa. However, the first is not the best way to explain the shape of the continents

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any more than the second is the way to explain what is most basic to the S/R relation.

If there are distinct interpretations of scientific hypotheses that vary with whatever is believed to be divine, *this means that there should be an interpretive stance for scientific theories that is unique to theism*. To put the same point another way: if every other belief about what is divine makes crucial differences to metaphysics and hence to science, why would belief in God be the only one that does not? This must especially be the case if the belief that God alone is divine rules out anything else as having that status. In that case, it is not the mathematical, physical, sensory, logical, or any other kind of properties-and-laws found in creation that qualify the ultimate reality and explain all the nondivine kinds. So how could this view fail to make a difference?<sup>23</sup>

## A Theistic Perspective for Metaphysics and Science The Perspective Approximated

The earliest theories we know of were invented by thinkers who did not know God. So what the Psalms, prophets, and New Testament say is typical of fallen humanity was true of these people too: they took something about the created universe to be divine rather than God (Rom. 1:25). As Werner Jaeger put it:

When Hesiod's thought at last gives way to truly philosophical thinking, the Divine is sought within the world—not outside it as in Judeo-Christian theology that develops out of the book of Genesis.<sup>24</sup>

The paganism of the Greek thinkers, e.g., was expressed in their holding the divine to be earth, air, fire, water, atoms, numbers, matter, and Forms plus matter. And from the start, such theories defended their candidates for divinity with the strategy we now call "reduction": they argued that everything is either identical with, or dependent on, their favored candidate for divinity.

Unfortunately, when theists joined the theory-making enterprise, they generally pursued the same reductionist strategy for explanation. Despite the fact that they recognized and rejected the pagan religious assumptions behind that strategy, they failed to recognize that it is by requiring its rejection that theistic belief can play its proper regulative role. So instead of developing distinctively non-reductionist theories, most theists attempted to neutralize the pagan content of reductionist theories but maintain the strategy itself. To do that, they devised a simple ploy, namely, they stipulated that whatever it is in creation that everything else reduces to, in turn depends on God. In this way, everything still depends ultimately on God, even though the resulting theories still explain their data in exactly the same way whether the theistic stipulation is appended or not. So although the explanatory power of

such a theory still rests entirely on something in creation, that something is taken to be a penultimate rather than the ultimate reality. This allows belief in God to be compatible with virtually any theory, and so supports the idea that belief in God has no role for theories other than ruling out those that flatly contradict it. It leads to a position that an atheist philosopher once criticized this way: "Don't you see that God is just a fifth wheel for theories? It makes no difference to the content of a theory whether you add belief in God or not, so why bother?"

## The Universal Impact of Religious Belief

The most regrettable thing about this ploy for making reductionist hypotheses theistically acceptable is that it is outright denied by biblical teaching, and thus violates its own rule that a theory is unacceptable if it contradicts revealed truth! The texts referring to the fear of the Lord as "the principle part of wisdom and knowledge" (Ps. 111:10; Prov. 1:7, 9:10, 15:33; and Jer. 8:9) are well known, but are often dismissed as poetic hyperbole. So I will pass them by for now.

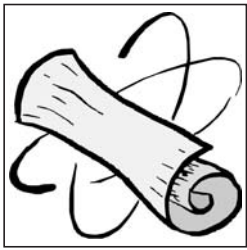
More significant is Jesus' remark in Luke 11:52 that those who distort God's law have "taken away the key to knowledge." Notice he does not say—as those who try to retain reductionist theories would have it—that distortions of God's Word take away the key to the knowledge of God. He just says "knowledge." Those who favor the ploy for keeping reductionist theories may want to claim the expression is elliptical in this respect. But compare it to 1 Cor. 1:5 where Paul asserts that knowing God through Christ has enriched us with respect to "all wisdom and knowledge." This does not sound at all like hyperbole or an elliptical expression, and it cannot mean only the knowledge of God. For later in the same book (12:8), he speaks of the various gifts God gives to believers, and includes the gift of knowledge. Then, in chapter 13 he says that the gift of knowledge will pass away along with other gifts such as tongues and prophecy, but the knowledge of God will be perfected. Hence the knowledge that is impacted by knowing God is not just (redundantly) the knowledge of God.

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*No knowledge is religiously neutral.*

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Finally, it is important to notice the way many Scriptures use the metaphor of light to stand for truth, and use being "enlightened" to mean acquiring knowledge. Psalm 43:3 confirms this usage when it declares "send out your light, even truth." So when Ps. 36:9 asserts that "in [God's] light we see light" it certainly sounds *prima facie* that it is saying precisely what 1 Cor. 1:5 says, namely,



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*All the entities found in the universe, along with all the kinds of properties they possess, all the laws that hold among properties of each kind, as well as causal laws, and all the precondition-relations that hold between properties of different kinds, depend not only ultimately, but directly, on God.*

that the knowledge of God plays a key role in the acquisition of all other sorts of truth. The New Testament continues the use of these metaphors. For example, 2 Cor. 4:3–6 says that unbelievers are blind to seeing the light of the Gospel and affirms that this “light” is the “knowledge of God.” With this in mind, Eph. 5:9 gives the strongest statement of all by insisting that the consequences of that light are to be found “in *all* that is good, just, and *true*.”

I conclude, therefore, that the cumulative effect of these passages is to support the general biblical outlook that a right view of creation depends upon knowing its Creator, so that no knowledge is religiously neutral. This conclusion bequeaths to us the question of understanding how belief in God could have such a universal impact. Surely it cannot be the fundamentalist program of deriving (or confirming) theories from Scripture; not even the most fervent fundamentalist ever thought that *all* knowledge and truth could be so derived! But what if this point is taken in conjunction with the way we have now seen divinity beliefs impact even the most abstract theories? What if we understand it to refer to the way belief in God can regulate how the natures of creatures—postulates included—are conceived?

We have noted how the reductionist strategy for explanation originated with the religious outlook that identified the divine as some part or aspect of the created universe. And we have seen why the traditional ploy for neutralizing the anti-theistic roots of that strategy fails. So why is not the most plausible interpretation of the universal impact of belief in God precisely that it requires the rejection of reduction? Why not say that the regulative principle to be derived from theism is that since nothing in creation is divine, nothing in creation is that to which all else is to be reduced? Instead of trying to stay as close to the pagan-based strategy as possible, why not start with the principle that whenever a theory is reductionist, it has gone astray?<sup>25</sup> (Please notice that this would make nonreduction a necessary but not sufficient condition for the truth of a theory. A theory may be nonreductionist and its hypothesis simply wrong; but no matter what truth it hits on, a theory will be partly false if reductionist.)

At its heart, this principle is no more than an extension of the doctrine that God created the heavens and earth. Nothing within the universe is uncreated: no thing, event, state of affairs, or relation, or class of them. Ditto for the kinds of properties those entities possess and for the laws governing them. All depend on God. There is, therefore, no reason for a metaphysics that eliminates either the entities we experience or any of the kinds of properties and laws we experience to be true of them. Nor is there any reason for claiming that there are entities whose nature is to have only the kind of properties that qualify divinity, and then take those entities to be the cause of the existence of all the other kinds of entities, properties, and laws found in creation. (For example, the theory that there are solely physical/spatial things which combine so as to produce new things in which emerge other kinds of properties such as biotic, sensory, logical, linguistic, etc.).

From a nonreductionist point of view, there is no created kind of properties and laws that *causes* the existence of the other kinds of properties and laws. Although specific properties of one kind are often preconditions for the *occurrence* of specific properties of other kinds, such preconditions are never the sufficient condition for why there are such other kinds at all. Rather, all the entities found in the universe, along with all the kinds of properties they possess, all the laws that hold among properties of each kind, as well as causal laws, and all the precondition-relations that hold between properties of different kinds, depend not only ultimately, but directly, on God.

This notion of a systematically nonreductionist metaphysics able to regulate scientific theories, is not merely a promissory note or future hope. Such a theory has already been worked out brilliantly and in impressive detail, and I find it to exceed any other I know of in its explanatory power. As you would expect, it is far too complex to be explained here.<sup>26</sup> It does not, however, rest only upon religious objections to reductionism but offers a philosophical critique of it as well. So I will close with a brief statement of part of that critique.

### **An Anti-Reductionist Argument**

The key issue for the reductionist strategy is its claim to have located in creation the *kind* of thing(s) that exist(s) independently.

That is the reductionist's reason for explaining by reducing everything else to that kind of thing. Thus the reductionist—whether pagan or theist—has to say that whatever is identified as basic to everything else is basic in the sense of being able to exist independently of the things it explains.

So let us now focus on the alleged independence of any particular *kind* of things. Can any kind of properties-and-laws so much as be conceived apart from all the others? Reduction says, yes. It claims the basic realities are purely *physical*, or *sensory*, or *logical*, or whatever. To see if this makes sense, I ask that you now perform a thought experiment. The experiment is to try to think of any of these kinds of properties and laws as having independent reality. In other words, let us try to conceive of what it would mean for anything to be *exclusively* physical, or sensory, or logical, etc. Can we really do this? To make the experiment more specific, let us try it on the three views of an atom we discussed earlier.

Start with Mach's theory. Try to conceive of any meaning for "sense perception" that is *purely* sensory—restricted to only sensory properties. Take any ordinary perception and one by one strip away from it every property that is quantitative, spatial, physical, biotic, logical, linguistic, etc. Now tell me what you have left. When I try it, I get nothing at all. I cannot so much as frame the idea of anything as purely sensory. Yet that is what Mach says everything is. Thus he rejects that there are physical objects and holds atomic physics to be a "useful fiction."

Now try it for Einstein's metaphysics. Start with his view of percepts. It is the same as Mach's, so if you could not conceive of anything purely sensory in the last experiment you will not get anything now either. Next take his view of concepts. As opposed to Mach, Einstein held that our minds contain purely logical concepts in addition to purely sensory percepts. This is what he regarded as our share of the divine Reason in the world. But what is left of the idea of "logical" once it is stripped of all connection to every other sort of property and law? Even the fundamental axiom of noncontradiction says that nothing can be both true and false in the same *sense* at the same *time*. It therefore contains an essential reference to other "senses" (other kinds of properties) and to time. But if we cannot so much as conceive of logical properties or laws in isolation, how can we justify the claim that they have independent existence? What reasons can be given for believing the truth of a claim we literally cannot frame any idea of? Finally, take Einstein's view of the nature of extramental objects. They are supposed to be purely physical. But can you form a concept of anything purely physical? If you mentally strip all that is quantitative, spatial, sensory, logical, and linguistic from a thing, what is left of its *physical* characteristics?

The same conceptual failure plagues the metaphysics of Heisenberg's theory as well. Reality is essentially physical *and* mathematical for Heisenberg (recall that he admitted that his view, like that of the Pythagoreans, regarded numbers and mathematical laws as divine). But once again: can you conceive of what it means for anything to be quantitative if that idea is held in isolation from all other kinds of properties and laws? What, for example, is left of our notion of a law of mathematics if it is stripped of every logical and linguistic property? Can there be a mathematical concept that does not logically distinguish what it includes from what it excludes? Can such a concept both include and exclude the same thing at the same time? Or can we have a concept of a mathematical law that is not expressed in language?

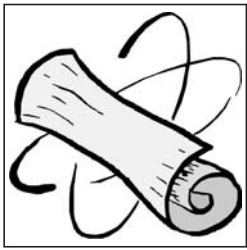
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*There is no good reason for theists to retain the reductionist strategy for theories ... every argument ever given for every version of it has failed for over 2,500 years because every deification of some aspect of the creation is unjustifiable because it is inconceivable.*

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Please do not misunderstand the purpose of these experiments. They are not intended to show that every pagan idea of divinity is false, and still less to be proofs of God. Their purpose is to show that there is no good reason for theists to retain the reductionist strategy for theories. That strategy does not possess powerful theoretical advantages the theist needs to salvage. On the contrary, every argument ever given for every version of it has failed for over 2,500 years because every deification of some aspect of the creation is *unjustifiable* because it is *inconceivable*. Pagan divinity beliefs (like belief in God) are not conclusions of arguments or inferences from evidence; they are imported to science rather than derived from, entailed by, or required by it. *And it is high time theists brought relief to science from the dogma of reduction.*

Consider just one benefit of a nonreductionist standpoint relative to the atomic theories discussed above. From this view, there are no such things as purely physical atoms, purely sensory percepts, or purely logical concepts. In a nonreductionist metaphysics, everything in the universe has *all* these (and other) kinds of properties and is



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### Prospects for Theistic Science

*It is high time  
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And it is just  
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to its own  
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governed by *all* these (and other) kinds of laws. This means that not only the things of everyday experience, but also the postulates of science are to be thought of as “multi-aspectual.” So if atoms really exist—and surely the evidence for that is overwhelming!—they too are multi-aspectual. Atoms have not only quantitative, spatial, kinematic, and physical properties but also (though in a different sense)<sup>27</sup> biotic, sensory, logical, linguistic, and many other kinds of properties, and are governed by every kind of laws that hold in the created universe. This point alone yields a distinctive result for atomic theory as compared with the three just reviewed.

This same approach can yield a distinctively nonreductionist version of theories in math, biology, psychology, logic, etc. as well as physics. There is, for example, a nonreductionist version of human evolutionary origins<sup>28</sup> just as there is a nonreductionist view of atoms. In recent years, a number of thinkers have produced some remarkable work from this nonreductionist standpoint, and in some cases, have actually solved or obviated some longstanding problem in a science. For example, there has been an impressive treatment of the history of physics,<sup>29</sup> of the old question as to whether there is a real or only potential infinity in math,<sup>30</sup> and there have been innovative cases of problem solving (or avoidance) in biology.<sup>31</sup> Moreover, I find it significant that an increasing number of nontheistic thinkers in many fields have been calling for, and attempting to develop, nonreductionist theories. Why not? After all the years of one-sided exaggerations provoking and being replaced by other one-sided exaggerations, it is high time to look for something better. And it is just such a better, nonreductionist, program for explanation that theism can supply to science if it would only stop trying to baptize the pagan strategy for theorizing, and begin living up to its own true legacy. ☩

### Notes

<sup>1</sup>For example, W. C. Smith, *The Meaning and End of Religion* (New York: Harper & Row, 1978), see esp. pp. xiv, 11 ff., 141 ff.

<sup>2</sup>This shows that atheism and religion are not opposites, and that the rejection of God (or gods) is not the same as having no religion at all. Atheism relates to religion the way vegetarianism does to eating: what someone does not believe to be divine does not tell us what he does believe to have that

status, any more than knowing someone is a vegetarian tells us what she likes to eat.

<sup>3</sup>For an account of yet other difficulties with this definition and with several other definitions, see chap. 2 of Roy A. Clouser, *The Myth of Religious Neutrality* (Notre Dame, IN: University of Notre Dame Press, 2005).

<sup>4</sup>This definition was held by Plato and Aristotle, and Werner Jaeger has shown that it was common property of a number of pre-Socratic Greek thinkers in *The Theology of the Early Greek Philosophers* (New York: Oxford University Press, 1960). In the past century alone, it was also held by W. James, *The Varieties of Religious Experience* (New York: Longmans, Green and Co., 1929), 31, 34; A. C. Bouquet, *Comparative Religion* (Baltimore, MD: Penguin Books, 1973), 21, 38, 45, 48; M. Eliade, *Patterns in Comparative Religion* (New York: The New American Library, 1974), 24–30; H. Dooyeweerd, *A New Critique of Theoretical Thought 1* (Philadelphia, PA: Presbyterian & Reformed Publishing Company, 1955), 57; N. K. Smith, *The Credibility of Divine Existence* (New York: St. Martin's Press, 1967) 396; Paul Tillich, *Systematic Theology 1* (Chicago: University of Chicago Press, 1951), 9, 13; Hans Kung, *Christianity and the World Religions* (Garden City, NY: Doubleday & Co., 1986), xvi; and C. S. Lewis, *Miracles* (New York: Macmillan, 1948), chapters 2 and 4.

<sup>5</sup>This is so for those religions in which demons and jinn are regarded as minor deities or where there are malevolent divinities such as the Dakota Indian evil Great Spirit. See James Fraser, *The Golden Bough* (New York: Macmillan Co, 1951), 308. Plato is also an example since he insisted on an evil world Soul as well as a good one (Laws X, 896.).

<sup>6</sup>Although the monism of Hinduism and Buddhism seems to preclude any dependency relation, the very distinction between the divine and the illusory world (Maya) still leaves a relation to be explained. Hinduism explicitly deals with the point, teaching that Brahman-Atman generates the illusion; Buddhism generally avoids the topic on the grounds that it is spiritually unhealthy to think about the illusory world at all. Compare Robert Neville's *The Tao and The Daimon* (Albany, NY: SUNY Press, 1982), 116.

<sup>7</sup>Scripture accords this status to God in several places. God's holy name revealed to Moses is said to be “I am that I am” (Exod. 3:13), which connotes God's self-existence. In Isa. 42:8, God says: “‘I am’ is my name; my glory I give to no other, nor my praise to graven images” thereby connecting God's identity with his self-existence which is the glory not to be ascribed to anything else. Isa. 6:3 confirms this when it says: “Holy, holy, holy is the I am of hosts; to fill the whole earth is his glory.” This connects God's holiness to his self-existence and his self-existence to his being the Creator who fills earth with creatures. Moreover, Isaiah calls giving that status to anything other than God “idolatry” (having a false god). And finally, Rev. 4:8–11, after repeating the quote from Isaiah 6, declares that God is worthy to receive glory, honor, and power, *because he has created all things.*

In short, while the average worshiper may not always focus on God's aseity, the things for which he is most often praised and thanked, all presuppose it; God's promises are reliable just because his

existence is unconditional and all else depends on him. Compare Calvin's remarks, *Institutes*, I, x, 2 and I, xiv, 3.

<sup>8</sup>In many theories, however, such beliefs function both metaphysically and as cultic religion. They provide personal guidance for values, attitudes, ethics, happiness, and a view of human destiny. This is evident for the theories of Pythagoras, Plato, Aristotle, Epicurus, and Lucretius, and also of Hegel, Marx, Bradley, Whitehead, Heidegger, Sartre, and Russell.

The following prayer to the number 10 evinces that for the Pythagoreans numbers were divine in both the cultic and metaphysical senses:

Bless us divine number, thou that generatest gods and men!  
O holy, holy tetraktys, thou that containest the root and source of eternally flowing creation. For number begins with the profound, the pure unity until it comes to the holy four; then it begets the mother of all, the all-encompassing, the all-bounding, the first born, the never-swerving, never tiring holy ten, the keyholder of all (T. Dantzig, *Number: the Language of Science* [Garden City, NY: Doubleday Anchor, 1954], 42).

Also, keep in mind that some ancient Greek mystery religions referred to the divine as the "everflowing stream of life and matter," and one form of present day Hinduism teaches that Brahman-Atman is matter. This shows that it is not *what* is believed to be divine which makes a belief religious, but whether it is accorded unconditional reality.

<sup>9</sup>Bible writers always speak of believers as "knowing God." For example, Deut. 4:35 says that God has revealed himself so that Israel may "know" him, and Ps. 19:7 says that God's Word is certain. John 6:69 says that God's people "both believe and know" the truth about God, and 1 Tim. 4:3 also speaks of those "who know and believe the truth." First John 2:21 addresses believers as those who "know the truth and that no lie comes from the truth." Believing God is real, then, is never *mere* belief but is also knowledge.

<sup>10</sup>For example, Alvin Plantinga, "Reason and Belief in God" in *Faith and Rationality*, Plantinga & Wolterstorff, eds. (Notre Dame, IN: University of Notre Dame Press, 1983), 16–91; and Alvin Plantinga, *Warranted Christian Belief* (New York: Oxford University Press, 2000); Nicholas Wolterstorff, "Can Belief in God Be Rational If It Has No Foundations?" in *Faith and Rationality*, 135–86, and —, "The Migration of the Theistic Arguments: From Natural Theology to Evidentialist Apologetics" in *Rationality, Religious Belief, and Moral Commitment*, Audi & Wainwright, eds. (Cornell University Press, 1986), 38–81; W. Alston, *Perceiving God* (Cornell University Press, 1991); and Roy Clouser, *Knowing with the Heart: Religious Experience and Belief in God* (Downers Grove, IN: InterVarsity Press, 1999).

<sup>11</sup>"Presuppose" is used here in a broadly epistemic sense as a belief condition, rather than a strictly logical truth condition. Formally: a belief *x* presupposes another belief *y*, if and only if *x* and *y* are not identical; one would have to believe *y* in order to believe *x*; *y* is not believed on the grounds of *x*; and *x* is not deduced from *y*.

<sup>12</sup>It should be clear by now that not every use of "reduction" is of the ontological sort I am finding theistically objectionable. A rough breakdown of objectionable types is as follows: (1) *Meaning Replacement*: The nature of reality is exclusively that of *X* kind of properties governed by *X* laws, since all non-*X* terms can be replaced by *X* terms with no loss of meaning. (Berkeley, Hume, and Ayer argued this way to defend positivism.) (2) *Factual Identity*: The nature of reality is constituted by exclusively *X* kind of properties governed by *X* laws, even though non-*X* terms cannot be wholly replaced by *X* terms. The defense of *X* is that the only or best explanations of everything whatever are those whose primitive terms refer to *X* properties and laws. (J. J. C. Smart defended materialism this way.) (3) *Causal Dependency*: The nature of reality is basically constituted of *X* properties and laws, while there is a one-way dependency of all non-*X* properties and laws on the *X* kind. (Aristotle and Descartes defended their theories this way.) (4) *Epiphenomenalism*: This is much like causal dependency except that the non-*X* kinds of properties are thought to be much less real.

They have no laws of their own, e.g., and cannot be objects of scientific investigation. (Skinner defended his behaviorism this way.)

These strategies can be combined in various ways. It should also be noted that some thinkers use "supervenience" to designate an order in the appearance of properties without wishing to commit to an ontological reduction in any of the senses defined above. That would be unobjectionable if it did not entail any of the objectionable types.

<sup>13</sup>J. Blackmore, "The Conservation of Energy" in *Ernst Mach* (Berkeley, CA: University of California Press, 1972), 49.

<sup>14</sup>The Analysis of Sensations, quoted in Blackmore, *Ibid.*, 327, n. 14.

<sup>15</sup>Einstein, *Ideas and Opinions* (New York: Bonanza Books, 1954), 22.

<sup>16</sup>*Ibid.*, 290–1.

<sup>17</sup>R. Eaton, ed., *Descartes Selections* (New York: Scribners, 1953), 178.

<sup>18</sup>Einstein, 295.

<sup>19</sup>*Ibid.*, 11.

<sup>20</sup>Heisenberg, *Physics and Philosophy* (New York: Harper, 1958), 74–5. In reply to this, Einstein once quipped: "Not everything that can be counted counts, and not everything that counts can be counted."

<sup>21</sup>*Ibid.*, 72–3.

<sup>22</sup>For an account of how such religious regulation also holds for theories in math and psychology, see chapters 7 and 9 of Clouser, *The Myth of Religious Neutrality*. For the case as to why such regulation is unavoidable, see chapter 10.

<sup>23</sup>This bears on the controversy about whether both theists and nontheists should do science as "methodological naturalists." If that meant only that science, as such, should not appeal to miracles, I would agree. But it cannot be correct that it is proper for theists to proceed as though any part of created reality exists independently of the rest of it, and is thus the ground of the existence of the rest.

<sup>24</sup>Jaeger, *The Theology of the Early Greek Philosophers*, 17.

<sup>25</sup>Notice that although I have been speaking of theories, this point has universal impact because it extends to every *concept*, not just every hypothesis. Any concept, fully explicated, is either reductionist or not. The point therefore impacts all truth and knowledge which is the gist of the Scripture passages cited.

<sup>26</sup>This point, along with the rest of the nonreductionist theory of which it is a part, is developed in Herman Dooyeweerd, *A New Critique of Theoretical Thought* 4 vols. (Lewiston, NY: The Edwin Mellen Press, 2005) His nonreductionist metaphysics is in vol. 3. I have summarized many of its main points in chapters 10–13 of *The Myth of Religious Neutrality*.

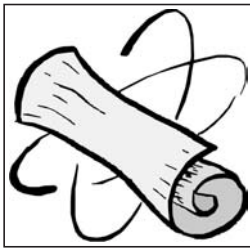
<sup>27</sup>A thing may possess a property actively or passively. Thus objects can be seen (passively) to be red that cannot (actively) see, and objects can be (passively) conceived that cannot (actively) form concepts. In this same way, it is plausible that all things have passive properties of every kind including biotic, sensory, logical, linguistic, economic, ethical, etc. See Clouser, *The Myth of Religious Neutrality*, chapter 11.

<sup>28</sup>See my articles, "Genesis on the Origin of the Human Race" in *Perspectives on Science and Christian Faith* 43, no. 1 (March 1991); and "Is Theism Compatible with Evolution?" in *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives*, ed. R. Pennock (Cambridge, MA: MIT Press, 2001).

<sup>29</sup>Marinus Dirk Stafleu, *Time and Again* (Toronto: Wedge Publishing, 1980).

<sup>30</sup>D. F. M. Strauss used a nonreductionist metaphysical basis to solve the old conundrum in mathematics as to whether there is actual or only potential infinity. See "Primitive Meaning in Mathematics: The Interaction among Commitment, Theoretical Worldview and Axiomatic Set Theory" in *Facets of Faith and Science* 2, ed. J. Van der Meer (Lanham, MD: University Press of America, 1996), 231 ff.

<sup>31</sup>In "The Influence of Evolutionary Biology on Hierarchical Theory in Biology, with Special Reference to the Problem of Individuality," Uko Zystra exposes some severe difficulties with regarding evolution reductionistically. See Van der Meer, ed., *Facets of Faith and Science* 2, 287 ff.



## Dialogue: Response

*Is Clouser's Definition of Religious Belief Itself Religiously Neutral?*



Pierre Le Morvan

# Is Clouser's Definition of Religious Belief Itself Religiously Neutral?

Pierre Le Morvan

*I agree that no theory, scientific or otherwise, can escape having religious presuppositions. ... I also concur with his definition of religious belief.*

Let me begin by noting points of agreement and my admiration for Roy Clouser's project. "Prospects for Theistic Science" strikes me as correct in the main. I agree that no theory, scientific or otherwise, can escape having religious presuppositions. This extremely important point merits far more attention than it has yet received in the literature. I also concur with his definition of religious belief. I know of none more accurate or comprehensive. Going beyond noting points of agreement, however, this response will point to some key areas where Clouser's stance on religious neutrality deserves further discussion and clarification.

In his article, Clouser builds on some central points articulated in his *The Myth of Religious Neutrality*. In both works, he deploys what he takes to be the correct definition of religious belief to show that no theory is religiously neutral in the sense of having no religious presuppositions. Though he wisely does not conflate definition with theory, one interesting question worth posing in this connection concerns whether Clouser's definition of religious belief is itself religiously neutral.<sup>1</sup> Note that "religious neutrality" can be taken in at least two senses:

- (1)  $x$  is religiously neutral if and only if it has no religious presuppositions,
- (2)  $x$  is religiously neutral with respect to  $y$  relative to religious presupposition(s)  $p$  if and only if  $x$  and  $y$  share presupposition(s)  $p$ .

Understanding (1) and (2) requires understanding what is meant by "presupposition." Following Clouser, we may understand it as a belief informationally required for another belief; thus, "no one could coherently hold the belief while denying any of its presuppositions, even though its presuppositions are not known by being logically inferred from the other belief."<sup>2</sup> Worth noticing here is that "a presupposition need not be conscious to exercise its influence on the other beliefs of the one who believes it."<sup>3</sup>

Employing Clouser's definition of religious belief articulated in "Prospects for Theistic Science," we may thus say that for  $x$  to be religiously neutral in sense (1) is for  $x$  to have no presupposition about the divine "no matter how that is described," or no presupposition "about how the nondivine depends on the divine," or no presupposition "about how humans may stand in proper relation to the divine, where the meaning of 'divine' is (minimally) having the status of utterly unconditional reality" (see p. 6).

Let me explain religious neutrality in sense (2) with an example. Take the Jewish and Muslim faiths. Though they differ in numerous respects, as monotheistic faiths they also share a number of religious presuppositions. Consider the overlap in the religious presuppositions of these two faiths. Call these " $p$ ." The Jewish faith is religiously neutral in sense (2) with respect to the Muslim faith (and vice versa) relative to  $p$ . Religious neutrality in sense (2) is thus a relational notion.

Having distinguished senses (1) and (2) of "religious neutrality," the following issues come to the fore. To begin, I see no reason to

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think that Clouser would take his definition of religious belief to be religiously neutral in sense (1). If he did so, then it would presumably follow on his view that *definitional religious neutrality* in sense (1) is not only possible but actual, as exemplified by his own definition of religious belief. And why should this definition be the only one so neutral? If definitional religious neutrality is not only possible but actual in one case, why could it not be so in others?

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*How does [Clouser's definition of religious belief] capture the essence of religious beliefs qua religious belief that have religious presuppositions at odds with his?*

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Accordingly, clarification of Clouser's position on the following matters would be helpful. First, to the extent that his definition of religious belief is *not* religiously neutral in sense (1) and therefore has religious presuppositions, should he not concede that it would be justifiably rejected by those who reject for whatever reasons these presuppositions? Or is his position that his definition has religious presuppositions that no one may justifiably reject? Second, I understand that Clouser has argued at length that his definition captures the essence of religious beliefs *qua* religious belief. However, if his definition of religious belief has religious presuppositions that many may reject, how does it capture the essence of religious beliefs *qua* religious belief that have religious presuppositions at odds with his? Does it capture the essence of religious beliefs *qua* religious belief in virtue of at least some religious presuppositions shared by all religious beliefs?

These questions naturally lead us to consider whether Clouser's definition of religious belief is religiously neutral in sense (2). It either is or is not. Suppose Clouser took the position that it is. In fact, Clouser appears to commit himself to the religious neutrality in sense (2)—and so, of the non-neutrality in sense (1)—by pointing out that his definition of religious belief has been endorsed by significant Christian and non-Christian thinkers alike (p. 14, note 4).<sup>4</sup> Although these Christian and non-Christian thinkers undoubtedly differ on a number of religious presuppositions, their religious presuppositions presumably overlap to a sufficient degree for them to concur on the definition of religious belief. For how else could they so concur? Moreover, since Clouser has argued at length that

his definition captures the essence not just of Christian or even monotheistic religious belief, but of religious belief *tout court*, would it not follow that it has to be (to that extent at least) religiously neutral in sense (2)? Has Clouser not uncovered one or more shared religious presupposition(s) of all religious beliefs, and does this not show that definitional religious neutrality in sense (2) is not only possible but actual, as exemplified by his own definition of religious belief? And if definitional religious neutrality in sense (2) is not only possible but actual in one case, could it not be so in others?

Suppose Clouser took the position that his definition of religious belief is not religiously neutral in sense (2). To the extent that it is *not* so neutral and therefore has religious presuppositions not shared by those who accept other religious presuppositions, we may ask yet again whether the latter would not be justified in rejecting this definition on whatever grounds they have for rejecting Clouser's religious presuppositions. Yes, Clouser has argued that his definition captures the essence of all religious beliefs *qua* religious belief (or at least of all those he is familiar with); but if his definition of religious belief has religious presuppositions not shared by those who accept other religious presuppositions, a question arises once more concerning how his definition could succeed in capturing the essence of religious beliefs *qua* religious belief that have religious presuppositions at odds with his own.

Finally, though I have briefly explored herein whether Clouser's definition of religious belief is religiously neutral in senses (1) and (2), I think it would be helpful for Clouser and his defenders to clarify whether any theory of religious (non)neutrality they maintain is itself religiously (non)neutral in senses (1) and (2). I see no way of neatly separating the issues raised herein concerning definitional religious neutrality from theoretical religious neutrality.

## Summary

This response paper distinguishes between two kinds of religious neutrality: (1) *x* is religiously neutral if and only if it has *no* religious presuppositions, and (2) *x* is religiously neutral with respect to *y* relative to religious presupposition(s) *p* if and only if *x* and *y* share presupposition(s) *p*. I raise the question whether Clouser's definition of religious belief is itself religiously neutral in senses (1) and (2), and argue that his views thereon deserve further discussion and clarification. ☞

## Notes

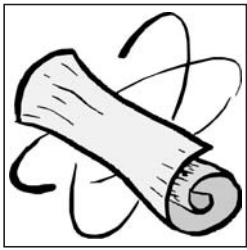
<sup>1</sup>Strictly speaking, it would be more accurate to say "whether *believing* Clouser's definition of religious belief is religiously neutral."

<sup>2</sup>Roy Clouser, *The Myth of Religious Neutrality* (Notre Dame, IN: Notre Dame University, 1991), 106.

<sup>3</sup>*Ibid.*, 106.

<sup>4</sup>Cf. Clouser, *The Myth of Religious Neutrality*, 16–24.





## Dialogue: Response

Comments on Clouser's Claims for Theistic Science

# Comments on Clouser's Claims for Theistic Science

Hans Halvorson



Hans Halvorson

*Clouser's proposal holds out the promise for a more systematic approach to questions about science and religion.*

In "Prospects for Theistic Science," Roy Clouser sketches a framework for the relationship between religious and scientific beliefs. In particular, he develops—building on previous work<sup>1</sup>—a neo-Calvinist view, according to which religious belief is a presupposition of, and is relevant to, any other body of beliefs.

According to Clouser, we should expect religious beliefs to play a "regulative," rather than a "constitutive" role with regard to scientific theorizing. (Indeed, Clouser indicates that religious beliefs do, in fact, regulate scientific theorizing—whether or not we are aware of it.) That is, while we should not typically expect religious beliefs to provide the content of scientific theories, we should expect religious beliefs to provide a methodological framework within which scientific theories are developed and evaluated.

What is more, Clouser claims to have identified the central methodological maxim of Western monotheism (henceforth, "theism"): reject reductionism—that is, do not attempt to explain everything in terms of the structure and behavior of a special class of "fundamental" entities within the created universe. According to Clouser, this methodological maxim is a corollary of the doctrine of creation: God is the only self-existent being.

Clouser's proposal holds out the promise for a more systematic approach to questions about science and religion. Nonetheless, there remain a few issues on which one might press for clarification.

First, Clouser claims that theists and atheists alike believe that there is a privileged class of self-existent (or "divine") beings; they differ only on which beings they identify as divine. Clouser also claims that religious beliefs regulate scientific theorizing because a scientist will attempt to reduce everything to (or, explain everything in terms of) what she takes to be the self-existent beings. But this proposal comes into tension with Clouser's claim that the theist should be a nonreductionist. In particular, if Clouser is correct that a scientist will try to explain everything in terms of what she thinks are the self-existent beings, then will not the theistic scientist attempt to explain everything in terms of his divinity, viz., God? If this is so, then in what sense is the theist different from the atheist? In what sense is the theist a nonreductionist?

Now, Clouser might claim that there are crucial differences between the two cases—e.g., the atheist's divinities are "located within the universe" (see p. 9). But, what is it about a thing's being located outside the universe that makes explanation in terms of that thing nonreductionist? Or is it that we cannot explain facts about the universe in terms of something that is not in the universe? And, if so, why not? In general, it would be helpful to have the notion of being "located within the universe" spelled out more precisely. "Located within the universe" cannot mean "in space and time," because numbers, sets, and sense perceptions are not in space and time, but Clouser clearly thinks of them as located in the universe. Similarly, it will not do to say that a thing is located in the universe if it is causally connected to things in space and time, because that would arguably entail that God is in the universe, but numbers are not. Finally, we cannot define the universe to be the collection of things that are dependent on something else, or created, because then

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on Clouser's view, even the atheist's divinities would be (according to her belief system) outside the universe.<sup>2</sup>

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*If Clouser is correct that a scientist will try to explain everything in terms of what she thinks are the self-existent beings, then will not the theistic scientist attempt to explain everything in terms of his divinity, viz., God? If this is so, then in what sense is the theist different from the atheist? In what sense is the theist a nonreductionist?*

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Second, it would be interesting to consider Clouser's proposal in light of the distinction between the content of a scientific theory, and an interpretation of that theory. For example, it is standard among philosophers of science to distinguish between quantum mechanics (as a recipe for deriving predictions about the outcomes of various experiments) and some interpretation of quantum mechanics—

say, Bohmian mechanics or Everett's "many worlds" interpretation. While there seems to be little question that everyone should accept quantum mechanics as approximately true, the theist will justifiably think that some attempts to interpret quantum mechanics are motivated by a confused idea about the aim and scope of physical theory. For example, the Everett interpretation has sometimes been motivated by the idea that fundamental physics needs to "explain" the emergence of consciousness.<sup>3</sup>

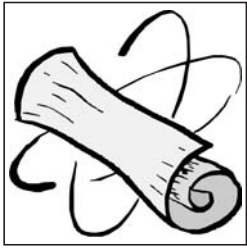
Finally, Clouser claims that "there is no good reason to retain the reductionist strategy for theories" (p. 13). However, this claim is too strong. The reductionist strategy has been, and continues to be, extremely fruitful in the development of physics—witness the enormous success of the kinetic theory of gases, or of the standard model of particle physics. Indeed, it could be positively harmful to the interaction between religion and science if theists attempted to develop some special sort of "nonreductionist physics." But even if reductionism might be a helpful strategy within a particular science, Clouser has given compelling grounds for suspicion of attempts to globalize this strategy. ☘

### Notes

<sup>1</sup>Roy Clouser, *The Myth of Religious Neutrality*, 2d ed. (Notre Dame, IN: University of Notre Dame Press, 1994).

<sup>2</sup>Perhaps Clouser would use Dooyeweerd's notion of "modal aspects" to make the appropriate distinction: viz., a divinity is "located in the universe" if it is qualified by some aspect.

<sup>3</sup>See, e.g., D. Deutsch, *The Fabric of Reality* (New York: Penguin Books, 1998).



## Dialogue: Response

*On Reducing Nearly Everything to Reductionism*

# On Reducing Nearly Everything to Reductionism

Del Ratzsch



Del Ratzsch

*I am suspicious of all three [of Clouser's contentions concerning the relationship between "divinity" and science].*

Let me begin by endorsing my friend Roy Clouser's commitment to "thick" conceptions of science/religion engagement. That seems right, and I am with him there and on a variety of other points as well. However, I have reservations concerning a number of Clouser's other contentions, and in what follows will focus on some of those.

### Definitions

Clouser begins with an attempt to characterize *religious belief*.<sup>1</sup> The core of that characterization consists of two stipulations: that to be *divine* means (minimally) to have unconditional reality, and that beliefs are *religious* in that they involve the divine in specified ways. Although I cannot pursue them all here, I have a number of reservations concerning this part of the paper.<sup>2</sup> In any case, Clouser's proposed characterizations of "divine" and "religious belief" would (as he notes) turn propositions, numbers, sets, necessary truths and other such things (as frequently conceived) into divinities, and would turn various beliefs about such things into *religious* beliefs. Clouser, however, embraces that implausibility.<sup>3</sup> But define things how you like, I am not convinced that my mathematician friends who believe in the abstract independent existence of sets thereby hold *religious* beliefs in mathematical *divinities* in any sense of "religious" or "divinity" of interest to science/religion discussions.

### Metaphysics, Philosophy of Science and Science

Terminology aside, Clouser contends that (a) every scientific theory implicitly presupposes some explanatorily ultimate independent existent (divinity), that (b) every such divinity-presupposition *regulates* every scientific theory generated under its auspices (by setting parameters for the nature of postulates, postulated entities, explanations, explanatory strategies, etc.), and that (c) particular presuppositions concerning specific divinities uniquely and characteristically impact the content, character, and truth of the theories in question.

I am suspicious of all three. Does accepting kinetic theory of heat inevitably commit one to anything very substantive concerning what ultimately independently exists ("divinity")? Does believing that God alone independently exists generate significant parameters for chemical bonding theory? Do Richard Dawkins and Owen Gingrich really have significantly different theories concerning the type of nuclear processes occurring in our sun? Or concerning why windows break when hit by bricks? Should their theories differ here? Given an epistemological coherentism such views might appear plausible, and although I suspect that something like that underlies Clouser's intuitions here, Clouser has certainly given us no such philosophical case.

I think that Clouser is correct that deep metaphysical differences (call them what you will) *can* make substantive differences in theoretical science.<sup>4</sup> But Clouser's *universalization* of such claims is a quite different question. In fact, it might even be true that taking the collection of all theories as a whole "there should be an interpretive stance for scientific theories that is unique to theism" (see p. 10). But it does not follow

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from that that *every* theory individually will have some unique theistic imprint, or that *every* theory generated under pagan divinity beliefs will inescapably be “partly false” (p. 11).

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*The difficult matter ... is in (1) establishing whether specifically religious belief and issues in the usual sense are among the deep matters having potential consequences for science, and if so in (2) establishing the whats, wheres, and hows of those consequences.*

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In any case, the difficult matter—and, it seems to me to be the *real* issue of interest—is in (1) establishing whether specifically religious belief and issues in the *usual* sense<sup>5</sup> are among the deep matters having potential consequences for science, and if so in (2) establishing the whats, wheres, and hows of those consequences. The mere general fact that deep metaphysical matters can have scientific theoretical consequences does not by itself, of course, tell us much of anything on either of those points—not even if one chooses to *call* some such beliefs “religious.” So what sort of relevant case does Clouser give us here?

### (Real) Religious Belief and Science

The heart of Clouser’s case emerges in “A Theistic Perspective for Metaphysics and Science” (p. 11). Scripture, as Clouser reads it, teaches not only (d) that God, as sole Creator, is the only explanatorily ultimate, independently existing divinity, but also (e) that belief in God must have *universal impact*—impact even upon our most abstract theories. That, of course, fits very nicely into Clouser’s above general picture concerning “divinity” beliefs and universal theory regulation. Since belief in God is not only a divinity-belief but the only legitimate one, it will be the sole (relevant) regulative presupposition of a believer’s proper theorizing. Since that belief will impact *all* such theorizing (both as required by Scripture regarding (e) and as entailed by (b) above), every proper theory of a believer will bear the imprint of that foundation and of *only* that foundation (as ultimate). Identification of anything *other* than God as independently existing (as explanatorily ultimate, as divine) will constitute a forbidden *reductionism*—idolatry, even—so any theory bearing the imprint of

ultimate explanatory appeal to that other alleged “divinity” will itself be (in a derivative sense) idolatrous.

I have several reservations here. For instance, it is not obvious to me that the specified scriptural passages are intended to apply to, say, ballistics (contra (e)). Nor, again, is it obvious (*pace* (d)) that the belief that *the law of non-contradiction has independent existence* is reductionistic (or idolatrous). However, I will not pursue such issues now, but will turn instead to one of Clouser’s major moves.

### Creation and Causation

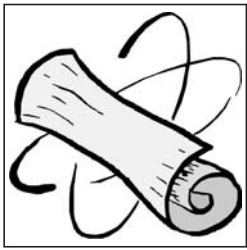
The theories of unbelievers, on Clouser’s view, will be *a fortiori* reductionistic, and any reductionistic theory “no matter what truth it hits on” is thereby “partly false.” What that means, according to Clouser, is that attempts to baptize and appropriate the theories of pagans intact (the facet of creation mistakenly identified as divine merely being declared to itself be a dependent creature of God, all other ramifications of the theoretical structure built on that reductionistic foundation being incorporated unaltered) will be illegitimate from a proper believing standpoint. Why so?

The immediate problem with these theories involving merely indirect causal dependence upon God will (on Clouser’s view) be that the appropriated theoretical entities, their very construction having been regulated by pagan divinity presuppositions, will lack the required constitutive “impact” of belief in God.<sup>6</sup> The (still pagan) upper reaches of the hybrid structure will thus be implicitly inconsistent with the ramifications of belief in God, which is alleged to ultimately undergird this conceptual chimera. Thus, believers’s attempts to appropriate intact the theoretical structures generated out of nonbelieving presuppositions will produce, at best, theories of God’s indirect creation which violate the scriptural “universal impact” requirement (e), and, at worst, conceptual edifices which are flatly incoherent.

*Granting* his various premises (which I do not propose to do), Clouser’s intuitions might be right to this point. Unfortunately, Clouser takes a further step. Clouser insists that *any* theory involving merely indirect causal dependence upon God is unacceptable, asserting that

all entities found in the universe, along with all the kinds of properties they possess, all the laws that hold among properties of each kind, as well as causal laws, and all the precondition-relations that hold between properties of different kinds, depend not only ultimately, but directly, on God (p. 12).

But why so? It does not obviously follow from *divinity* considerations (i.e., only God existing independently and only God being explanatorily ultimate) that only God has causal capability. Surely God (being divine, omnipotent, Creator) could have directly created some dependent existent (property, law, whatever) with causal capabilities,



## Dialogue: Response

### *On Reducing Nearly Everything to Reductionism*

*While Clouser has argued that the “impacts” of belief in God must be universally present, he has given no reason for thinking that such impacts must be universally directly caused by God – that they cannot be produced by secondary causes themselves deliberately designed and created by God for exactly that purpose.*

that creature then exercising that capability to cause the existence of other (even all other) creatures. Aside from God, all else would depend ultimately upon God (only God being divine), but not all would depend *directly* on God. In fact, claiming that God *could not* do that would apparently commit one to the view that there were principles (concerning the capabilities of omnipotence) which existed *independent* of God and beyond his control—in violation of Clouser’s claimed rejection of “reductionism” (in his sense).

Nor does Clouser’s claim seem to follow from the *universal impact* requirement. While Clouser has argued that the “impacts” of belief in God must be universally *present*, he has given no reason for thinking that such impacts must be universally *directly caused* by God—that they cannot be produced by secondary causes themselves deliberately designed and created by God for exactly that purpose. Complicating the situation is the fact that we are given few details concerning what such impact consists of and concerning how regulation works.

Let us suppose that regulation operates by constraining presuppositions, or conceptions, or possibilities. If the directly divinely created creatures (entities, properties, laws) reflect those constraints not only in themselves but in their causal capabilities, then whatever they in turn cause will presumably fall within bounds also reflecting those constraints—i.e., the impact is passed on. Or suppose that rather than constraint, impact (in theoretical matters) involves an implicit commitment (somehow imprinted or melded into the theory) to some specific proposed divinity. We have been given no reason to think that this component—if it really is *inextricable* from all aspects of the theory—does not flow through the implications of the theory as well. And if it is instead *extractable* from the theory, then in what sense is it *not* a theoretically inert “fifth wheel” of the sort Clouser decries?<sup>7</sup> (My suspicion, again, is that there is an epistemological coherentism lurking in the depths here, but I will not pursue that.<sup>8</sup>)

### Conclusion

It seems to me, then, that some of Clouser’s assumptions are shaky, that aspects of his philosophy of science are highly questionable, and that some of his major inferential

moves are suspect. Furthermore, we have been given little detail concerning the specifics of regulative functioning, concerning exactly how theories carry the “impact” of belief in God, and concerning exactly what the sort of view Clouser has in mind really comes to. Only if Scripture intends to teach that belief in God is undetachably relevant to all theory, only if unbelief so affects the scientific theories of unbelievers that such theories are all “partly false,” only if God did not or could not create dependent beings with causal capacities—only if all of those are true (and they are far from obvious) has Clouser given us reason to think that we need the sort of view he has in mind (whatever that view would look like in detail) much less that the specific candidate view he refers us to elsewhere is a superior, adequate, or even plausible exemplar of the type. ☒

### Notes

<sup>1</sup>Discussion in this area constitutes about three quarters of the paper.

<sup>2</sup>For instance, Clouser’s “god rule” requires that requisite beliefs about a god be classified as *religious* beliefs, his definition entails that a belief is religious only if it concerns something divine, and yet Clouser cites examples he claims to be of religions involving gods who are not divine. Beliefs about such *gods* would be religious (“god rule”), but would apparently not involve *divinity* in the ways stipulated by the definition of “religious belief.” I also think that Clouser sometimes gives his own peculiar definition to a term, then simply attributes *that* meaning to anyone who uses that term.

<sup>3</sup>*What is shown instead is that beliefs about what has divine status play an important role in theories ...* [his emphasis], p. 6.

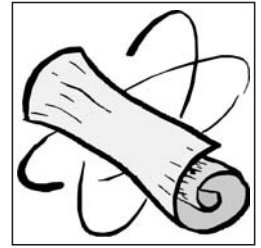
<sup>4</sup>Many (perhaps most) philosophers of science have accepted that sort of position for decades.

<sup>5</sup>I take that sense to involve the divide between metaphysical naturalism and non-naturalism, between theism and nontheism, etc.

<sup>6</sup>Indeed, what we might call their “impact sites” will be filled by paganly-shaped impacts from the mistakenly identified “divinities,” preventing the right sort of impacts from gaining any traction.

<sup>7</sup>Despite Clouser’s suggestion that the nonreductionism just *is* the denial that anything other than God is divine, the “impact” will have to be more than an implicitly embedded insistence that the other things in question are really just creatures, only God being divine. Were that all it came to, the “partly false” part of a pagan theory could be stripped off and the “what truth it hits on” part be preserved and attributed to God’s creating, thus avoiding reductionism. Clouser, however, emphatically rejects that move, so *something* else must be operating here.

<sup>8</sup>I also suspect that there is some epistemology/ontology slippage occurring in the vicinity, but I will not press the issue.



# Replies to the Comments of Le Morvan, Halvorson, and Ratzsch on "Prospects for Theistic Science"

Roy Clouser

Let me begin with Pierre Le Morvan's question as to whether my definition of religious belief is itself religiously neutral. The short answer is, no. But its non-neutrality does nothing to undercut its force; it is not thereby rendered self-canceling or significant only for theists. Here is why.

When an entity is postulated by a theory, the concept of its nature will differ drastically depending upon what the thinker regards as divine. If a thinker regards a particular kind of properties-and-laws as divine, then all the other properties and relations included in the concept of that entity will be conceived as dependent on the properties of the divine kind. The result is that the nature of the postulate will be quite different relative to various divinity beliefs, and the entity's explanatory role will also vary accordingly (think of the three concepts of atoms and sub-atomic particles held by Mach, Einstein, and Heisenberg).

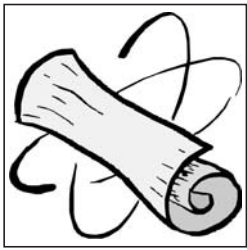
For the concepts we form of things we experience, on the other hand, the impact of divinity beliefs is not nearly as obvious or divisive. Such concepts are not invented, and we go to pains to include in them only those properties and relations we experience as true of the things of which they are concepts. So if I ask a materialist to pass me the salt, our concepts of the saltshaker are sufficiently alike that he knows what I am talking about. The fact that I regard all the properties of the saltshaker as equally real while he regards them all as identical with or dependent on its physical properties, will not prevent our mutual identification and use of the

correct object. This illustrates how the impact of differing divinity beliefs on concepts of experienced objects is weaker than it is for postulates of theories. For concepts of experienced objects, the impact is usually evinced in differences as to *what we are likely to notice about the saltshaker, and the relative importance we ascribe to what we notice*. These differences can be important, but they do not prevent those with different divinity beliefs from sharing the same world; all who experience it can agree on the saltshaker's color, size, shape, location, use, etc. And the definition of a saltshaker will be the statement of the properties common to them all.

The same holds true, I think, for the definition of religious beliefs as for our concept of saltshakers. We can all confront a multitude of religious beliefs and can examine their features. We can all discover that they include a divinity belief with the essential feature I called attention to. No doubt my belief in God made me more likely to notice that feature, and more likely to give it the prominence I gave it in my definition. So it is not religiously neutral. But that weaker non-neutrality need not prevent others from being able to see ascriptions of non-dependent reality in any divinity belief they may care to examine.

Consider a parallel case. Aristotle took rational Forms and laws of logic to be divine. No doubt that helped focus his attention on logic in a way that led to his formulating the law of noncontradiction. That would also be a case of this weaker sort of religious influence as compared to what I argued takes

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*My thesis is that since everyone has some religious belief or other, everyone will in fact hold either an ontologically reductionist or nonreductionist view of the kinetic theory – whether consciously or unconsciously, and that a crucial part of a properly theistic view of science is to hold a nonreductionist view of it and everything else.*

## Dialogue: Reply

*Replies to the Comments of Le Morvan, Halvorson, and Ratzsch on “Prospects for Theistic Science”*

place in hypothetical postulates; but it is religious influence all the same. Nevertheless, no one needs to agree with his religious belief to see the truth of that law. Of course, thinkers holding other divinity beliefs will thereby be led to *interpret* the law differently. For example, some have held the law applies to our thought alone and not to extra-mental reality, some have held it applies to the world of everyday experience but not to the subatomic realm, yet others that it is an accidental by-product of the way our brains happen to have evolved, and still others have held that it applies to language but not to mathematics.

In a similar way, I hold that: (1) my definition is open to all to confirm by their own examination of religious beliefs, (2) my definition was influenced by my belief in God and by the fact that God’s aseity is such a prominent part of the biblical revelation, and (3) what I have found to be the defining factor of religious belief may, indeed, be interpreted differently by others holding substantively different divinity beliefs.

But the latter point does nothing, so far as I can see, to undercut the force or value of the definition. Unlike the strong control divinity beliefs exercise over forming postulates in theories, this weaker sort does not prevent those with differing divinity beliefs from seeing the factor being pointed to. In fact, whenever anyone interprets that defining factor in the light of what they take as substantively possessing divine status, it only serves to confirm my central claim about the impact of such beliefs on all other beliefs.

Hans Halvorson questions the meaning of “reductionist” as I used it, and asks whether my own view is not also reductionist. He then asks how we are to distinguish God from creation since I claim that nothing in creation (the universe) is to be reduced to anything else in creation. And finally, he asks whether there are not some senses of “reduction” that science has found genuinely useful.

I tried to make clear that there are varying senses of “reduction” not all of which are objectionable, and described the religiously objectionable senses in note 12 (p. 15). The objectionable ones are those that reflect a belief in some aspect of creation as having

divine status, and I think the note makes clear why the sense Halvorson cited as useful to science—the “reduction” involved in the kinetic theory of heat—is not one of the objectionable senses. The sense in which the kinetic theory is “reductive” is that it explains heat as the kinetic energy of molecules, not that the nature of the molecular activity that explains heat has been restricted to one (or two) of the kinds of properties-and-laws it exhibits. Someone may, indeed, go on to interpret the kinetic theory in an objectionably reductionist way by understanding it from a materialist or phenomenalist point of view, for example. But the kinetic explanation can also be understood in an ontologically nonreductionist way such that none of its factors have their natures identified with only one (or two) kind(s) of properties-and-laws. Moreover, my thesis is that since everyone has some religious belief or other, everyone *will in fact* hold either an ontologically reductionist or nonreductionist view of the kinetic theory—whether consciously or unconsciously, and that a crucial part of a properly theistic view of science is to hold a nonreductionist view of it and everything else.

As to whether my own view is reductionist in an objectionable sense, the short answer to that too is, no. Again, here is why. Theories of reality have traditionally used “reduction” to mean one of two things: (1) that only one of the kinds of properties-and-laws we experience is real at all, or (2) that one (or two) kind(s) of properties-and-laws wholly generate(s) all the others. What both senses have in common is that the reduced kinds are rendered *less real* than the reducing kind(s). Thus (1) reduces what is real by eliminating all other kinds and dismissing them as illusory. A familiar example is the theory that there exist only physical things with physical properties subject to physical laws.<sup>2</sup> It claims that although we seem to experience things as having quantitative, spatial, biotic, sensory, logical, and other kinds of properties, we are in fact wrong in thinking such kinds are real; there simply are only physical properties-and-laws. By contrast (2) reduces the *level* of reality of any kinds that are reduced. The latter exist, but are wholly generated and determined by the kind(s) to which they reduce and are less real for that reason. Like the denizens of *Animal Farm*, all the kinds are real, but some are more real than others.

Now it is important in this discussion not to confuse *dependency* with either the no-reality or the less-reality reduction claims. (Notice that although there is a one-way dependency in the second of the objectionable senses, there is none at all in the first sense.) So while a theist holds that there is dependency between God and creation, that dependency neither eliminates any kind of properties-and-laws nor diminishes the status of any of them *relative to any other kinds*. This is not an incidental issue for the ontology which I find best develops a nonreductionist view of reality.<sup>3</sup> That ontology is the only one I know that makes it possible to take every kind of properties-and-laws in creation as equally real. That is to say, e.g., things no more really have physical properties than they have logical properties (and vice versa), and are no more really subject to logical or physical laws than they are to ethical laws. All the kinds directly depend on God, and all are equally real aspects of all things in his creation.

Halvorson's last question about how to distinguish God from creation is, of course, made all the more urgent by my last two paragraphs. Simply speaking of "creation" or "the universe" as other than God needs more precision, as he points out. There are several ways theologians have drawn this distinction. The simplest is to say that everything other than God is creation. That is correct according to Scripture (Rom. 1:24, e.g.) but not adequate here since his question includes whether numbers, sets, and perceptions are in the universe at all. Another way to draw the distinction is one mentioned but rejected by Halvorson: everything in time and space. This is actually a good suggestion, it seems to me, and his rejection of it is problematical. Why should we think that perceptions are outside time or space? Are not perceptions spatially located and ordered? Do they not occur in temporal sequence? And why should we think that numbers are outside time? Aside from the intellectual traditions influenced by those who deified numbers, they have quite plausibly been construed as symbols designating *properties* of the objects we experience.<sup>4</sup> The same is true for logical sets.

In this context, however, perhaps the best way of distinguishing between God and creation is the one proposed by Calvin. He stressed that God is the Creator of all the laws for creation, so that everything existing under law is creaturely.<sup>5</sup> Since numbers, sets, perceptions, and all else we can abstract from the world around us are subject to nomic order, they are creatures and not the Creator who is the law-giver. Conflated, these criteria amount to saying that anything other than God that is in time or space, and subject to law-order, counts as creation. This is why none of the kinds of properties-and-laws exhibited by things in time and subject to laws should be reduced to one another in the objectionable senses defined. To do so is to attribute to one or another kind of properties-and-laws the divine status that belongs to God alone, and thereby to reduce the reality of the rest of them relative to the one(s) deified.

Del Ratzsch begins by titling his comments so as to suggest that I have made my anti-reductionist proposal the whole story of the theistic view. That seems strange when my article began by saying that the other major proposals about the S/R relation are *all* at times correct, though none has ever justified the claim that it is the *general* way religious belief and theories relate. Moreover, none of the others even attempts to accommodate the dozen or so Scriptures that say knowing God favorably impacts "every sort of knowledge" and "all that is... true" (e.g., 1 Cor. 1:5; Eph. 5:9). Each of these views proposes instead a relation that admittedly leaves a good bit of knowledge and truth religiously neutral. An anti-reductionist stance, by contrast, impacts not only every theory but also every concept; all are either reductionist or not.

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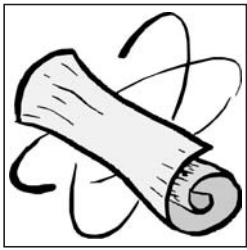
*[Ratzsch's] description of my position as holding that some divinity belief or other regulates every scientific theory, leaves out an important step. My claim was that divinity beliefs regulate an ontology, which in turn regulates scientific theories.*

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So I am puzzled that he asks whether a Christian and a non-Christian should have a different view of "nuclear processes in the sun or why windows break when hit by bricks." The theories I used to illustrate my view showed this difference for atomic theory concerning the *nature* of nuclear processes. Are they to be understood as "useful fictions" (Mach), the actions of purely physical entities (Einstein), the determinations of eternal and divine mathematical laws (Heisenberg), or (as I suggest) as irreducibly multi-aspectual processes? On the other hand, that a brick can hit and break window is not a theory but an experienced regularity that needs to be *explained by* some theory, and that theory too will either be reductionist or not. I must also add here that his description of my position as holding that some divinity belief or other regulates every scientific theory, leaves out an important step. My claim was that divinity beliefs regulate an ontology, which in turn regulates scientific theories. How that works was, I think, amply illustrated by the three atomic theories cited.

As to the questions about my definition of religious belief, I must reiterate that it is based upon an enormous





## Dialogue: Reply

Replies to the Comments of Le Morvan, Halvorson, and Ratzsch on  
"Prospects for Theistic Science"

Ratzsch  
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impact of belief  
in God."  
My point  
was that  
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God-surrogate  
instead of  
God ...

is not a matter of "calling them what you will," but of isolating the only feature shared in common by every major world religion and dozens and dozens of lesser ones (note 4, p. 14, listed only a few of the thinkers who accepted this definition because it covered every religion they knew of). Nor do I see why it is a good objection to this definition to say that many theists still regard sets or numbers as having independent existence. This does not show that doing so is not a mistake, especially in light of the fact that those who first proposed such views gave the divinity of such entities as their reason for it (see note 8, p. 15). And since theistic thinkers have often unwittingly had their theoretical work infected by nontheistic beliefs, it will not do simply to say that there are theists who believe in God but also attribute divine status to "abstract entities" and then suggest that because they do so, there must be something wrong with the definition. Why should we not conclude instead that since every known divinity belief centers upon the unconditional reality of its putative divinity, this should serve to warn theists not to attribute that status to anything but God?

Now had I given only the latter (historical) point as the reason for denying divine status to anything but God, I could have justly been accused of guilt by association or committing a genetic fallacy. But I supported the point with a specific argument as to why it is unjustifiable to regard numbers, sets, laws, etc. as capable of independent existence. In the section, "An Anti-Reductionist Argument" (p. 12), I showed why the claim that anything is purely physical, or sensory, or logical, etc., is incoherent. We can say the words—just as we can say "square circle"—but in neither case have we any idea what we are talking about. And that serves to show why it affords no explanatory advantage to hold that any one kind of properties-and-laws generates the existence of the other kinds: if we cannot so much as frame the idea of any as independent of the rest, then how can any be used to explain the reality of the rest? This was the basis of my contention that all of the kinds of properties-and-laws found in creation should be regarded as directly dependent on God.<sup>6</sup>

This argument, however, has been ignored rather than rebutted. In fact, several times Ratzsch says I gave no argument for it whatever and that I further seem to be assuming (also with no argument) a form of "epistemological coherentism." Now, it is true that I did not present the *entire* case for the universal impact of divinity beliefs on views of reality, and views of reality on scientific theories.<sup>7</sup> Assuming a theistic audience, I presented the scriptural basis for the universal impact for belief in God, and offered an interpretation of its relation to theories that satisfies that demand while none of the other views of that relation even attempts to do so. But it is not true that I gave no argument against reduction and thus for the direct dependence of every kind of properties-and-laws on God. Nor is it true that I presented the claim of every theory's being impacted by belief in God as an inference simply from there being a general theistic stance for theories. That all truth is thus impacted is at least strongly suggested by Scripture and fits with the general biblical view that no one understands creation who does not know its Creator. And since the regulatory impact of any divinity belief is conveyed to theories via ontology, no separate argument is needed for its universality.

Ratzsch then proceeds to consider what role "religion in the *usual* sense" can have for science. But what, pray tell, is the "usual sense" of that term? I covered three of the most common misunderstandings of it in the article, and there are many more.<sup>8</sup> Even more importantly, the view he then attributes to me and assesses negatively is not the view I presented. His paraphrase takes me to have said that "only God has causal capability" (p. 21) whereas the quote he takes to entail that specifically says "causal laws" are created by, and depend upon, God. Furthermore, the context of the quote shows that my main point there was the claim that no one (or two) kind(s) of properties-and-laws exhibited by things we experience is the sole nature of those things or the cause of the other kinds of properties-and-laws true of them—the point for which I gave the anti-reductionist argument.

Nor is it the case that by saying that things and events and their causal interactions depend upon God, I made any claim about what God *could not do*.<sup>9</sup> The question

was how to relate belief in God to our theorizing given the tenor of Scripture and the emptiness of reduction claims; it has nothing to do with other ways God *could* have made the world. And why is it “not obvious” that the law of noncontradiction should not be accorded independent existence? The nonreductionist argument I gave was specifically applied to that law, and that too was ignored.

Perhaps the most important misunderstandings, however, are in “Creation and Causation” (p. 21). There Ratzsch construes my proposal to say that what is wrong with adapting reduction theories is that they would then “lack the required constitutive impact of belief in God” (p. 21). That is true, but too weak. My point was that they would unavoidably exhibit the impact of a God-surrogate instead of God, by taking some aspect of creation as what generates and explains everything else in creation. He then adds that I have given no reason to think the influence of a religious belief would “flow through all the implications of the theory as well” (p. 22). Once again, this misses my point that a divinity belief impacts a scientific theory via ontology rather than directly. And surely the examples I gave showed how this works. What was regarded as divine by Mach, Einstein, and Heisenberg impacted how they saw everything else in physics. It was not extractable, leaving behind a core of theoretical proposals that would otherwise be the same for all physicists. Rather, their views of what is divine regulated how they viewed reality as a whole, which in turn regulated the sense of *every concept* employed in their physics. In fact, it is not too much to say that they advocated three different atomic theories and contrary notions of what physics is.<sup>10</sup>

There are a number of other comments Ratzsch makes in his response, which I do not know how to answer because they are of the hit-and-run variety. Saying “I am not convinced that ...” or “it is not obvious that ...” is not to give reasons for doubting my proposal, so there is nothing to which I can reply. All I can do is point to the argument I gave that was ignored, and to the Scriptures whose meaning he says is not “obvious” despite saying exactly what I take them to say.

To be sure, the view I have proposed in “Prospects for Theistic Science” is very different from those held by most theists. It is not the scholastic tradition that concedes from the outset that most theories are religiously neutral, nor is it the view that theories can only be impacted by belief in God if specific biblical teachings are included in them. Instead it extends to theories the biblical teachings that: (1) only God has independent self-existence while all else depends on God, and (2) no truth can be religiously neutral. So while it is not the whole theistic story for theories, it is, I contend, the most basic feature of the S/R relation; the one that grounds the other views rather than discards them. For that reason, however, if the other views ignore it, they will fail to be fully theistic no matter what other

biblical teachings they may reflect or incorporate in science. ☞

## Notes

- <sup>1</sup>Even those forms of Buddhism that attempt to minimize as far as possible any description of the divine reality still describe it to be that into which humans can be re-absorbed, thus escaping the cycle of rebirth and the suffering accompanying it.
- <sup>2</sup>For example, J. J. C. Smart, *Philosophy and Scientific Realism* (London: Routledge & Kegan Paul, 1963) and Paul M. Churchland, “Eliminative Materialism and the Propositional Attitudes” in *Contemporary Materialism*, ed. Moser and Trout (London: Routledge, 1995).
- <sup>3</sup>The theory has been given a remarkable elaboration by Herman Dooyeweerd. See esp. *A New Critique of Theoretical Thought*, 4 vols. (Lewiston, NY: Edwin Mellen Press, 1997).
- <sup>4</sup>On the temporality of number, see M. Dummett, *Elements of Intuitionism* (Oxford: Clarendon Press, 1977), 18 ff.; and S. C. Kleene, *Introduction to Mathematics* (Amsterdam: North-Holland Publishing Company, 1952), 62. On numerals as symbols for the quantitativeness of things, see Tobias Dantzig, *Number the Language of Science* (Garden City, NY: Doubleday, 1954), 1–20. Some theologians have held this view precisely to avoid regarding numbers as divine, the Cappadocian Fathers, for example. See J. Pelikan, *Christianity and Classical Culture* (New Haven, CT: Yale Press, 1993), 100–2.
- <sup>5</sup>See Dooyeweerd, *A New Critique of Theoretical Thought* I, 518, 519. Also see Calvin’s *Of Eternal Predestination*, C.R. 36; *Commentary on the Fifth Book of Moses*, C.R. 52, 49; and *Institutes* III, 23, 2 and 4.
- <sup>6</sup>This is one of several points to which I anticipated an objection and replied to it in advance, only to have it raised as though I had never mentioned it. Besides this point, and my argument against the nondependence of the law of noncontradiction, the same also happened with my explanation as to why beliefs in gods who are not per se divine are still religious beliefs. Compare Ratzsch’s note 2 with my explanation of the point under “Some Confirming Consequences” (p. 6).
- <sup>7</sup>I do give arguments for each step of this view in *The Myth of Religious Neutrality* (Notre Dame, IN: University of Notre Dame Press, 2005).
- <sup>8</sup>In *The Myth of Religious Neutrality*, I deal with ten additional definitions that do not stand up to scrutiny.
- <sup>9</sup>My objection to the tactic of reducing all creation to one or two of its kinds of properties-and-laws and then saying the reducing kind(s) in turn depend on God, is an old one in theology. E.g., Colin Gunton refers to St Basil’s point that in creation “... there are no degrees of being: that is to say, everything created has the same ontological status” (*The Triune Creator: A Historical and Systematic Study* [Edinburgh: Edinburgh University, 1998], 71). This is based, of course, on Col. 1:15–18 where Christ alone is said to mediate God’s creating and sustaining power to creation. See also Calvin, *Inst.* I, xiii, 14.
- <sup>10</sup>There is also an odd confusion between ontological and epistemological meanings of the term “impact” in this paragraph. I take Scripture’s teaching that “every sort of knowledge” and “all that is ... true” are “enriched” by knowing God to mean that theories also are favorably *impacted* by belief in God. Ratzsch then asks why such impacts must be directly caused by God and why they could not be indirectly caused by him instead. But as I used “impact,” it referred to the way our *belief* in God regulates theories about creation, not to how creation depends on God. The answer

to the intended question, however, is the conjunction of the texts cited above together with the anti-reductionist argument.